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W H E A T S T U D I E S

OF THE FOOD RESEARCH INSTITUTE

VOL. IV, NO. 1

NOVEMBER 1927

THE WORLD WHEAT SITUATION, 1926-27 A REVIEW OF THE CROP YEAR

WHEAT acreage and production, and international trade as well, have shown a pronounced upward trend since the close of the war. In 1926-27 world acreage and international trade attained record heights, and the world crop approached the record yield of 1915-16; yet in most respects the year was fairly normal. No major producers harvested bumper crops or suffered crop failure. The crops were well distributed, though somewhat better in export countries than in import areas. The international position was moderately easy, but exportable surpluses did not seriously depress the market; and prices, though in most countries lower than in the two preceding years, were generally regarded as remunerative to growers.

The major disturbing factor of the year was a radical advance in ocean freight rates in the autumn of 1926, followed by a decline after the end of the British coal strike in mid-November. High freight rates caused a notable widening of the spread between export and import prices, to the disadvantage of importers, and a consequent restriction of overseas trade in the early months of the crop year. As rates receded to normal levels, the volume of international trade increased, and remained on a high level for several months.

World wheat stocks, which had been generally low at the beginning of the crop year, were larger than usual at its close. The willingness to build up stocks, in both exporting and importing countries, helped to sustain prices, and the substantial carryover must be reckoned with in 1927-28.

STANFORD UNIVERSITY, CALIFORNIA

November 1927

W H E A T S T U D I E S

OF THE

FOOD RESEARCH INSTITUTE

The central feature of the series is a periodic analysis of the world wheat situation, with special reference to the outlook for supplies, requirements, trade, and prices. Each volume includes a comprehensive review of the preceding crop year, and three surveys of current developments at intervals of about four months. These issues contain a careful selection of relevant statistical material, presented in detail in appendix tables for reference purposes, and in summary form in text tables and charts.

Each volume also includes six special studies bearing on the interpretation of the wheat situation and outlook or upon important problems of national policy. Subjects of issues already published are listed inside the back cover.

The series is designed to serve the needs of all serious students of the wheat market, in business, government, and academic circles, by summarizing and interpreting basic facts and presenting current developments in due perspective. The special studies are written not merely for students of the wheat market, but as well for various groups of readers who are especially concerned with the fields discussed.

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Entered as second-class matter February 11, 1925, at the post-office at Palo Alto, Stanford University Branch, California, under the Act of August 24, 1912.
Published by Stanford University for the Food Research Institute.

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STANFORD UNIVERSITY, CALIFORNIA

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The Food Research Institute was established at Stanford University in 1921 jointly by the Carnegie Corporation of New York and the Trustees of Leland Stanford Junior University, for research in the production, distribution, and consumption of food.

THE WORLD WHEAT SITUATION, 1926-27

A REVIEW OF THE CROP YEAR

This review is designed to present a balanced, comprehensive statement, in due perspective, of a year's developments in the world wheat situation, in the light of fuller information than is available in the course of the year. The series of annual reviews, of which this is the fourth, not merely furnishes a continuing historical record, but makes for an increasingly reliable understanding of the permanent factors in the wheat market and contributes an essential background and basis for analyses, judgments, and forecasts regarding current and future developments.

I. SUMMARY

Large wheat crops; a record volume of international trade; a moderately easy international position; comparatively stable prices on a level neither conspicuously high nor impressively low; and a considerable increase in outward carryovers: these were the outstanding characteristics of the crop year 1926-27. On the whole, it was less eventful than most of the preceding post-war years. But a disturbing factor of major importance appeared in a pronounced advance in ocean freight rates in the early autumn, followed by a sharp decline; this factor materially affected the course of international trade and the course of prices in importing countries. Abrupt changes in new-crop prospects in the spring occasioned another advance and decline in prices.

World wheat acreage reached a new peak in 1926, and the crop, outside of China, was over 4,200 million bushels—a figure never exceeded except in 1915. These high figures, however, largely reflect the normal upward trend of wheat production rather than exceptional conditions during the year. Yields per acre, in general, were not exceptionally good or poor, though the winter-wheat yield in the United States was unusually high. No major wheat producer harvested a bumper crop, and none suffered severe crop failure. On the whole, crops in exporting countries more than fulfilled their early promise, while crops in importing countries fell somewhat below theirs; but there were no

striking reversals of favorable prospects such as occurred in Argentina in 1925-26, and the notable improvement in North American crops took place early in the year. Supplies of wheat were more normally distributed between exporting and importing countries than in either of the two preceding years.

Taking the year as a whole, the international position was moderately easy, with ample supplies in export countries to meet importers' demands. The position was distinctly less easy than in 1923-24, but distinctly less tight than in 1924-25 or 1925-26. There were no major disappointments of expectations of exportable supplies. Even Russia and the Danubian

countries, whose exports are nowadays highly uncertain, exported much as observers anticipated. The United States exported more than seemed likely on the basis of the final crop estimate, which is probably too low. Argentine and Australian exports exceeded conservative early forecasts, and Canada's might have done so had not the Pool apparently restrained its sales. European purchases of import wheat considerably exceeded early estimates; in particular Germany, Italy, and Poland, and perhaps France as well, took more than most observers had expected. With large shipments to ex-European countries, the volume of international trade, as indicated by net exports of nearly 850 million bushels, was the largest in history. It is noteworthy that

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this record was made with wheat prices on a level distinctly higher than in 1923-24, when the previous record was established; but the figure is less striking if one considers the normal upward trend in wheat production, consumption, and trade.

The abnormal movement in ocean freight rates was a powerful disturbing influence. A sharp advance, first notable in mid-September, culminated late in November, and was followed by an almost equally sharp recession to fairly normal levels. The rise was fundamentally due to abnormal demands for shipping to transport coal from the United States to Great Britain in order to ease the shortage caused by the prolongation of the British coal strike inaugurated in May 1926. Rising rates on wheat were reflected in widening spreads between import and export prices, and chiefly in higher import prices. Importers, bearing the incidence of the higher shipping charges, therefore curtailed their purchases and drew more heavily on export supplies near at hand. Thus the autumnal movement of wheat from overseas was greatly restricted, and many observers were led to underestimate importers' requirements for the year as a whole. When, with the ending of the coal strike in November, freight rates tended downward and prices of import wheats declined, overseas shipments of wheat not only became exceptionally large but remained large for an unusually long period as European purchasers made up arrears.

International wheat prices, which had ruled high in 1924-25 and only moderately lower in 1925-26, declined somewhat further in 1926-27, but by no means to the low level of 1923-24. The general level for the year was sustained by the willingness of importing countries to purchase heavily and the willingness of export countries to build up large stocks. The conspicuous humps in the curve of representative Liverpool prices were caused by ocean freight developments in the autumn and by delayed seeding, adversely affecting new-crop prospects for the time, in the North American spring-wheat belt in May. As usual, however, price relations among different countries and within individual countries showed many peculiarities. In Italy, Germany, and France, millers paid higher gold

prices for wheat in 1926-27 than even in 1924-25 because prices of native wheats were enhanced by increased tariff protection and the marketing policies of farmers. Canadian wheat of high quality, in limited supply because of rains at harvest, was much needed in Europe for admixture with mediocre native wheats, and hence commanded a considerable premium on international markets, especially in the second half of the year. Cash prices in the United States were much lower than in 1925-26, when the country was on a domestic basis. Durum wheat was in short supply and commanded a high premium; but hard red spring wheat, also short in supply, enjoyed a smaller premium than would have prevailed if hard red winter wheat had not proved readily substitutable.

World stocks of wheat, which were generally low at the beginning of the year, were distinctly high in many countries at the end. The Canadian carryover out was probably the largest in history. City mills in the United States built up large stocks of high quality winter wheat. Stocks of import wheat in Europe were replenished by heavy arrivals toward the close of the year. Much of the huge Russian crop was apparently employed for stock-building. In Roumania, Italy, and France, farmers held large quantities of wheat as the crop year closed.

Scanty information on changes in stocks precludes detailed analysis of wheat consumption, especially in European countries. In exporting countries consumption of wheat for human food showed few peculiarities, though a high yield of flour per bushel of wheat in the United States made the quantity of wheat milled for domestic consumption no larger than in 1925-26, while in Canada and Argentina comparatively low yields of flour made for exceptional increases. In Germany, Italy, and Poland, where wheat bread is apparently growing in popularity and economic recovery favors its use, wheat consumption was high. Official measures requiring the milling of dark flour and considerable admixture of other cereals with wheat were in force in Belgium, France, and Italy; but these measures apparently had no great effect in reducing wheat imports or wheat consumption.

Millers in the United States, though suf-

fering from chronic overcapacity, were favored by high yields of flour, low premiums for protein content, large supplies of good wheat, and high prices for millfeed, and enjoyed a relatively prosperous year. Canadian millers encountered difficulties largely on account of the Pool's practice of selling wheat more cheaply abroad than at home. British millers faced keen competition from overseas flour-exporting countries. Conti-

nental flour-exporting countries faced the same difficulty, and, in addition, flour sales to neighboring importing countries were seriously hampered by tariff barriers erected to encourage milling in several importing countries, notably Czecho-Slovakia, Germany, and Austria. In general tariff policies have apparently tended to restrict volume of international trade in flour in recent years.

II. THE SUPPLY POSITION

INITIAL CARRYOVERS

The world's supply position for any given crop year depends not only upon the size, quality, and distribution of crops of wheat and wheat substitutes, but also upon the size and distribution of initial carryovers of wheat and wheat flour. Unfortunately statistics of world wheat stocks are particularly deficient. Nevertheless it is clear that the world carryover is always of substantial dimensions. Dependable data indicate that the sum of end-year (August 1) stocks in the four great exporting countries and afloat for Europe has approached or exceeded 300 million bushels in each of the past six years. The total world carryover, ex-Russia and China, perhaps exceeds 450 million bushels even in years when it is relatively small.

Moreover, variations in the size of the carryover may be large in absolute amount—certainly, on occasion, more than 50 million bushels from one year to the next. Such a quantity of wheat is sufficient to affect the world supply position materially and to exert a marked influence on prices; it is, for example, an amount about as large as the reduction in expectations of the Argentine crop which exerted so great an influence on the supply position and prices in 1925-26.¹ The point requires emphasis because changes in stocks from year to year are likely to escape attention since the data are so incompletely recorded.

The world's initial carryover into the crop year 1926-27 may be described as distinctly low, especially by comparison with the large carryovers into 1924-25 and 1927-28. It was considerably smaller than in

1922-23 and 1923-24, but probably somewhat larger than in 1925-26, chiefly because of larger stocks in Russia and the Danubian countries. But countries which had large carryovers into 1926-27—Spain, Poland, Russia, Bulgaria, Hungary, Roumania, and Argentina—were either of small importance to international trade and prices, or held wheat of unusually poor quality. Stocks were distinctly low in the United States and Australia and moderate in Canada, and low also (so far as domestic wheats are concerned) in such major importing countries as England, France, Germany, and Italy. Distinct tightness in the international supply position might have been expected to prevail in the early weeks of the crop year 1926-27 with stocks thus distributed and the European crop late in maturing. But the facts that stocks of import wheat were of fair size in Germany and Italy, that world crop prospects were good, and that the United States winter-wheat crop became available in large volume at an earlier date than usual, served to prevent any appreciable tightness from developing. The subsequent harvesting of large crops removed all fears that import requirements could be satisfied only with difficulty and at relatively high prices.

NORTH AMERICAN WHEAT CROPS OF 1926

The North American wheat crop of 1926 was unquestionably one of the three largest since the armistice. As in 1922 and 1923, between 1,250 and 1,300 million bushels of wheat were produced in the United States and Canada combined; and the probability that American and Canadian crops of 1926 were underestimated² leads to the inference that the North American crop may have

¹ See *WHEAT STUDIES*, III, 112 f.

² See below, pp. 19, 41.

been the largest in post-war years. According to official estimates, it exceeded the crop of 1925 by 155 million bushels. So considerable an increase contributed largely toward the fairly easy international supply position in 1926-27, and permitted a large increase in North American stocks at the end of the crop year. Good but not bumper crops were harvested in both countries—as was not the case in either 1922 or 1923. In 1922 the United States crop was the largest of any between 1920 and 1926, while the Canadian, though large, was not notably so; and in 1923 a bumper crop of 474 million bushels in Canada accompanied an average crop in the United States.

The striking features of the United States crop were the huge quantity and excellent quality of the winter-wheat crop, and the small volume of spring-wheat production. The high quality of hard red winter wheat permitted more than the usual degree of substitution for hard red spring; and notably large quantities of winter wheat moved northward to Minneapolis, thereby largely preventing the emergence of such a premium on hard red spring as might have been expected to arise in view of the short crop. An exceptionally heavy export movement occurred from ports on the Gulf of Mexico as a result of the heavy crops in Oklahoma and Texas. In these and adjacent states the harvest was hastened by extensive use of the harvester-thresher "combine," and early heavy marketing by farmers relieved an early-season shortage of good milling wheat in Europe. Total exports from the United States were large in 1926-27 as a result of the heavy production of winter wheat. In sharp contrast with the situation in 1925-26, domestic prices in general conformed to international prices.

The crop of winter wheat, officially estimated at 627 million bushels, has been exceeded only by the crops of 1914, 1915, and 1919. Favorable weather conditions rather than exceptionally large harvested acreage were responsible for its size. In each of the years 1915 and 1918-23 the harvested acreage of winter wheat was larger than that of 1926, 36.9 million acres; but the 1926 yield per acre, 17 bushels, has been equaled or exceeded only by the record yield of 19 bushels in 1914. Acreage abandoned, estimated at 5.7 per cent of the planted area,

was well below the average of 13.0 per cent for the years 1922-26; but the winter cannot be regarded as extraordinarily favorable (except in Texas and Oklahoma) in view of much lower abandonment figures in 1913-15, 1919, and 1921. Apparently the size of the 1926 winter-wheat crop was determined in larger measure than usual by exceptional weather conditions during the period of ripening and harvesting. As of May 1, the official forecast of production was 549 million bushels; as of August 1, the crop was estimated at 626 million bushels. An increase of as much as 77 million bushels in official estimates between May 1 and August 1 had not been recorded in fifteen years.¹ The magnitude of the crop was not recognized until July, when actual threshing returns served to increase the official estimate of August 1 over that of July 1 by nearly 60 million bushels—an increase in which private statisticians concurred.²

The quality of the winter-wheat crop was better by far than any since 1921. Over 83 per cent of the crop graded No. 1 and No. 2, whereas the crops of 1924 and 1925, though of distinctly superior quality, contained only 73 per cent of wheat of these grades. In 1926, 49.6 per cent of the crop graded No. 1, in sharp contrast with the next highest reported figure of 30.3 per cent in 1924.³ So far as can be ascertained only hard red winter was of notably high quality. Much of the soft red winter wheat was damaged by wet weather during the threshing season; and the quality of Pacific white wheat was about average. The exceptional quality of hard red winter explains the general excellence of the total winter-wheat crop, since this class bulked large in the total.⁴

The spring-wheat crop, officially estimated at 205 million bushels, was the small-

¹ The official May forecast of winter-wheat production is more often above than below the August estimate. In five of the past fifteen years, however, it has been lower; but until 1926, never more than 51 million bushels lower. See Appendix Table VII, and *Wheat and Rye Statistics* (U.S. Department of Agriculture, Statistical Bulletin 12), January 1926, p. 17.

² See Appendix Table VII.

³ See Appendix Table VIII. Figures for earlier years are not available.

⁴ According to official approximations of production by classes, hard red winter wheat constituted an unusually large fraction of the total United States crop—43 per cent as against 42 per cent in 1924 and 30-36 per cent in other years since 1919. See Appendix Table IX.

est of any since the armistice. Acreage and yield per acre alike were relatively low.¹ Subsoil moisture was scanty, seeding was late, and rainfall was deficient during the growing season. In quality the crop was only fair on account of rains during the latter part of the threshing season, though early-harvested grain was reported high in weight and protein content.² Production of both durum and hard red spring wheat was well below the post-war average.³

The official estimate of the total United States wheat crop of 1926 thus stands at 833 million bushels.⁴ In our judgment, the figure is considerably too low, and the same comment applies to the crop of 1925. Both crops were probably underestimated by 30-60 million bushels; but a more precise figure cannot be suggested because the crops of 1922-24 may have been somewhat overestimated.⁵ If the total crop was actually as large as the evidence indicates, it was exceeded only by the crop of 1914, when yield per acre was higher; the crop of 1915, when both acreage and yield per acre were higher; and the crops of 1918 and 1919, when the acreage harvested was much larger. The size of the winter-wheat crop is rendered even more noteworthy, since underestimation presumably occurred with respect to winter wheat rather than spring.⁶

In contrast with the small crop of spring

wheat in the United States, Canada produced a crop officially estimated at 410 million bushels, distinctly smaller only than the record crop of 1923, and but little smaller than the excellent crop of 1925.⁷ For the second time in ten years the yield per acre of spring wheat in Canada was higher than that in the United States by 7 bushels or more.⁸ Yet the Canadian yield per acre of all wheat, 17.8 bushels, was by no means exceptional, for equally good or better yields had been obtained in seven of the preceding sixteen years. But the acreage harvested in 1926, 23 million acres, was exceptionally large, being exceeded only slightly by the record acreage of 1921. Like the United States crop of 1926, the Canadian was apparently underestimated.⁹

A favorable early growing season was followed by heat and drought in July; beneficial rains in August were succeeded by cold and rainy weather throughout most of September and October. As a result of the unfavorable harvesting and threshing weather, much wheat was damaged. As shown by the following data, only 34.6 per cent of the cars of spring wheat inspected in the Western Division from September 1926 to August 1927 graded No. 3 Northern or better—a smaller percentage than resulted even from the abnormally unfavorable seasons of 1924 and 1925.¹⁰

Year	Per cent	Year	Per cent
1919-20	72.7	1923-24	86.0
1920-21	86.3	1924-25	56.2
1921-22	75.2	1925-26	63.3
1922-23	92.1	1926-27	34.6

Much of the ungraded grain, however, was "tough" but by no means unsatisfactory for milling when dried. In effect there was a noteworthy but unmeasurable shortage of wheat of the highest qualities from the Canadian crop of 1926-27; but usable milling grades were in plentiful supply because the total crop was large. Spring wheat graded as rejected, feed, or condemned—in other words, unsuitable for milling—amounted to 4.4 per cent of all wheat inspected. In 1924-25 and 1925-26, when the percentage grading No. 3 or better was also relatively low, unmillable wheat constituted only 2.0 and 1.2 per cent of the inspections. A figure as high as that of 1926-27 has not been recorded since 1921-22; but in abso-

¹ See Appendix Table X.

² Official data on grading are not yet available.

³ See Appendix Table IX.

⁴ An official revision will appear late in December 1927.

⁵ See below, p. 19; Appendix Table XXXII; and WHEAT STUDIES, III, 440 f.

⁶ Conclusive evidence on this point is lacking; but the differences in successive forecasts (both official and unofficial) for each class of wheat support the inference.

⁷ The crop of 1925 was officially estimated at 411.4 million bushels; but an official calculation of disposition indicates an underestimate of 21.8 million bushels and our own calculations yield a higher figure. See *Monthly Bulletin of Agricultural Statistics*, January 1927, XX, 23, and Appendix Table XXXII.

⁸ In 1926 the Canadian yield per acre of spring wheat exceeded the American by 7 bushels; in 1923, by 10.4 bushels. Similar differences in relative yields occurred in 1911, 1913, 1915, and 1916.

⁹ See Appendix Table XXXII, and below, p. 41.

¹⁰ Compiled from *Reports on the Grain Trade of Canada and Canadian Grain Statistics*. The low percentage grading No. 3 or better in 1925-26 was due, as in 1926-27, to distinctly unfavorable harvesting weather; but in 1924-25 frosts during the late growing season increased the percentage of low-grade grain.

lute terms unmillable wheat was by no means considerable.

EUROPEAN CROPS

European countries (ex-Russia) in 1926 harvested a wheat crop nearly 200 million bushels smaller than the record post-war crop of 1925. The crop was nevertheless above the post-war average by some 17 million bushels, much larger than the crops of 1920, 1922, and 1924, and but little smaller than the good crops of 1921 and 1923. The five-year pre-war average production was not attained, though it had been surpassed in 1925 for the first time since the armistice. Crops of rye and potatoes, the chief substitutes for wheat, were also distinctly small by comparison with 1925, though about of average size. The outturn of corn, barley, and oats was the largest in post-war years. Data for these crops are summarized in Table 1. During the past five years the European supply situation as a whole has

TABLE 1.—EUROPEAN (EX-RUSSIAN) GRAIN AND POTATO CROPS, 1920-26*

(Million bushels)

Year	Wheat	Rye	Potatoes	Corn	Barley	Oats
1920.....	947	532	3,351	520	551	1,478
1921.....	1,216	758	3,078	393	566	1,509
1922.....	1,039	713	4,803	426	602	1,542
1923.....	1,249	824	3,864	475	668	1,814
1924.....	1,051	651	4,216	591	577	1,631
1925.....	1,401	938	4,757	627	694	1,795
1926.....	1,208	746	3,826	663	691	1,914
Average						
1909-13...	1,348	976	4,158 ^a	581	701	1,931
1921-25...	1,191	777	4,144	502	621	1,658

* Summarized from most recent official data for individual countries, as reported by the U.S. Department of Agriculture. Excludes a few minor European producers. Pre-war averages are estimates for territory within present boundaries, and include 2-year or 4-year averages for a few countries.

^a Excludes Portugal.

twice been better, twice worse. It is of interest to observe that European imports of wheat and wheat flour in 1926-27 were nevertheless larger even than those of 1924-25, when supplies were far smaller, or those of 1923-24, when supplies were not much larger but wheat prices were much lower.

The comparatively small European wheat crop of 1926 is accounted for largely by the small crop in France, where the growing

season was wet and cold and rust did much damage. The revised official estimate indicated an outturn of only 232 million bushels, the smallest since 1919, and nearly 100 million below the crop of 1925; but the estimate is probably below the true figure.¹ Germany, Italy, and Spain harvested crops smaller than those of 1925 by a total of about 60 million bushels; but in these countries production was above the post-war average. Hungary and Roumania, on the other hand, had the largest crops since the armistice; and total production in the four Danubian countries was within a few million bushels of the record post-war production in 1925. Smaller producers of Europe in general harvested crops of average size.

In certain respects the European wheat crop distinctly disappointed early expectations. The acreage harvested was the largest since the war, in continuation of an upward trend.² In view of this trend the outturn compares the less favorably with that of preceding years. Moreover, few European countries harvested crops of good quality. Weight per measured bushel was light in practically all countries, and notably so in Roumania and Germany, chiefly as a result of wet weather during the harvest. On the whole the quality of European wheat was apparently below average. It further became necessary to reduce official estimates of production during the course of the crop year. Subsequent to November 1926, significant upward revisions in official estimates were made only in Hungary and Czecho-Slovakia, while downward revisions of consequence were made in France, Germany, Spain, Jugo-Slavia, and Poland. Net revisions downward since November 1926 have amounted to 39 million bushels; and estimates current in November were substantially lower than those current in August.³ Threshing returns led also to reductions in the official estimates of rye crops—a total net reduction of 34 million bushels.⁴ However, the significance of these reductions in their bearing on the international statistical position was lessened by outturns of wheat in the Southern Hemi-

¹ See below, p. 44.

² See Appendix Table I.

³ See Appendix Table III; cf. WHEAT STUDIES, II, 349, and III, 128.

⁴ See Appendix Table IV; cf. WHEAT STUDIES, III, 129.

sphere somewhat larger than had been expected in November.

If Russian production is to be given full weight as a part of European production, the picture is apparently somewhat altered. The official estimate indicated a wheat crop of 810 million bushels, nearly 100 million larger than the crop of 1925, which was in turn perhaps 300 million larger than any other reported crop since the war. The rye crop was also estimated to be the largest in post-war years, exceeding that of 1925 by over 80 million bushels. The bread-grain crops of Europe, Russia included, were thus but little smaller in the aggregate than those of 1925, and much larger than in any other post-war year. But bread-grain production in Russia thus far signifies little for the importing countries of Europe, since large crops in Russia apparently serve to increase domestic consumption and stocks rather than to increase exports. Furthermore, the accuracy and comparability of Russian production statistics are open to question, especially for the years immediately following the war.¹

OTHER NORTHERN HEMISPHERE CROPS

The North African wheat crop of 1926, like that of Europe ex-Russia, was considerably smaller than the crop of 1925; and it was slightly below the average for post-war years. In this region also the acreage harvested was the largest since the war.² Algeria and Egypt harvested crops of about average size; the Moroccan crop was distinctly small, the Tunisian the largest since the armistice. Production in India, finally estimated at 325 million bushels, was much the same as in 1925, considerably below that of the three good years 1922-24, and scarcely more than sufficient to fill domestic requirements. The Japanese crop of 38.7 million bushels was of average size. Satisfactory information on the Chinese supply situation is not available; but apparently the crop was about of average size.

¹ Compare, for example, the data and explanatory notes given in *Agriculture Yearbook, 1926*, p. 807, and *International Yearbook of Agricultural Statistics, 1926-27*, pp. 117, 568 f.

² See Appendix Tables I-III.

³ See *ibid.*

⁴ See WHEAT STUDIES, III, 81 f.

SOUTHERN HEMISPHERE WHEAT CROPS

In the Southern Hemisphere, as in North America, the wheat crop of 1926 was of record size. The Australian crop, officially estimated at 161 million bushels, was the largest in history except for the 165 million bushel crop of 1924; the Argentine crop of 221 million bushels was exceeded only by that of 248 million bushels in 1923. The total for the two countries exceeded production in 1925 by over 75 million bushels. In both countries the acreage sown was the largest in history. Yield per acre on harvested fields in Australia at 14.5 bushels was distinctly high, though not so exceptional as the acreage. In Argentina, however, the yield per acre was apparently rather low; acreage rather than yield was responsible for the size of the crop.³

The Australian wheat crop promised well throughout the growing and harvesting season, with rain and fair weather occurring at appropriate stages of growth. Quality was distinctly good, though weight per measured bushel was lower than in 1925. In Argentina, however, the growing season gave rise to continuous uneasiness—in part, perhaps, because the unexpected reversal of crop prospects in 1925 remained fresh in the memory of traders.⁴ Excessive moisture during the early growing season promoted too rapid growth of the stalk and rendered the wheat plant susceptible to adverse weather conditions. Drought and light frosts toward the end of the growing season and rain at harvest caused damage particularly difficult to evaluate at the time. Not until January, despite a harvest two or three weeks early, were observers agreed that a crop of good size and high quality was assured. Argentine wheat of 1926 was high in weight but not in protein content; it was far superior to that of 1925, and permitted an indeterminate amount of mixing of old-crop wheat of poor quality with the new.

Of other countries of the Southern Hemisphere, Chile harvested the smallest crop since 1920, some 3 million bushels smaller than the crop of 1925, and of poor quality. The crops of Uruguay, South Africa, and New Zealand, though not of distinctly exceptional size, were well above both pre-war and post-war averages.

WORLD WHEAT CROPS SUMMARIZED

Trends in acreage considered, the crop year 1926-27 was a normal year with respect to the size and distribution of world wheat crops. In the major producing areas there were no bumper crops and no crop failures. A summary view of the world's wheat crops of 1926 in comparison with the crops of recent years and pre-war and post-war averages is given in Table 2. Russia

States Department of Agriculture estimates the wheat acreage of the world, Russia and China excluded, at 232 million acres.¹ So far as this figure represents the facts, it appears that acreage in 1926 exceeded the pre-war 1909-13 average by some 28 million acres and was the largest in post-war years, surpassing that of either 1923 or 1925 by over 4 million acres. With Russia included in the comparison, acreage in 1926 was nearly 15 million acres larger than in 1925.

TABLE 2.—WHEAT PRODUCTION IN PRINCIPAL PRODUCING AREAS, PRE-WAR AND POST-WAR*
(Million bushels)

Year	United States	Canada	Soviet Russia	Lower Danube ^a	Other Europe	North Africa	India	Japan, Chosen	Northern Hemisphere ex-Russia	Argentina	Australia	Southern Hemisphere	World ex-Russia
1920.....	833	263	...	172	775	71	378	41	2,550	156	146	350	2,900
1921.....	815	301	...	212	1,004	98	250	40	2,727	191	129	376	3,103
1922.....	868	400	...	224	815	72	367	40	2,801	196	109	354	3,155
1923.....	797	474	...	260	989	106	372	35	3,051	248	125	427	3,478
1924.....	864	262	...	204	847	85	361	37	2,673	191	165	407	3,080
1925.....	676	411	713	305	1,096	105	331	40	2,976	191	115	359 ^b	3,335 ^b
1926.....	833	410	810	298	910	90	325	39	2,917 ^c	221	161	435 ^b	3,325 ^{b,c}
Average													
1909-13...	690	197	759	330	1,018	92	352	32	2,724	147	90	280	3,004
1921-25...	804	370	...	241	950	93	336	38	2,845	203	129	385 ^b	3,230 ^b

* Summarized from most recent official data for individual countries (see Appendix Table III), as reported by the U.S. Department of Agriculture, supplemented in a few cases by our own rough estimates. Totals exclude China, Turkey in Europe, Brazil, and a number of small producers. All estimates are for territory within post-war boundaries.

^a Hungary, Bulgaria, Roumania, Jugo-Slavia.

^b Includes our estimate for Peru.

^c Includes our estimate for Cyprus.

and China excluded, the world wheat crop was one of the three largest since the war, a little larger than the crop of 1925, and distinctly exceeded only by the crop of 1923. If, as we believe, the 1925 and 1926 crops of both Canada and the United States were underestimated, the world crop of 1923 appears less notable. If the Russian crop is included in the comparison, the world crop of 1926, China excluded, was the largest in post-war years. It was little larger than the crop of 1925, but considerably larger than that of 1923, since (though entirely trustworthy data are lacking) there can be little doubt that the Russian crop of 1923 fell more than 200 million bushels below the crop of 1926. So far as can be determined, the world crop of 1926, ex-China, exceeded 4,200 million bushels, an outturn never before attained except in 1915.

But the large size of the 1926 crop was due to exceptional acreage rather than to exceptional yield per acre. The United

The average world yield per acre, however, was lower not only than in the period 1909-13, but also than in 1923 and 1925. Among the major producing countries distinctly exceptional yields per acre were obtained only in Australia and in the United States winter-wheat belt;² and in these areas yields were not the highest on record.

In distribution between the major producing areas the crop of 1926 differed sharply from that of the preceding year. On the basis of official estimates, the four great exporting countries had crops 232 million bushels larger in 1926 than in 1925,³ chiefly as a result of much larger crops in the United States and Australia. But the importing countries of Europe had crops nearly 200 million bushels smaller, with the

¹ *Agriculture Yearbook, 1926*, p. 810.

² See Appendix Tables II, X.

³ Allowances for official underestimates of North American crops in 1925 and 1926 would not alter the contrast greatly.

major part of the reduction accounted for by the poor crop in France. It was, however, the distribution in 1925 that was exceptional, rather than the distribution in 1926.

