WHEAT STUDIES

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THE WORLD WHEAT SITUATION, 1923-24

A REVIEW OF THE CROP YEAR

I. CONSPICUOUS FEATURES

In the realm of wheat no two years are alike; each has its peculiarities. The past crop year was more peculiar than most, with bumper crops, international shipments of unprecedented size, extremely low prices, acute depression among American wheat farmers, and a striking recovery of prices late in the crop year. A review of the year has, therefore, special interest and significance.

During most of the crop year wheat prices were on the lowest level since the war. The world over, the purchasing power of wheat over other commodities was lower than for many years. Consequently, much wheat was marketed at a loss to producers, especially in the United States. The depression among American wheat farmers, begun in 1920-21, became acute. Toward the close of the crop year, however, the situation suddenly changed, and by August 1, 1924, wheat prices were some 20 per cent higher than they had been in the spring.

The world wheat crop of 1923-24 was far the largest since the war, and equal to all but the best pre-war crops. Indeed, if one excludes Russia or even Russian domestic consumption, the crop was the largest ever harvested. Good crops were general, and, on the whole, the wheat was of high quality. Canada and Argentina had record harvests; Italy, Spain, Hungary, and Australia had exceptionally good ones. The United States crop, though smaller than any since 1917, was larger than any pre-war crop except those of 1901 and 1914. Russia's crop, though small as compared with pre-war records, was probably the best since the Revolution of 1917. The size of the wheat crop was the more impressive because the preceding world crop had been of fair size and because other cereal crops were also large.

International shipments of wheat and flour were the largest in history, and this despite good crops in most of the importing countries. Shipments to Europe and to Japan and China were of record size. Canada broke all records for export. Russia re-entered the ranks of important exporters with shipments of 66 million bushels of wheat and rye. The bulk of the crop was absorbed during the year, and carryovers were only moderately increased.

This summary of the prominent features of the year raises a number of puzzling questions. Why were wheat prices so low?

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Why did they fall no lower? What caused the striking rise toward the close of the year? What accounts for the exceptional size of the 1923-24 crops? Why did European countries, with much better crops than in 1922-23, import nearly as much wheat in 1923-24? Why did Soviet Russia, with crops insufficient to cover normal domestic needs, make large shipments of bread grains? Why did the United States, with a large exportable surplus of wheat, import 27 million bushels from Canada over the tariff of 30 cents a bushel? How is the exceptional demand from the Orient to be explained? Why was the American wheat farmer so hard hit? Finally, how far are the conditions and tendencies revealed in 1923-24 enduring? How far were they peculiar to the year?

These are significant questions, with a large bearing upon private practice and upon national policy. A careful review of the world wheat situation in the past year, in the light of earlier experience, affords adequate answer to these and similar questions, and furnishes some basis for intelligent interpretation of the very different developments being experienced in the current crop year.

II. THE LOW LEVEL OF WHEAT PRICES

The course of wheat prices during 1923-24 can best be discussed after careful consideration of supplies, demand, movements, and related factors.[1] First, however, it is desirable to get a summary view of the level of wheat prices in 1923-24 in comparison with previous years.

Throughout most of the past crop year,[2] indeed for the year as a whole, wheat prices in terms of gold were lower than at any time since the war; and wheat values, i. e., wheat prices in terms of purchasing power over commodities in general, were generally lower than for the previous thirty years. This was true not of one or two countries only; it was a world-wide phenomenon. This low level is in striking contrast to the high level of wheat prices and values which prevailed during the war and until the summer of 1920, and in some countries even later.

The low level of wheat prices is illustrated by Chart 1, which shows an American, a Canadian, and a Liverpool series, monthly, for five pre-war years and since January 1920, with post-war figures converted to American dollars at current exchange rates. During much of the year prices were not far above pre-war levels. In view of the recovery of wheat prices late in the crop year, and the unlikelihood of any early return to this low level, it seems probable that the past year registered the end of the post-war decline in wheat prices.