THE INTERNATIONAL STATISTICAL POSITION

At present there exists no wholly satisfactory method for setting forth, graphically or numerically, the world's quantitative demand for wheat against the world's supplies, for the purpose of explaining or anticipating what may be called the level of international wheat prices in different crop years. As we have had occasion to point out in our previous studies, changes in the distribution of world crops are often as significant as changes in the size of the total, since different distributions result in different relationships between quantities of wheat available in exporting areas and desired in importing areas. Broomhall's estimates of export surpluses and import purchases may be taken as a broadly representative view of the international position, at least so far as noteworthy differences between years are concerned. In years when the margin between export surpluses and import purchases is relatively wide, there can be no question that the international position is easy—that is, traders are agreed that supplies ample to meet importers' demands are available, and that lower prices must prevail than when the margin is distinctly narrow. Yet the size of the margin necessarily changes from month to month in the course of any year, principally because the world's wheat matures and is harvested in successive increments, and preliminary forecasts of production in various countries are followed by further estimates and revisions, the latter often appearing more than six months after the crop is harvested. At any given time students differ in the details of interpreting the statistical position for the year in question, though their general views on the position in one year as compared with another may be in accord.

Broomhall's successive estimates of surpluses and probable purchases for the past five years are summarized in Chart 1 (p. 10). The international position was easiest in 1923–24, tightest in 1924–25. Relative tightness prevailed in 1925–26, relative ease in

1922–23 and in the year under review, 1926–27. The distribution of wheat crops between European importing areas and the major exporting countries accounts largely for these differences.¹ Pertinent figures, in million bushels, in part estimated to allow for official underestimates of North American crops in 1925 and 1926, are as follows. The figures for Europe include all countries but Spain and the exporters of the Danube basin. The major exporters are Canada, the United States, Argentina, and Australia.

	1922	1923	1924	1925	1926
European im- porters	690	830	720	930	760
Major export- ers	1,570	1,640	1,480	1,450	1,670

As compared with 1923–24, the statistical position in 1926–27 was less easy because Europe had smaller crops, not only of wheat but of its chief substitute, rye. As compared with 1925–26, the position in 1926–27 was easier because larger crops in major exporting countries more than compensated for smaller crops in Europe.

During the course of the crop year Broomhall made revisions of marked significance.² Supplies available for export were increased by successive revisions from 768 million bushels on August 10 to a maximum of 908 million bushels on March 22, chiefly in accord with improving crop prospects in the Southern Hemisphere. None of these revisions appeared unreasonable at the time. But his estimate of importers' purchases remained at the same figure, 704 million bushels, from August 10 until December 14; and not until March 22 did he reach a figure of 760 million. It appears clear that by December the available information on production, prices, and the progress of the British coal strike justified earlier and more extensive upward revisions than Broomhall recorded.³ Even if such revisions had been undertaken, however, the international position would have remained fairly easy. No such fundamen-

¹ The year 1922–23 appears exceptional, since, in spite of a very small crop in Europe and only a moderate crop in the exporting countries, the statistical position was easy. Comparatively low purchasing power and a smaller population in Europe account for the apparent anomaly.

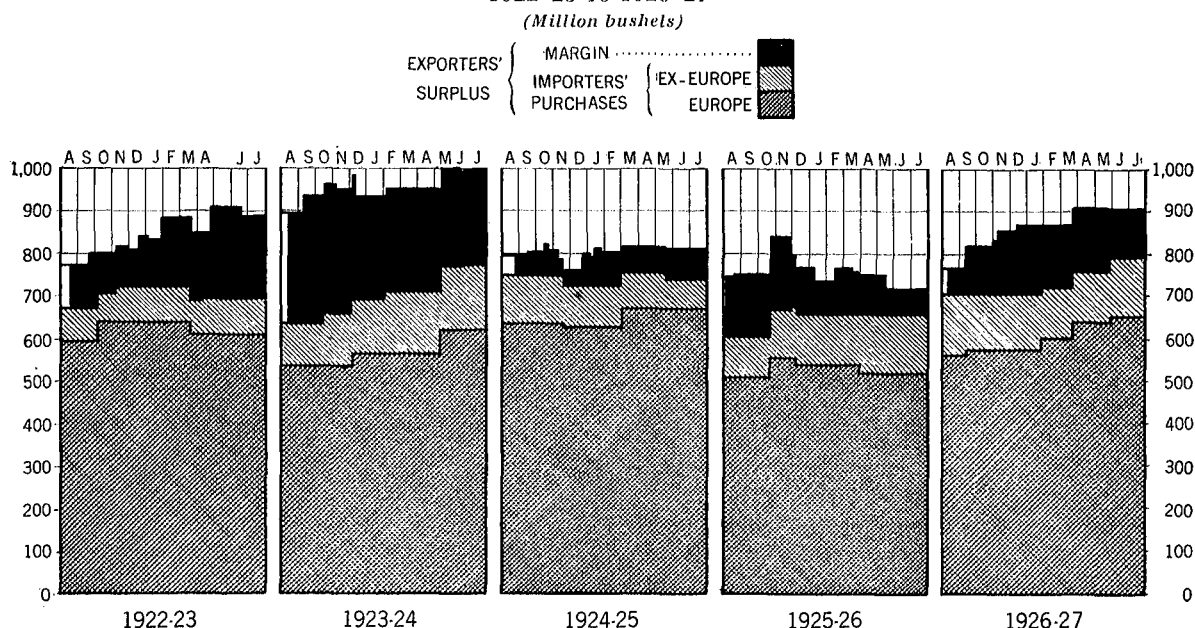
² See Appendix Table XII.

³ See WHEAT STUDIES, III, 425 f.

tal alterations in the statistical position occurred in 1926-27 as had occurred in 1925-26. In that year an easy position was anticipated in early months, only to be re-

sider evidence suggesting a large underestimation of North American crops.¹ Except for 1923-24, the statistical position remained more consistently easy in 1926-27 than in

CHART 1.—BROOMHALL'S SUCCESSIVE FORECASTS OF EXPORTERS' SURPLUSES AND IMPORTERS' PURCHASES, 1922-23 TO 1926-27*



* Data from *Corn Trade News*. See Appendix Table XII for 1926-27 figures.

versed by the Argentine crop disaster and the non-appearance of expected heavy exports from Russia and the Danube basin; and the tight position in the latter part of the year was exaggerated by failure to con-

any of the past five years. Such tightness as existed was apparent only in the first few weeks; but this was relieved by early marketing of United States winter wheat, and dispelled by the large crop in Canada.

III. INTERNATIONAL TRADE IN WHEAT AND FLOUR

THE VOLUME OF TRADE

The movement of wheat and flour in international trade in 1926-27 attained the largest volume in history.² Chart 2, which summarizes Broomhall's data on international shipments, shows the growth of trade since 1900. An upward trend (as yet unmeasurable) for post-war years is evident, as would be expected in view of increasing population. Post-war improvement in European purchasing power and a growing preference for wheat bread have increased the normal rate of growth of trade. But the record volume of trade in 1926-27 can be explained only in part by reference to these obscure influences. More detailed comparisons for recent years are significant.

Broomhall's figures for shipments and a summation of official statistics of net ex-

¹ See *WHEAT STUDIES*, III, 79.

² The volume of trade may be measured by different methods which yield slightly different results—by reference either to total gross exports, total net exports, shipments data collected by the *Corn Trade News* or the *London Grain, Seed and Oil Reporter*, or to total gross or total net imports. Since import statistics are notably deficient, especially for ex-European importing countries, and since they seldom appear promptly, students are forced to rely chiefly upon export data. Yet such data, on account of the fact that much wheat is shipped to "orders," provide but scanty information on the destination of exports; and import data, though not strictly synchronous with export data, must be employed. We employ net exports as the best indicator of the volume of trade, but Broomhall's shipments, while understating net exports to different degrees in different years, are satisfactory for many purposes, and are essential for providing a description of the course of trade from week to week.

ports, in million bushels for the past five years, are given below.

Year August-July	Net exports ^a	Total shipments ^b	Shipments to Europe	Shipments to ex-Europe
1922-23 . . .	711	676	586	90
1923-24 . . .	826	775	626	149
1924-25 . . .	767	715	640	75
1925-26 . . .	693	668	533	135
1926-27 . . .	849	815	683	132

^a See Appendix Table XVII. Partially estimated, especially with reference to Russian exports.

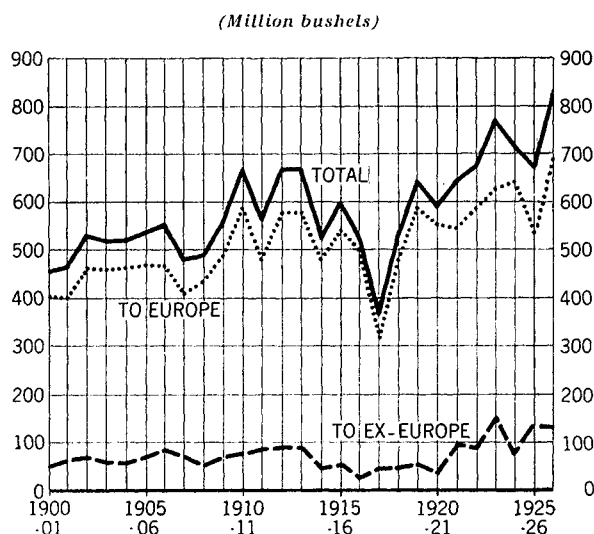
^b See Appendix Table XVI.

The volume of trade was larger in 1926-27 than in the preceding year by about 150 million bushels. As between these two years the distribution of world crops and the level of prices were the significant points of difference, since more obscure influences such as population growth, increased purchasing power, and growing preference for wheat bread show their effects over longer periods of time. Purchasing power of consumers in Europe was apparently no greater in the major importing countries in 1926-27 than in 1925-26—in Great Britain because of the coal strike, in Italy and France because of the recession of business following provisional stabilization of the currency.¹ But in 1926 European importing countries harvested wheat crops about 170 million bushels smaller than in 1925; the four major exporting countries had crops over 200 million bushels larger;² and international wheat prices were lower.

The record volume of trade in 1926-27 nevertheless proved surprising to most students: heavy trade was early anticipated, but many did not expect a record movement. For this miscalculation the difficulty of forming a judgment on the basis of records of past years was largely responsible. The volume of trade had been unusually heavy in 1923-24 and 1924-25: in 1923-24 because exceptionally low prices resulting from large crops in both importing and exporting areas had encouraged heavy consumption, especially in the Orient; in 1924-25 because distinctly small European crops had necessitated heavy importation despite

high prices.³ During the early months of the crop year 1926-27 many did not anticipate a volume of trade larger than that of 1923-24, and perhaps 1924-25; for neither prices so low as in 1923-24 nor crop shortages in Europe so pronounced as in 1924-25 seemed probable. The fact that shipments to Europe exceeded those of 1923-24 by over 55 million bushels and those of 1924-25 by over 40 million proved a distinct surprise to most observers.

CHART 2.—INTERNATIONAL SHIPMENTS OF WHEAT AND FLOUR, 1900-01 TO 1926-27*



* Broomhall's data, from *Corn Trade Year Book* and *Corn Trade News*.

Several factors may be cited in explanation. Forecasts and estimates of European wheat and rye crops suffered reduction in the course of the year, revealing a greater need for wheat imports than had been anticipated earlier. The effect of the situation in ocean freight rates in reducing the volume of trade in early months of the year led observers to underestimate the probable volume for the year as a whole. International wheat prices declined slowly from November to April, and were lower than in the two preceding crop years. The influence of the obscure upward trend in the demand for wheat, resting on population growth and increasing preference for wheat bread, was doubtless felt in some degree. Stabilization of currency, tending to remove an influence toward restriction of

¹ In Germany, however, the index of real wages was on the whole higher in 1926-27 than in the preceding years.

² See above, p. 9.

³ See Table 2, p. 8, and Chart 6, p. 24.

imports, was effected in Belgium, France, and Italy.¹ These factors, however, were for the most part such as to influence importation in general. As events proved, the notable miscalculations of the year were made only with respect to Germany, France, Italy, and Poland, the European countries which purchased appreciably more wheat and flour than observers anticipated.

IMPORTS AND THEIR DISTRIBUTION

Net imports of the leading European importing countries are summarized, with comparisons, in Table 3.² The British Isles imported over 25 million bushels more than in 1925-26; but the figure for 1926-27 is unusual only by contrast with that of the preceding year, when exceptionally heavy drafts were made upon stocks and consumption was reduced. Most observers early in the year anticipated a figure but little smaller than was reported; and such was the case with respect to most other countries.

German net imports, however, were 91.8 million bushels, undoubtedly the largest in any year since the war. As late as December most observers expected imports of less than 80 million bushels. Changes in crop forecasts were largely responsible for the underestimates. The rye crop was officially

¹ In France and Italy, however, the final steps in stabilization have not yet been taken.

² It will be observed that total net imports of the European countries listed in Table 3 were only 13 million bushels larger in 1926-27 than in 1924-25; and in 1924-25 Russia imported some 10-15 million bushels. On the basis of these figures (though all important countries are included) it is improper to conclude that European net imports were appreciably larger in 1926-27 than in 1924-25. On the other hand, Broomhall's shipments to Europe were 43 million bushels larger in 1926-27 than in 1924-25; and one may conclude that Europe purchased appreciably more wheat and flour in the former year. This discrepancy results from the fact that imports are recorded later than shipments. Hence the import figure for 1924-25 was swelled by heavy shipments in the closing months of 1923-24, while the import figure for 1926-27 is smaller than otherwise it would appear on account of heavy shipments to Europe toward the close of the year. Thus, unless exceptionally heavy shipments are made toward the close of 1927-28, the import figure for 1927-28 will be higher in relation to the figure for 1926-27 than will be the case for export figures.

³ Imports were heavy toward the end of 1924-25 in anticipation of increased tariffs; in the latter months of 1926, largely as a result of heavy purchases in anticipation of a late harvest of domestic wheat in European countries.

⁴ See below, p. 39.

estimated at 295 million bushels in September, at 271 million in October, at 252 million in January; and the estimate of the wheat crop fell from 112 million in October to 95 million in January. These reductions altered current views on the domestic supply

TABLE 3.—NET IMPORTS OF WHEAT AND FLOUR BY PRINCIPAL EUROPEAN IMPORTING COUNTRIES, AUGUST-JULY, 1922-27*

(Million bushels)

Importing area	1922-23	1923-24	1924-25	1925-26	1926-27
British Isles ^a	210.3	239.7	227.9	209.9	237.0
Italy	115.7	69.9	88.7	67.7	86.6
Germany	37.5	30.7	80.9	57.4	91.8
France	45.6	53.3	58.5	10.3	62.0
Belgium	39.5	40.0	39.0	39.2	39.5
Netherlands	23.9	26.7	26.8	27.2	28.4
Scandinavia ^b	22.0	27.7	22.7	18.8	19.6
Switzerland	16.6	17.1	13.9	15.6	16.3
Austria	13.4	18.1	16.0 ^c	14.7 ^d	16.9 ^e
Czecho-Slovakia	10.2	21.2	21.5	21.7	20.1
Poland	2.5	2.6	17.1	....^f	8.1
Baltic States ^g	7.4 ^c	7.9	7.3	7.8	7.8
Greece	17.5	18.8	20.8	20.0 ^h	20.0 ^h
Total	562.1 ^c	573.7	641.1 ^c	510.3 ^c	654.1 ^c

* See Appendix Table XVII for sources and further details.

^a Includes Irish Free State.

^b Norway, Sweden, Denmark.

^c Partially estimated.

^d July-June.

^e Net export of 4.6 million bushels.

^f Finland, Latvia, Estonia.

^h Estimated.

situation substantially. Furthermore, quality turned out to be poorer than had been expected. In 1924-25, in spite of substantially smaller wheat and rye crops in 1924-25, Germany's imports were but 80.9 million bushels. As between these two years the larger importation of 1926-27 is explained not by smaller crops, but by increased purchasing power, lower wheat prices, and growing population and preference for wheat bread. In both years end-year stocks of import wheat were large, though for different reasons.³

Italian net imports, 86.6 million bushels, were not of record size for post-war years, but were distinctly surprising in the view of the size of the domestic crop, the revision of crop estimates upward, the high tariff, and regulations respecting the milling and admixture of flour.⁴ In 1924 the crop was 50

million bushels smaller than in 1926; yet imports were only 2 million bushels larger. In December most observers anticipated imports some 10 or 15 million bushels smaller than were finally reported. Lower prices in 1926-27 than in 1924-25 seem inadequate to account for the difference. Increased purchasing power, appreciation of the exchange, and increasing consumption of wheat bread partially explain the heavy imports. A factor of major significance, however, was the marketing of domestic wheat by farmers. It is reported that, since farmers expected rising prices, domestic marketings of wheat were restrained until the spring of 1927.¹ Grain dealers accordingly imported more heavily than would otherwise have been necessary, or than could have been foreseen.

The situation in France is not clear. The reported total of net imports was 62 million bushels, an amount on the whole larger than many observers expected. Apparently, however, this figure understates the facts; for importers, in view of uncertainty regarding proposed tariff changes, are said to have declared an indeterminate proportion of their imports in the latter months of the year under temporary admission clauses of

the tariff. An unknown quantity of wheat and flour thus remains unaccounted for in the customs returns.² It is clear, however, that French imports exceeded expectations,³ despite a high tariff fully in effect after January 1, 1927,⁴ and public measures to restrict consumption effective throughout the year.⁵ Partial explanation lies in the facts that appreciating and stabilized currency encouraged importation; that the wheat crop, unofficially announced by the French Minister of Agriculture in August as one of 280 million bushels, subsequently turned out to be smaller, and was officially estimated at 257 million in October and 232 million in June following; and that, despite the small crop, farmers held ample reserves of domestic wheat at the close of the crop year.

Poland's imports of 8.1 million bushels were small in absolute amount; but the country had provided a small net export in 1925-26, and many observers anticipated a continuation of exports in 1926-27. Small exports occurred, in fact, until December. Thereafter imports became increasingly heavy, especially in April-June as domestic supplies were exhausted.⁶ As in France and Germany, early estimates of wheat and rye production proved too high.

The imports of ex-European countries constitute a far from negligible item in the annual volume of trade, about 10-20 per cent of the total. Unfortunately, however, figures are available only in the form of Broomhall's shipments.⁷ Shipments to ex-Europe, reported as 132 million bushels, were fairly large, though smaller than in 1923-24, when low prices induced heavy purchases in the Orient, or in 1925-26, when prices were high but Chinese crops were poor and Japan imported heavily in anticipation of increased tariff duties.⁸ Developments in these countries contributed but slightly to the surprisingly large total volume of international trade. Fairly high prices, the disturbances in China, and the financial difficulties of certain Japanese millers served to restrain imports to the Orient to a greater extent than increasing wheat consumption in most areas served to increase the total of ex-European takings. Students of the situation apparently anticipated ex-European imports more accurately than European.

¹ Information supplied by our correspondent, Mme Agresti.

² Information supplied by our correspondent, M. Augé-Laribé.

³ The influential *London Grain, Seed and Oil Reporter*, however, expected heavier imports than actually occurred. Our own December estimate of 65 million bushels was also comparatively high. See *WHEAT STUDIES*, III, 166.

⁴ See p. 29, note 2.

⁵ Admixture of 10 per cent of flour from other cereals with wheat flour was made compulsory; and millers were obliged to obtain an extraction one per cent above the specific weight of wheat per quintal (after March 22, 1927, 1 per cent below), which implies a rate of extraction of well over 70 per cent.

⁶ See Appendix Table XXI.

⁷ No adequate check on the accuracy of Broomhall's data is as yet available. Fairly comprehensive statistics on exports from the major exporting countries by destination suggest that Broomhall's figures have understated the movement to ex-European countries in 1922-25, but not in 1925-27. Nevertheless, Broomhall's data probably reflect year-to-year variations with sufficient accuracy for most purposes.

⁸ China, Japan, Brazil, the West Indies, and Egypt are in most years the leading importers among ex-European countries; and variations in Japanese and Chinese imports, due chiefly to changes in prices, cause most of the year-to-year variations in total ex-European imports. See Appendix Table XIX.

SOURCES OF EXPORTS

The relative contributions of the several exporting areas to the total volume of wheat and flour exports during 1926-27 showed few striking features. Comparisons are shown in Table 4. North America maintained her characteristic post-war predominance, with 58 per cent of the total. The contributions of most other areas were large or small as crop production dictated.

TABLE 4.—NET EXPORTS OF WHEAT AND FLOUR FROM
PRINCIPAL EXPORTING COUNTRIES,
AUGUST-JULY, 1922-27*
(Million bushels)

Exporting area	1922-23	1923-24	1924-25	1925-26	1926-27
United States	200	127	256	103	199
Canada	279	346	192	324	293
Argentina	139	172	123	94	143
Australia	50	86	124	77	103
India	29	20	38	8	14
Danube basin ^a	12	34	25	46	46 ^b
Russia . . . . .	...^c	23	... ^d	27	49
Other countries ^e . . .	2	18	9	14	2
Total	711	826	767	693	849

* See Appendix Table XVII for sources and further details.

^a Bulgaria, Hungary, Jugo-Slavia, and Roumania.

^b Partially estimated.

^c No data available; probably a small net export.

^d Net import.

^e Includes Morocco, Algeria, Tunis, Chile, Spain, and Poland, for the years in which these countries were net exporters.

In 1926-27 there were no such noteworthy disappointments as occurred with respect to Russian and Argentine exports in 1925-26. On the contrary, all countries, Canada excepted, supplied somewhat larger quantities of wheat than most observers anticipated. That expectations were generally exceeded is chiefly to be explained by the method in which observers ordinarily forecast exports. Annual figures for exports and imports are frequently assumed to balance except for changes in stocks afloat;¹ the probable total volume of trade is based principally upon calculations of import requirements; probable exports are made to balance probable imports. The forecasting of exports from various countries is not an independent procedure based wholly upon domestic disappearance in those countries.² As we have indicated above,³ miscalculations respecting the total volume of trade in 1926-27 were

due principally to underestimates of the takings of France, Germany, Italy, and Poland. For the most part exports would have been forecast at higher figures if imports to these four European countries had been more correctly foreseen.

Nevertheless, certain miscalculations of exports were inevitable on account of crop developments in exporting areas. In the early months of the crop year official estimates of production, taken in connection with the records of disposition for past years, and the probability of an increase in carryover out, supported the view that net exports from the United States would not exceed 170 million bushels. The actual figures of 199 million (or 206 million for a July-June year) imply, in our opinion, an underestimate of the 1926 crop,⁴ evidence of which could not become convincing until toward the close of the year. The large exports from the Southern Hemisphere of course could not be foreseen early in the crop year, since production in Argentina and Australia was then uncertain. Outturns in these countries proved slightly larger than seemed probable;⁵ and in Argentina the mixing of old-crop wheat of poor quality with good new wheat added more largely to available exportable supplies than many had thought possible. Hence exports exceeded anticipations. The Indian crop harvested in March-June 1927 proved large enough to provide some 8 million bushels for export in June and July.

Curiously enough, the exports of Russia, though necessarily difficult to estimate in advance because statistics both of crops, ex-

¹ This assumption appears untenable. For the past five years the sum of net exports has annually exceeded the sum of net imports so far as this sum can be calculated in view of the deficiencies of import statistics for ex-European countries; and the continuing appearance of the excess cannot be accounted for by changes in stocks, or otherwise than by simple disappearance of wheat.

² This is the fact with respect to the practice of European observers, notably Broomhall, and most American students. Our own calculations of probable net exports have been more largely, yet not entirely, independent of our calculations of probable net imports.

³ See p. 12.

⁴ See WHEAT STUDIES, III, 168, 270, 426, and Appendix Table XXXII.

⁵ As late as December official estimates of production indicated a crop of 215 million bushels in Argentina, of 154 million in Australia. Subsequent revisions brought the figures to 221 and 161 million respectively.

ports, and disposition are deficient for past years, proved to coincide closely with the guesses of observers. The experience of 1925-26, when far larger exports were anticipated than actually occurred, made for conservative guesses for 1926-27, despite the acknowledged large size of the Russian crop. That exports from the Danubian countries about equaled expectations was also partly accidental. Not only did the disappointment of expectations in 1925-26 make for conservative estimates of 1926-27 exports, but also less would have been exported, especially in view of the poor quality of Roumanian wheat, had not the high ocean freight rates prevailing during the first few months of the year led European importers to seek supplies in exporting countries whence transportation charges remained relatively low. Roumania had the largest crop of post-war years, 111 million bushels, but exported only about 10 million. Hungary and Jugo-Slavia, with combined crops smaller than in 1925, were the chief beneficiaries of the advance in ocean freight rates, and exported heavily.

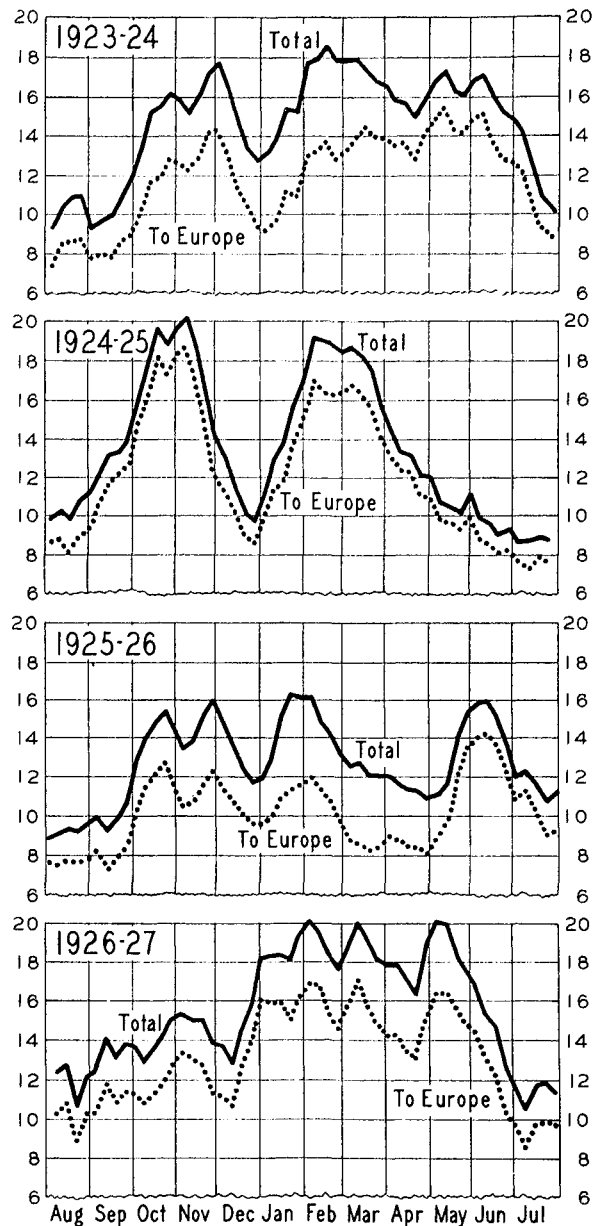
Canadian exports of 293 million bushels were not surprisingly large or small, but they were probably somewhat smaller than would have been the case in the absence of the Canadian Wheat Pool. It is the general belief of traders that the Pool restricted sales during the winter months in anticipation of higher prices in the spring or in the coming crop year. Whether or not this policy was deliberately followed cannot be ascertained. But the Canadian carryover at the end of the year, 51 million bushels, was larger even than the 45 million bushel carryover from the larger crop of 1923,¹ which brought much lower prices; and this fact seems to imply a policy of restricted sales, at least of the poorer grades.²

THE COURSE OF EXPORTS

The seasonal movement of wheat and flour exports is seldom the same in any two years. Variations in the distribution of crops between the Northern and Southern Hemispheres, in wheat prices, in dates of harvest and rapidity of marketing in both importing and exporting areas, and in the

dates of opening and closing of navigation on the Great Lakes, all make for noteworthy differences. Chart 3, which shows Broom-

CHART 3.—INTERNATIONAL SHIPMENTS OF WHEAT AND FLOUR, WEEKLY FROM AUGUST 1923*
(Million bushels; 3-week moving average)



* Broomhall's data, from the *Corn Trade News*.

hall's weekly shipments data smoothed by a 3-week moving average, illustrates the diversity of the export movement in

¹ See Appendix Table XXIII.

² See below, pp. 19 f.

the past four years. There is normally a seasonal increase in August–November as newly harvested North American crops are exported; a decline in November–January when lake navigation closes; an increase to a February or March peak following harvest in the Southern Hemisphere; and a gradual tapering off, interrupted by a minor peak in April or May as lake navigation opens and Canadian wheat is released. But this broadly typical movement is altered by particular developments in every year. Low prices and poor crop prospects in Europe gave rise to exceptionally heavy shipments in March–June 1924. Sharply rising prices restricted exports in November–December 1925. Unusually late opening of lake navigation caused the spring peak of exports to be higher and later than usual in 1926.

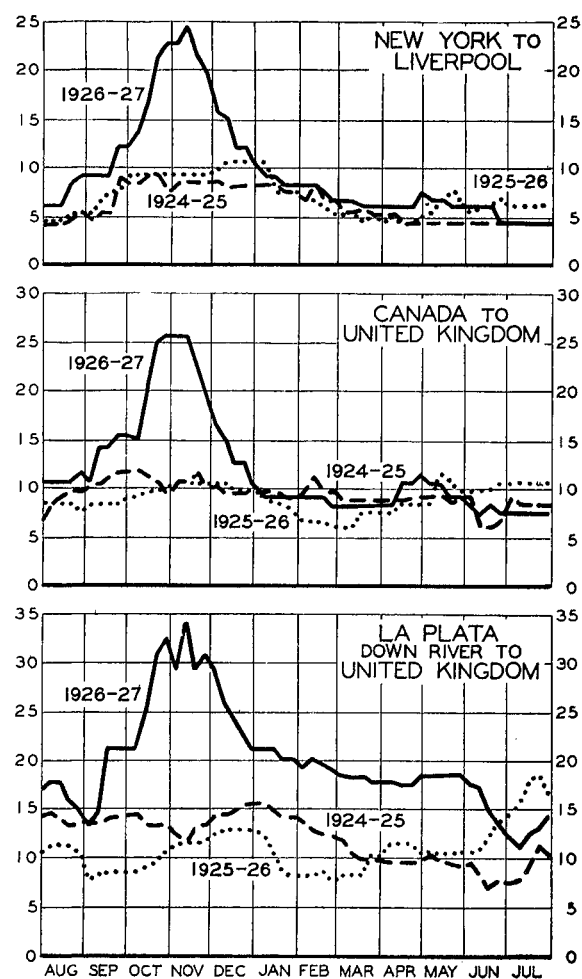
In 1926-27, however, an extraordinary advance and decline in ocean freight rates was the cause of the peculiar course of exports. The course for the year as a whole was profoundly disturbed. Exportation in September–November 1926 was abnormally restricted, not only because a full quota of ships was not available, but also because importers bore the incidence of the greatly increased cost of transportation and consequently restricted their purchases. In subsequent months declining prices encouraged importers to make up arrears, and the mid-winter movement was both extraordinarily heavy and unusually prolonged. In effect, a fair proportion of the normal exports of the first half year was postponed until the second half.

The course of ocean freight rates on wheat, on three important routes, is shown in Chart 4. The primary cause of the extreme fluctuation—on the New York–Liverpool route, an advance of nearly 20 cents a bushel in three months—was the British coal strike. For some months after the beginning of the strike on May 1, 1926, rates continued at approximately normal levels, and disturbances in the movement of wheat and flour were too slight to attract marked attention. But in September there occurred a rush for tonnage to transport coal from the United States to Great Britain in anticipation of winter requirements. Rates on wheat rose sharply on all routes¹ as tramp steamers ordinarily available for the trans-

portation of wheat were chartered for the movement of coal. The decline began in mid-November with the return of British miners to work and a slackening of the

CHART 4.—OCEAN FREIGHT RATES ON WHEAT FROM VARIOUS EXPORTING CENTERS TO THE UNITED KINGDOM, WEEKLY FROM AUGUST 1924*

(U.S. cents per bushel)



* Data are Friday rates from *International Crop Report and Agricultural Statistics*, converted from shillings and pence at current rates of exchange. New York–Liverpool rates are for parcels in liners; others for cargoes.

demand for transportation of coal to the United Kingdom. On North Atlantic routes the decline was as sudden and extensive as the advance; and approximately normal rates prevailed by January. But since re-allocation of tonnage required more time

¹ See Appendix Table XXII.

on longer routes, transportation charges on wheat shipped from Argentina and Australia remained abnormally high for some months. The exceptionally large supplies of wheat (and of maize in Argentina) requiring shipment in these countries contributed toward maintaining rates at high levels.¹

With ocean freight rates at discouragingly high levels, importers sought for wheat in near-at-hand sources. As a result, exports from Hungary and Jugo-Slavia were concentrated in the first four months of the year somewhat more heavily than usual; and net exports were made from Algeria, Tunis, and Poland, though these countries were net importers after December.² The advance in ocean freight rates caused losses to exporters in several countries (including, it is reported, the Canadian Wheat Pool) who had made sales for deferred delivery abroad without having engaged charters, and who were later compelled to pay high rates in order to keep their contracts.

Certain minor features of the movement in 1926-27 deserve brief mention. The mid-winter rise began earlier than usual, as a result of early harvests in both Australia

and Argentina. Up to December these countries exported unusually small quantities, since the Australian carryover into 1926-27, following the small crop of 1925, was very small, and the fairly large Argentine carryover consisted chiefly of poor wheat. With lake navigation opening on April 18, about a week earlier than usual and nearly a month earlier than in 1926, the spring peak of exports came early, especially by contrast with 1926. The decline in shipments at the end of the year was particularly sharp, partly because the earlier figures had been so high, but partly because heavy arrivals coupled with higher prices accompanying delayed seeding in the North American spring-wheat belt caused importers to restrict their purchases drastically.

Exports from the United States were exceptionally large in August, as a result of the early harvesting and rapid marketing of winter wheat in the southwest. Exports from American gulf ports, largely of hard winter wheat, were nearly 70 million bushels larger than in 1925-26, while Pacific coast ports handled the largest quantity in any one of the past five years except 1923-24.³

Other noteworthy features of the export movement from the United States were the small shipments of hard red spring and durum wheat as a result of the short crop in the northwest, and the unusually large exports of soft red winter.⁴ American imports of Canadian wheat for consumption, duty paid, were less than half a million bushels, despite the short crop of American spring wheat. Imports from Canada for milling in bond, 13.2 million bushels, were small,⁵ partly because of the abundance of hard red winter wheat of excellent quality, partly because Canadian wheat of good quality was high in price.

Despite a larger crop in Alberta, the movement of Canadian wheat from Vancouver was only 40 million bushels as compared with 59 million in 1925-26, because of a more restricted demand from the Orient and a shortage of tonnage caused by the exceptional demand for ships on Atlantic routes. The proportion of Canadian wheat shipped overseas from United States ports, somewhat over 50 per cent of the total, was about as large as usual.⁶

¹ For a more detailed analysis of the causes and effects of the advance in ocean freight rates, see *WHEAT STUDIES*, III, 92 f., 152-56, 271 f.

² See Appendix Table XXI, which shows exports and imports of important countries by months.

³ The following data in million bushels, summarized from data of the U.S. Department of Commerce, show the quantities of wheat (including flour) exported from groups of customs districts for the past five years ending June 30:

	1923	1924	1925	1926	1927 ^a
Canadian border and lake ports	32.6	18.3	56.0	21.3	24.6
Atlantic Coast	84.8	42.3	84.0	40.9	59.1
Gulf Coast	63.9	32.1	91.9	12.0	80.5
Mexican border	1.1	2.5	.4	1.3	7.1
Pacific Coast	39.5	64.7	28.5	32.5	47.9
Total	221.9	159.9	260.8	108.0	219.2

^a Figures for 1927 are preliminary with respect to accurate distribution to the several customs districts. The figure for exports across the Mexican border has not yet been published, and here signifies merely exports not officially allocated to other customs districts.

⁴ See Appendix Table XX, which shows exports of wheat from the United States by classes. It should be observed, however, that accurate year-to-year comparisons of the quantities of the several classes of wheat exported are impossible, since so much wheat remains unclassified. Exports of durum wheat especially are understated.

⁵ See Appendix Table XIII.

⁶ See Appendix Table XIV.

IV. STOCKS AND CARRYOVERS

A BROAD VIEW

Large additions to the world stocks of wheat and flour were made during the crop year 1926-27. Carryovers in the principal exporting countries and afloat for Europe, as summarized in Table 5, show an increase of over 50 million bushels. This increase reflects chiefly the replenishment of stocks abnormally depleted at the close of 1925-26, though stocks at the end of 1926-27 were apparently somewhat above normal. From

TABLE 5.—APPROXIMATE CARRYOVERS OF WHEAT IN EXPORTING COUNTRIES AND AFLOAT, AUGUST 1, 1922-27*
(Million bushels)

Location	1922	1923	1924	1925	1926	1927
United States.....	130	153	167	136	111	138
Canada	36	29	41	26	35	48
Argentina	66	56	63	57	67	61
Australia	27	42	38	36	30	41
Afloat for Europe..	49	39	42	33	39	46
Total	308	319	351	288	282	334

* Summarized from Appendix Tables XXVI and XXXII; includes some estimates, as indicated in notes to these tables. United States data as of July 1.

essentially the same cause—abundant crops in exporting countries—a similar but not quite so extensive upbuilding of exporters' stocks occurred in 1923-24. In contrast, a sharp reduction occurred in 1924-25 as a result of short crops and high prices. Large variations in carryovers may appear from year to year, chiefly but not entirely localized in North America, where storage facilities are furthest developed. Under special circumstances these variations are significant in their bearing on current analyses of the world wheat situation. At present (November 1927), for example, students and traders are anticipating world crops in 1927 of much the same size as those of 1926; but the fact that much larger initial stocks of 1927-28 constitute a bearish element in the situation is frequently ignored.

Unfortunately it is impossible at present to secure a more comprehensive comparative statement of the world carryover than that displayed in Table 5. No figures are recorded for stocks in China, India, Russia,

North Africa, and most European countries. Hence year-to-year comparisons of world stocks cannot be definitive, since neither the magnitude of stocks in these areas, nor the extent of their variation, nor their tendency to vary directly or inversely with exporters' stocks, is known. But indirect evidence suggests that stocks for the world as a whole (Asia and Russia disregarded) were much as Table 5 suggests—distinctly low on August 1 in 1925 and 1926, distinctly high on August 1 in 1924 and 1927.

Somewhat more definite statements are possible concerning carryovers into and out of 1926-27. Carryovers out were much larger than carryovers in, not only in afloat positions and in exporting countries (except Argentina, where, however, quality was much better), but also in the principal importing countries of Europe. Stocks of import wheat were apparently considerably larger, and of domestic wheat probably no smaller. Stocks in Russia were larger at the end of the year than at the beginning; only in Spain and the Danube basin were they notably smaller, and in these countries the position was of little significance because Spain neither exports nor imports appreciable quantities of wheat except for imports in years of bad crops, while stocks in the Danube basin were of poor quality in both years. On the whole, the enlargement of world stocks during 1926-27 was more noteworthy than may be inferred from the data shown in Table 5.

OUTWARD CARRYOVERS IN NORTH AMERICA

Certain special influences apart from the general effect of large crops in increasing world stocks were operative in particular countries.

The United States carryover out¹ reached 138 million bushels as of July 1, 1927, on the

¹ Comparisons of total United States carryovers except for 1926 and 1927 cannot be made definitive. Estimates of stocks in country mills and elevators were made on a new basis for 1926 and 1927. Prior to July 1, 1925, data on city mill stocks are not available. Inclusive and comparable information on United States stocks will be available only when the U.S. Department of Agriculture data on commercial visibles, begun in August 1926, have been collected for several years. For details of our calculation of United States stocks, see notes to Appendix Table XXXII.

whole apparently about an average figure for post-war years, but some 27 million bushels above the exceptionally low figure for 1926. Stocks in country mills and elevators were probably the lowest in six years. Neither stocks on farms nor commercial visibles were notably high, though they exceeded the low figures of 1926. The comparatively large total carryover was due chiefly to the exceptionally large quantities of wheat and flour in the hands of city mills—some 63 million bushels as against 45 million in 1926¹ and 42 million in 1925. Comparisons of city mill stocks are shown in Table 6.² The size of these stocks reflects

TABLE 6.—SUMMARY OF CITY MILL STOCKS
JUNE 30, 1925-27*

Item	1925	1926	1927
Reported stocks of wheat...	32.31	35.83	52.59
Of flour as wheat.....	15.73	14.67	16.76
Total.....	48.04	50.50	69.35
Items included in carryover otherwise reported.....	5.60	5.52	6.44
Balance.....	42.44	44.98	62.91

* Condensed from Appendix Table XXIV.

the high quality of the winter-wheat crop of 1926, and the low levels of premiums for protein content throughout the crop year. Mills built up their stocks of old-crop wheat

¹ The figure for 1926, and the visibles figure as well, probably included some new-crop wheat, and the same was perhaps true on July 1, 1927, though to a lesser extent.

² The figures for city mill stocks on July 1, 1925 and 1926, were obtained by the Census Bureau from mills producing 87.4 per cent of the total flour output of the United States as determined by the biennial census of 1923; on July 1, 1927, from mills producing 90.1 per cent of the total output as determined by the census of 1925. Hitherto it has been our practice to raise the city mill stocks figures by the indicated percentages in order to secure as complete a statement of stocks as possible. But in view of the desirability of presenting a total United States stocks figure including no duplications, and the probability that some duplication exists between the raised figures and official estimates of stocks in country mills and elevators, we have discontinued the practice. See note to Appendix Table XXXII.

³ See WHEAT STUDIES, II, 31.

⁴ See Appendix Table XXXII.

⁵ *Agriculture Yearbook, 1923*, p. 660.

⁶ See Appendix Table XXIII. The figures shown in this table run slightly higher than the carryover figures shown in Table 5 and Appendix Table XXXII.

toward the end of the year in view of the probabilities that the crop of 1927 would prove less satisfactory for milling, and that relatively high premiums for protein content would prevail. No incentive to build up stocks was provided by the relation of near to distant futures. Thus the situation differed sharply from that at the close of 1923-24, when the relations of futures prices were such as to encourage holding of grain by mills.³

The size of the reported carryover out of 1926-27 reflects upon the accuracy of the crop estimate. The sum of dependable figures for net exports, seed requirements, consumption, and stocks subtracted from the figure for supplies available during the year, leaves a residual of only 20 million bushels for feed and waste.⁴ This figure, like the figure of 31 million bushels for 1925-26, appears impossibly low if feed and waste amounted to 70-92 million bushels in the years 1922-25; and figures for feed and waste ought to reach 55-65 million bushels for crops ranging from 700 to 800 million, if the Department of Agriculture's estimate of the normal use for feed on farms (8.1 per cent of the crop) is correct.⁵ The crops of 1922-24 were perhaps slightly overestimated; those of 1925 and 1926 seem to be underestimated. But so long as precise information on the use of wheat for feed is lacking, precise statements of errors in crop estimates cannot be formulated.

Canadian carryovers,⁶ unlike the American in some respects, are officially estimated for all their components, account for wheat in all significant positions, and may be accepted as reasonably accurate unless the control of a large proportion of the crop by the Pool has led to difficulties of estimation. The total carryover reached 50.6 million bushels, exceeding the previous record of 45 million after the 474 million bushel crop of 1923, and larger than that of last year by 15 million bushels. The quantity in terminal elevators, 37 million bushels, was some 10 million bushels larger than in any other year. The evidence suggests that the Canadian Pool followed a policy of restricted sales, especially during the winter months, in anticipation of higher prices in the spring and/or the crop year 1927-28. It is the general view of traders that a policy of restriction was followed; there is no

doubt in trade circles that the Pool owned most of the carryover;¹ though much of the carryover was of poor quality, there is every reason to suppose that more wheat would have been sold if prices had been made more attractive to buyers. Apparently the Pool's policy was well advised; for, according to the recently issued *Directors' Report*, some 32 million bushels of wheat were sold in August and September 1927. Presumably these sales brought prices higher than prevailed in the winter months.

SOUTHERN HEMISPHERE STOCKS

Australian and Argentine stocks have never been estimated directly, either officially or unofficially; hence they must be calculated by reference to statistics of disposition. For both countries fairly reliable estimates of net exports, seed requirements, and consumption for food are now available; and it is clear that feed and waste is a small item in both countries, notably Australia. Our revised estimates for these items of disposition, with detailed comments, are given in Appendix Table XXXII.

Independent calculations of all items of disposition for Australia yield a figure for stocks on August 1, 1927, of 41 million bushels, some 11 million higher than the figure for 1926, but not far different from those of 1922-25. The exportable surplus presumably amounted to some 18 million bushels, of which about 13 had been shipped by November 1, 1927. For each year up to 1926-27, our estimates of stocks, though calculated as residuals, are consistent with the reported volume of exports from August 1 to December 31, appropriate allowances for domestic consumption during these months, and the assumption that stocks of old-crop wheat on December 31 each year are at a fixed minimum of 5 million bushels. Our calculations do not call in question the accuracy of Australian crop estimates during the past five years.

¹ Some responsible traders firmly believe that the carryover in the hands of the Pool was nearer 60 than 50 million bushels; but the Pool sales in August and September of 31.6 million bushels, and the carryover into 1927-28 of 7.4 million, imply an August 1 Pool carryover of 39 million bushels. See *Directors' Report*, 1926-27, p. 3.

² See Table 5 and Appendix Table XXVI.

³ See Appendix Table XXI.

The stocks position in Argentina is more difficult to evaluate on account of the poor quality of the crop of 1925-26. Unquestionably more than the usual amount of wheat was used for feed and waste in the calendar year 1926. Consequently it is necessary to estimate this item higher for the past two years ending August 1 than for the three preceding. Seed requirements per acre were presumably also above normal in 1925-26 from the same cause; and during the calendar year 1926 more than the usual amount of wheat was required per ton of flour milled. With adjustments for these factors we are disposed to estimate stocks on August 1, 1927, at 61 million bushels as compared with 67 million on August 1, 1926. But the stocks of 1927 must have contained a considerably smaller quantity—perhaps a negligible quantity—of poor quality wheat than was the case in 1926, for, according to reputable millers and traders in Europe, the mixing of poor wheat from the 1925 crop with good wheat from the 1926 crop was more extensively practiced throughout the year than had been thought possible. Hence the Argentine carryover into 1927-28, though smaller in quantity than that of 1926-27, in effect bulked larger as a potential source of supply for purchasers.

Thus in all exporting countries, considered not only as a group but separately as well, carryovers out of 1926-27 were in fact or effect considerably larger than carryovers in. Quantities afloat for Europe were also larger;² Broomhall placed the figure at 46.1 million bushels, the highest since 1922, and 7.5 million above the figure for August 1, 1926. Stocks afloat contained more than the usual amount of wheat from the Southern Hemisphere, since July exports from North America were unusually small and May-July exports from Argentina and Australia were unusually large; the size of the afloat figure, indeed, was due chiefly to the exceptionally heavy end-year exports from the Southern Hemisphere.³

EUROPEAN STOCKS AND CARRYOVERS

European stocks consist of both imported and domestic wheats, and data are not reported for either type in most countries. Nevertheless certain significant conclusions, especially respecting the past two years,

may be drawn on the basis of available evidence, in some part statistical.

In Great Britain stocks of domestic wheat are of minor importance, since the native crop provides only about a fifth of the wheat consumed annually. Stocks of import wheat were unquestionably large on August 1, 1927. Port stocks were estimated at 7.8 million bushels as compared with 4.3 million on August 1, 1926.¹ The figure for 1927 was about average for recent years. But the generally expressed belief of traders that millers held large stocks, and the exceptionally heavy imports of the last five months of the year, lead to the probability that the British carryover of import wheat was the largest in the past five years except on August 1, 1924.

Carryovers of domestic wheat are of major significance in France. Private investigators estimated total French supplies of old-crop wheat in all positions at 34-37 million bushels on August 1, 1927.² Similar estimates have not been made for earlier years; but observers are agreed that stocks have not been so large for some years, and that the carryover out of 1925-26 was very much smaller. The outward carryover of import wheat (including flour) officially reported in custom-house warehouses was also large as compared with the carryover in, though in absolute amount the quantities are never large.³ The size of the carryover, taken in conjunction with data on domestic utilization, supports the inference that the crop of 1926 was officially underestimated.⁴

Stocks in Antwerp at the end of July, according to the *Corn Trade News*, were 1,858 thousand bushels in 1927 as against 558 thousand in 1926. For other countries statistical data are lacking. In Germany the

position was apparently not greatly different at the beginning and end of the crop year; domestic stocks were small (as is indicated by the absence of price quotations for native wheat at Berlin in June and July of both years), while stocks of import wheat were fairly high in both years because of heavy imports late in the year. Italy, where domestic wheat supplies are of large importance, is reported to have had larger stocks in 1927 than in 1926; and the inference is supported by statements that even late in the crop year marketing by farmers was so free that native wheat was appreciably cheaper than imported. Stocks of import wheat, however, were perhaps no larger in 1927 than in 1926. In the Danubian countries, Roumania perhaps excepted, supplies were probably smaller in August 1927 than in 1926; but available export surpluses were of poor quality in both years. If the Russian crop estimate is trustworthy, the fairly high stocks at the end of 1925-26 must have been further increased in 1926-27; and consumption and stocks alike perhaps approached pre-war levels during the past crop year. Central European countries apparently had small stocks, but such is probably the normal condition.⁵

On the whole it appears certain that European wheat stocks of significance to international trade and prices were considerably larger at the end of the crop year than at the beginning, and perhaps—especially if Russian stocks are counted—the largest in post-war years, not excepting 1923-24.

VISIBLE SUPPLIES

The weekly course of visible supplies throughout the year presents certain features of interest and significance. Data for the past three years appear in Chart 5, p. 22.

The course of visibles afloat and in ports of the United Kingdom was distinctly peculiar practically throughout 1926-27. The movement each year naturally coincides roughly with the course of wheat shipments except for a lag of two to four weeks, since the volume of wheat afloat depends upon the volume of wheat exported. The lag is naturally greater in the latter half of the year, when shipments from the Southern Hemisphere, which are longest afloat, bulk largest. As was true of the course of ship-

¹ See Appendix Table XXVI.

² The estimate of M. Sicot was 34 million, that of the *Bulletin des Halles*, 37 million.

³ The totals for the past four years, in thousand bushels as of July 31, were as follows: 1924—1,630; 1925—1,321; 1926—536; 1927—1,436.

⁴ See below, p. 44.

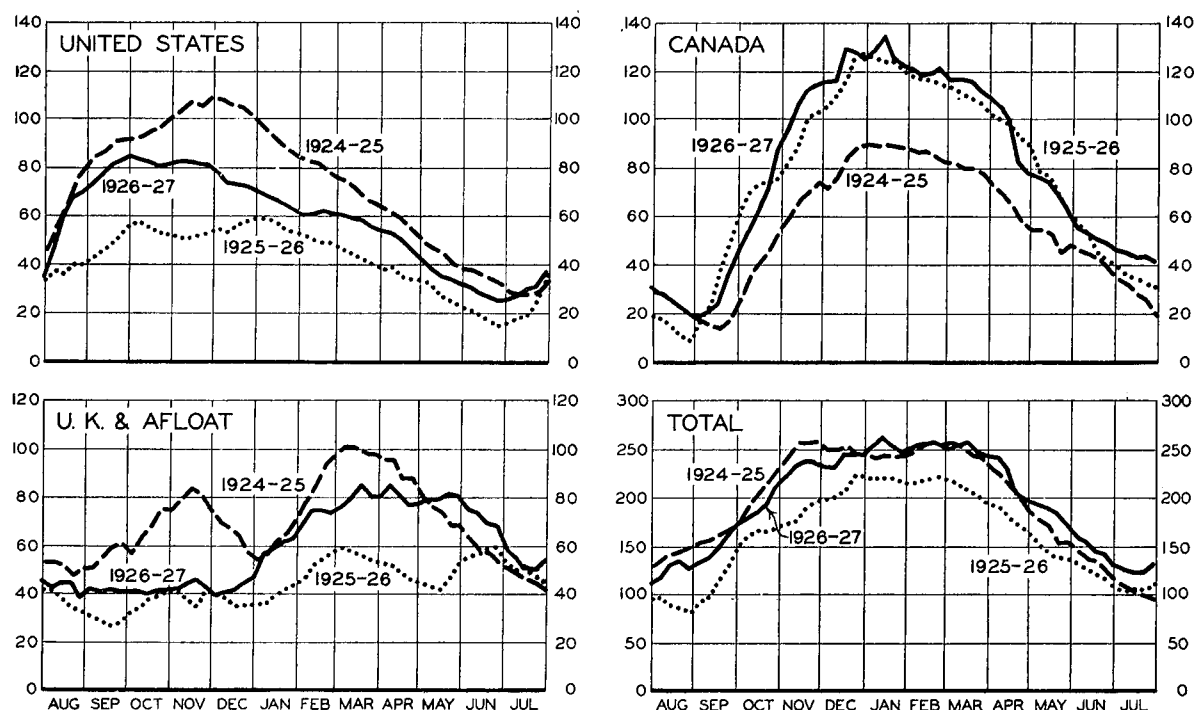
⁵ For example, *The Polish Economist*, October 1927, speaks of Polish stocks of less than a million bushels at the end of 1925-26 as large; and at the end of 1926-27 Polish stocks were reported by the *Corn Trade News* (quoting figures printed in the *Ost Express*) as 2.9 million bushels, with 1.2 million in farmers' hands. Spanish stocks, which were probably somewhat smaller in August 1927 than in August 1926, ordinarily have little significance for the world wheat situation.

ments, the course of visibles afloat in 1926-27 was disturbed by the abnormal developments in ocean freight rates. The normal peak of November (normal at least in years when North American crops are large and international trade is heavy) did not appear; and visibles in the latter half of the year ran exceptionally high for some weeks. It is significant to observe, however, that

crop of 1926-27; for the spring-wheat crop appears more largely in the visible than does the winter-wheat crop. Another factor was the more rapid marketing by farmers induced by the higher prices of the former year, notably in October and November. Farmers were in a much better financial position to hold wheat in 1926-27 than in 1924-25, and were disposed to do so

CHART 5.—VISIBLE WHEAT SUPPLIES IN THE UNITED STATES, CANADA, UNITED KINGDOM PORTS, AND AFLOAT TO EUROPE, WEEKLY FROM AUGUST 1924*

(Million bushels)



* Data from *Price Current-Grain Reporter* and *Canadian Grain Statistics*.

the peak of visibles in March 1927 was much lower than in March 1925, principally because Australia, Argentina, and India were contributing relatively large exports in December-February 1924-25.

The course of United States visibles (Bradstreet's) was also notably peculiar by contrast with 1924-25. Visibles higher in 1926-27 than in 1925-26 were natural in view of the much larger crop. But from September 1 to the end of June in 1924-25, visibles ran from 5 to 25 million bushels higher than in 1926-27, despite crops of similar size in the two years.¹ The explanation lies largely in the smaller spring-wheat

in view of prices lower than those of the two preceding years. As a consequence receipts of wheat at primary markets ran lower than in 1924-25 throughout the year, especially during November-February;² while stocks of wheat on farms and in country mills and elevators on March 1 totalled 216 million bushels in 1927 as against 180 million in 1925. Visibles reached the low point of the year toward the end of

¹ The official figures are for 864 million bushels in 1924, 833 in 1926; but the former is probably slightly too high, the latter somewhat too low. See above, p. 19.

² See Appendix Table XV.

June 1927, some weeks earlier than usual. Such was also the case in 1926; and July receipts at primary markets, 77 million bushels in 1926 and 59 million in 1927, were relatively heavy in both years.¹ The effective though not the actual maturity of the wheat crop has apparently been advanced a few weeks through increasing use of the small harvester-thresher combine.

Throughout most of the year Canadian visibles ran higher in 1926-27 than in the preceding year, though the crop of 1926 was slightly smaller than that of 1925. In late October and November the figures ran higher than in any post-war year, reflecting

on the one hand the retarded export movement caused by high ocean freight rates, on the other the rapid movement from farms in response to requests of the Pool that members move forward rapidly the large quantities of damp wheat. During the subsequent months of closed navigation visibles were prevented from rising higher only by a relatively heavy movement of wheat by rail to the seaboard.² Early closing of navigation on December 12 contributed to swell the visibles figures in December-April; but subsequent to the opening of navigation on April 18 a sharper decline than usual took place.

V. WHEAT PRICE MOVEMENTS

THE LEVEL OF PRICES

The general level of prices for wheat moving in international trade in 1926-27 was slightly lower than in the two preceding years, but much higher than in 1923-24, the year of lowest prices since the war. On the basis of customs returns, importers of the United Kingdom—the greatest wheat-

¹ By comparison, receipts at primary markets in July 1922-25 ranged from 34 to 42 million bushels.

² During the past four crop years, since Vancouver assumed importance as a port of export, shipments of wheat from Fort William and Port Arthur by rail have been as follows, in million bushels:

1923-24	7.9	1925-26	9.7
1924-25	7.3	1926-27	13.6

³ Figures obtained by dividing values of annual wheat imports of the United Kingdom by quantities of wheat imported.

⁴ The series of parcels prices, though by no means satisfactory in all respects, may be regarded as the best available generalized description of the level and course of what may be called international wheat prices. Except for different freight charges, other importing countries presumably pay c.i.f. prices for particular sorts of wheat identical with prices paid for the same sorts by the United Kingdom. The British price misrepresents the international price in so far as other importers purchase different sorts of wheat, or the same sorts in different proportions. Our compilation of parcels prices for the United Kingdom further provides a description of British import prices faulty in so far as the omission of cargo prices, occasional inclusion of parcels to be shipped and afloat as well as spot, and absence of accurate weighting, give rise to misrepresentation. Such tests as we have been able to make indicate that correction for these factors would not yield a greatly different picture.

⁵ See above, p. 9.

⁶ The relations of near and distant futures prices in Liverpool during the first half of the year support this inference. See below, pp. 27 f., and *WHEAT STUDIES*, III, 155 f.

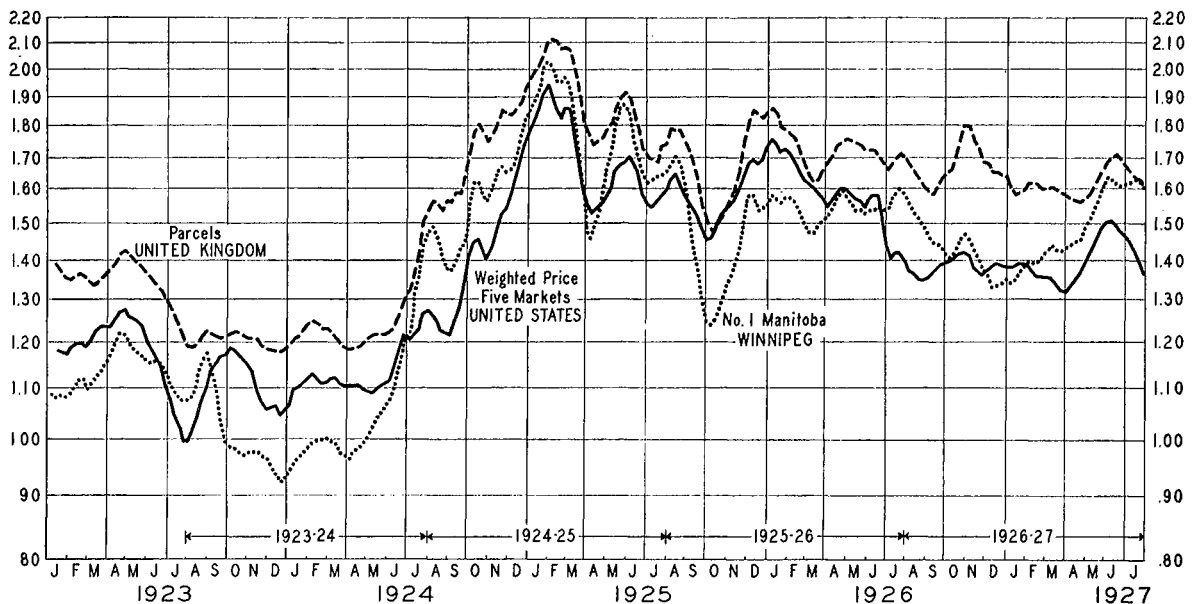
importing country—paid, on the average, \$1.64 per bushel for wheat from all sources in 1926-27, as against \$1.70 in 1925-26, \$1.77 in 1924-25, and \$1.22 in 1923-24.³ The same fact appears with respect to prices paid for parcel lots of wheat in the several British ports, as shown in Chart 6 (p. 24).⁴ Similar relationships in price levels during the past four years would presumably be observed if data on quantities and values of imports could be secured for other importing countries. As we have seen, the distribution of world crops between exporting and importing countries dominates price levels in different years.⁵ In 1923-24, exporting and importing countries alike had large crops, and prices were low. The reverse was true in 1924-25. In 1925-26 Europe had very large crops, but exporting countries had not. In 1926-27 European crops were smaller, but crops in exporting countries were enough larger more than to offset the reductions in Europe. The international level of prices would probably have been somewhat lower in 1926-27 except for exceptionally high ocean freight rates. Increased costs of transportation were borne chiefly by importers, not by exporters;⁶ and British parcels prices consequently include a large proportion of these increased costs. Furthermore, exportable surpluses were more tightly held than heretofore, especially by contrast with 1923-24. Wheat pools controlled larger proportions of the Canadian and Australian crops, while farmers in the United States were in a more

favorable financial position; and European countries were better able to buy. The unusual delay to spring-wheat planting in North America in 1927 raised the price level of 1926-27 fortuitously. Had similar conditions prevailed in these two years price levels presumably would not have shown such wide discrepancies.

because Canada had crops of similar size in the two years. A short crop in the United States in 1925-26 kept American prices relatively high in that year, and in 1926-27 international prices were kept relatively high by the freight situation. A further illustration appears in the relatively low Canadian prices of 1923-24 following the huge crop

CHART 6.—WEEKLY AVERAGE CASH PRICES OF ALL CLASSES AND GRADES OF WHEAT IN FIVE PRINCIPAL UNITED STATES MARKETS, OF NO. 1 MANITOBA NORTHERN IN WINNIPEG, AND OF SALES OF PARCELS OF ALL CLASSES OF WHEAT IN UNITED KINGDOM, FROM JANUARY 1923*

(U.S. dollars per bushel; 3-week moving average; logarithmic vertical scale)



* Data from *Crops and Markets*, direct from U.S. Department of Agriculture, from the *Grain Trade News*, and from *London Grain, Seed and Oil Reporter*. United States prices are weekly weighted averages from six markets since the first week in January 1927.

The prices of wheat sold in exporting countries, however, do not remain from year to year in precisely the same relationship to international prices. In a broad view, as appears from Chart 6, international prices and prices in the great exporting countries ordinarily move in the same general direction from month to month and from year to year. But year-to-year changes in levels may be much greater in one country than in another or than in international price levels. Thus United States weighted average prices in 1926-27 ran further below prices in 1925-26 than did Canadian prices of No. 1 Northern; and Canadian prices ran somewhat further below than did international. The "normal" shift in levels, so to speak, occurred in Canadian prices,

of 1923, and the relatively high prices in 1924-25 following the short crop of 1924.