TABLE 1.—AVERAGE WHEAT PRICES IN THE UNITED STATES, PRE-WAR AND POST-WAR*

(Dollars per bushel)

Year ending June 30	Farm price	No. 2 Hard Kans. City	No. 1 Dark North. Minneapolis	No. 2 Red Chicago
1909–14	.89	.95	[a]	.99
1919–20	2.22	2.42	3.00	2.24
1920–21	1.85	1.86	2.02	2.22
1921–22	1.03	1.19	1.48	1.25
1922–23	.98	1.13	1.26	1.14
1923–24	.95[b]	1.05	1.24	1.02

* Yearly weighted averages. Sources: U. S. Dept. of Agric., *Yearbook 1923*, pp. 624-627; *Crops and Markets, Monthly Suppl.*, July 1924, p. 226.

[a] Prior to the promulgation of the Federal grades, August 1, 1917, the sub-class Dark Northern was nowhere recognized. The pre-war average of No. 1 Northern Spring was 99 cents.

[b] Unweighted average, using figures for the 15th of each month.

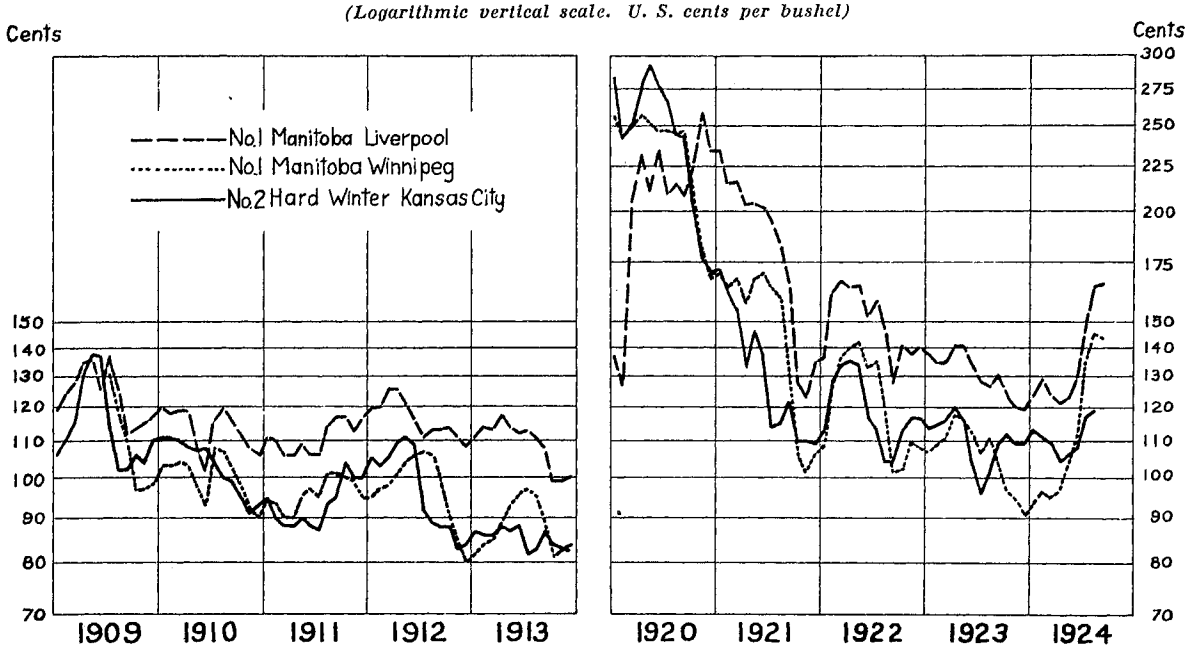
Table 1 shows the same facts more succinctly for the United States, in annual averages for five post-war years compared with a 5-year pre-war average. In the five years before the war the average return to the

[1] See Sections X and XI, below, for detailed discussion of prices in 1923-24.