International wheat price levels are ordinarily of some significance in European importing countries, since, as in exporting countries, domestic wheat prices move, though by no means closely, with the international. Yet significant exceptions appear. French millers paid not less, but much more per bushel for French wheat in 1926-27 than in 1925-26, and somewhat more than in 1924-25. In 1925-26 the large crop and negligible import requirements kept prices below the international price level and rendered the tariff ineffective; but in 1926-27 the exceptionally short crop of 1926-27 reversed the situation. Nor was 1926-27 a year of comparatively low prices for do-

mestic wheats in Italy and Germany, where crops were sufficiently small to permit the enhancement of prices behind high tariffs.¹

The price of British import wheat as shown in Chart 6 is, of course, an average price—approximately the center of a rather wide range of prices for specific types and grades of wheat. There is a considerable degree of change, both from month to month and from year to year, in the positions which particular types of wheat occupy, relative to other types, within this range of prices. Usually No. 1 Northern Manitoba and Australian wheats command the highest prices because of their intrinsic value for milling purposes. Throughout 1926–27 prices for the several types of wheat ran closely together; there was no such divergency as appeared with respect to Argentine wheat in 1925–26, when poor quality resulted in a heavy discount at Liverpool. From February 1927 to the end of the year, however, No. 1 Northern Manitoba sold at an unusually high premium because this grade, in short supply in the Canadian crop of 1926, was relatively scarce compared with other varieties. No. 3 Northern Manitoba, on the other hand, sold at lower prices even than No. 2 Winter and Rosafé wheats during parts of March and April.²

THE GENERAL COURSE OF PRICES

Comparative stability was the outstanding feature of the course of prices in 1926–27. The major fluctuations of wheat prices

during 1926–27 are shown in their broad outlines in Chart 6, and in greater detail by daily quotations of futures prices in the world's leading markets in Chart 7 (p. 26).³ Fluctuations were much less extensive than in 1924–25 and 1925–26, and on the whole not greater than in 1923–24 (except for the advance in Liverpool due to the freight situation). During 1926–27, as we have seen, there were no outstanding reversals in prospects for 1926 crops. Crops which promised well fulfilled expectations; minor disappointments in Europe were offset by minor improvements elsewhere; conspicuous uncertainties in the crop situation were not present until the end of the year; and the international position was continuously fairly easy. Speculation—certainly in the United States, and presumably elsewhere—was at a much lower level than in the two preceding years, though higher than in 1923–24.⁴

In a broad view, prices in all markets declined throughout August until early September; rose sharply until about October 22; and declined sharply in November. The course from December to April was comparatively stable in all markets, but significant differences appear as different markets and different price series are considered. A marked increase in May culminated about the 28th of the month, followed by a decline to slightly lower levels in June and July.

The decline in August 1926 was due in part to unexpectedly good threshing returns in the United States winter-wheat belt and large marketings accompanied by increasing visible supplies; in part to the breaking of the drought in Canada and increasingly good prospects in that country. After September 4 unfavorable threshing weather in Canada and Europe combined with reductions in European crop estimates and restricted marketing after October in the United States to cause an advance, which was accelerated after mid-September by the advance in ocean freight rates. The latter influence had its major effect on Liverpool prices, but prices in Chicago and Winnipeg moved in sympathy. Reports of frost in Argentina contributed to the October advance a few days before the 22nd of the month. The November decline was due predominantly to confirmation of a crop of large size if not of excellent quality in Canada,⁵

¹ See Appendix Table XXIX for monthly prices of native wheats in European countries during the past three years.

² For the price comparisons on which this paragraph is based, see Appendix Table XXVIII, and charts in *WHEAT STUDIES*, II, 42, and III, 116.

³ A small beginning was made in futures trading at Melbourne, Australia, in 1926–27, but its success remains to be seen. The Seattle futures market has become established. Another development in 1926–27 was the institution of a March future in Chicago. Trading in futures on the New York Produce Exchange, instituted in 1926, has been of smaller volume than was hoped for.

⁴ The average daily volume of futures trading on United States markets was 42 million bushels in 1926–27, as against 61 in 1925–26, 63 in 1924–25, and 24 in 1923–24. See Appendix Table XXX.

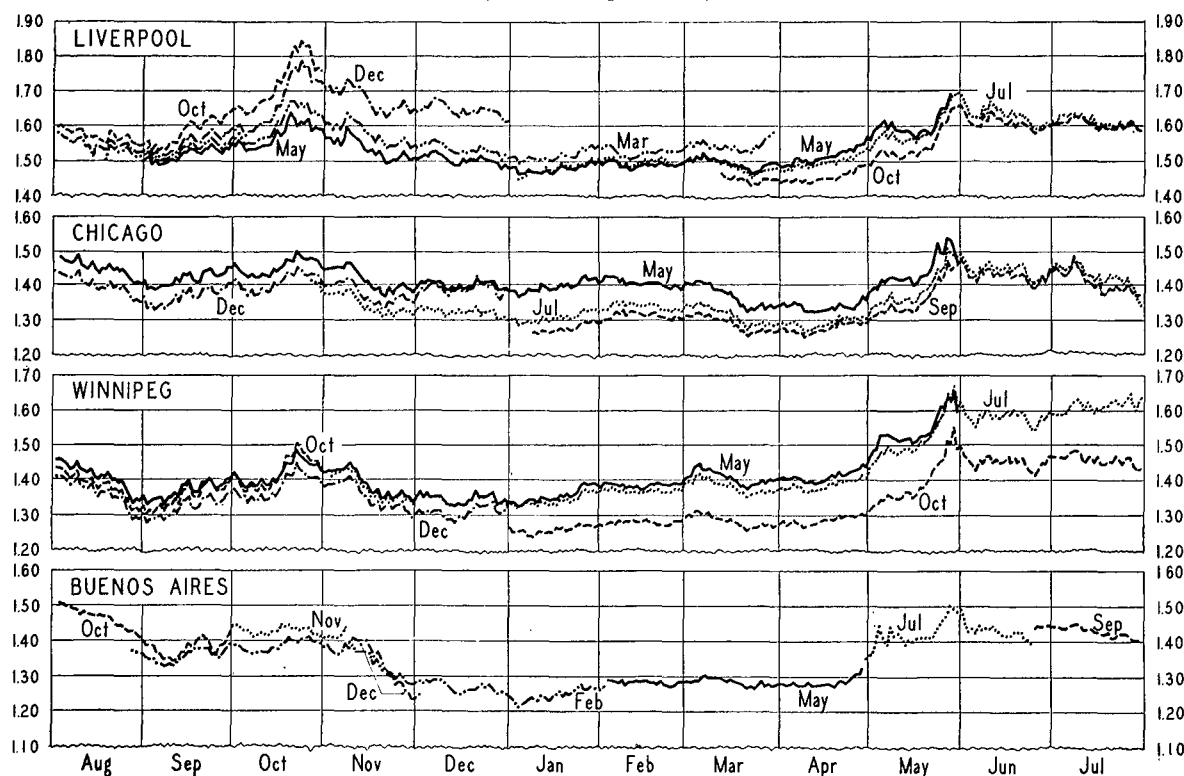
⁵ The sharpest break during November occurred in the three days following appearance on November 10 of the Canadian official estimate of a crop of 406 million bushels. The previous estimate (September 10) had been 399 million; but many traders expected the November estimate to be smaller rather than larger.

and to increasing certainty that Southern Hemisphere crops would prove large, that ocean freight rates would decline, and that Danubian and Russian exports would not disappoint reasonable expectations.

Throughout the winter months, December-April, prices in different markets and of different sorts, in the absence of noteworthy changes in crop prospects, did not

prices alike came also at about January 4, but thereafter a gradual advance occurred. But in Liverpool futures prices were within a cent as low on March 23 as on January 4; the May future in Chicago from late March to late April was lower than on January 3; cash prices in the United States reached their low points in March and April;² British parcels prices were also lower in

CHART 7.—DAILY CLOSING PRICES OF PRINCIPAL WHEAT FUTURES IN FOUR LEADING MARKETS, AUGUST-JULY 1926-27*
(U.S. dollars per bushel)



* Data from *Chicago Journal of Commerce* and *Daily Trade Bulletin*, Chicago.

fluctuate together. The year's low point for futures in Buenos Aires (\$1.21 per bushel) was reached on January 4 with the advent of the new crop; for a month prices advanced slightly, to remain at a level of \$1.28-\$1.30 from February to late April. January was the month of lowest cash prices in Buenos Aires.¹ In Winnipeg the year's low point for May future and cash

late March and April than at any other time during the year; and Australian export prices were lowest in March.³ Hence the course of "world" prices during these months cannot be described without qualification; special conditions in particular countries, too numerous to receive detailed consideration here, made for diverse price movements in the absence of striking changes in the international position. Broadly speaking, however, one may say that a lower level of wheat prices prevailed in December-April than in the latter part

¹ For Barletta wheat. See Appendix Table XXVIII.

² See Chart 6, p. 24, and Chart 8, p. 28.

³ See Appendix Table XXVIII.

of November. Our expectations, expressed in December 1926, were fully borne out with respect to international cash prices, if not with respect to futures prices.

The comparative firmness of United States prices in December–February and of Winnipeg prices in January–April merits brief comment. In the United States there is normally a seasonal upswing in mid-winter, and in part the relative firmness of prices was presumably due to this movement. But the exportation of enormous quantities of wheat prior to December 1, and relatively slow marketing of so large a crop, caused an approach to a domestic basis for prices and deferred the decline until March. The bullish attitude of many American traders may have been a contributing cause.¹ The upward course of prices in Winnipeg after the first of January was perhaps in part a seasonal movement also. But the evidence suggests that crafty merchandising by the Pool combined with an effective shortage of wheat of superior grades was partly responsible. A Winnipeg price series in which sales of wheat grading below No. 3 Northern were given appropriate weighting might fail to reflect the upward movement distinctly shown by prices of wheat futures and of Nos. 1 and 3 Northern.

Crop prospects for 1927 were responsible for rising prices in all markets during May and the latter part of April as well. In the United States, the seeding of spring wheat was delayed by excessive rainfall—in some localities until the end of May, fully a month later than usual—and unseasonable frosts and deterioration from other causes occurred in the southwestern winter-wheat belt. In Argentina a long-continued drought hampered the sowing of winter wheat; and, as appears from Chart 7, futures prices rose much more sharply at Buenos Aires than elsewhere in the first week of May. The May advance in prices was naturally the most extensive in Winnipeg; for in Canada the sowing of spring wheat—a more significant operation in that country than in the United States on account of the shorter growing season—was delayed even further

than in the United States. The spring was late; a snowstorm occurred on May 2 and 3; and heavy rains hindered operations throughout the month. A revival of speculative activity, and continued heavy purchases of wheat by European importers, were contributing factors.²

The high prices of late May could not be maintained in the face of better weather in North America and Argentina. It became increasingly clear that wheat acreage for 1927 would not fall so low as had been expected. The significance of abundant subsoil moisture for spring wheat in North America was increasingly recognized. European purchasers, faced for the first time in the course of the year with arrivals heavier than could be absorbed by millers, largely withdrew from the market. Nevertheless uncertainties in North American prospects for spring wheat incident to the late seeding and danger of rust, coupled with mediocre prospects in Europe, maintained prices at a level some 10–15 cents higher in June and July than had prevailed in March and April.

RELATIONS OF NEAR AND DISTANT FUTURES

The relationships of near and distant futures in various markets were in a few instances peculiar in 1926–27. In Liverpool, during the first few months of the year, October and December futures ordinarily carry a high premium over the May when the international position is immediately tight but expected to become easier. Such was the case in October–December both in 1925–26³ and in 1926–27, but for different reasons. In the former period the international position was tight because available exportable surpluses were small; in the latter period high ocean freight rates were responsible. Furthermore, the premium of October and December futures prices over the May was considerably larger in 1926–27 than in 1925–26. British traders expected British prices to rule lower in the spring than in October–December not so much because larger supplies would be available as because c.i.f. prices promised to be lower when ocean freight rates fell to normal levels. The increasing spread between October and May futures prices in September and October, taken in conjunction with the

¹ See WHEAT STUDIES, III, 284.

² See *ibid.*, III, 143, 282 f.

³ See chart in *ibid.*, III, 112.

fact that May futures prices moved similarly in Liverpool, Chicago, and Winnipeg, argues that British (and presumably continental) importers rather than exporters bore chiefly the increased cost of transportation caused by the advance in ocean freight rates.¹ The Liverpool March future closed well above the May, since arrivals of wheat, though large, had been readily absorbed; but the May closed practically with the July as cash wheat became plentiful following heavy imports and slower absorption of arrivals.

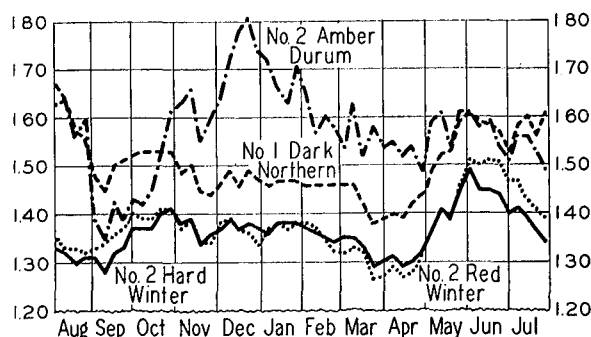
In Chicago the relationships of near and distant futures were on the whole normal; there were no reversed carrying charges such as prevailed in 1925-26,² and closing operations were quiet except for breaks in both May and July prices at the close. In Winnipeg the only notable feature was the slightly increasing spread of May and July prices over October during the latter half of the year, probably a result of shortage of deliverable grades from the crop of 1926. In Buenos Aires the December future became a new-crop rather than an old-crop future on prospects of an early harvest, and closed below the February.

UNITED STATES CASH PRICES

The cash prices of representative wheats in the United States stood in markedly different relationships to one another in 1926-27 and 1925-26. Price comparisons for 1926-27 are shown in Chart 8. With short crops in the United States and in Italy and North Africa as well, durum wheat commanded a high premium over other varieties practically throughout the year. In 1925-26 a relatively large crop had given rise to an equally striking discount. No. 1 Dark Northern was 10 cents or more per bushel dearer than hard red or soft red winter wheats. The premium would undoubtedly have been higher had not the excellent quality of hard red winter made substitution for hard red spring feasible to a high degree. Soft red winter wheat failed to secure the premiums prevalent in 1925-26, when the crop was much smaller. The prices of hard and soft red winter moved closely together except in August and Sep-

tember 1926, when wet harvesting weather east of the Mississippi established a small premium on soft red wheat; and in June and July 1927, when crop prospects east of the Mississippi were comparatively poor. No. 1 Dark Northern was at the highest premium for the year in August 1926, before the new crop was harvested; and again in July 1927, because the new crop of winter wheat then beginning to come to market compared less favorably with spring wheat than did the crop of 1926.

CHART 8.—WEEKLY AVERAGE CASH PRICES OF TYPICAL WHEATS IN UNITED STATES MARKETS, AUGUST-JULY 1926-27*
(U.S. dollars per bushel)



* No. 2 Red Winter at St. Louis, No. 2 Hard Winter at Kansas City, No. 1 Dark Northern Spring and No. 2 Amber Durum at Minneapolis. Data from *Crops and Markets*.

Roughly comparable grades of Canadian and American spring wheats sold at prices considerably less divergent in 1926-27 than in 1925-26. As judged by monthly average cash prices, No. 1 Dark Northern at Minneapolis sold at prices no more than 25 cents per bushel higher than No. 3 Northern Manitoba at Winnipeg during 1926-27. The difference was less than the tariff of 42 cents; hence importation of Canadian wheat for domestic consumption over the tariff wall could not be undertaken with profit. In 1925-26 the margin in favor of American wheat reached 39 cents in October and remained higher than in 1926-27 throughout the year, and at times the margin was so great that imports were feasible. The comparison is of interest chiefly because American hard spring wheat, though definitively on a domestic basis in 1925-26, was nearly so in 1926-27 as well because of the smaller crop. Had not hard red winter wheat proved substitutable in a high degree,

¹ See further WHEAT STUDIES, III, 155.

² See WHEAT STUDIES, III, 114.

1926-27 might have perhaps proved another year of wide price margins between No. 1 Dark Northern at Minneapolis and No. 3 Northern at Winnipeg; and No. 1 Dark Northern might again have sold at Minneapolis for prices quite as high as the prices of No. 3 Northern at Liverpool.

EUROPEAN PRICES OF NATIVE WHEATS

It is impossible in limited space adequately to discuss differences in either the level or the course of prices of domestic wheat in European countries. For many countries neither satisfactory price series nor adequate data to explain movements are available, and prices in each country are naturally affected by influences not operative elsewhere. The following figures, monthly average cash prices (January and May 1927) for domestic wheat in various European countries and for British parcels, expressed in United States dollars, serve roughly to illustrate the diversity of price levels and movements.¹

	January	May
British parcels	\$1.58	\$1.63
Great Britain	1.55	1.58
Italy	2.13	2.16
France	1.88	1.91
Germany	1.72	1.92
Poland	1.56	1.79
Hungary	1.54	1.66
Roumania	1.37 ^a	1.32

^a March, not January.

Italian native wheat sold at higher prices than in any other country during 1926-27, despite a crop of large size. The high tariff (7.50 gold lire per quintal, equivalent to about 39 cents per bushel) was effective, and slow marketing by farmers throughout most of the year enhanced its effectiveness. Similarly high prices had prevailed in 1925-26 under similar circumstances. In contrast, French prices, next highest to the Italian in 1926-27 as a result of a small crop and

¹ For sources of data on British parcels, see note to Chart 6, p. 24; on English, Italian, French, and German prices, see Appendix Table XXIX. Polish price quotations have been secured from the *Polish Economist*; Hungarian, from *Magyarország* (Budapest); and Roumanian, from *L'Economiste Roumaine*.

² Total suspension of the duty of 18.2 francs was in effect from July 3 to August 20; from August 20 to October 18 the duty was fully effective; from October 18 to January 1 a partial suspension of 8 francs was permitted; thereafter the full rate was again effective.

tariff protection,² had run relatively much lower in 1925-26 on account of a large crop. German prices in 1926-27 were also high, especially toward the end of the year as domestic supplies were exhausted. Throughout most of the year prices were well above the level of 1925-26, principally on account of the smaller crop. In Great Britain domestic wheat sold close to the international cash price level except in August 1926 and June and July 1927, months when the level is seasonally high before new-crop wheat is available. Aside from disturbances caused by special seasonal influences in particular countries, the course of domestic wheat prices in the four great importing countries followed roughly the course of international prices; for the most part, the highest prices of the year were reached in November and May. In Italy and France a notable decline occurred from May to July, in part in accord with the international movement and the advent of new crops, but in part as a result of heavy marketings of accumulations of old-crop wheat. No such decline occurred in Great Britain and Germany, since stocks were exhausted and the new crop was farther from harvest.

Hungarian prices apparently followed the international movement, and at about the same level. In Roumania, however, the poor quality of the crop of 1926 kept prices very low—perhaps the lowest in Europe. Prices ruled low in Poland early in the year and permitted small exports; but increasingly clear evidence of deficient supplies caused a practically uninterrupted rise, amounting to about 30 cents per bushel, between early November and early May.

RETURNS TO WHEAT GROWERS

Since farm prices of wheat in 1926-27 presumably varied from country to country in much the same manner as cash prices, returns to wheat growers must also have varied widely from country to country. On the whole, however, 1926-27 was a reasonably prosperous year for producers. With the world wheat crop ex-Russia of about the same size as in 1925-26, prices were but little lower, and costs of production can hardly have changed substantially. But in the absence of reliable data on farm prices and costs for most countries, little can be

said with assurance. By contrast with 1922-23 and 1923-24, wheat production has been distinctly more profitable in practically all countries during the succeeding three years. The year 1926-27, however, does not stand out as exceptional among these three.

In the United Kingdom, changes in prices and in crops have apparently resulted in about the same gross returns to farmers in each of the past three years. Italian farmers, with a comparatively small crop and without tariff protection, had their lowest gross returns in 1924-25. French farmers obtained the highest returns in 1924-25, the lowest in 1926-27 on account of a short crop. In Germany, gross returns were highest in 1925-26, lowest in 1924-25. Australian farmers had a better year in 1926-27 than in 1925-26, because the crop was a third larger while prices were not enough lower to offset the advantage; but the still larger crop, higher prices, and larger yield per acre made 1924-25 the best year of the three. A large crop of good quality rendered 1926-27 a distinctly good year in Argentina, especially by contrast with 1925-26, when the crop was smaller and much wheat sold at a heavy discount for poor quality. In all of these countries, however, conditions naturally varied from region to region; and appropriate allowances for changes in costs and for the seasonal course of farm marketing might alter relationships somewhat.

More specific conclusions may be drawn with respect to the United States and Canada. On the basis of weighted annual average farm prices, which appear in Table 7, and official crop estimates, the value of the United States crop of 1926 was 1,024 million dollars, as compared with 988 million for the crop of 1925, and 1,106 million for the crop of 1924. If the crops of 1925 and 1926 were, as we believe, underestimated, gross values were much the same in the past two years and nearer to the figures for 1924-25 than would otherwise appear. Of the three years, however, 1924-25 was distinctly the most profitable; for comparatively low acreage¹ made for comparatively low total cost

¹ See Appendix Table I.

² It must be remembered that No. 1 Dark Northern commanded very high premiums in July and August 1926, before the new crop was harvested. For the crop year August-July prices of No. 1 Dark Northern averaged lower than for the crop year July-June.

of production while prices were comparatively high. Net returns to growers were smaller in 1925-26, in spite of high farm prices, because the crop was much smaller and gross costs were larger. In 1926-27, despite a large crop, lower prices and increased gross costs due to a larger acreage made net returns the smallest of the past three years. But wheat growing was apparently regarded as remunerative by producers. The intentions of farmers, expressed

TABLE 7.—ANNUAL WEIGHTED AVERAGE WHEAT PRICES IN THE UNITED STATES, 1920-27*
(Dollars per bushel)

Crop year July-June	Farm price	No. 2 Red St. Louis	No. 2 Hard Kansas City	No. 1 Dark Northern Minne- apolis	No. 2 Amber Durum Minne- apolis
1920-21....	1.83	2.13	1.83	2.01	2.00
1921-22....	1.04	1.27	1.20	1.48	1.19
1922-23....	.98	1.21	1.13	1.26	1.07
1923-24....	.92	1.07	1.05	1.24	1.06
1924-25....	1.28	1.59	1.35	1.58	1.56
1925-26....	1.46	1.69	1.63	1.65	1.44
1926-27....	1.23 ^a	1.37 ^a	1.35	1.51	1.55
Average					
1909-14....	.89	1.00	.95	.99 ^b	.89 ^c
1921-26....	1.14	1.37	1.28	1.44	1.26

* Data of U.S. Department of Agriculture.

^a Preliminary.

^b No. 1 Northern, which commonly sells from 3 to 5 per cent under No. 1 Dark Northern. The latter was not quoted prior to August 1, 1917.

^c No. 2 Durum.

on August 1, 1927, to increase sowings of winter-wheat acreage for the crop of 1928 by 13.7 per cent over the acreage sown for the crop of 1927, may presumably be regarded as a reliable indication of at least relatively good profits in wheat production.

Growers of spring wheat were in a relatively unfavorable position in 1926-27. The prices of No. 1 Dark Northern wheat at Minneapolis were fairly low;² and more favorable prices for durum wheat could not have offset the disadvantages of a short crop of hard spring. For this development the excellent quality of hard winter wheat, which permitted extensive substitution, was chiefly responsible. Growers of hard red winter wheat perhaps fared better even than in 1924-25, since the crop of 1926 (especially if allowances are made for official underestimates) was larger. Heavy

marketing in July and August 1926 by winter-wheat producers apparently proved about as remunerative as would have been the case with delayed marketing, carrying charges considered.¹

Canadian farmers apparently enjoyed another profitable year as a result of a large crop and good prices. The average farm price was officially estimated at \$1.09, as compared with \$1.12 for 1925-26 and \$1.22 for 1924-25. With allowances for official underestimates of crop production, farm values were about 340 million dollars in 1924-25, 490 million in 1925-26, and 460 million in 1926-27. The year 1926-27, however, compares somewhat less favorably with 1925-26 because the acreage was some 1.0 million acres larger; but it was unquestionably the most prosperous year since 1920-21, with the exception of 1925-26.

THE INFLUENCE OF THE CANADIAN POOL ON PRICES²

We are of the general opinion³ that the ways are few through which a wheat growers' co-operative association can increase the returns of its members. It is improbable that the Canadian Pool can handle wheat domestically, and in the export trade, more efficiently and more economically than middlemen. It is difficult to see wherein the increase in scale of operation, beyond a certain point, affords opportunity for economies. It is hardly probable that the Pool can make more money out of mixing than do line elevator companies. It is unlikely that a pool could store and insure the carry-over more cheaply than do line elevators.

¹ Official estimates of wheat prices received by producers on the 15th of the month were as follows for 1926-27, in cents per bushel:

July	127.7	Jan.	122.2
Aug.	125.1	Feb.	122.8
Sept.	117.7	Mar.	120.9
Oct.	121.4	Apr.	117.2
Nov.	123.6	May	123.2
Dec.	122.8	June	130.1

In Kansas, Oklahoma, and Texas, however, farm prices were slightly lower in July-September than in subsequent months until April.

² We feel that it is necessary to qualify all discussion of the marketing of Canadian wheat by the Pool with the statement that objective appraisal by any outside agency is rendered difficult and hazardous by the secrecy surrounding the affairs of the Pool, the Winnipeg Grain Exchange, and the line elevator companies.

³ Cf. WHEAT STUDIES, January 1926, II, No. 3.

Most of the items in handling grain—cleaning, drying, elevation, storage, interest, and insurance—are the same for everyone and many of them are legally regulated. The Canadian Pool does not hedge receipts, and this may tend to the commercial disadvantage of its members, since the hedging accounts of line elevators are usually profitable. Merely to transfer to growers the net profits of line elevators, would hardly make the organization of a co-operative association worth while. There is much loose talk about securing for growers the profits of grain speculators; but no one knows anything about the profits or losses of speculation. The maintenance of grain exchanges constitutes an item of expense in the grain business. This has a bearing only with the implication that co-operative marketing of wheat might dispense with grain exchanges; but the course of events in Canada has demonstrated that the grain exchange is indispensable to the Pool. Imaginary gains through so-called orderly marketing, in the sense of even distribution over the year, may be disregarded, since the Canadian Pool does not pretend to follow this policy. It is possible for the Pool to look farther afield for export markets than commercial exporters are in the habit of doing, but it is by no means clear how far the results would justify the effort.

The major opportunity for the Pool sensibly to increase the returns of growers (disregarding restriction of acreage) is by elevation of price to purchasers through centralized marketing, indirectly by moderating seasonal fluctuations and directly by semi-monopolistic operations. We incline to the inference that during the past year the Pool has accomplished something in both respects. But this cannot be proved, in part because the Pool does not release the data necessary to undertake the demonstration.

We infer that the Pool policy of selling futures in midsummer for delivery in October-December has some tendency toward stabilizing prices in the summer and autumn to the extent of moderating the seasonal course of prices. Little cash wheat appears on the market during the summer. Apparently, the Pool has sold a considerable volume of futures at this time; the amount is unknown, because both the Pool and the

Canadian Grain Exchange practice secrecy in their affairs. The Pool can afford to sell futures in this manner, as a speculator could not, because through the receipts from members the Pool is certain to have wheat with which to make delivery on the contracts. During October-December the Pool delivers against its contracts, instead of placing the corresponding amount of wheat on the cash market. The net tendency of the double transaction, under favorable circumstances and with skilful management, seems to be a net improvement of the price. In 1926-27 conditions were favorable to the success of this policy, for the Canadian crop improved after July and the trend of world prices was downward. Whether this policy would be successful in the event of a marked deterioration of the crop may be doubted. In one way the transaction is equivalent to hedging receipts; but in most years it is probably better for the Pool to sell futures gradually during the summer, at least to some extent, than to sell them heavily with receipts in the autumn.

The centralized marketing policy of the Pool has been gradually extended to include the presence of representatives in numerous international markets. It is Pool policy never to force the sale of wheat and wherever possible to sell to millers on quality. It is possible to point out instances in which the Pool has sold wheat abroad at cut prices; but over the year, these instances are presumably the exception rather than the rule. Grain importers of Great Britain have become second-rate figures, so far as the Canadian trade is concerned. Not only does the Pool sell direct to millers, but in consequence of direct purchases from the Pool, English millers often find themselves in possession of more grain than they require at the time, and in selling this they become grain dealers, a new function for millers there and one highly distasteful to the established grain trade. When the Pool puts aside the grain importers of Great Britain by selling directly to millers, the traders retaliate by playing against the Canadian wheat the wheats of other countries, particularly those of the Southern Hemisphere. European importers and millers have the impression that the Pool has made Canadian wheat more expensive, and this despite the fact that the Pool has occasion-

ally cut prices in a conspicuous manner. The policy of the Pool of selling direct to European millers has favored the grinding of Canadian wheat in Europe, as against the export of Canadian flour to Europe.

If the Pool has not increased the weighted price in the way suggested, we find little reason to infer that it has done so at all. In terms of figures, the whole subject is still in the dark. The Pool has this year published an audited report for the first time; but it is incomplete and lacking in the pertinent details requisite to critical analysis. It has yearly issued statements of average prices paid for No. 1, basis Fort William, with adjustments for carrying charge, operating costs, elevator services, and reserve. The line elevators do not publish reports of their business. The result is that an appraisal of the effect of Pool marketing on price simmers down to inferences.

During the past three years the average Pool price has declined continuously from 166 to 145 to 142 cents a bushel, basis No. 1 Manitoba Northern at Fort William.¹ This, of course, means nothing unless shown to be out of line with world price of wheat. Nor is the decline inconsistent with the view that the Pool has accomplished something in the upward direction, since without it the decline might have been greater. To compare the declared Pool price with the arithmetic mean of the closing prices of No. 1 Manitoba Northern on the Winnipeg market, or to contrast the straight line of the Pool average price with the curve of closing prices, is not conclusive. If the Pool and the line elevators would both issue reports of actual grain bought and prices paid, the truth would come out.

It has been a misguided propaganda on the part of the Pool to claim that members would receive more for their wheat than non-members would obtain from line elevators. Judged by theory and practice in co-operative marketing, just the opposite would be expected. Everything that the Pool might do to improve the price of wheat would apply to non-member wheat, while the special expenses of the Pool would rest only on members. The non-member stands under the umbrella of the

¹ The Pool is reported to have handled 80 million bushels of the crop of 1924, 212 million of the crop of 1925, and 210 million of the crop of 1926.

Pool when it is raining, and stands out in good weather. It is not to be expected that the management of the Pool would be relatively better than the management of the grain companies that survive Pool competition, since these would be the line elevators with best management and capital structure. Under these circumstances, members of the Canadian Pool ought not to expect as much for their wheat as would be received by non-members, judged in averages. How large a difference should exist is another matter and one that cannot be gone into for lack of data.

We have felt tempted to make a comparison of the Pool price with a weighted price. If line elevators made no purchases in the country, then Winnipeg receipts would correspond to the sales of the day. This of course is not true; but it does not seem to do violence to a reasonable interpretation of affairs to regard the receipts of the day in Winnipeg as corresponding to wheat sold at the price of the day in Winnipeg. The Pool has announced as an average price of No. 1, basis Fort William, for the last crop, 142 cents. We have taken the average closing price of No. 1 Manitoba Northern for each week and multiplied it by the weekly receipts of No. 1 at Winnipeg, and with these figures have secured a weighted price for the year September 1926—August 1927. This price was 143.3 cents, which is more appropriately comparable with the Pool price, than is the arithmetic mean of daily closing prices, 147 cents.¹ However, the fact that Pool members must wait for a portion of their payment while non-members sell for cash, increases the mar-

gin between the two returns. In view of our opinion that the Pool members cannot expect as high a price as non-members, with the Pool in operation, even if the returns to both are increased, we feel that the Pool cannot be commended or condemned, in its financial aspects, on the basis of the above figures.

It would be premature to judge the Canadian Pool merely by three years of performance. Pool marketing is the expression of a world-wide trend toward socialization of business, including both horizontal and vertical integration, with elimination of intermediary agencies. For two years the Pool was aided by favorable circumstances. During the past year the going has not been so easy, and the Pool was fortunate in being able to dispose of its large carryover at good prices, before the advent of a large new crop and lower prices. International dissensions are in the offing; many members do not approve of the trading in futures by the management of the Pool, they do not wish the Pool to play the selling game just as the middlemen always played it, they do not like the contract of the Pool with the line elevators. This year much will depend on the outcome of the Argentine crop. If this crop is large and the wheat dry and of relatively high protein, it will sell at a relative premium in Europe for mixing with the wet, soft wheat of the present European crop, the Canadian wheat being relatively high in moisture and low in protein. If the Argentine wheat is no better than the Canadian wheat, with a short crop in Australia, the sales of the Canadian Pool will be greatly facilitated.

VI. MILLING AND CONSUMPTION

An adequate review of flour milling and wheat consumption throughout the world is not feasible in view of the fragmentary and tentative nature of basic statistical data. With respect to consumption, little is known of changes in wheat stocks or of the quantities of wheat fed to animals or wasted. For many countries mill grindings—fundamental data because volume of

grinding is necessary for prosperity in the milling industry—are either not reported or are reported only after the lapse of many months. Only a broad impression of operations in the milling industry can be obtained by week-by-week perusal of milling journals. Volume of flour exports and imports provides the best available (but still an inadequate) guide to the milling situation. Our account is necessarily provisional and incomplete; but some items of interest and significance appear.

¹ This figure may be compared with the officially estimated farm price of 109 cents, published in January 1927.

INTERNATIONAL TRADE IN FLOUR

The milling industry is overextended in most countries; and the difficulties of achieving prosperity are increased by the erection of tariff barriers resulting in a declining trend in international trade in flour. Gross exports of flour were but 38.3 million barrels in 1926-27—almost the same as in 1925-26, but much smaller than in 1923-24 or 1924-25. Total exports of flour, according to incomplete but fairly comprehensive data assembled by the International Institute of Agriculture, in million barrels, were as follows for the past six crop years:¹

1921-22.....	34.3	1924-25.....	45.0
1922-23.....	37.3	1925-26.....	38.2
1923-24.....	48.1	1926-27.....	38.3

Comparisons are difficult because abnormal circumstances have affected the figures. One may regard the flour shipments of 1923-24 as abnormally high because of abnormally low prices, and similarly with 1924-25 because European wheat crops were so small. On the other hand, shipments were abnormally low in 1925-26 because European wheat supplies were so large. But the figure for 1926-27 is impressively low in view of the facts that trade in wheat and flour combined was the largest in history, and that normal growth in proportion of flour trade would imply for 1926-27 considerably higher figures than appeared. The world's bread is apparently tending to move in international trade as wheat rather than as flour; exporting countries are losing their flour markets, and importing countries are tending toward self-sufficiency in milling.

Of major significance for the milling industry, however, were the events in particular countries during 1926-27. Canadian exports of flour were the smallest in five years, despite an abundant crop. Smaller

exports from the United States during the past six years have not been recorded except in the year of short crop, 1925-26. Hungary and Jugo-Slavia exported comparatively little despite good crops; and French, Belgian, and Italian exports combined were the smallest in six years. Among the larger importing countries, Germany, Czecho-Slovakia, and Poland took exceptionally small quantities of flour; and only the United Kingdom, Netherlands, and Denmark imported notably large and increased quantities.

MILLING IN THE UNITED STATES

The past year was the best season enjoyed by American millers since the war. This was due to a fortuitous combination of favorable factors. The crop was generous, for the most part was harvested expeditiously and in good condition,² and was well proportioned for the manufacture of bread flour. (The crop of durum, however, was short; and the prices of semolina and alimentary pastes were out of line.) Millers were early in position to make large purchases of unusually good wheat at relatively favorable prices. The total grinding of the year, according to our best estimate, was 555 million bushels, an excess of 12 million bushels over the grinding of the previous year; but flour production was proportionately large—119.4 as against 115.4 million barrels.³ An unusual proportion of the annual flour production was sold and ground during the first three months of the year; in the last quarter millers complained of low sales, disregarding the extraordinary sales made during the first quarter.

All regions did not share equally in the large outturn. The Buffalo mills had the largest relative gain. The mills of the southwestern region enjoyed a remarkable year; flour mills in Kansas City (Missouri), Kansas, Nebraska, and Oklahoma turned out nearly 31 million barrels of flour, an outstanding record. The mills of the southeastern and Pacific soft-wheat region enjoyed a high level of outturn. In the northwestern spring-wheat region the outturn was apparently up to the level of 1925-26, despite a smaller number of mills operating and a small crop of spring wheat.⁴

¹ Chiefly as shown in *International Yearbooks of Agricultural Statistics*. Includes exports by importing countries. Figures for 1926-27 especially subject to revision.

² It is interesting to speculate whether the combine method of harvesting may modify the seasonal curve of milling.

³ Raised from Census Bureau's figures. See Appendix Table XXVII.

⁴ Production of large mills has been steadily increasing, and small mills are disappearing. See Robert T. Beatty, *Northwestern Miller*, November 16, 1927, p. 625.

The operations of the year were profitable to milling companies beyond the measure indicated by a bare comparison of wheat and flour prices. The particular circumstances supporting profits were high yield of flour, low premiums on protein, and high prices for millfeed. The average barrel of flour required only 4.57 bushels of wheat, whereas in the previous year it took 4.64 bushels;¹ the flour outturn of the year required some 7 million bushels less wheat than would have been required with the quality of the crop of the previous year. Premiums on protein were relatively low, partly on account of the even quality in the different regions and the high yield of flour, but particularly on account of the large proportion of high grade wheat in the hard winter-wheat crop. Prices of millfeed were out of line upward practically throughout the entire year, also out of line with the prices of coarse grains. Of course a high yield of flour meant a low yield of millfeed, but it was strong demand and not short supply that brought the high price. These circumstances made it possible for the huge advance sales of flour on contract made during the first three months of the crop year to be carried through with unusual profits to millers as a whole. Some companies naturally profited more than others; some indeed profited poorly. Even under favorable circumstances, sound capital structure and efficient management had their influence on profits.

Whether or not flour exports were a factor in the year's prosperity is a difficult question. Exports in 1926-27 were 13.4 million barrels—a figure lower than in any year since the war, 1925-26 excepted; and 1925-26 was a distinctly unfavorable year on account of the small crop and relatively high prices of wheat. On the whole, American flour exports are tending to decline; but this may have no great bearing on the prosperity of the American milling industry. We incline to the view that much of the flour sold in Europe in 1926-27 meant small or negligible profits to American millers; the comparative cheapness of American flour in Europe supports our in-

ference, though sales made early in the year may have proved remunerative. In any event it seems probable that domestic, not export, business was the significant factor for the fortunate position of American milling in 1926-27.

Our flour exports to Europe increased over those of 1925-26 in striking contrast with the flour exports of Canada, which declined. Similarly, our flour exports to China increased, while those of Canada declined, against which must be set a failure in our flour trade with Japan.²

The year was characterized by a noteworthy increase in coastwise shipments of Pacific flour through the Panama Canal to the Atlantic seaboard.

MILLING IN CANADA

The position of the Canadian milling industry for the year 1926-27 is difficult of definition. Though the volume of operations was smaller than in 1925-26, there is evidence in published accounts of milling concerns that net returns per barrel may have been larger. But the Canadian industry did not enjoy so profitable a year as the American. This in itself might have been the result of the difference in quality of wheat in the two countries; but the Canadian mills hold the opinion that it was due largely to differences in the marketing of wheat.

The flour output of the year was 17.8 million barrels, as against 19.0 million the previous year. Since change in population has been slight, with nothing to indicate any shift in per capita consumption, the explanation is to be sought in export trade, to which more than half the Canadian flour is necessarily consigned. The percentage of the total flour production exported was the smallest since the war. The total export declined from 10.9 million barrels in 1925-26 to 9.2 million in 1926-27—the lowest figure in five years. Two-thirds of the decline represented a falling off in European business; even exports to the United Kingdom were not maintained. In short, the Canadian milling industry during the year lost foreign business that had been previously held by them and to which they believed they were entitled. Canadian flour exports to Europe have declined progressively dur-

¹ Census Bureau figures; if smaller mills than those reporting production are allowed for, these milling ratios must be raised by around 1.5 per cent.

² See Appendix Table XIX.

ing the past four seasons and the situation is naturally a source of apprehension to the industry involved.

Exporting flour is a principal business of the Canadian industry, while it is a side business of the American industry. Canadian millers cannot afford to dump export flour as American millers often feel compelled to do.¹ Despite the poor quality of the crop it is difficult to believe that Canadian flour exports fell off for reasons of quality, contrasted with American export flours and European blended flours.

Four specific factors have been advanced in explanation of the decline of Canadian exports: (1) relatively low ocean freight rates accorded to wheat; (2) higher tariff duties levied on flour than on wheat in European countries; (3) competition of flour ground from Canadian wheat in American mills; and (4) the selling policies of the Canadian Wheat Pool.

American as well as Canadian millers make complaint against ocean freight rates, giving preference to wheat over flour. The effects of relatively higher freight rates on flour than on wheat, in the absence of week-by-week data, are hard to evaluate; but this factor was perhaps of some significance. It is not easy to understand why European tariffs should hit Canadian flour harder than the flours of other exporting countries; and tariffs cannot explain the decline in Canadian flour exports to Great Britain. So far as American mills grinding Canadian wheat in bond for re-export of flour are concerned, these occupy in relation to Canadian mills the same position as that held by mills grinding Canadian wheat in free-trade countries; whether American and British mills grinding Canadian wheat for European sale injure Canadian mills more or less is a broad question of expense, financial structure, and transportation costs.

In the fourth point we deal with a subject of critical interest in Canada. One ob-

ject of the Pool is to eliminate middlemen; and it thus seeks to deal directly with millers in Canada, in the United States, and overseas. This in itself would not injure Canadian milling, if the mills in all countries paid equivalent prices for wheat. Reasons might be advanced in favor of Canadian mills receiving wheat at something less than equivalent prices, in order to secure for Canada the advantages of value added by manufacture. As the Pool policy works out, however, it seems that Canadian millers pay more than equivalent prices for wheat—i.e., Canadian flour is relatively more expensive abroad than flour ground abroad from Canadian wheat. That Canadian mills might work on two price levels—a higher one for domestic flour and a lower one for export flour—is not considered practical. In January 1926 it was reported that an understanding had been reached between Canadian millers and the Pool whereby millers would be advised of quotations to foreign mills and would receive equivalent prices.² Apparently nothing came of this understanding, since at the May 1927 meeting of the Canadian National Millers' Association, resolutions were adopted appealing to the Pool to grant to Canadian mills fully equivalent prices for wheat, in order at least not to discourage export of Canadian flour.

The Pool has not been in position, or has not taken occasion, to refute the statement that Canadian wheat is relatively cheaper to European mills than to Canadian mills. Is the situation accidental and temporary, or is it inherently an effect of Pool merchandising policy? To some extent in Canada, the milling industry has been identified with the grain trade; many men are both millers and grain traders; and growers feel against the milling trade something of the same resentment they hold against the grain trade. There are several possible reasons, operative in Europe, why European millers might expect to receive lower equivalent prices than Canadian millers. Pool sales to European millers are private transactions; having large amounts of wheat to dispose of, the Pool might accept a secret bid from a large European miller at a lower price than the Pool would wish to announce to all mills, and of course at a lower price than it would consider in a sale to a grain trader.

¹ Yet the chairman of the Spillers company has made the statement that the bulk of flour imports from all sources into Great Britain were made at no profit and a considerable proportion dumped; corresponding statements have been made by continental millers. It is difficult to conceive that appreciable quantities of Canadian flour could have been sold at a loss.

² See WHEAT STUDIES, III, 120.

This would also be a lower price than could be offered on non-Pool wheat by an independent merchant. Of course, European millers play the Pool against the grain traders; but European millers and grain traders are convinced that mills frequently buy wheat from the Pool at prices for which North American exporters and European importers could not afford to sell. Secondly, the entry of British millers into the grain trade to dispose of parcels of wheat in their hands in excess of current requirements, has meant lower prices because it was dumping. Canadian wheat imported for blending cannot usually pay the premium for protein carried by straight Canadian flour, which tends to depress prices of Canadian wheat to European millers. Lastly, the Pool policy of stationing representatives in European countries has necessarily led to expansion of wheat shipments on consignment. Such wheat, unless promptly sold, piles up carrying charges in European ports; and since the consignments cannot be accurately proportioned to sales, but will usually be in excess of them, the situation resolves itself into a position of trading advantage for the purchasing European mills. It is an old experience in the wheat export trade that shipments on consignment lead to price-cutting to avoid carrying charges.

During the past season the Canadian mills have supposedly adhered to an arrangement for quoting common prices for export, in order to avoid price-cutting; this may have tended to favor higher flour prices in Canada. Flour ground in Canada arrives in the United Kingdom in better condition than flour freshly ground there from Canadian wheat, because it is mature; but this advantage has apparently been lost in the shuffle.

It is not to be believed that the Pool desires to diminish Canadian flour exports by favoring European millers; it could not justify this course from any standpoint of domestic or international policy. Either the situation is the natural result of the various marketing factors or it is a temporary dilemma because a difficult problem has not yet found a solution. Clearly the future of the Canadian milling industry is tied up with the merchandising policy of the Pool; and from the standpoint of Dominion policy the marketing problem of the growers cannot be regarded as solved so long as the

milling industry rests under the shadow of discrimination.

The decline in Canadian flour exports in 1926-27 thus may perhaps have been due in some part to the disadvantage at which Canadian millers were put by having to pay relatively high prices for Canadian wheat. But it must be recalled that relatively high prices for Canadian wheat on international markets in the latter half of the year, in some part the result of Pool policy, must have tended to make Canadian flour wherever milled, if milled at a profit, relatively expensive. The competition of American flour in the first half of the year, and of Australian and Argentine in the second, presumably combined with the Pool's price-raising tactics to render difficult the situation of Canadian millers.

MILLING IN EUROPE

The milling industry of Europe, like that of most other parts of the world, is over-extended. The new frontiers of Europe have introduced abnormalities in relation both to sources of wheat and to flow of flour. Therefore milling journals in Europe are filled with jeremiads. The tenor of the complaints varies from year to year; sometimes it is price, sometimes volume of imports, sometimes artificial restrictions and discriminations, sometimes unfair methods of merchandising. The picture is confused. The continent cannot, of course, be regarded as a unit.

Jugo-Slavia and Hungary, surplus wheat-producing countries, are naturally net flour exporters; but they have been losing ground. France, Italy, and Belgium, wheat-deficiency countries, which have been surprisingly prominent as flour exporters during recent years, have also been fading out of the picture. They are not naturally net flour exporters: it is only under unusual circumstances in milling that a heavy wheat importer becomes a net flour exporter.

Hungary possesses an enormous equipment of high-grade flour mills built for the old Austro-Hungarian Empire and contiguous regions. These mills cannot be kept occupied on Hungarian wheat, but must draw their wheat from the entire Danubian region. In order to promote their own milling

industries, the surrounding countries have placed obstacles in the flow of wheat toward Hungary, which have even led to imports of wheat from Buenos Aires to Budapest. Not only are the surplus wheat-producing neighbors of Hungary trying to make their wheat expensive for Hungarian mills, but the flour-importing regions that constituted her previous flour markets are trying to keep out Hungarian flour in order to promote their own milling. In effect, Hungary faces wheat-export duties on the one hand and flour-import duties on the other. It is doubtful if the Hungarian mills last season operated to 25 per cent capacity. Even for domestic wheat, the trend is in the direction of exports of wheat rather than of exports of flour. Although Hungarian net exports of wheat in 1926-27 were the largest since the war, her net exports of flour were smaller than in any year except 1922-23, when the crop was short. The continued difficulties in navigation of the Danube and abnormally high freight rates on Hungarian railways have contributed to the difficulties of the mills. There has been misguided speculation and financial mismanagement in the operations of Hungarian mills, made worse by excessive rates of interest on bank loans. Limited to native wheat supplies, of which the quality has deteriorated since the war, Hungarian flour no longer holds the high rank to which it was accustomed, and harder flours from other countries are now widely preferred. Hungary is now negotiating commercial treaties with her neighbors, through which she hopes to secure outlet for flour, particularly in Austria, Czecho-Slovakia, and Poland; but it seems doubtful whether substantial relief is in sight. Unless the political atmosphere of Central Europe changes quickly and profoundly, the Hungarian milling industry faces extensive liquidation.

Conditions of the milling industry in Jugo-Slavia continue bad. The lost prosperity of Hungarian mills was not conferred upon Jugo-Slavian mills, the milling capacity of the new country exceeding requirements of the domestic market and the customary export markets. Curiously enough, Jugo-Slavia has felt compelled to protect the native mills from Italy. High import duties in Czecho-Slovakia and higher transportation rates to Greece have reduced

exports in those directions. So long as an export tax on wheat existed, this favored the mills; but when agrarian agitation resulted in the abolition of this export duty on wheat, the export of wheat was favored at the expense of flour, of which the export has been declining. Like Hungary, Jugo-Slavia in 1926-27 had smaller net exports of flour than in any other year since the war except in 1922-23.

Roumania also has an overextended milling industry. Impediments to the navigation of the Danube, inefficient handling at ports, and high railway charges have made it difficult to deliver Roumanian flour in central and western Europe in competition with flour from overseas, particularly in countries with import duties and high specifications on quality. Nevertheless Roumanian exports of flour have been increasing for the past six years, and were larger in 1926-27 than in any recent year except 1923-24. Large crops of cheap wheat have apparently facilitated flour sales; Roumanian flour, like Roumanian wheat, has been available at very low prices. It is not apparent, however, that the Roumanian milling industry has made substantial gains.

Austria, Czecho-Slovakia, and Poland have continued their efforts to break the pre-war dependence of those regions on the Hungarian flour mills. Each country is trying to protect its wheat and rye growers, as well as its wheat and rye millers, which in the nature of things is not easy. During the year, the Austrian duties were changed slightly to the advantage of flour, though the import duties were increased on both flour and wheat. The Czech duty on wheat was high, but still higher on flour, and imports have been greatly reduced. Until the spring of 1927 the drawback on export of German flour favored German flour in Poland against Hungarian. Poland has attempted to facilitate the export of certain grades of wheat and rye and the import of others, and has had an import duty on flour. All circumstances considered, the year has been relatively favorable to the mills in Austria, Czecho-Slovakia, and Poland, though least so in Austria. With expansion, new troubles will develop.

Flour milling and bread baking in Italy are under minute regulations designed to promote the use of domestic, and to dis-

courage the use of imported wheat. During the past crop year a standard extraction was fixed at 85 per cent, with differentials for varying wheats. Imports of flour were restricted by tariff duty and by provision against the importation of low-extraction flour. Whether the import duties on wheat and flour have favored wheat or flour is a matter under dispute, though the large coastal mills have appeared to suffer more than interior mills, partly because small mills have partially evaded the stringent milling regulations. The policy of the government is against maize and in favor of wheat. Furthermore, there is evidence of widespread preference for wheat, both in the form of bread and alimentary pastes, and the stabilization of industry in the country has aided in this direction.

The milling year 1926-27 in Great Britain was enlivened by more than usually active controversy between importers of flour and millers of flour from imported wheats. Great Britain has a heavily overextended milling industry. Though the figures are not yet adjusted for re-exports, it would seem that the United States shipped more wheat and flour to Great Britain than did Canada. Apparently, home-ground flour suffered more from American than from Canadian competition, and in general British millers during the year resented what they regarded as a dumping of flour into Great Britain. Both gross and net imports of flour were the largest in four years, a circumstance not readily explicable unless imported flours were offered at unusually low relative prices. During the year a governmental board attempted, with little success, to regulate the prices of bread and flour with relation to each other. What with the disorganization of the importing trade by the Canadian Pool and the difficulties of the millers and bakers under governmental regulation, the occupations revolving about wheat would seem to have had an unsatisfactory season during 1926-27. The situation in Irish mills became so difficult during the year as to arouse a demand for imposition of a tariff duty on wheat — directed against Great Britain rather than against Canada and the United States.

During the year the Belgian government practiced both import and export regula-

tion, established a legal extraction of 80 per cent, and prescribed the admixture of 15 per cent of rye, restrictions that were withdrawn later in the year. The Belgian mills have continued to lose the re-export trade in flour that was so profitable to the mills a couple of years ago.

In France the government enforced during the year a high milling extraction and made the admixture of 10 per cent of rye or other substitutes compulsory. In response to agitation of consumers, turnover taxes were levied on the sale of flour and maximum prices were fixed in different parts of the country. Under the existing tariff, wheat is apparently favored at the expense of flour, though special reimbursements to millers were made applicable to the grinding of imported wheat for domestic consumption of flour. Millers chafed under the multiplicity of regulations, and it is doubtful, in view of an apparent reduction in flour consumption, if the milling industry enjoyed even a fairly prosperous year. The sharp decline in exports of flour has further represented some loss to the French mills.

At the beginning of the crop year, German millers secured an increase in the duty on flour, and the duty was further extended in the spring. These higher duties, with continuation of the export certificate system, have operated in favor of the native milling industry, especially against the mills of Holland. Under these circumstances it is not surprising that imports of flour fell to practically a third of the amount of the previous year. The trend of the consumer's taste in Germany is in favor of wheat and from rye, and since there is less country milling of wheat than of rye, this has improved the position of the larger mills. At the same time German mills complain of the narrow margin of returns.

The milling journals in Denmark, Holland, and Switzerland picture those countries as swamped with import flour during the year, and official reports tend to confirm the complaints, notably in Holland. Mills in Holland suffered not only from strong competition of American flour, but also from the loss of the German market. In all of these countries, wheat is gaining at the expense of rye, and the milling industries are both overextended and dislocated. At the

close of the year the government of Norway abandoned the monopoly of breadstuffs that had existed for over a decade; import duties on wheat and flour were continued, the revenues of which go as subsidies to growers of bread grains; the largest mill in the country has been and continues to be operated by the government; and a uniform price of flour is also to be continued, with differentials and freight compensations.

The milling industry of Greece has not been large enough to cover domestic requirements of flour, but is attempting to emulate the milling expansion of other countries. In consequence of increase in population through return of refugees, flour imports rose notably several years ago. These import flours were largely clears, with a relatively high acid and ash content. Using this as a pretext, governmental restrictions were set up on the basis of alleged inferiority, which have had some effect in restraining imports. During the course of the year an increased duty was applied to flour, directly and also indirectly through change in the rate of conversion of metallic to paper drachmas, supplemented by excise taxes. The final result approached an embargo on import of flour, resulting in a situation now in course of diplomatic discussion between the governments concerned.

Spain also has an overextended milling industry which during the past year has been operated largely under governmental regulation, especially as regards imports and exports. With favorable crops in 1925 and 1926 the impediments to exportation were minimized, and Spain exported more flour than in preceding years. During the year Spain has witnessed a continuous struggle between millers and bakers over the price of flour. In Portugal the government regulation of milling has remained quite as elaborate as during the war; even the quantities of wheat to be imported in 1926-27 were authorized specifically by governmental decree.

There is little to report on milling in Russia. The industry has been nationalized, if not rationalized; it is overextended and inefficiently operated. On account of high costs of operation and merchandising, Russian flours are priced out of line in the export markets. Turkey, Esthonia, Latvia, and Finland have import duties that oper-

ate more effectively against Russian flours than against flours from overseas.

MILLING IN THE ORIENT

The milling industry of eastern Asia is literally a hodgepodge. China has a large but unmeasured crop of wheat, possibly as much as 400 million bushels, all produced in the interior. In the absence of civil war or other domestic disturbance, Chinese wheat flows coastward in quantities varying with the size of crops. In the event of civil war, disturbances in transportation, abnormalities in currencies, or short crops of wheat in the central and northern provinces, the flow of native wheat to the coast is curtailed. Coastal provinces consume flour milled from native wheat, flour milled from imported wheat in Chinese mills, flour milled from imported wheat in Japanese mills, and flour imported from Canada, the United States, and Australia. There are no duties on wheat and flour imports for the country as a whole; in times of disturbances there are often local exactions. With good crops of all cereals, China is occasionally a net exporter of flour in the absence of civil war; under less favorable circumstances of crops, the country is a net importer. Occasionally there may be a glut of wheat in the interior, with active imports of wheat and flour from overseas into the coastal cities. In times of peace, if the crop of native wheat is large enough to permit of a considerable shipment to coastal cities, this wheat is usually cheaper at the mill door than are foreign wheats; and under these circumstances the native mills are apt to be active. When native wheats are lacking the native mills find it difficult to import wheat and compete with imported flour. Despite this, the milling industry of China is overextended, as is that of Japan.

During 1926-27 mills in the coastal regions were hampered not only by the mediocre crop in the interior and by disturbances in transportation of such native supplies as were available, but also (on account of the imperative need of flour for the armies) by conditions favoring the importation of flour rather than wheat from overseas. Nevertheless there were times during the year when native flour has been below the import prices of Canadian, Ameri-

can, and Australian flours, obviously the result of depressed interior domestic purchasing power. There has been hoarding of flour in some cities, with strikes against foreign flour in other cities. The total picture of Chinese milling is dark; but how dark may not be judged by crop reports, grindings, imports and exports, or prices.

The consumption of wheat is expanding in Japan, but not as rapidly as the mills have expanded. When Chinese demand for import flour is active, the Japanese mills have a good season; when the Chinese wheat crop is good, the Japanese flour trade with China languishes. With the consent of the government, the Japanese mills have been working under an arrangement in respect to the domestic trade, whereby a regular program of curtailment of production has been ostensibly followed, varying according to the size of the mill and amounting to as much as 50 per cent for the larger mills (two milling companies control three-fourths of the flour production of the country). The agreement does not apply to the export trade, which has faced peculiar difficulties on account of the civil war in China. Despite the short crop in China, large exports of Japanese mills were impossible; and Japan was a small net importer on the year. All in all, the Japanese milling industry is in a precarious position, which may have been somewhat ameliorated, but has not been cured, by the trade agreement under which the mills are operating.

CONSUMPTION IN LEADING EXPORTING COUNTRIES

Wheat produced in a given year disappears either as human food, as feed and waste, as seed, or as increases in stocks of wheat and flour. For the major exporting countries, but for no others, it is possible to reach acceptable estimates of wheat used as human food and as seed. Changes in stocks and feed use of wheat provide greater difficulties.

For the United States, we estimate consumption of wheat for human food in 1926-27 at 492 million bushels, the same figure as in 1925-26.¹ A high yield of flour per bushel of wheat, due to the high quality of the winter-wheat crop, counterbalanced an increase in population. Seed requirements of

85 million bushels were slightly larger than in 1925-26 on account of the larger acreage sown, but not so large as in 1922-23 or 1924-25. Feed use of wheat was doubtless not large in view of the high quality of the crop, but a figure so low as the 20 million bushel figure indicated by our calculations of disposition seems incredible and reflects on the accuracy of the crop estimate.²

In Canada the notable feature of consumption in 1926-27 was the large amount of grain lost in cleaning and otherwise unmerchantable, officially estimated at 31.4 million bushels as against 17.5 million in 1925-26 and 22 million in 1924-25. The figure was no higher even in 1923-24, when the crop was larger and wheat prices were far lower. This was due to the relatively poor quality of the 1926 crop. Consumption of wheat for human food, which we estimate at 44 million bushels, was also high on account of a high milling ratio.³ Seed use of wheat was slightly smaller than in 1925-26 on account of a smaller acreage seeded in the spring of 1927. Wheat fed on farms must have been larger in amount in 1926-27 than in the two preceding years on account of the larger proportion of damp grain. Accepting official estimates for the items of disposition so far as available, we conclude that the crop of 1926 was underestimated by about 20 million bushels.⁴

Of consumption in Australia little can be said. Wheat used for feed⁵ is at best a small

¹ Our estimates of wheat consumption for human food are based upon adjusted data for flour production, adjusted milling ratios, and estimates of population. For recent years we assume a constant figure for per capita production of flour of .9 barrel. This method of estimation will be explained in detail in a forthcoming issue of *WHEAT STUDIES*.

² See above, p. 19.

³ Official estimates of wheat milled for consumption in 1926-27 have not yet appeared. The milling ratio of 1926-27, 4.54 bushels per barrel, compares unfavorably with the ratios for 1923-26 (1923-24—4.46; 1924-25—4.49; 1925-26—4.48) and leads us, on the assumption of constant flour consumption per capita, to the figure of 44 million bushels milled for consumption in 1926-27.

⁴ See Appendix Table XXXII. Official calculations of disposition, which contain a preliminary figure for human consumption of only 39.4 million bushels and allow nothing for wheat fed on farms, indicate an underestimate of only 5.6 million bushels. See *Handbook for the Use of Crop Correspondents*, 1927, p. 30.

⁵ The *Australian Yearbook*, 1926, p. 640, estimates the use of wheat for poultry and livestock feed and for seed for green forage as .5 to 1 bushel per capita per annum. For recent years this implies annual disappearance of only 3 to 6 million bushels.

item. There is no evidence of changing per capita consumption, seed requirements change only about a million bushels from year to year. Variations in quality from year to year are slight in Australia, where neither frost, rust, nor excessive rain is common; hence large variations in quantities of wheat milled or fed and wasted do not ordinarily occur.

The poor quality of the crop of 1925 in Argentina gave rise to exceptionally heavy disappearance of wheat both for flour milling and for feed and waste not only in 1925-26, but also in 1926-27; for the crop of 1925 was being utilized throughout the calendar year 1926 and even into 1927. The natural crop year in Argentina is not August-July, but January-December, and this fact combined with the publication of milling statistics for the calendar year makes difficult the adjustment of consumption figures to the European crop year. On the basis of such adjustments, however, we estimate human consumption of wheat at 55 million bushels in 1926-27 as compared with 54 million in 1925-26—a difference smaller than would be expected in view of increased population and increasing per capita consumption,¹ but larger than would be indicated if wheat of good milling quality had not been available from January to July 1927.² For seed requirements and feed and waste our estimates for the past two years are in some measure arbitrary; but higher figures than those of 1922-25 are reasonable not only because acreage has increased, but also because of the exceptionally poor quality of the wheat available throughout the calendar year 1926.

CONSUMPTION IN EUROPE EX-RUSSIA

For European countries, information respecting consumption is limited in most instances to data on apparent domestic utilization or available supplies—crops plus net imports, or minus net exports. These data

are in themselves subject to a considerable margin of error on account of inevitable inaccuracies in crop estimates; and they are misleading indexes of consumption—whether for food, feed and waste, or seed—because corrections for changes in stocks cannot be made on the basis of available information.

For the past four years, available supplies of wheat in Europe ex-Russia as a whole were as follows, in million bushels, on the basis of available official data:

Year	Crops	Net imports ^a	Supplies
1923-24.....	1,249	543	1,792
1924-25.....	1,051	623	1,674
1925-26.....	1,401	464	1,865
1926-27.....	1,208	616	1,824

^a The sum of net imports by importing countries less the sum of net exports by exporting countries. Contains some estimates.