[2] The term "crop year" is commonly used to apply to a twelve-month period beginning with the month in which newly harvested wheat comes to market in large quantity. Because of variations in harvest dates, this crop year is different in different countries. Considering each country by itself, the United States crop year is regarded as beginning with July; the British with August; the Canadian, Russian, and French with September; the Argentine and Australian with January; and the Indian with April. Because of the importance of the international market centering in England, and the fact that new wheat first comes upon the international market in large quantities in August, the British crop year beginning August 1st is here taken as the standard in discussion of the world wheat situation; but in certain connections it is necessary to consider the crop year characteristic of a particular country.

CHART 1.—AVERAGE CASH PRICES OF REPRESENTATIVE WHEATS, MONTHLY, 1909–13, 1920–24 *

(Logarithmic vertical scale. U. S. cents per bushel)



* Sources: Pre-war prices: Liverpool—Broomhall's *Corn Trade News;* Winnipeg and Kansas City—U. S. Dept. of Agric., *Yearbook 1923.* For post-war prices see Appendix Table XVII.

American farmer for a bushel of wheat was 89 cents, while the market price for leading grades of winter and spring ranged between 95 cents and a dollar. As compared with this, the 1923-24 farm price was 95 cents a bushel, while the market price for winter wheat was $1.02 to $1.05. Spring wheat, owing to scarcity and to tariff protection, was about 20 cents a bushel dearer.

Prices were not only extremely low in 1923-24, but it was the third successive year in which they were low. In 1921-22 wheat brought the farmer an average of $1.03 a bushel; the next year he received 98 cents; but in 1923-24 this had been further reduced by 3 cents a bushel. As compared with a guaranteed price of $2.20 or better received from 1917 to 1920, and an average return of $1.85 in 1920-21, these last three years marked a reduction of 45 to 55 per cent.

A similar comparison of prices in foreign countries would be unprofitable, owing to the great variations in price levels resulting from different degrees of currency depreciation. Nevertheless, it is possible to indicate very roughly the decline and low level of the purchasing power of wheat in a few leading countries, by using prices of domestic wheat and national indexes of wholesale prices.

Table 2 (p. 4) shows the result of such a calculation. For various reasons the decline in wheat values took place at very different rates in different countries, and the degree of depreciation even in 1923–24 was by no means uniform. The figures are consistent, however, in showing that wheat had a universally low purchasing power in 1923-24. In 1919-20 in Europe, and in 1920-21 in Germany, government control kept the level abnormally low. In Canada and the United States, as compared with 110-112 per cent in 1919-20, the level in 1923-24 was about 70 per cent of the 5-year pre-war average. In Germany, France, and Italy, the depreciation was even greater. In England, where the purchasing power of wheat was higher than in most other countries, domestic wheat had only 83 per cent of its pre-war purchasing power.[1] For corre-

[1] In Russia the depreciation of wheat values was even more extreme, for prices in terms of dollars at export points were officially estimated at 62 cents a bushel on September 1, 1923, while prices of industrial products were extremely high. See *Foreign Crops and Markets,* November 12, 1924. Farm prices have been reported as low as 15 to 30 cents a bushel.

spondingingly low levels, one must go back to the severe agricultural depression of the 'nineties.

TABLE 2.—RELATIVE PURCHASING POWER OF A BUSHEL OF WHEAT IN VARIOUS COUNTRIES, 1919–24, ON A PRE-WAR BASE*

Crop years	U. S.	Canada	England	Germany	France	Italy
1909–14	100[a]	100	100	100	100	[b]
1919–20	110	112	77	31	43[c]	[d]
1920–21	95	105	110	53	77	[d]
1921–22	81	89	94	105	69	82[b c]
1922–23	71	74	84	100	70	74[b]
1923–24	70	70	83	64	62	67[b]