According to these data, uncorrected for errors in crop estimates or for changes in stocks, wheat disappearance in Europe as a whole in 1926-27 was only about 40 million bushels smaller than in 1925-26, despite a domestic crop nearly 200 million bushels smaller. On the other hand, disappearance in 1926-27 appears larger than in 1923-24 by only 30 million bushels, despite a crop 40 million bushels smaller, and prices much higher than in the earlier year. But the available supply figure for 1926-27 is certainly too low if only because both the crop and the imports of France are understated;³ with allowance for these understatements, European disappearance was apparently about as high in 1926-27 as in 1925-26.

Yet non-statistical evidence respecting changes in stocks alters the picture still further. Stocks increased largely in 1926-27 and in 1923-24, decreased largely in 1924-25, and increased a little in 1925-26. It is impossible to measure these increases or decreases. On the crude assumption that stocks increased 30 million bushels in 1926-27 and 1923-24, decreased by the same amount in 1924-25, and increased 10 million bushels in 1925-26, and that the imports and crop of France in 1926-27 are understated by at least 30 million bushels, apparent domestic utilization of wheat in Europe ex-Russia as a whole would be as follows in million bushels:

1923-24.....	1,762	1925-26.....	1,855
1924-25.....	1,704	1926-27.....	1,824

¹ For evidence that per capita consumption of flour in Argentina is increasing, see *Northwestern Miller*, September 14, 1927, p. 1019.

² Milling ratios in tons of wheat per ton of flour, were as follows for calendar years in Argentina:

1922.....	1.4337	1925.....	1.4147
1923.....	1.4339	1926.....	1.4613
1924.....	1.4140		

³ On understatement of imports, see above, p. 13; of crop, see below, p. 44.

With these admittedly crude corrections, it still appears that 1924-25 was a year of reduced consumption, as is reasonable in view of the very short crop and high prices in that year. That European consumption was much larger in 1926-27 than in 1923-24, despite much lower prices in the earlier year, is reasonable in view of growth of population, increased seed requirements, and economic recovery; and larger consumption in 1925-26 than in 1923-24 is reasonable not only for these reasons, but also in view of the exceptionally large European crops of 1925. Both 1926-27 and 1925-26 were clearly years of relatively large consumption. But whether or not European wheat consumption was in fact larger in 1925-26 than in 1926-27, it is impossible to say. Accurate data on crop production and changes in stocks might either reverse or intensify the difference shown by the figures above.

The situation differs, however, from country to country within Europe. Table 8 shows

TABLE 8.—APPARENT DOMESTIC UTILIZATION OF WHEAT BY CERTAIN EUROPEAN COUNTRIES, AUGUST-JULY, 1921-27*

(Million bushels)

Country	1921-26 average	1922-23	1923-24	1924-25	1925-26	1926-27
British Isles...	280	276	298	282	264	289
Italy.....	287	277	294	259	309	307
Germany.....	154	109	137	170	176	187
France.....	328	289	329	340	341	294
Holland.....	48	45	52	50	53	55
Roumania.....	84	90	93	67	95	99 ^a

* See Appendix Table XXXI for details and qualifying notes.

^a Net exports partially estimated.

available supplies of wheat for the past five years in certain European countries where significant changes have occurred. In Great Britain, consumption was presumably relatively low in 1926-27, because a considerable increase in stocks was effected in the course of the year. It is unlikely that the quantity of wheat actually consumed equaled the average for 1921-26,¹ though it

¹ In so far as crop estimates are accurate, the averages of annual figures for available supplies may be regarded as reliable indicators of consumption, for the disturbing effect of changes in stocks is largely eliminated by averaging.

² See WHEAT STUDIES, III, 104.

was larger than in 1925-26. Unemployment resulting from the coal strike may have reduced consumption during August-November, as had been the case during May-July of the crop year 1925-26, and per capita flour consumption is apparently declining.² But despite an increase in stocks, which renders the 1926-27 figure of available supplies too high as an index of consumption, the lower prices of 1926-27, coupled with a sharp revival in business activity after the renewal of coal mining, prevented consumption from falling to the notably low level of 1925-26.

In Italy available supplies in 1926-27, some 307 million bushels, were about the same as in 1925-26, and again well above average. There was, however, a considerable increase in stocks; and on the whole consumption of wheat was probably smaller than in 1925-26, though presumably slightly above average. Exceedingly high prices and measures requiring millers to produce a flour of high extraction acted to reduce gross consumption in both years; but increases in population, per capita consumption, and purchasing power have apparently more than counterbalanced these influences. Milling regulations, however, were more stringent in 1926-27 than in 1925-26, and the domestic crop was smaller.

Available wheat supplies in Germany have increased consistently in the course of the past five years. Since there was apparently no notable increase in stocks during 1926-27, consumption of wheat in Germany appears to have been higher in 1926-27 than ever before, despite the high prices. A part of the increase over 1925-26 was due to more extensive use of poor quality wheat for feed; but improving economic conditions have apparently favored increasing use of white bread. In Poland also consumption in 1926-27 was apparently the largest in five years, especially since stocks were reduced in the course of the year. The increase occurred despite high prices, and may reasonably be ascribed to a growing preference for wheat bread made effective by economic recovery. The high figure for available wheat supplies in Roumania in 1926-27, some 99 million bushels as compared with a 1921-26 average of 84 million, reflects an increase in stocks and heavy utilization of poor quality wheat for feed.

Available supplies in France, according to the data of Table 8, were only 294 million bushels in 1926-27 as compared with the 1921-26 average consumption of 328 million bushels. The 1926-27 figure is clearly too low because imports for the year are understated; but an allowance for this understatement would be more than counterbalanced by an allowance for increased carryover. Certain factors made for relatively low consumption in 1926-27. Wheat prices were the highest in four years; millers were obliged not only to mix 10 per cent

of other cereals with wheat, but also to obtain a high extraction; and the tariff was effective for most of the year. Nevertheless we find it difficult to believe that consumption in 1926-27 was 40-50 million bushels lower than in the two preceding years, or 20-30 million bushels below average. The evidence suggests that some reduction in consumption may well have occurred, especially by comparison with 1925-26, but that the final official estimate of the crop of 1926—232 million bushels—was considerably too low.

This issue is chiefly the work of M. K. Bennett, with substantial assistance from Joseph S. Davis, Katharine Merriam, Margaret Milliken, and Janet Murray. Alonzo E. Taylor contributed most of the discussion of milling and the Canadian Pool. The Institute is indebted to the Bureau of Agricultural Economics of the U.S. Department of Agriculture for a useful check on statistics of production and acreage

APPENDIX

TABLE I.—WHEAT ACREAGE IN PRINCIPAL PRODUCING AREAS, 1920-27*

(Million acres)

Year	United States	Canada	India	Australia	Argentina	Chile	Uruguay	Hungary	Bulgaria	Yugoslavia	Romania	Soviet Russia	Mexico
1920.....	61.14	18.23	29.95	9.07	13.22	1.26	.70	2.66	2.18	3.56	5.00	.....	....
1921.....	63.70	23.26	25.78	9.72	14.10	1.34	.81	2.89	2.23	3.70	6.15	.....	2.28
1922.....	62.32	22.42	28.21	9.76	16.06	1.47	.66	3.52	2.30	3.67	6.55	.....	2.62
1923.....	59.66	21.87	30.85	9.54	17.04	1.54	1.06	3.29	2.38	3.84	6.65	.....	3.05
1924.....	52.54	22.06	31.18	10.82	15.98	1.43	.85	3.50	2.49	4.24	7.84	.....	1.40
1925.....	52.26	21.97	31.77	10.20	19.20 ^a	1.45	.96	3.52	2.55	4.31	8.16	59.84	1.16
1926.....	56.53	22.99	30.47	11.06	19.28 ^a	1.50	.99	3.71	2.59	4.18	8.22	69.02	1.32
1927.....	58.50	22.46	31.24	11.00	19.70 ^a	....	1.04	3.91	2.51	4.42	7.66	.....	1.20
Average													
1909-13.....	47.10	9.94	29.22	7.60	14.88	1.00	.79 ^b	3.71	2.41	3.98	9.52 ^b	74.21	2.17 ^c
1921-25.....	58.09	22.32	29.56	10.01	16.48	1.45	.87	3.34	2.39	3.95	7.07	.....	2.10

Year	Morocco	Algeria	Tunis	Egypt	British Isles	France	Germany	Italy	Belgium	Netherlands	Denmark	Norway	Sweden
1920.....	1.99	3.45	1.32	1.19	1.98	12.59	3.40	11.29	.31	.15	.18	.04	.36
1921.....	1.96	3.04	1.49	1.46	2.08	13.30	3.56	11.88	.34	.18	.22	.04	.36
1922.....	2.07	3.74	1.07	1.52	2.07	13.07	3.40	11.50	.30	.15	.24	.02	.36
1923.....	2.25	3.17	1.61	1.54	1.84	13.67	3.65	11.45	.35	.15	.20	.03	.36
1924.....	2.46	3.53	1.16	1.42	1.63	13.62	3.62	11.28	.34	.12	.15	.02	.32
1925.....	2.62	3.61	1.62	1.38	1.57	13.87	3.84	11.67	.36	.14	.20	.02	.36
1926.....	2.56	3.74	1.84	1.53	1.68	12.97	3.96	12.15	.35	.13	.25	.02	.38
1927.....	2.27	3.48	1.04	1.66	1.71 ^d	13.21	4.06	12.56	.39	.15	...	.02	.40
Average													
1909-13.....	1.70	3.52	1.31	1.31	1.89	16.50	4.03	11.79	.40	.14	.15	.01	.26
1921-25.....	2.27	3.42	1.39	1.46	1.84	13.51	3.61	11.54	.34	.15	.20	.03	.35

Year	Spain	Portugal	Switzerland	Austria	Czechoslovakia	Poland	Finland	Latvia	Estonia, Lithuania	Greece	Japan, Chosen	South Africa	New Zealand
1920.....	10.25	1.10	.12	.37	1.57	1.79	.02	.04	.19	1.08	2.18	.88	.22
1921.....	10.39	1.09	.12	.38	1.56	2.09	.03	.05	.21	.95	2.14	.99	.35
1922.....	10.31	1.16	.10	.46	1.53	2.57	.04	.07	.25	1.06	2.12	.85	.28
1923.....	10.49	1.05	.11	.48	1.51	2.51	.04	.11	.26	1.06	2.07	.78	.17
1924.....	10.38	.94	.10	.48	1.50	2.65	.04	.11	.25	1.03	2.03	.74	.17
1925.....	10.72	....	.11	.48	1.53	2.70	.04	.12	.33	1.07	2.04	1.06	.15
1926.....	10.78	1.07	.17 ^e	.50	1.55	2.72	.04	.12	.36	1.15	1.15 ^f	....	.22
1927.....	10.67	....	.17 ^e	.50	1.57	2.81	.04	.14	.36	1.14	....	....	...
Average													
1909-13.....	9.55	1.21 ^g	.10	.64	1.72	3.35	.01	.08	.23	1.13 ^h	1.75	.80 ^a	.24
1921-25.....	10.46	1.06 ^b	.11	.46	1.52	2.51	.04	.09	.26	1.03	2.08	.88	.22

* Data of U.S. Department of Agriculture. For 1909-13, including U.S. Department of Agriculture estimates for area within post-war boundaries. Figures for 1927 are preliminary. Dots (....) indicate that data are not available.

^a Estimate for area sown, not harvested.

^b Four-year average.

^c Two-year average.

^d Excluding Irish Free State.

^e Including meslin and spelt.

^f Japan only.

^g Three-year average.

^h One year only.

THE WORLD WHEAT SITUATION, 1926-27

TABLE II.—WHEAT YIELD PER ACRE IN PRINCIPAL PRODUCING AREAS, 1920-27*

(Bushels per acre)

Year	United States	Canada	India	Australia	Argentina	Chile	Uruguay	Hungary	Bulgaria	Jugoslavia	Romania	Soviet Russia	Mexico
1920.....	13.6	14.4	12.6	16.1	11.8	18.4	11.1	14.2	13.7	12.1	12.3	....	....
1921.....	12.8	12.9	9.7	13.3	13.5	17.6	12.3	18.3	13.1	14.0	12.8	....	2.2
1922.....	13.9	17.8	13.0	11.2	12.2	17.6	7.8	15.5	14.2	12.1	14.1	....	5.2
1923.....	13.4	21.7	12.1	13.1	14.5	18.2	12.6	20.6	12.2	15.9	15.4	....	4.5
1924.....	16.5	11.9	11.6	15.2	12.0	17.1	11.7	14.7	9.9	13.6	9.0	....	7.4
1925.....	12.9	18.7	10.4	11.2	10.0	18.3	10.4	20.3	19.5	18.2	12.8	11.9	8.1
1926.....	14.7	17.8	10.7	14.5	11.5	15.5	10.3	20.2	15.9	17.1	13.5	11.7	7.8
1927.....	14.8	19.8	10.7	10.5	11.4	....	....	19.4	18.9	12.8	12.6	....	9.6
Average													
1909-13.....	14.7	19.8	12.0	11.9	9.9	20.0	8.2	19.3	15.7	15.6	16.7 ^a	10.2	...
1921-25.....	13.8	16.6	11.4	12.8	12.3	17.8	11.2	17.8	13.8	14.9	12.7	....	5.0

Year	Morocco	Algeria	Tunis	Egypt	British Isles	France	Germany	Italy	Belgium	Netherlands	Denmark	Norway	Sweden
1920.....	9.0	4.7	4.0	26.6	28.7	18.8	24.3	12.5	33.6	39.4	41.1	25.0	28.8
1921.....	11.9	9.4	6.0	25.4	35.4	24.3	30.3	16.3	42.3	47.6	50.7	23.7	34.3
1922.....	6.2	5.1	3.4	24.1	31.5	18.6	21.2	14.2	35.4	41.1	39.0	25.7	26.7
1923.....	8.9	11.3	6.2	26.5	31.8	20.2	29.1	19.6	38.8	40.3	43.2	23.5	30.4
1924.....	11.6	4.9	4.5	24.1	33.0	20.6	24.6	15.1	38.2	39.9	39.4	23.5	21.1
1925.....	9.1	9.1	7.2	26.2	34.1	23.8	30.8	20.6	39.7	40.6	49.2	22.3	36.8
1926.....	6.3	6.3	7.1	24.3	31.0	17.9	24.1	18.2	36.6	41.6	35.4	26.6	32.4
1927.....	10.9	9.5	5.3	26.8	31.7 ^b	21.5	....	15.6	37.0	36.0	....	29.2	28.2
Average													
1909-13.....	10.0	10.0	4.8	25.6	31.6	19.7	32.6	15.6	37.6	36.1	41.1	25.5	31.8
1921-25.....	9.6	7.8	5.7	25.3	33.2	21.5	27.3	17.2	39.0	42.2	44.5	23.8	30.1

Year	Spain	Portugal	Switzerland	Austria	Czechoslovakia	Poland	Finland	Latvia	Estonia, Lithuania	Greece	Japan, Chosen	South Africa	New Zealand
1920.....	13.5	9.4	30.1	14.6	16.8	12.7	12.1	10.0	13.4	10.4	18.9	8.7	31.2
1921.....	14.0	7.4	32.5	17.3	24.9	17.9	20.7	17.0	15.9	10.8	18.6	8.8	29.9
1922.....	12.2	8.5	24.3	16.1	22.0	16.5	18.7	13.7	17.0	8.5	18.5	7.4	30.4
1923.....	15.0	12.5	34.5	18.7	24.0	19.8	17.2	15.5	14.3	8.3	17.0	7.7	24.0
1924.....	11.7	9.1	29.9	17.6	21.5	12.3	21.4	14.9	15.2	8.0	18.4	9.6	32.6
1925.....	15.2	....	32.0	22.0	25.8	21.4	25.1	18.2	18.5	13.3	19.6	7.4	30.4
1926.....	13.6	8.0	23.1	18.9	22.0	17.3	23.7	15.2	13.9	9.7	24.2 ^c	....	34.1
1927.....	13.6	....	24.9	20.7	24.1	19.4	23.1	15.6	....	11.7	....	....	....
Average													
1909-13.....	13.7	....	31.6	20.2	22.0	19.0	17.1	17.4	15.5	14.4 ^d	18.2	7.5 ^d	28.7
1921-25.....	13.6	9.7 ^a	30.8	18.4	23.6	17.5	20.4	16.0	16.3	9.8	18.5	8.1	29.6

* Computed from acreage and production figures in Appendix Tables I and III. Dots (....) indicate that data are not available.

^a Four-year average.

^b England and Wales only.

^c Japan only.

^d One year only.

TABLE III.—WHEAT PRODUCTION IN PRINCIPAL PRODUCING AREAS, 1920-27*

(Million bushels)

Year	United States	Canada	India	Australia	Argentina	Chile	Uruguay	Hungary	Bulgaria	Jugoslavia	Romania	Soviet Russia	Mexico
1920.....	833.0	263.2	377.9	145.9	156.1	23.2	7.8	37.9	30.0	43.0	61.3	.....	15.0
1921.....	814.9	300.9	250.4	129.1	191.0	23.6	10.0	52.7	29.2	51.8	78.6	.....	5.1
1922.....	867.6	399.8	367.0	109.5	195.8	25.9	5.2	54.7	32.6	44.5	92.0	.....	13.6
1923.....	797.4	474.2	372.4	125.0	247.8	28.1	13.3	67.7	29.1	61.1	102.1	.....	13.7
1924.....	864.4	262.1	360.6	164.6	191.1	24.5	9.9	51.6	24.7	57.8	70.4	.....	10.4
1925.....	676.4	411.4	331.0	114.5	191.1	26.6	10.0	71.7	49.6	78.6	104.7	713.0	9.4
1926.....	832.8	409.8	324.7	160.9	220.8	23.3	10.2	74.9	41.1	71.4	110.9	809.6	10.3
1927.....	866.5	444.3	334.1	115.0	225.0	....	....	75.8	47.4	56.5	96.8	.....	11.5
Average													
1909-13.....	690.1	197.1	351.8	90.5	147.1	20.1	6.5 ^a	71.5	37.8	62.0	158.7 ^a	758.9	11.5 ^a
1921-25.....	804.2	369.7	336.3	128.5	203.4	25.7	9.7	59.7	33.1	56.5	89.6	.....	10.4

Year	Morocco	Algeria	Tunis	Egypt	British Isles	France	Germany	Italy	Belgium	Netherlands	Denmark	Norway	Sweden
1920.....	17.9	16.2	5.2	31.7	56.8	236.9	82.6	141.3	10.3	6.0	7.4	1.00	10.3
1921.....	23.2	28.5	9.0	37.0	73.8	323.5	107.8	194.1	14.5	8.6	11.1	.97	12.3
1922.....	12.9	18.9	3.7	36.6	65.2	243.3	71.9	161.6	10.6	6.2	9.2	.64	9.5
1923.....	20.0	35.8	9.9	40.7	58.4	275.6	106.4	224.8	13.4	6.2	8.9	.59	11.0
1924.....	28.7	17.2	5.2	34.2	53.9	281.2	89.2	170.1	13.0	4.7	5.9	.49	6.8
1925.....	23.9	32.7	11.8	36.2	53.7	330.8	118.2	240.8	14.5	5.6	9.7	.49	13.4
1926.....	16.2	23.6	13.0	37.2	52.2	231.8	95.4	220.6	12.8	5.5	8.8	.59	12.4
1927.....	24.8	33.1	5.5	44.3	51.8 ^b	284.4	113.6	195.8	14.4	5.4	....	.58	11.3
Average													
1909-13.....	17.0	35.2	6.2	33.7	59.6	325.6	131.3	184.4	15.2	5.0	6.3	.31	8.1
1921-25.....	21.7	26.6	7.9	36.9	61.0	290.9	98.7	198.3	13.2	6.2	9.0	.64	10.6

Year	Spain	Portugal	Switzerland	Austria	Czechoslovakia	Poland	Finland	Latvia	Estonia, Lithuania	Greece	Japan, Okinawa	South Africa	New Zealand
1920.....	138.6	10.4	3.6	5.4	26.4	22.7	.27	.39	2.58	11.2	41.1	7.6	6.9
1921.....	145.1	9.3	3.8	6.5	38.7	37.4	.58	.78	3.34	10.3	39.7	8.7	10.6
1922.....	125.5	10.0	2.5	7.4	33.6	42.4	.71	.96	4.17	9.0	39.8	6.3	8.4
1923.....	157.1	13.2	3.8	8.9	36.2	49.7	.69	1.64	3.70	8.8	35.2	6.0	4.2
1924.....	121.8	8.6	3.1	8.5	32.2	32.5	.79	1.58	3.86	8.3	37.3	7.1	5.4
1925.....	162.6	11.5	3.5	10.7	39.3	57.8	.93	2.16	6.08	14.2	40.0	7.8	4.6
1926.....	146.6	8.5	4.0	9.4	34.1	47.1	.92	1.86	5.02	11.2	39.9	8.5	7.5
1927.....	145.6	11.3	4.3	10.4	37.9	54.6	.90	2.18	5.39 ^c	13.3	37.8	...	....
Average													
1909-13.....	130.4	11.8 ^d	3.3	12.8	37.9	63.7	.14	1.48	3.63	16.3 ^d	32.0	6.0 ^d	6.9
1921-25.....	142.4	10.5	3.3	8.4	36.0	44.0	.74	1.43	4.23	10.1	38.4	7.2	6.6

* Data of U.S. Department of Agriculture. For 1909-13, including U.S. Department of Agriculture estimates for area within post-war boundaries. Dots (....) indicate that data are not available.

^a Four-year average.

^b England and Wales.

^c Includes estimate for winter wheat only for Estonia.

^d One year only.

TABLE IV.—RYE PRODUCTION IN PRINCIPAL PRODUCING AREAS, 1920-27*

(Million bushels)

Year	United States	Canada	Argentina	Hungary	Bulgaria	Jugoslavia	Romania	Soviet Russia	France	Germany	Italy	Belgium	Netherlands
1920.....	60.5	11.3	0.8	20.6	6.2	6.1	9.4	.....	34.5	194.2	4.5 ^a	18.2	14.8
1921.....	61.7	21.5	1.7	23.2	6.1	6.2	9.1	.....	44.4	267.6	6.5	21.3	15.0
1922.....	103.4	32.4	3.5	25.1	6.4	4.5	9.2	.....	38.4	206.0	5.6	18.4	17.1
1923.....	63.1	23.2	4.0	31.3	5.2	5.9	9.6	.....	36.5	263.0	6.5	20.8	14.6
1924.....	65.5	13.8	1.5	22.1	4.3	5.5	6.0	.....	40.2	225.6	6.1	20.7	15.6
1925.....	46.5	13.7	4.7	32.5	8.9	7.9	8.0	815.5	43.7	317.4	6.7	21.7	16.4
1926.....	41.0	12.1	3.3	31.4	8.0	7.5	11.2	897.3	30.1	252.2	6.5	20.1	13.6
1927.....	61.5	16.1	...	22.6	8.4	5.9	9.8	.....	36.8	286.3	5.9	20.1	13.5
Average													
1909-13.....	36.1	2.1	0.6	31.4	8.3	9.0	20.6 ^b	735.5	52.5	368.3	6.3	23.6	16.4
1921-25.....	68.0	20.9	3.1	26.8	6.2	6.0	8.4	.....	40.6	255.9	6.3	20.6	15.7

Year	Denmark, Norway	Sweden	Spain	Portugal	Switzerland	Austria	Czechoslovakia	Poland	Finland	Latvia	Estonia	Lithuania	Greece
1920.....	14.0	22.4	27.8	5.2	1.6	10.1	32.9	73.7	7.1	4.7	6.2	16.7	1.0
1921.....	13.2	26.6	28.1	4.6	1.6	13.2	53.7	167.6	11.7	9.8	5.9	21.0	1.1
1922.....	15.1	22.1	26.3	5.4	1.7	13.6	51.1	197.4	10.5	6.8	5.8	25.4	1.1
1923.....	15.9	23.4	28.1	5.2	1.6	15.8	53.3	234.7	9.4	10.8	6.6	23.8	0.6
1924.....	11.1	10.9	26.3	6.8	1.4	16.2	44.7	143.9	11.3	7.9	5.5	18.3	0.5
1925.....	14.4	26.6	29.9	4.6	1.6	21.7	58.1	257.4	13.7	12.4	7.2	26.1	1.0
1926.....	13.1	23.3	23.5	3.6	1.6	18.7	45.9	197.3	11.9	6.1	4.5	13.8	1.4
1927.....	0.6 ^c	18.9	27.1	4.4	1.7	18.2	48.9	235.6	12.1	11.9	6.6	21.0	1.2
Average													
1909-13.....	20.1	24.1	27.6	2.3	1.8	23.8	63.5	218.9	10.5	13.1	8.1	24.3	1.1
1921-25.....	13.9	21.9	27.7	5.3	1.6	16.1	52.2	200.2	11.3	9.5	6.2	22.9	0.9

* See corresponding footnote under Table III.

^a Old boundaries.^b Four-year average.^c Norway only.

TABLE V.—POTATOES AND CORN PRODUCTION IN PRINCIPAL EUROPEAN PRODUCING COUNTRIES, 1920-26*

(Million bushels)

Year	Potatoes							Corn (maize)					
	British Isles	France	Germany	Belgium, Holland	Czechoslovakia	Poland	Soviet Russia ^a	Hungary	Bulgaria	Jugoslavia	Romania	Soviet Russia ^a	Italy
1920.....	238	428	1,024	204	184	665	.....	50.2	20.9	101.1	182.0	.....	89.3
1921.....	245	305	961	179	159	617	.....	31.7	16.4	73.8	110.6	.....	92.3
1922.....	321	465	1,494	307	333	1,221	.....	48.7	15.5	89.8	119.8	.....	76.8
1923.....	222	364	1,197	211	229	974	.....	49.2	26.9	84.8	151.4	.....	89.2
1924.....	219	564	1,338	223	239	987	.....	74.1	24.8	149.4	155.5	.....	105.7
1925.....	281	558	1,533	247	276	1,069	1,627	88.0	28.2	149.2	163.7	197.8	110.0
1926.....	249	409	1,103	215	186	914	1,866	76.5	29.0	134.3	239.5	145.9	118.1
Average													
1909-13.....	254	527	1,374	215	245	890	740	60.8	26.3	111.9	193.2 ^b	52.2	102.7
1921-25.....	257	451	1,304	233	247	974	.....	58.4	22.3	109.4	140.2	.....	94.8

* See corresponding footnote under Table III.

^a European and Asiatic territory.^b Four-year average.

TABLE VI.—UNITED STATES WHEAT ACREAGE,
1920-27*
(Million acres)

Crop of	Winter wheat			Spring wheat harvested	Total harvested
	Planted	Abandoned	Harvested		
1920.....	44.9	4.84	40.0	21.1	61.1
1921.....	45.6	2.21	43.4	20.3	63.7
1922.....	47.9	5.57	42.4	20.0	62.3
1923.....	46.1	6.58	39.5	20.2	59.7
1924.....	38.9	3.26	35.7	16.9	52.5
1925.....	39.8	8.61	31.2	21.0	52.3
1926.....	39.8	2.89	36.9	19.6	56.5
1927.....	42.8	4.58	38.2	20.3	58.5
Average					
1909-13..	32.0	3.60	28.4	18.7	47.1
1921-25..	43.7	5.24	38.4	19.7	58.1

* Official data of U.S. Department of Agriculture. See especially *Agriculture Yearbook*, 1926, p. 803, and crop reports. Latest figures include substantial revisions for 1924, 1925, and 1926.

TABLE VII.—UNITED STATES WHEAT CROP FORECASTS AND ESTIMATES, 1925, 1926*
(Million bushels)

Date	1925 Official	1926 Official	1926 Bryant	1926 Cromwell	1926 Murray	1926 Snow
WINTER WHEAT						
Apr. 1....	.....	.....	589	565	570	563
May 1....	444.8	548.9	574	559	574	554
June 1....	407.2	543.3	532	567	564	582
July 1....	403.9	567.8	555	569	561	564
Aug. 1....	415.7	626.5	596	601	630	643
Sept. 1....	415.7	626.5	596	621	630	647
Oct. 1....	415.7	626.5	596	621	630	640
Dec. 1 ^a ...	398.5	626.9	...	...	...	...
SPRING WHEAT						
June 1....	253.7	.....	203	223	222	218
July 1....	275.7	199.6	205	211	207	207
Aug. 1....	262.7	212.7	197	188	213	208
Sept. 1....	283.9	212.1	203	214	218	224
Oct. 1....	281.6	213.3	204	209	213	216
Dec. 1 ^a ...	270.9	205.4	...	...	...	...
TOTAL WHEAT						
June 1....	660.9	.....	735	790	786	800
July 1....	679.6	767.4	760	780	768	771
Aug. 1....	678.4	839.2	793	789	843	851
Sept. 1....	699.6	838.6	799	835	848	871
Oct. 1....	697.3	839.8	800	830	843	856
Dec. 1 ^a ...	669.4	832.3	...	...	...	...

* Data from official and commercial crop reports and *Daily Market Record*, Minneapolis.

^a The figures given are the revisions made as of December 1 in the years 1925 and 1926 respectively. The final estimates for the 1925 crop, published in December 1926, were as follows, in million bushels: 401.7, winter; 274.7, spring; 676.4, total.

TABLE VIII.—UNITED STATES WHEAT PRODUCTION BY GRADES, 1921-26*
(Percentages of total crops)

Crop of	No. 1	No. 2	No. 3	No. 4	No. 5	Other
WINTER WHEAT						
1921.....	19.7	39.9	25.1	10.2	3.5	1.6
1922.....	13.3	38.0	27.6	13.1	5.2	2.8
1923.....	20.8	42.8	21.7	9.2	3.7	1.8
1924.....	30.3	42.8	16.8	6.7	2.3	1.1
1925.....	28.0	45.4	17.9	6.0	1.6	1.1
1926.....	49.6	33.6	11.5	3.1	1.5	0.7
SPRING WHEAT						
1921.....	24.1	25.6	24.2	15.1	7.9	3.1
1922.....	52.1	26.4	13.5	5.3	2.0	0.7
1923.....	18.8	26.4	24.1	16.3	8.8	5.6
1924.....	62.9	21.5	10.1	3.7	1.0	0.8
1925.....	37.5	28.0	18.8	9.2	4.8	1.7
1926.....	....^a	....^a	....^a	....^a	... ^a	... ^a

* Data of U.S. Department of Agriculture: *Crops and Markets, Monthly Supplement*, December 1925, p. 403; *Crops and Markets*, March 1927, p. 89. Earlier data not available.

^a Data not yet available.

TABLE IX.—UNITED STATES WHEAT PRODUCTION BY CLASSES, 1920-27*
(Million bushels)

Crop of	Hard red spring	Durum	Hard red winter	Soft red winter	Pacific white	Total
1920.....	139	52	303	247	91	833
1921.....	131	57	290	238	99	815
1922.....	170	91	280	248	79	868
1923.....	126	55	242	272	102	797
1924.....	192	66	365	189	52	864
1925.....	156	65	206	170	80	676
1926.....	122	49	361	227	73	832
1927.....	191	84	320	177	94	866
Average						
1921-25..	155	67	277	223	82	804

* Classification by U.S. Department of Agriculture. See especially *Agriculture Yearbooks*, and *Foreign News on Wheat: World Wheat Crop and Market Prospects*, October 22, 1927, p. 8. These are estimates only, and are made on a basis which does not lead to highly reliable results.

TABLE X.—UNITED STATES WINTER AND SPRING WHEAT ACREAGE, PRODUCTION, AND YIELD PER ACRE, 1920-27*

Year	Acreage (million acres)		Production (million bushels)		Yield per acre (bushels per acre)	
	Winter	Spring	Winter	Spring	Winter	Spring
1920.....	40.02	21.13	610.6	222.4	15.3	10.5
1921.....	43.41	20.28	600.3	214.6	13.8	10.6
1922.....	42.36	19.96	586.9	280.7	13.8	14.1
1923.....	39.51	20.15	571.8	225.6	14.5	11.2
1924.....	35.66	16.88	592.3	272.2	16.6	16.1
1925.....	31.23	21.02	401.7	274.7	12.9	13.1
1926.....	36.94	19.61	627.4	205.4	17.0	10.5
1927.....	38.18 ^a	20.31 ^a	552.8 ^a	313.8 ^a	14.5 ^a	15.4 ^a
Average 1921-25..	38.43	19.66	550.6	253.6	14.3	12.9

* Data of U. S. Department of Agriculture. See especially *Agriculture Yearbook*, 1926, p. 803, and press releases.

^a November estimate.

TABLE XI.—CANADIAN WHEAT PRODUCTION FORECASTS AND ESTIMATES, 1922-27*

(Million bushels)						
Date	1922	1923	1924	1925	1926	1927
June 30.....	339	366	319	365	349	325
July 31.....	321	383	282	375	317	357
Aug. 31.....	389	470	292	392	399	459
Oct. 31.....	391	470 ^a	272	422	406	444
Dec. 31.....	400	474	262	411	410	...

* Canadian Dominion Bureau of Statistics, *Monthly Bulletin of Agricultural Statistics*, and press releases. See Appendix Table XXXII for evidence respecting apparent errors in crop estimates.

^a September 30.

TABLE XII.—BROOMHALL'S FORECASTS OF EXPORTERS' SURPLUSES AND IMPORTERS' PURCHASES, 1926-27*

(Million bushels)					
Date of report	Available for export	Margin over importers' purchases	Importers' purchases		
			Total	Europe	ex-Europe
Aug. 10...	768	64	704	560	144
Sept. 14...	816	112	704	576	128
Nov. 2...	832	128	704	576	128
Nov. 9...	856	152	704	576	128
Dec. 14...	868	164	704	576	128
Jan. 25...	868	148	720	600	120
Mar. 22...	908	148	760	640	120
May 24...	907	115	792	656	136

* Data from Broomhall's *Corn Trade News*.

TABLE XIII.—UNITED STATES IMPORTS OF WHEAT AND FLOUR FROM CANADA, 1920-21 TO 1926-27*

(Million bushels)					
Crop year July-June	Withdrawn for consumption, duty-paid	Withdrawn for milling in bond, free	General imports ^a		
			Wheat grain	Flour as wheat	Total
1920-21.....	.....^b	.....^b	50.69	6.39	57.08
1921-22.....	8.46 ^c	6.17 ^d	14.46	2.79	17.25
1922-23.....	7.41	9.28	18.01	1.94	19.95
1923-24.....	13.68	13.90	27.28	0.76	28.04
1924-25.....	0.27	5.81	6.17	0.03	6.20
1925-26.....	1.64	13.47	15.60	0.08	15.68
1926-27.....	0.05	13.17	13.24	0.27	13.51

* Data of U.S. Department of Commerce, in part compiled from *Monthly Summary of Foreign Commerce*, and *Agriculture Yearbook*, 1925, p. 762; in part supplied direct.

^a Practically all from Canada. No deduction made for re-exports, which rarely reach 1 million bushels.

^b Distinction established by emergency tariff act effective May 28, 1921. Before this date no duties had been in force since April 17, 1917.

^c Including June 1921.

^d Nine months only (October-June).

TABLE XIV.—CANADIAN WHEAT AND FLOUR EXPORTS OVERSEAS, 1920-21 TO 1926-27*

(Million bushels)				
Crop year Aug.-July	Total	Through U.S. ports	Through all Canadian ports	Through Vancouver alone
1920-21 ^a	112.3 ^a	63.6 ^a	48.7 ^a	1.1 ^a
1921-22.....	168.0	109.7	58.3	9.4 ^a
1922-23.....	263.3	150.8	112.5	21.5 ^a
1923-24.....	323.6	164.7	158.8	58.4 ^b
1924-25.....	189.5	99.1	90.4	26.0
1925-26.....	314.0	161.3	152.7	58.7
1926-27.....	285.2	150.8	134.4	39.6

* Official data from *Reports on the Grain Trade of Canada* and *Canadian Grain Statistics*. These figures do not include exports by lake and rail to the United States; hence the totals do not represent Canada's gross or net exports.

^a September-August.

^b Eleven months, September-July.

TABLE XV.—MONTHLY WHEAT RECEIPTS AT PRIMARY MARKETS IN THE UNITED STATES AND CANADA*
(Million bushels)

Month	United States primary markets				Fort William and Port Arthur				Vancouver			
	1923-24	1924-25	1925-26	1926-27	1923-24	1924-25	1925-26	1926-27	1923-24	1924-25	1925-26	1926-27 ^a
Aug.....	65.3	93.0	43.3	71.6	2.0	1.3	1.2	1.5	.00	.21	.55	.12
Sept.....	45.3	82.1	57.9	48.7	28.3	7.1	45.7	32.8	.22	.41	.28	.29
Oct.....	40.5	88.0	36.1	37.1	67.1	40.9	53.2	56.1	3.23	3.98	7.04	6.37
Nov.....	37.2	60.5	34.1	29.8	72.5	42.7	51.5	60.5	3.04	5.05	9.79	7.22
Aug.-Nov.....	188.3	323.6	171.4	187.2	169.9	92.0	151.6	150.9	6.49	9.65	17.66	14.00
Dec.....	28.4	36.3	34.9	22.4	51.9	20.3	53.5	26.3	6.76	4.21	6.14	6.63
Jan.....	15.9	24.7	21.6	24.6	12.7	4.1	10.5	14.0	7.27	3.84	10.03	6.83
Feb.....	19.8	19.9	16.2	21.0	3.9	6.2	4.0	8.6	7.32	2.08	7.74	4.27
Mar.....	18.0	17.3	15.1	16.6	2.5	8.5	3.2	6.3	8.09	.74	6.98	5.74
Dec.-Mar.....	82.1	98.2	87.8	84.6	71.0	39.1	71.2	55.2	29.44	10.87	30.89	23.47
Apr.....	10.1	10.4	14.0	14.4	6.4	8.1	1.8	12.6	6.47	1.02	3.58	3.25
May.....	15.4	17.6	15.7	19.2	15.8	7.0	17.2	17.3	5.24	1.54	1.20	1.40
June.....	16.4	21.9	21.0	20.7	21.2	4.1	13.6	7.3	3.05	.74	.22	.59
July.....	35.1	41.8	77.0	58.8	13.1	6.7	6.4	10.7	1.31	.11	.27	.15
Apr.-July.....	77.0	91.7	127.7	113.1	56.5	25.9	39.0	47.9	16.07	3.41	5.27	5.39
Aug.-July.....	347.4	513.5	386.9	384.9	297.4	157.0	261.8	254.0	52.00	23.93	53.82	42.86

* United States data are unofficial figures compiled from *Survey of Current Business*; Canadian data are official figures from *Reports on the Grain Trade of Canada and Canadian Grain Statistics*. Vancouver data for 1925-26 and 1926-27 are derived from weekly figures.

^a Receipts at Prince Rupert included with receipts at Vancouver for the period between October 1, 1926, and April 1, 1927.

TABLE XVI.—INTERNATIONAL SHIPMENTS OF WHEAT AND RYE (BROOMHALL), ANNUALLY FROM 1920-21*
(Million bushels)

Crop year ending approximately August 1	Wheat, including wheat flour									Rye, including rye flour			
	North America	Argentina, Uruguay	Australia	Russia, Danube	India	Other	Total	To Europe	To Ex- Europe	North America	Russia, Danube	Other	Total
1920-21.....	432.2	63.9	82.1	1.6	11.2	....	591.0	541.5	49.5	40.0	1.3	1.7	43.0
1921-22.....	404.0	118.4	110.8	5.6	.2	8.1	647.1	546.7	100.4	34.9	.02	1.3	36.2
1922-23.....	455.2	138.3	47.8	6.9	26.1	2.1	676.4	585.9	90.5	58.7	2.7	1.5	62.9
1923-24 ^a	454.4	174.4	77.9	36.0	17.5	15.1	775.3	626.5	148.8	26.8	41.3	....	68.1
1924-25.....	422.6	121.4	117.1	13.5	31.7	8.9	715.2	639.7	75.5	61.9	.4	.1	62.4
1925-26.....	413.2	93.9	74.0	32.7	4.9	48.8 ^b	667.6	532.3	135.3	15.1	3.9	19.2 ^c	38.2
1926-27.....	484.4	139.0	103.8	48.8	10.2	28.8	815.0	683.0	132.0	32.5	8.1	6.6	47.2
Average.....													
1910-14.....	206.9	82.5	54.9	225.2	47.1	8.1	624.7	542.7	82.0	.9	24.3	28.8 ^c	54.0
1921-26.....	429.9	129.3	85.5	18.9	16.1	16.6	696.3	586.2	110.1	39.5	9.7	4.4	53.6

* Data from *Corn Trade News*. Figures are Broomhall's cumulative totals, presumably including revisions of his weekly shipment figures. Dots (....) indicate no shipments reported.

^a For 53 weeks.

^b Largely Germany and Poland.

^c Chiefly Germany.

TABLE XVII.—INTERNATIONAL TRADE IN WHEAT (INCLUDING FLOUR), ANNUALLY FROM 1920-21*

(Million bushels)

A.—NET EXPORTS

Crop year August-July	United States	Canada	India	Australia	Argentina	Chile	Hungary	Bulgaria	Jugo- Slavia	Rou- mania	Russia	Morocco
1920-21.....	307.9	165.8	15.1	88.9	64.0	2.2 ^a	(.01)	1.77	3.76	1.41	....	0.3 ^a
1921-22.....	251.8	185.4	(13.8)	114.6	118.1	0.1 ^a	9.40	4.52	3.90	3.51	....	0.7 ^a
1922-23.....	200.2	279.0	28.6	50.3	139.4	1.5 ^a	5.15	4.32	1.01	1.64	....	0.2 ^a
1923-24.....	127.4	346.1	20.1	85.6	172.2	5.6	16.79	2.45	5.84	8.98	23.2 ^b	1.7 ^a
1924-25.....	256.4	192.1	38.1	123.6	123.1	7.7	13.54	(1.70)	9.55	3.21	(9.4) ^b	0.7 ^a
1925-26.....	103.4	324.1	8.0	77.2	94.4	1.0	19.79	4.37	11.59	9.93	27.1	0.8 ^a
1926-27.....	198.6	292.7	13.9 ^c	102.7	143.0	0.5 ^c	21.99	1.83 ^d	9.74	10.79 ^e	49.4	...
Average												
1909-14.....	110.0	95.6	49.8	55.2	84.7	2.4 ^a	43.14 ^f	11.27 ^f	....	54.62 ^f	164.5 ^f	0.3 ^a
1921-26.....	187.8	265.3	16.2	90.3	129.4	2.9 ^a	12.93	2.79	6.38	5.46	....	0.8 ^a

B.—NET IMPORTS

Crop year August-July	Algeria	Tunis	Egypt	United Kingdom	Irish Free-St.	France	Germany	Italy	Belgium	Nether- lands	Denmark	Norway
1920-21.....	5.6	1.3	11.21	200.1		68.3	59.8 ^g	99.4	32.2	18.9	0.35	3.86
1921-22.....	(4.2)	(1.3)	6.84	208.2		17.1	69.5 ^g	100.5	40.5	19.8	4.01	5.16
1922-23.....	2.3	0.7	7.68	205.5 ^h	4.8 ^h	45.6	37.5 ^g	115.7	39.5	23.9	6.28	6.90
1923-24.....	(7.2)	(2.8)	8.52	219.4	20.3	53.3	30.7 ^a	69.9	40.0	26.7	9.28	6.11
1924-25.....	0.5	(0.2)	9.90	208.8	19.1	58.5 ⁱ	80.9 ^g	88.7	39.0	26.8	6.55	5.57
1925-26.....	(4.6)	(2.6)	12.79	191.1	18.8	10.3 ⁱ	57.4	67.7	39.2	27.2	6.00	6.70
1926-27.....	1.6	(0.3)	8.77	217.3	19.7	62.0 ⁱ	91.8	86.6	39.5	28.4	7.27	6.22
Average												
1909-14.....	(5.3)	0.8	0.02	217.7		43.6 ^f	67.8 ^f	53.0 ^f	50.2 ^f	22.6	6.66 ^f	3.78
1921-26.....	(2.6)	(1.2)	9.14	206.4 ^j	19.4 ^j	36.9	55.2	88.5	39.6	24.9	6.42	6.09

B.—NET IMPORTS (concluded)

Crop year August-July	Sweden	Spain	Portugal	Switzer- land	Austria	Czecho- Slovakia	Poland	Finland	Latvia	Estonia	Greece	Japan
1920-21.....	6.61	19.83	6.6 ^a	12.9	14.6	18.3	....	2.47	0.58	0.61 ^a	10.6	5.8
1921-22.....	3.85	8.02	8.1 ^a	13.2	19.0	11.6	1.20	3.39	0.74	0.76 ^a	13.7	24.9
1922-23.....	8.78	(0.18)	6.5 ^a	16.6	13.4	10.2	2.52	5.12	1.11	1.18 ^a	17.5	14.5
1923-24.....	12.35	(0.32)	3.2 ^a	17.1	18.1	21.2	2.63	5.12	1.80	0.97	18.8	29.1
1924-25.....	10.58	0.80	6.0 ^a	13.9	14.7 ^o	21.5	17.10	4.54	1.94	0.86	20.8	12.2
1925-26.....	6.10	(0.73)	...	15.6	14.7 ^k	21.7	(4.60)	5.23	1.56	0.97	....	22.7
1926-27.....	6.09	(0.69) ^l	...	16.3	15.4 ^o	20.1	8.07	5.19	1.67	0.90	....	18.7 ^c
Average												
1909-14.....	7.07	6.19	3.0 ^a	16.9	10.5 ^f	....	....	....	....	....	6.9 ^a	4.1
1921-26.....	8.33	1.52	5.9 ^{am}	15.3	16.0	17.2	3.77	4.68	1.43	0.95	17.7 ^m	20.7

* Data from official sources, in large part through International Institute of Agriculture. Figures in parentheses represent, under A, net imports, and under B, net exports. Dots (....) indicate that data are unavailable or that comparable averages cannot be computed.

^a Calendar years 1921 and following; averages for calendar years 1909-13 and 1922-26.

^b Broomhall's shipments, probably incomplete.

^c Gross figure.

^d Seven months.

^e Eleven months.

^f For pre-war boundaries; not comparable with post-war figures.

^g Data incomplete because of territory occupied by foreign armies.

^h Irish Free State separated after April 1, 1923.

ⁱ Statistics for 1924-25 and 1925-26 adjusted for imports of wheat under decree of December 30, 1924, permitting refund of duty. Figure for 1926-27 probably too low. For discussion see WHEAT STUDIES, II, 211 n., and III, 427 n. From January 11, 1925, French shipments to the Saar region have not been counted as exports from France. These, consisting largely of flour, were 1.5 million bushels in 1922, 2.0 in 1923, and 3.2 in 1924.

^j Three-year average.

^k July-June figure.

^l Eight months.

^m Four-year average.

TABLE XVIII.—INTERNATIONAL TRADE IN WHEAT FLOUR, ANNUALLY FROM 1920-21*
(Thousand barrels of 196 pounds)

A.—NET EXPORTS

Crop year August-July	United States	Canada	India	Australia	Argentina	Chile	Hungary	Bulgaria	Jugo- Slavia	Roumania
1920-21.....	13,665	6,688	835	2,281	353	138 ^a	(2)	83	426	150
1921-22.....	14,900	7,701	497	3,677	950	100 ^a	1,863	242	392	115
1922-23.....	14,457	10,936	538	4,081	842	151 ^a	1,137	166	163	293
1923-24.....	17,020	11,933	708	5,222	1,772	181	2,333	147	417	936
1924-25.....	13,882	10,108	892	4,625	1,625	196	2,025	(23)	697	619
1925-26.....	9,551	10,847	685	5,008	1,648	48	1,817	465	456	849
1926-27.....	13,378	9,238	719 ^c	5,313	1,730	82 ^c	1,588	290 ^d	311	922
Average										
1909-14.....	10,639	3,898	613	1,802	1,307	67 ^a	7,443 ^f	502 ^f	...	1,092 ^f
1921-26.....	13,962	10,305	664	4,523	1,368	143 ^a	1,835	199	425	562

B.—NET IMPORTS

Crop year August-July	France	Italy	Belgium	Spain	Algeria	Tunis	Egypt	United Kingdom	Irish Free St.	Germany
1920-21.....	(66)	123	(2)	163	205	(4)	2,046	6,552	.....	306 ^o
1921-22.....	(372)	(91)	(237)	(53)	(36)	20	1,478	7,559	.....	61 ^o
1922-23.....	(478)	(393)	24	(43)	80	79	1,636	5,579 ^a	607 ^a	566 ^o
1923-24.....	(254)	(1,493)	(480)	(66)	(62)	(34)	1,798	2,764	2,126	4,166 ^o
1924-25.....	(393)	(1,246)	(787)	(59)	55	95	1,906	1,465	1,892	5,384 ^o
1925-26.....	(260)	(336)	(151)	(157)	5	... ^a	2,436	2,483	1,748	1,411
1926-27.....	(16)	(193)	(65)	(148) ^k	36	(24)	1,891	4,022	1,757	491
Average										
1909-14.....	(133) ^f	(793) ^f	(704)	(12)	(126)	189	1,760 ^a	5,193		(1,827) ^f
1921-26.....	(351)	(712)	(326)	(75)	8	32	1,851	5,244		2,918

B.—NET IMPORTS (concluded)

Crop year August-July	Nether- lands	Denmark	Norway	Sweden	Austria	Czecho- Slovakia	Poland	Finland	Greece	Japan
1920-21.....	592	45	241	272	1,361	3,135	.....	432	229	157
1921-22.....	560	555	456	34	1,811	2,130	115	724	149	559
1922-23.....	659	555	603	75	2,016	1,996	535	1,091	1,099	147
1923-24.....	1,286	476	635	264	2,607	3,584	530	1,098	1,301	37
1924-25.....	698	201	560	146	1,580 ^o	3,094	3,326	973	1,324	(518)
1925-26.....	1,269	495	775	(17)	1,279 ^k	3,252	43	1,115	.....	(1,016)
1926-27.....	1,751	691	611	77	1,587 ^o	1,690	76	1,109	.....	193
Average										
1909-14.....	2,028	586 ^f	639	87	.....	.....	.....	.....	92 ^{a,f}	181
1921-26.....	894	456	606	104	1,858	2,811	910	1,000	966 ⁱ	(158)

* For footnotes see under Table XVII, except as follows: ^a Net import of 224 barrels.

THE WORLD WHEAT SITUATION, 1926-27

TABLE XIX A.—EXPORTS OF WHEAT AND FLOUR AS WHEAT TO JAPAN FROM NORTH AMERICA AND AUSTRALIA, ANNUALLY FROM 1921-22*

(Million bushels)

Year July-June	Wheat and flour			Wheat and flour from			Wheat from			Flour from		
	Total	Wheat	Flour	United States	Canada	Australia	United States	Canada	Australia	United States	Canada	Australia
1921-22.....	25.39	21.85	3.54	13.96	3.62	7.81	11.00	3.35	7.50	2.96	.27	.31
1922-23.....	14.08	12.11	1.97	6.50	3.79	3.79	5.35	3.05	3.71	1.15	.74	.08
1923-24.....	32.12	30.29	1.83	11.06	7.25	13.81	10.26	6.96	13.07	.80	.29	.74
1924-25.....	14.89	14.55	.34	4.35	3.51	7.03	4.10	3.43	7.02	.25	.08	.01
1925-26.....	29.66	29.07	.59	5.28	13.48	10.90	5.18	13.03	10.86	.10	.45	.04
1926-27.....	19.97	19.27	.70	7.34	8.30	4.33	7.34	7.63	4.30	.00	.67	.03

* Data from official trade statistics of the three exporting countries.

TABLE XIX B.—EXPORTS OF WHEAT AND FLOUR AS WHEAT TO CHINA, HONGKONG AND KWANTUNG, FROM NORTH AMERICA AND AUSTRALIA, ANNUALLY FROM 1921-22*

(Million bushels)

Year July-June	Wheat and flour			Wheat and flour from			Wheat from			Flour from		
	Total	Wheat	Flour	United States	Canada	Australia	United States	Canada	Australia	United States	Canada	Australia
1921-22.....	10.50	2.17	8.33	9.30	.37	.83	2.03	.00	.14	7.27	.37	.69
1922-23.....	16.97	1.95	15.02	13.73	2.88	.36	1.11	.80	.04	12.62	2.08	.32
1923-24.....	50.51	20.21	30.30	32.87	11.95	5.69	8.30	7.40	4.51	24.57	4.55	1.18
1924-25.....	5.66	.57	5.09	3.29	1.72	.65	.37	.20	.00	2.92	1.52	.65
1925-26.....	19.91	8.12	11.79	5.29	13.72	.90	.00	7.69	.43	5.29	6.03	.47
1926-27.....	12.93	3.94	8.99	5.76	6.96	.21	.00	3.94	.00	5.76	3.02	.21

* Data from official trade statistics of the three exporting countries.

TABLE XIX C.—EXPORTS OF WHEAT AND FLOUR AS WHEAT TO THE WEST INDIES FROM NORTH AMERICA, AND TO BRAZIL FROM NORTH AMERICA AND ARGENTINA, ANNUALLY FROM 1922-23*

(Million bushels)

Year July-June	To West Indies ^a			To Brazil					
	Total	United States	Canada	Total	Wheat	Flour	United States ^b	Canada ^b	Argentina ^b
1922-23.....	12.85	8.66	4.19	18.38	13.63	4.75	2.24	.11	16.03
1923-24.....	14.40	9.76	4.64	21.93	15.53	6.40	2.49	.34	19.10
1924-25.....	12.65	9.23	3.57	20.50	13.16	7.34	3.24	.15	17.11
1925-26.....	12.77	8.24	4.53	21.93	13.51	8.42	4.06	.99	16.88
1926-27.....	13.10	9.19	3.91	24.95	15.91	9.04	4.25	1.20	19.50

* Data from official trade statistics of the three exporting countries.

^a Flour only—wheat exports to the West Indies from these two countries never amounted to more than 150 thousand bushels during this period.^b Wheat and flour.

TABLE XX.—UNITED STATES WHEAT AND FLOUR EXPORTS, ANNUALLY FROM 1920-21*

(Thousand bushels)

Crop year July-June	Wheat inspected for export						Unclassi- fied wheat	Total wheat exports	Flour as wheat	Total exports	Total imports (less re- exports)	Net exports
	Hard red spring	Durum ^a	Hard red winter	Soft red winter	White (Pacific)	Mixed ^b						
1920-21.....	10,081	4,872	132,701	34,281	27,729	68,615	14,989	293,268	76,046	369,314	56,404	312,910
1921-22.....	20,145	8,697	78,477	18,998	43,652	18,963	19,389	208,321	74,245	282,566	16,852	265,714
1922-23.....	8,718	12,271	51,654	20,846	13,602	25,047	22,813	154,951	69,949	224,900	19,735	205,165
1923-24.....	1,022	4,908	19,640	9,810	18,653	5,435	19,325	78,793	81,087	159,880	27,954	131,926
1924-25.....	16,760	5,945	90,840	6,944	10,063	9,386	55,552	195,490	65,313	260,803	6,106	254,697
1925-26.....	3,338	4,170	7,358	2,282	16,914	5,944	23,183	63,189	44,846	108,035	15,363	92,672
1926-27.....	1,829	611	66,874	29,980	26,615	1,398	28,943	156,250	62,910	219,160	13,164	205,996

* Data of U.S. Departments of Agriculture and Commerce. See especially *Agriculture Yearbooks*, 1924, p. 579, and 1926, p. 816; and *Crops and Markets* for 1926-27 data.

^a Durum exports are materially understated, in earlier years chiefly as explained in note b, in later years chiefly because inspections for export are limited to Atlantic, gulf, and Pacific ports, so that large quantities of durum wheat that are exported from lake ports via Montreal escape classification.

^b It was estimated that 20,030,000 bushels of durum were mixed with spring wheat in 1920-21. Other mixed wheat exports in 1920-21 were largely soft and hard winter wheat shipped through gulf ports. In 1921-22 and 1922-23, 70 per cent of the exports of mixed wheat is estimated as durum. See *Agriculture Yearbook*, 1924, p. 578.

TABLE XXI.—INTERNATIONAL TRADE IN WHEAT AND FLOUR, MONTHLY FROM JULY 1926*

(Million bushels)

A.—NET EXPORTS

Month	United States	Canada	India	Australia	Argentina	Chile	Hungary	Jugo-Slavia	Poland	Algeria	Tunis	Egypt
July.....	19.0	20.7	2.30	2.8	4.5	.08	.81	.40	.15	.44	.46	(.87) ^a
Aug.....	34.8	11.6	1.18 ^b	2.2	2.6	.02 ^b	3.50	1.45	.28	.43	.26	(.68) ^a
Sept.....	29.6	13.2	.46 ^b	1.6	2.1	.02 ^b	3.54	2.27	.06	.68	.34	(.84) ^a
Oct.....	22.3	34.9	.77	1.5	1.8	.00 ^c	3.75	1.79	(.03) ^a	.11	.29	(.78) ^a
Nov.....	18.1	49.6	.93 ^b	1.5	1.4	.05 ^b	2.50	1.43	.03	.17	.24	(.70) ^a
Dec.....	13.2	48.8	.50 ^b	6.0	2.1	...	1.95	.74	(.10) ^a	(.11) ^a	.09	(.67) ^a
Jan.....	12.0	16.0	.64 ^b	15.2	15.2	...	1.05	.32	(.27) ^a	(.32) ^a	(.01) ^a	(.70) ^a
Feb.....	8.0	14.8	(.18) ^a	14.2	25.2	.04	.75	.16	(.38) ^a	(.45) ^a	(.14) ^a	(.81) ^a
Mar.....	9.1	21.0	.27 ^b	15.9	27.0	.06 ^b	.77	.43	(.75) ^a	(.50) ^a	(.08) ^a	(.58) ^a
Apr.....	15.2	22.0	.37 ^b	12.4	24.0	.03 ^b	.67	.37	(1.66) ^a	(.47) ^a	(.18) ^a	(.77) ^a
May.....	13.5	32.3	.35 ^b	13.2	18.7	.04 ^b	1.29	.45	(2.49) ^a	(.55) ^a	(.25) ^a	(1.05) ^a
June.....	11.0	19.6	2.88	10.9	13.1	...	.95	.27	(2.34) ^a	(.34) ^a	(.16) ^a	(.70) ^a
July.....	11.6	8.8	5.12 ^b	8.1	9.9	...	1.26	.06	(.42) ^a	(.26) ^a	(.10) ^a	(.47) ^a

B.—NET IMPORTS

Month	Irish Free St.	United Kingdom	France ^d	Germany	Belgium	Italy	Netherlands	Scandinavia	Switzerland	Czecho-Slovakia	Baltic States ^e	Japan
July.....	1.55	18.65	1.02	12.04	3.89	8.14	2.09	1.22	2.33	2.79	.71	.01
Aug.....	1.50	20.98	2.80	13.59	3.51	3.60	2.26	1.37	1.66	.78	.64	.93 ^b
Sept.....	1.49	17.48	2.62	5.46	2.78	3.30	3.90	1.48	1.62	2.13	.72	.81 ^b
Oct.....	1.47	14.62	1.99	6.92	2.42	3.46	2.02	1.82	2.10	1.93	.71	1.47
Nov.....	1.57	14.82	1.39	5.97	2.76	6.70	2.34	1.64	1.53	1.86	1.02	1.12 ^b
Dec.....	1.72	16.71	3.02	5.28	2.88	6.68	1.98	1.45	1.03	2.34	.74	1.43 ^b
Jan.....	1.16	17.35	7.31	4.76	2.98	8.23	2.03	1.48	.81	.77	.55	1.80 ^b
Feb.....	1.60	15.81	7.89	4.66	3.31	9.41	2.07	1.17	1.38	1.26	.38	1.31
Mar.....	1.83	19.90	7.23	5.66	3.83	11.41	2.31	1.36	1.56	1.53	.51	1.97 ^b
Apr.....	1.72	18.89	4.61	8.44	3.90	8.83	2.18	1.21	1.08	1.23	.44	1.51 ^b
May.....	1.98	19.06	6.54	10.19	3.51	9.73	2.87	2.05	1.00	1.72	.70	1.78 ^b
June.....	1.99	24.28	6.58	10.65	4.00	7.62	2.43	2.48	1.11	2.98	.72	2.81
July.....	1.70	17.33	10.00	10.19	3.62	7.59	2.02	2.06	1.43	1.56	.63	1.16 ^b

* Data from official sources and International Institute of Agriculture. Totals of the above monthly figures do not always check exactly with yearly figures printed elsewhere, owing to the fact that the yearly figures presumably contain revisions not available by months. Dots (....) indicate that data are not available.

^a Net import.

^b Gross, not net.

^c Net import of 1,200 bushels.

^d Probably understatements.

^e Finland, Esthonia, Latvia.

THE WORLD WHEAT SITUATION, 1926-27

TABLE XXII.—OCEAN FREIGHT RATES ON WHEAT AND CORN, 1913 AND CROP YEARS 1921-22 TO 1926-27*

(Cents per bushel)

Period	Canada to United Kingdom	New York to Liverpool	Northern Range to United Kingdom	Northern Range to Genoa	Northern Pacific to United Kingdom	La Plata down river to United Kingdom	Karachi to United Kingdom	Australia to United Kingdom
1913 (Jan.-Dec.)	8.3	5.8	8.0	11.9	25.7	10.6	12.2	20.4
1921-22 (Aug.-July) . . .	10.7	8.5	10.3	12.5	25.3	14.6	12.8	28.6
1922-23 (Aug.-July) . . .	9.2	5.5	8.0	11.0	22.2	14.3	15.4	23.6
1923-24 (Aug.-July) . . .	9.4	6.8	8.6	10.4	21.2	13.7	15.0	21.8
1924-25 (Aug.-July) . . .	9.4	6.3	8.8	10.5	21.3	12.0	14.7	25.2
1925-26 (Aug.-July) . . .	9.0	7.0	8.0	9.2	20.0	10.9	13.1	22.3
1926-27 (Aug.-July) . . .	12.0	9.7	12.1	13.3	23.9	19.9	15.8	28.5
1926 July	10.6	6.1	9.9 ^a	n. q.	19.8	16.6	12.8	25.5 ^a
Aug.	10.8	7.4	10.6 ^b	n. q.	19.7	16.4	12.4	26.4
Sept.	13.6	9.9	11.9	13.6 ^b	22.0	17.6	12.9	26.3
Oct.	20.2	17.3	18.5	20.6	26.5	26.1	16.1 ^a	29.2
Nov.	23.1	22.0	21.2	19.2 ^a	29.8	30.8	20.7	34.1
Dec.	13.6	13.2	12.5	13.1	27.4	24.7	18.8	33.7
1927 Jan.	9.1	8.7	11.4	12.3	24.8	20.6	17.9	30.7
Feb.	8.9	7.8	8.9	11.6	23.9	19.6	18.2	31.4
Mar.	8.3	6.4	7.2	11.6	24.3	18.2	17.9	30.6
Apr.	9.9	6.4	8.0	11.4	23.8	17.8	15.7	25.9
May	9.9	6.4	8.9	11.4	21.2	18.4	14.5	25.3
June	8.0	5.7	n. q.	9.9	21.6	15.9	13.8	26.3
July	7.6	4.6	n. q.	8.6 ^b	21.0	12.5	12.2	23.1

* Averages of Friday rates published in *International Crop Report and Agricultural Statistics*. New York-Liverpool rates are for parcels in liners; others for cargoes.