* The American estimates were obtained by dividing the average annual post-war farm prices of wheat in the United States (corrected for seasonal variation and expressed in percentages of the base), month by month, by the wholesale price index numbers (on the same base) compiled by the Bureau of Labor Statistics; similarly, the Canadian by the use of prices of No. 1 Manitoba wheat at Winnipeg and the index numbers of the Dominion Bureau of Statistics; the British by the use of the Gazette price of domestic wheat and the *Statist* index number; the French by the use of the price of native red wheat at Chartres and the wholesale price index of the Bureau de la Statistique Générale; the German similarly by the use of the Board of Trade prices at Berlin and the official index numbers (supplemented by Conrad's and Schmitz's indexes for the pre-war period); and the Italian by the use of the prices of domestic wheat at Milan and the general wholesale price index numbers of the Milan Chamber of Commerce.

These estimates give an approximation of the value or purchasing power of wheat in these various countries since the war in relation to its purchasing power in the pre-war period. The figure of 70, for instance, representing wheat "values" in the United States in 1923-24, shows that there had been a reduction here of something like 30 per cent in what a bushel of wheat would buy last year as compared with before the war; or, looking at the matter from the point of view of the consumer, wheat cost 30 per cent less than in the five pre-war years. Similarly, the Canadian, British, and other figures for 1923-24 give an approximation of the purchasing power of wheat within each of these countries in terms of its pre-war purchasing power in that country. Because of differences in the general level of prices in different countries, as well as variations in the domestic wheat prices of different countries, especially pronounced in the post-war period of currency disorders, the resulting figures vary greatly from country to country, and indicate nothing as to the relative prices of wheat in terms of gold.

a Base period for United States is July 1909 to June 1914.

b Base period for Italy is the calendar year 1913. Since wheat prices were low in 1913, the Italian figures are somewhat higher than they would be on a 1909-14 base.

c January to July only.

d Data not available.

A full explanation of the extreme decline, since the war, in the prices and purchasing power of wheat, lies outside the scope of this discussion. It would require separate treatment for each country; for the course of the decline, its causes, and its consequences were far from uniform.

Broadly speaking, however, two influences were of predominating importance. The first was essentially monetary in character, affecting all sorts of commodities,—a reaction from the high levels to which, under the peculiar conditions of the war and its immediate aftermath, prices had risen by 1919–20. In the period of deflation, which occurred in many countries in 1920–22, almost all commodity prices fell heavily, more or less regardless of the special conditions affecting demand and supply in the usual sense. Wheat prices fell among others. Most of the decline in wheat prices in 1920-22 was due to this factor, not to conditions peculiar to the wheat market.

The second influence affected both the price and the purchasing power of wheat: available supplies increased at a rate faster than the demand. In the earlier post-war period an important factor was the release of stocks tied up in Argentina and Australia through lack of shipping, and of government stocks in European countries. In the past three years improved production has been the principal factor. Even though certain ex-European countries, notably the United States, reduced wheat acreage, there has been an upward tendency on the whole, chiefly because of European efforts to restore agricultural output, together with a high rate of production in Canada and Argentina.

Meanwhile, economic conditions in several of the importing countries of Europe were such as to necessitate economies in importing grain, both because unemployment reduced the purchasing power of the population, and because, as currencies fluctuated and export markets for European products were difficult to secure, the importation of wheat was especially expensive. In certain countries, notably Great Britain and Belgium, wheat consumption was reduced rather because higher real incomes of a large part of the workers led to increased consumption of meat and other non-cereal foods. This situation did not cause a reduction in European imports; indeed they have tended upward even though Europe's crops improved, and have been well above the pre-war averages. But it did result in limiting the intensity of Europe's demand for wheat, in preventing a restoration of pre-war rates of wheat consumption, and in making Europe willing

to import heavily only at relatively low prices.

The decline in the value of wheat in terms of other commodities had two important consequences. On the one hand, it made for low costs of living, so far as an important element in the food supply was concerned. On the other, it caused losses to wheat producers except where yields were unusually high. Where, as in the case of the United States and Great Britain, wheat production had been greatly expanded during the war under conditions involving high costs, the resulting depression among wheat producers was especially severe, for these farmers had to compete with low-cost producers in Canada and Argentina. The depression was the more acute because it was so prolonged.