^a Three-week average.

^b One week.

TABLE XXIII.—WHEAT STOCKS IN THE UNITED STATES AND CANADA, 1920-27*

(Thousand bushels)

Year	United States (July 1)				Canada (August 31, 1920-23; July 31, 1924-27)				
	Total	On farms	In country mills and elevators	Commercial visible (Bradstreet's)	Total	On farms	In elevators	In transit	In flour mills
1920.	110,254	49,546	37,304	23,404	.....^a	2,122	6,930	.....^a	238
1921.	93,840	56,707	27,167	9,966	13,727	2,144	4,831	6,032	720
1922.	81,457	32,359	28,756	20,342	20,590	2,360	11,024	4,578	2,628
1923.	102,414	35,894	37,117	29,403	11,690	1,441	5,051	2,758	2,440
1924.	106,204	30,981	36,626	38,597	45,159 ^b	7,363 ^c	27,400 ^b	5,856 ^b	4,539 ^b
1925.	86,447	29,357	25,287	31,803	26,483	2,709	17,939	3,835	2,000
1926.	65,949	20,973	28,490 ^d	16,486	35,601	3,987	25,451	3,163	3,000
1927.	74,950	27,359	22,075 ^d	25,516	50,586	4,264	37,079	5,243	4,000
Average									
1910-14.	89,411	32,485	31,600	25,326	.....^a	.....^a	.....^a	.....^a	.....^a
1921-25.	94,073	37,060	30,991	26,022					

* Bradstreet's visible, and official data of U. S. Department of Agriculture and Dominion Bureau of Statistics. See especially *Agriculture Yearbooks*, *Canada Yearbooks*, *Price Current-Grain Reporter*, and press releases. The Canadian stocks figures do not check with the official statements of Canadian carryovers, as given in the table of approximate disposition of wheat supplies in Canada (Appendix Table XXXII), presumably because the carryover figures exclude part of the wheat in transit figures, included above.

^a Not available.

^b July 31, as for later years.

^c For 1924 quantities in farmers' hands relate to August 31; for subsequent years to July 31.

^d Estimates for 1926 and 1927 on new basis, not entirely comparable with figures for earlier years, which are probably too low.

TABLE XXIV.—UNITED STATES CENSUS REPORTS ON CITY MILL STOCKS OF WHEAT AND FLOUR, 1925-27*
(Million bushels)

Item	June 30 1925	Dec. 31 1925	Mar. 31 1926	June 30 1926	Sept. 30 1926	Dec. 31 1926	Mar. 31 1927	June 30 1927
Percentage of U.S. flour output represented	87.4 ^a	88.0 ^a	88.4 ^a	87.4 ^a	87.4 ^a	87.5 ^a	90.5 ^b	90.1 ^b
Wheat stocks:								
In country elevators	2.16	7.55	4.67	2.52	8.92	8.47	6.06	2.56
In public terminal elevators...	3.44	12.70	7.10	3.00	12.04	11.95	6.85	3.88
In private terminal elevators not attached to mills.....	26.72	82.86	3.65	1.14	8.57	10.66	5.84	1.61
In transit			3.29	6.73	15.38	13.49	6.45	10.39
In mills and elevators attached to mills			45.93	22.45	79.87	71.84	60.57	34.15
Total	32.31	103.11	64.64	35.83	124.77	116.41	85.77	52.59
Wheat-flour stocks in wheat equivalent (4.7 bu. = 1 bbl.) ..	15.73	21.55	18.28	14.67	19.82	20.38	19.40	16.76
Total wheat and flour as wheat	48.04	124.66	82.92	50.50	144.59	136.79	105.17	69.35

* Data from press releases of U.S. Department of Commerce.

^a Based on total output (114,438,544 barrels) of wheat flour reported at the census of manufactures, 1923.

^b Based on total output (114,689,930 barrels) of wheat flour reported at the census of manufactures, 1925.

TABLE XXV.—FLOUR STOCKS IN THE UNITED STATES, MONTHLY FROM JULY 1920*
(Thousand barrels)

Crop year	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1
1920-21.....	2,283	1,927	1,790	2,153	2,450	2,310	2,170	2,093	2,126	1,977	1,863	1,649	1,478
1921-22.....	1,478	1,710	1,993	2,213	2,625	2,544	2,024	1,979	1,758	1,752	1,914	1,856	1,658
1922-23.....	1,658	1,865	1,986	2,246	2,388	2,157	2,293	2,347	2,152	2,110	2,355	2,173	2,233
1923-24.....	2,233	2,382	2,271	2,533	2,599	2,491	2,406	2,184	2,193	2,186	2,305	2,029	2,046
1924-25.....	2,046	2,129	2,226	2,449	2,286	2,234	2,035	1,883	1,967	2,103	2,006	1,874	1,815
1925-26.....	1,815	1,855	1,988	2,212	2,378	2,425	1,993	1,975	1,922	1,971	2,237	2,055	2,076
1926-27.....	2,076	2,282	2,402	2,303	2,799	2,515	2,303	2,280	1,927	1,907	1,899	1,917	1,931

* As compiled by Howard, Bartels & Co. and published in the *Daily Trade Bulletin*, Chicago, and the *Daily Market Record*, Minneapolis. These "include supplies in leading cities and at country points, small mills, etc.," but exclude flour in transit and are otherwise far from comprehensive. *Russell's Commercial Review* gives another series, from 1921-22, which runs about three times as large. It includes flour on the piers in New York and an estimate for mill and transit stocks. This is not given here, because it overlaps the mill stocks, involves a large element of estimate, and covers a shorter period.

THE WORLD WHEAT SITUATION, 1926-27

TABLE XXVI.—WORLD VISIBLE WHEAT SUPPLIES, AUGUST 1, 1920-27, AND MONTHLY, 1926-27*

(Million bushels)

Date	United States	Canada	Argentina	Australia	United Kingdom ports	Afloat to Europe	North America	Argentina, Australia	U.K. and afloat	Grand total	Total ex-Australia
1920 Aug. 1.....	42.7	8.2	3.7	27.5	12.8	76.2	50.9	31.2	89.0	171.1	143.6
1921 Aug. 1.....	56.2	8.9	3.7	30.0	7.6	57.9	65.1	33.7	65.5	164.3	134.3
1922 Aug. 1.....	43.1	19.3	2.2	3.0	7.1	48.9	62.4	5.2	56.0	123.6	120.6
1923 Aug. 1.....	73.3	14.1	4.4	18.0	8.2	39.0	87.4	22.4	47.2	157.0	139.0
1924 Aug. 1.....	72.1	31.6	6.8	30.0	9.9	41.8	103.7	36.8	51.7	192.2	162.2
1925 Aug. 1.....	57.3	23.4	7.7	8.4	9.2	33.3	80.7	16.1	42.5	139.3	130.9
1926 Aug. 1.....	64.2	28.3	4.1	6.2	4.3	38.6	92.5	10.3	42.9	145.7	139.5
Sept. 1.....	117.1	16.6	4.0	3.6	5.8	35.7	133.7	7.6	41.5	182.8	179.2
Oct. 1.....	135.1	43.4	4.5	1.4	5.4	35.4	178.5	5.9	40.8	225.2	223.8
Nov. 1.....	137.4	81.3	3.8	0.0	3.7	37.8	218.7	3.8	41.5	264.0	264.0
Dec. 1.....	133.0	123.0	1.8	2.0	3.6	36.9	256.0	3.8	40.5	300.3	298.3
1927 Jan. 1.....	123.7	123.4	2.6	81.0	4.7	43.2	247.1	83.6	47.9	378.6	297.6
Feb. 1.....	110.2	118.9	8.1	80.0	4.7	59.1	229.1	88.1	63.8	381.0	301.0
Mar. 1.....	104.3	116.7	14.7	64.0	4.2	70.1	221.0	78.7	74.3	374.0	310.0
Apr. 1.....	88.7	107.3	14.8	53.0	4.9	75.8	196.0	67.8	80.7	344.5	291.5
May 1.....	68.8	80.5	16.6	43.5	5.7	71.6	149.3	60.1	77.3	286.7	243.2
June 1.....	55.1	58.0	13.6	31.5	7.5	65.9	113.1	45.1	73.4	231.6	200.1
July 1.....	46.2	45.5	9.5	22.5	8.4	50.9	91.7	32.0	59.3	183.0	160.5
Aug. 1.....	65.9	42.7	6.3	12.7	7.8	46.1	108.6	19.0	53.9	181.5	168.8
Average, Aug. 1.											
1910-14.....	58.8	10.8	1.3	5.9 ^a	15.4	35.2	69.6	7.2 ^a	50.6	127.4 ^a	121.5
1921-25.....	60.4	19.5	4.9	17.9	8.4	44.2	79.9	22.8	52.6	155.3	137.4

* A joint compilation by Broomhall, the *Daily Market Record*, Minneapolis, and the *Daily Trade Bulletin*, Chicago; here summarized from Broomhall's *Corn Trade News* and the *Daily Trade Bulletin*. Includes some flour stocks.

^a For Australia, four-year average, 1911-14.

TABLE XXVII.—WHEAT GROUND, FLOUR PRODUCED, AND FLOUR EXPORTED, UNITED STATES, MONTHLY FROM JULY, 1925*

Month	Year ending June 30, 1926						Year ending June 30, 1927					
	Reported by 975 identical mills			Estimated total			Reported by 968 identical mills			Estimated total		
	Wheat ground	Flour produced	Rate of extraction	Wheat ground	Flour produced	Flour exports	Wheat ground	Flour produced	Rate of extraction	Wheat ground	Flour produced	Flour exports
	(thous. bushels)	(thous. bbls.)	(bu. per bbl.)	(thous. bushels)	(thous. bbls.)	(thous. bbls.)	(thous. bushels)	(thous. bbls.)	(bu. per bbl.)	(thous. bushels)	(thous. bbls.)	(thous. bbls.)
July.....	40,287	8,763	4.60	46,249	9,806	777	43,676	9,513	4.59	48,860	10,485	793
Aug.....	42,397	9,203	4.61	48,722	10,413	874	47,327	10,377	4.56	52,898	11,430	1,442
Sept.....	45,466	9,827	4.63	52,281	11,126	800	48,905	10,754	4.55	54,654	11,835	1,560
Oct.....	49,029	10,562	4.64	56,520	12,000	1,012	48,196	10,563	4.56	53,731	11,610	1,385
Nov.....	41,681	8,971	4.65	48,097	10,190	872	43,155	9,453	4.57	49,350	10,368	1,344
Dec.....	40,924	8,790	4.66	47,186	9,976	1,009	39,927	8,758	4.56	44,369	9,587	1,208
Jan.....	39,691	8,535	4.65	44,939	9,521	676	38,676	8,478	4.56	42,869	9,263	1,009
Feb.....	34,080	7,325	4.65	38,610	8,180	647	35,785	7,853	4.56	39,611	8,559	874
Mar.....	37,035	8,074	4.59	42,248	9,068	695	39,928	8,739	4.57	44,196	9,527	867
Apr.....	34,662	7,465	4.64	39,098	8,301	834	37,179	8,088	4.60	41,064	8,795	1,016
May.....	34,027	7,283	4.67	38,389	8,099	679	37,891	8,273	4.58	41,781	8,987	1,099
June.....	36,774	7,903	4.65	41,106	8,709	667	38,109	8,287	4.60	41,970	8,989	863
Total....	476,053	102,701	4.64	543,445	115,389	9,542	498,754	109,136	4.57	555,353	119,435	13,460

* The first three columns for each year are from U.S. Department of Commerce press releases, October 6, 1926, and September 30, 1927, giving results of monthly milling census. Flour export data are from the *Monthly Summary of Foreign Commerce*. Fourth and fifth columns computed by a method to be discussed in a forthcoming issue of *WHEAT STUDIES*.

TABLE XXVIII.—AVERAGE PRICES OF REPRESENTATIVE WHEATS IN LEADING
EXPORTING AND IMPORTING MARKETS, MONTHLY, 1926-27*
(U.S. dollars per bushel)

Month	United States				Canada		Liverpool							Argentina	Australia
	No. 2 Red Winter (St. Louis)	No. 2 Hard Winter (Kansas City)	No. 1 Dark Northern (Minneapolis)	No. 2 Amber Durum (Minneapolis)	No. 1 Mani- toba (Winnipeg)	No. 3 Mani- toba (Winnipeg)	No. 1 Mani- toba	No. 3 Mani- toba	No. 2 Hard Winter	Pacific White	South Rus- sian	Aus- tra- lian	Argen- tine Rosafé	Barletta (Buenos Aires)	(Mel- bourne)
Aug.....	1.34	1.31	1.56	1.53	1.51	1.38	1.72	1.62 ^a	1.59	1.60	1.69 ^b	1.73	n.q.	1.61	1.61
Sept.....	1.36	1.32	1.48	1.38	1.44	1.33	1.67	1.57	1.54	1.56	1.61 ^c	1.65	1.62 ^d	1.60	1.61
Oct.....	1.40	1.39	1.53	1.50	1.43	1.36	1.77	1.69	1.68	1.67	1.73 ^a	1.72	1.68	1.64	1.61
Nov.....	1.36	1.37	1.48	1.61	1.41	1.31	1.80	1.70	1.72	1.74	1.73	1.73	1.66	1.47	1.61
Dec.....	1.37	1.38	1.48	1.74	1.33	1.23	1.71	1.63	1.67	1.67	1.66	1.67	1.56	1.36	1.30
Jan.....	1.38	1.37	1.47	1.68	1.36	1.23	1.68	1.60	1.64	1.64	1.60	1.65	1.58	1.30	1.28
Feb.....	1.35	1.35	1.46	1.60	1.40	1.27	1.72	1.61	1.61	1.64	1.63	1.62	1.58	1.31	1.24
Mar.....	1.30	1.33	1.43	1.57	1.43	1.30	1.74	1.59	1.51 ^d	1.62	1.62 ^d	1.62 ^d	1.54	1.32	1.23
Apr.....	1.29	1.31	1.41	1.54	1.45	1.33	1.71	1.57	1.53	1.60	n.q.	1.61	1.52	1.33	1.25
May.....	1.42	1.42	1.53	1.58	1.56	1.46	1.80	1.60	1.61	1.69	n.q.	1.67	1.62	1.45	1.32
June.....	1.50	1.44	1.57	1.57	1.61	1.49	1.81	1.65 ^c	1.65	1.67 ^c	n.q.	1.71	1.67	1.47	1.35
July.....	1.41	1.36	1.58	1.53	1.62	1.53	1.79	1.67	1.58	1.59	n.q.	1.66	1.62	1.47	1.34

* United States prices are the U.S. Department of Agriculture monthly weighted averages of daily quotations for reported cash sales, compiled from *Crops and Markets*. Canadian prices are monthly averages of daily prices from the *Grain Trade News*. Liverpool and Argentine prices are averages of Friday quotations from *International Crop Report and Agricultural Statistics*, except Rosafé and No. 3 Manitoba at Liverpool which are averages of Tuesday quotations from Broomhall's *Corn Trade News*. Australian prices are averages of daily quotations for export wheat, furnished directly by an Australian correspondent. "n.q." signifies no quotation.

^a Four-week average.

^b Two-week average.

^c One week only.

^d Three-week average.

TABLE XXIX.—MONTHLY PRICES OF DOMESTIC WHEAT IN EUROPE, FROM AUGUST 1924*
(U.S. dollars per bushel)

Month	Great Britain			France (Chartres)			Italy (Milan)			Germany (Berlin)		
	1924-25	1925-26	1926-27	1924-25	1925-26	1926-27	1924-25	1925-26	1926-27	1924-25	1925-26	1926-27
Aug.....	1.54	1.53	1.76	1.50	1.62	1.61	1.40	1.88	1.85	1.29	1.55	1.75
Sept.....	1.45	1.48	1.46	1.54	1.57	1.77	1.49	1.94	2.03	1.46	1.38	1.71
Oct.....	1.52	1.34	1.48	1.62	1.48	1.88	1.77	1.94	2.21	1.47	1.37	1.72
Nov.....	1.56	1.45	1.62	1.71	1.37	1.96	1.83	1.99	2.20	1.37	1.49	1.78
Dec.....	1.54	1.60	1.55	1.77	1.33	1.78	1.94	2.12	2.31	1.44	1.62	1.74
Jan.....	1.66	1.60	1.55	1.87	1.39	1.88	2.21	2.17	2.13	1.64	1.61	1.72
Feb.....	1.74	1.54	1.54	1.89	1.42	1.81	2.31	2.16	2.11	1.63	1.60	1.72
Mar.....	1.70	1.51	1.52	1.87	1.39	1.70	2.09	2.14	2.11	1.63	1.66	1.73
Apr.....	1.58	1.57	1.50	1.77	1.40	1.82	1.86	2.20	2.02	1.60	1.87	1.76
May.....	1.64	1.75	1.58	1.85	1.39	1.91	1.93	2.19	2.16	1.70	1.92 ^a	1.92
June.....	1.67	1.77	1.65	1.75	1.52	1.88	1.80	2.20	1.99	1.73	n.q.	1.96 ^b
July.....	1.55	1.84	1.64	1.64	1.53	1.81	1.63	1.98	1.80	1.74	n.q.	n.q.

* Data for Great Britain are averages of weekly average *Gazette* prices as given in the *Economist*; for France, averages of Saturday prices furnished directly by Federal Reserve Board; for Italy, averages of Friday prices of soft wheat as given in *International Crop Report and Agricultural Statistics*; for Germany, monthly average prices as given in *Wirtschaft und Statistik*. All data are converted, for convenience, from the domestic currency in which they are quoted in the above sources into U.S. money by monthly average exchange rates. "n.q." indicates that no quotation was given.

^a First half of May.

^b First half of June.

THE WORLD WHEAT SITUATION, 1926-27

TABLE XXX.—AVERAGE DAILY VOLUME OF TRADING IN WHEAT FUTURES IN UNITED STATES MARKETS, MONTHLY FROM JANUARY 1921*
(Million bushels)

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Year
1920-21.....	....	....	....	....	....	....	39.1	44.1	39.5	52.5	46.1	49.8	45.2 ^a
1921-22.....	45.5	39.6	57.1	54.0	53.7	43.3	36.5	67.9	61.3	48.9	37.4	41.8	48.7
1922-23.....	34.4	36.2	33.5	32.5	37.6	42.1	36.6	37.0	27.9	48.0	41.0	40.9	37.3
1923-24.....	32.3	31.4	28.3	30.2	27.1	21.1	14.3	18.1	22.8	18.0	14.4	34.0	24.3
1924-25.....	53.3	50.0	42.7	61.4	60.9	58.8	73.4	81.0	87.4	59.3	60.3	67.6	62.9
1925-26.....	56.2	60.0	59.0	60.4	65.2	90.3	60.6	58.3	69.0	55.8	48.8	46.3	60.9
1926-27.....	57.5	47.1	46.2	43.6	53.3	37.4	28.2	26.4	34.1	33.8	50.4	44.8	41.9

* Data of Grain Futures Administration, U.S. Department of Agriculture. Not compiled prior to January 1921.

^a Six-month average.TABLE XXXI.—APPARENT DOMESTIC UTILIZATION OF WHEAT (CARRYOVERS DISREGARDED), ANNUALLY FROM 1920-21*
(Million bushels)

Crop year August-July	United States	Canada	India	Australia ^a	Argentina ^a	Chile ^a	Hungary	Bulgaria	Jugo-Slavia	Roumania	Morocco ^a
1920-21.....	525.1	97.4	362.8	29.4	90.2	21.0	37.9	28.2	39.2	59.9	17.9
1921-22.....	563.1	115.5	264.2	44.0	45.4	23.6	43.3	24.7	47.9	75.0	22.9
1922-23.....	667.8	120.8	338.4	46.5	55.4	24.4	49.6	28.3	43.5	90.4	12.2
1923-24.....	670.0	128.1	352.3	42.7	77.6	20.9	50.9	26.7	55.2	93.1	19.9
1924-25.....	608.0	70.0	322.5	44.4	73.9	19.3	38.0	26.4	48.2	67.2	27.0
1925-26.....	573.0	87.3	323.0	39.3	108.9	25.6	51.9	45.3	67.1	94.8	23.1
1926-27.....	634.2	117.1	310.8	....	....	....	52.9	38.9 ^b	61.7	99.1 ^b	15.4
Average											
1909-14.....	580.1	101.5	302.1	35.9 ^a	63.4 ^a	19.0 ^a	....	....	....	....	16.7 ^a
1921-26.....	616.4	104.3	320.1	43.4 ^a	72.2 ^a	22.8 ^a	46.7	30.3	52.4	84.1	21.0 ^a

Crop year August-July	Algeria	Tunis	Egypt	British Isles	France	Germany	Italy	Belgium	Netherlands	Denmark	Norway	Sweden
1920-21.....	21.8	6.5	42.9	256.9	305.2	142.4 ^c	240.7	42.4	24.9	7.7	4.9	16.9
1921-22.....	24.3	7.7	43.8	282.0	340.6	177.3 ^c	294.6	55.0	28.3	15.2	6.1	16.2
1922-23.....	21.2	4.4	44.3	275.5	288.9	109.4 ^c	277.3	50.3 ^d	30.0	15.5	7.5	18.3
1923-24.....	28.6	7.1	49.2	298.1	328.9	137.2 ^c	294.7	53.7 ^d	33.0	18.1	6.7	23.4
1924-25.....	17.6	5.0	44.1	281.8	339.7	170.1 ^c	258.8	52.4 ^d	31.5	12.4	6.1	17.4
1925-26.....	28.1	9.1	49.0	263.6	341.1	175.6	308.6	54.2 ^d	32.9	15.8	7.2	19.5
1926-27.....	25.2	12.7	46.0	289.1	293.7	187.2	307.2	52.9 ^d	34.0	16.1	6.8	18.5
Average												
1909-14.....	29.8	7.0	33.7	277.3	361.2 ^c	219.9 ^c	236.3 ^c	65.4	27.6	11.8 ^e	4.1	15.2
1921-26.....	24.0	6.7	46.1	280.2	327.8	153.9	286.8	53.2	31.1	15.4	6.7	18.9

Crop year August-July	Spain	Portugal	Switzerland	Austria	Czechoslovakia	Poland	Finland	Latvia	Estonia	Greece	Japan
1920-21.....	158.4	16.9 ^b	16.5	20.0	44.7	....	2.7	.97	....	21.8	35.9
1921-22.....	153.1	17.4 ^b	17.0	25.5	50.2	38.6	4.0	1.53	....	23.4	53.4
1922-23.....	125.3	16.5 ^b	19.1	20.8	43.9	44.9	5.8	2.06	....	26.5	43.8
1923-24.....	156.8	16.4 ^b	20.9	27.0	57.4	52.4	5.8	3.44	1.70	27.6	55.7
1924-25.....	122.6	14.5 ^b	17.0	23.2	53.8	49.6	5.3	3.52	1.40	29.1	39.2
1925-26.....	161.9	15.5 ^b	19.1	25.4	61.0	53.2	6.2	3.72	1.76	35.0 ^c	52.2
1926-27.....	146.6 ^b	15.0 ^b	20.3	26.2 ^b	54.2	55.2	6.1	3.53	1.74	31.2 ^c	57.4
Average											
1909-14.....	136.6	....	20.2	71.6 ^c	....	....	....	....	....	....	29.2
1921-26.....	143.9	16.4 ^b	18.6	24.4	53.3	47.7	5.4	2.85	1.62 ^f	28.3	48.9

* Computed from production and trade data given in Tables III and XVII. Dots (....) indicate that comparable production or trade figures are not available.

^a For Southern Hemisphere and Morocco, calendar years 1921 and following, instead of crop years; averages are for calendar years—for Southern Hemisphere 1910-14 and 1922-26, for Morocco 1909-13 and 1921-25.^b Trade figures partially estimated.^c These figures are too low, as crops in post-war years are underestimated and net imports, at least to 1924-25, are incomplete. See WHEAT STUDIES, December 1924, I, 17-18.^d Luxembourg included with Belgium after May 1922.^e Pre-war boundaries.^f Three-year average.

TABLE XXXII.—APPROXIMATE DISPOSITION OF WHEAT SUPPLIES IN FOUR LEADING EXPORTING COUNTRIES, 1922-23 TO 1926-27*

(Million bushels)

Item	United States (July-June)					Canada (August-July)				
	1922-23	1923-24	1924-25	1925-26	1926-27	1922-23	1923-24	1924-25	1925-26	1926-27
Initial stocks	130	153	167	136	111	36	29	41	26	35
New crop	868	797	864	676	833	400	474	262	411	410
Total supplies	998	950	1,031	812	944	436	503	303	437	445
Net exports	208	135	258	95	209	279	346	192	324	293
Seed requirements	91	79	88	83	85	40	39	39	40	39
Consumed for food	470	477	479	492	492	41	42	42	42	44
Unmerchantable and lost in cleaning.....	76	92	70	31	20	22	31	22	18	31
Fed on farms.....						10	15	5	5	10
Apparent error in crop estimate.....						+15	-11	-23	-27	-20
Stocks at end.....	153	167	136	111	138	29	41	26	35	48
Total disappearance	998	950	1,031	812	944	436	503	303	437	445

Item	Argentina (August-July)					Australia (August-July)				
	1922-23	1923-24	1924-25	1925-26	1926-27	1922-23	1923-24	1924-25	1925-26	1926-27
Initial stocks	66	56	63	57	67	27	42	38	36	30
New crop	196	248	191	191	221	109	125	165	115	161
Total supplies	262	304	254	248	288	136	167	203	151	191
Net exports	139	172	123	94	143	50	86	124	77	103
Seed requirements	19	21	23	25	24	11	10	11	11	12
Consumed for food.....	44	45	49	54	55	28	28	29	29	30
Feed and waste.....	4	3	2	8	5	5	5	3	4	5
Stocks at end.....	56	63	57	67	61	42	38	36	30	41
Total disappearance	262	304	254	248	288	136	167	203	151	191

* Based so far as possible upon official estimates for the various items of supply and disposition. It is necessary, however, to supply estimates for certain items in all four countries, as well as to adjust official figures in order to place all data on the designated crop year basis. The following notes explain our methods of estimation and adjustment.

UNITED STATES. *Initial stocks.* The figure for 1926-27 (like the figure for stocks at the end of 1926-27) is the sum of official estimates of stocks on farms and of stocks in country mills and elevators, Bradstreet's figure for visible supplies, and wheat and flour stocks in city mills as reported by the Census Bureau. Flour stocks converted at 4.7 bushels per barrel. In order to avoid duplication with stocks in country mills and visibles, the quantities of wheat reported in "country elevators" and "in public terminal elevators" have been subtracted from the Census Bureau's totals. Published figures for country mill and elevator stocks on and prior to July 1, 1925, have been raised by 29 per cent, in accord with the Department of Agriculture's revision of the original estimate for July 1, 1926. In the absence of official data, city mill stocks on and prior to July 1, 1924, have been estimated roughly at 40 million bushels in 1922 and 1923, and 50 million in 1924. These figures appear reasonable in the light of official estimates for later years. A higher figure for July 1, 1924, than for any other year except 1927, seems acceptable in view of special incentives for mills to accumulate stocks in that year. *New crop.* Official figures. *Net exports.* Official data for domestic exports, plus exports, less imports. Includes shipments to possessions. Flour exports and re-exports converted at 4.7 bushels per barrel; flour imports (almost entirely from Canada) at the official Canadian figure, 4.5 bushels per barrel. *Seed requirements.* Official data. *Consumed for food.* Estimated directly on the basis of population estimates, assumed per capita consumption of flour of .9 barrel, and official data on milling ratios raised 1.5 per cent to account for small mills not reporting to the Census Bureau. *Unmerchantable and lost in cleaning; fed on farms; apparent error in crop estimate.* In the absence of official data on any of these items, the three must be bracketed and calculated as a residual. In our judgment the composite item so calculated is of reasonable size for 1922-23 to 1924-25, though perhaps slightly too high in each of these years. The low figures for 1925-26 and 1926-27 establish the presumption that the crops were officially underestimated in these two years; but numerical expression of the probable underestimates is not feasible in the absence of any dependable method of estimating the quantities of wheat fed and wasted annually. *Stocks at end.* See *Initial stocks.*

CANADA. *Initial stocks.* Official data after August 1, 1924. The figures are slightly lower than official estimates of carryovers as shown in Appendix Table XXIII, apparently because certain quantities of wheat in transit are excluded from the former. Figures for August 1, 1922 and 1923, obtained by adding to official stocks figures as of September 1 the net exports and domestic consumption in August. *New crop.* Official data. *Net exports.* Official data. *Seed requirements.* Official data. *Consumed for food.* Official data except for 1926-27, which is estimated on the basis of increased popula-

tion and a high milling ratio of 4.54 bushels per barrel. *Unmerchantable and lost in cleaning.* Official data. *Fed on farms.* Rough approximation, based on the assumption that only small quantities of wheat are fed on farms except when prices are very low or much grain is damaged. *Apparent error in crop estimate.* Calculated as a residual. The figures may be regarded as fairly reliable indicators in view of the completeness of official disposition figures, except in so far as our estimates of wheat fed on farms are erroneous. *Stocks at end.* See *Initial stocks.*

ARGENTINA. *Initial stocks.* All stocks figures are calculated as residuals, since direct estimates of stocks are not made in Argentina. Our figures, as of August 1, in all years except 1927 check approximately with the sum of reported exports from August 1 to December 31 and 5/12 of annual domestic consumption for food and feed as estimated otherwise. The lack of information regarding stocks of old-crop wheat on January 1 each year precludes a more precise check; but, except in 1927, when a considerable amount of poor quality wheat from the crop of 1925 was carried over for mixing purposes, negligible January 1 stocks may be assumed as normal. *New crop.* Official data. *Net exports.* Official data. *Seed requirements.* Based on official data for acreage sown and average seed requirements per acre. The figure for 1925-26 has been made unusually high to allow for increased per acre requirements due to poor quality of seed. *Consumed for food.* Based on official data on flour milled less flour exported in calendar years, adjusted to present data for crop years. The figure for 1926-27 contains a considerable element of estimate, since data for the calendar year 1927 are not available. *Feed and waste.* Rough approximations based on the assumption that feed use of wheat is normally very small in a country exporting large quantities of corn, and introduced chiefly because relatively large quantities were probably fed and wasted in the calendar year 1926, following a crop of poor quality. *Stocks at end.* See *Initial stocks.*

AUSTRALIA. *Initial stocks.* Calculated as residuals, on essentially the same assumptions as governed calculations of Argentine stocks. The resulting figures check closely with figures obtained by assuming January 1 stocks of old-crop wheat constant at 5 million bushels, and adding to these figures (1) exports August 1 to December 31, less probable exports of new-crop wheat in December, and (2) 5/12 of annual domestic consumption for food and feed. *New crop.* Official data. *Net exports.* Official data. *Seed requirements.* Chiefly official data, but 1925-26 and 1926-27 figures are partially estimated. These figures include wheat sown for hay as well as for grain. *Consumed for food.* Based on official monthly data on flour production, less exports of flour. Figure for 1926-27 partially estimated. *Feed and waste.* Based on official estimate of .5 to 1 bushel per capita utilization of wheat for feed, waste, and seed for green forage. *Stocks at end.* See *Initial stocks.*

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