So far as 1923-24 is concerned, the dominant factor was unquestionably the abundance of wheat supplies, in a year when competing foodstuffs were also relatively abundant. To explain how these large supplies were absorbed, and why the price of wheat fell no lower than it did, one must consider the characteristics of the demand for wheat, as displayed in the past year.

III. ABUNDANT WORLD SUPPLIES

To account for the low level of wheat prices, as well as the heavy international movement of wheat, it is necessary to consider the initial "carryover," the crops harvested during the year, and the supplies of important wheat substitutes.

Initial Carryovers. The crop year 1923–24 opened with ample reserves of wheat.[1] In all the principal exporting countries except Argentina and Australia, stocks were well above average. Broomhall's figures showed North American "visible supplies" to be 87 million bushels, as compared with a pre-war 5-year average of 69 millions and a 4-year average, 1919–22, of 58 millions. In the United States, where an unusually bountiful crop had been harvested in 1922, the carryover was especially large. Argentine visible supplies, always an incomplete indication of carryover there, were reported by Broomhall as only 4½ million bushels. Sir James Wilson estimated the exportable surplus at 24 million bushels, somewhat below average though higher than before the war. Australian visible supplies were above pre-war averages, but slightly below figures for the previous post-war years except 1922. Stocks in European countries were probably somewhat smaller than before or since the war,[2] owing to the general abandonment of the policy of government reserves (except in Germany), the small European crop of 1922, good prospects for the 1923 crop, and the ready availability of supplies in exporting countries. Comparable total visible supplies as given by Broomhall, excluding Australian and European continental stocks, were 139 million bushels in 1923, as compared with 120 before the war and 136 in the years 1919–22.[3]

Big Crops. Large world crops, however, were far more important than carryover in creating the abundant supplies of 1923–24.

TABLE 3.—APPROXIMATE WORLD WHEAT CROPS, PRE-WAR AND POST-WAR*

(Million bushels)

Year	Including Russia	Excluding Russia *a*	Including Russian exports only
1909–13	3,743	3,005 *a*	3,070
1913	4,088	3,060 *a*	3,191
1920	3,033	2,894	2,893
1921	3,258	3,116	3,118
1922	3,348	3,156	3,114 *b*
1923	3,692	3,470	3,482 *b*

* Sources: U. S. Dept. of Agric., *Yearbook 1923*, p. 611; *Foreign Crops and Markets*, Sept. 24, 1924, pp. 304-305; final column from unpublished calculations of Department of Agriculture. China is excluded throughout. Comparisons across the table reveal discrepancies but they are not large enough to affect seriously the vertical comparison of figures in each column.

a Post-war boundaries except for 1913.

b Preliminary figures, both probably below the true figures, which are more probably 3,159 and 3,493, respectively.

Table 3 emphasizes this point. Outside the area of Soviet Russia, the 1923 crops were 465 million bushels above the pre-war 5-

[1] See Appendix Tables VII, XIV-XVI, and further discussion in Section IX below.

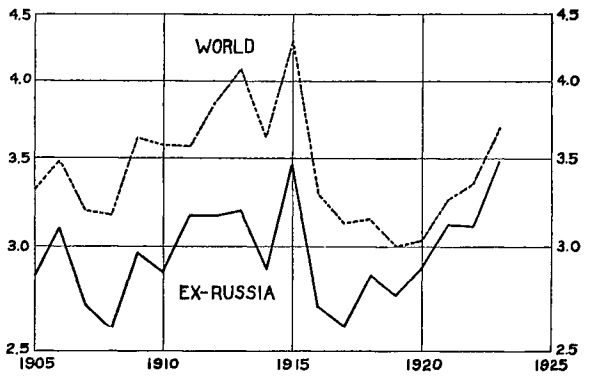
[2] No comparable data for continental stocks are available. Broomhall's figures for visible supplies in Great Britain and afloat were 47.2 million bushels on August 1, 1923, as compared with 50.6 million bushels for the five pre-war years and 74.3 millions for the first four post-war years.

[3] The addition of Australian and European continental stocks would increase the post-war average on account of large government stocks in early post-war years.

year average, and 410 million bushels above the best pre-war crop of 1913. Even if one adds Russian exports to the pre-war crops outside of Russia, the corresponding 1923–24 supplies were 412 million bushels larger than the pre-war average and 292 millions better than in 1913. In other words, while the bumper crop of 1923 was nearly 100 million bushels below the bumper crop of 1913 for the world including Russia, the decline in production was much more than offset by reduced consumption in Russia; so that the rest of the world was better supplied with wheat in 1923–24 than in 1913–14. Even if one allows for the increased population of the wheat-consuming world, the crops of 1923–24 stand out as exceptionally large.

CHART 2.—WORLD WHEAT CROPS AS ESTIMATED BY THE U. S. DEPARTMENT OF AGRICULTURE, (a) INCLUDING RUSSIA, (b) EXCLUDING RUSSIAN CROPS BUT INCLUDING RUSSIAN EXPORTS, 1905–23 *

(Logarithmic vertical scale. Billion bushels)



* Source: U. S. Dept. of Agric., *Yearbook 1923*, and unpublished figures of the Department.

Chart 2 illustrates the trend of world wheat production by crop years from 1905–06 to 1923–24, Southern Hemisphere crops being each year combined with the crops of the previous harvest in the Northern Hemisphere. The upper curve shows the totals including Russia, for which the data are especially defective. The lower curve shows the totals excluding Russian crops but including exports from Russia. While the slump during the war period stands out most strikingly, the fact to be emphasized is the notable recovery in wheat production since the war and the high level attained outside Russia in 1923–24.

The largest crops, speaking comparatively, were harvested in Europe (excluding Russia), in Canada, and in Argentina. Northern Africa also had an excellent crop, as well as Australia. The Indian crop was one of the best, and the more important from an international standpoint because it followed a crop equally good. In the United States there was a reduction in output, as compared with production in 1922, owing mainly to the 2½-million-acre decrease in the land devoted to wheat. Table 4 shows 1923 crops in various parts of the world in comparison with those of 1909–13, 1921, and 1922.

TABLE 4.—WHEAT PRODUCTION IN LEADING AREAS, PRE-WAR, 1921, 1922, AND 1923*

(Million bushels)

Area	1909-13	1921	1922	1923
Europe (ex-Russia)	1,348	1,216	1,044	1,260
United States	690	815	868	797
Canada	197	301	400	474
British India	352	250	367	369
Argentina	147	191	196	247
Australia	90	129	109	126
North Africa	92	106	70	107
Japanese Empire	32	39	38	37

* See Appendix Table I *(A)* for more detailed data.

High Yields Mainly Responsible for Large Output. This large output was due not so much to the greater acreage harvested in 1923–24 as to the high average yield per acre, or in other words, not so much to special efforts of producers as to the unusually favorable weather that prevailed. Commonly, in any one year the weather is favorable in some parts of the world and unfavorable in others, so that large variations in total production are exceptional. But in 1923–24, in practically all parts of the world, the weather was remarkably favorable to wheat production; the average yield in the most important producing areas of the world was 15.9 bushels per acre, 1.4 bushels greater than for the preceding year, and 0.6 bushels above the 5-year pre-war average.[1]

The rarity of such a coincidence of high yields in various parts of the world has

[1] See Appendix, Table I *(C)*.

been brought out in a recent study of wheat yields per acre in leading producing areas of the world.[1] Dividing the fifteen years from 1909 to 1923 into three 5-year periods and measuring the variation in yield for each of those years from its 5-year average, the International Institute of Agriculture has shown that in 1915 alone were conditions so generally favorable as in 1923. These findings are summarized in Table 5.

TABLE 5.—EXCESS OR DEFICIENCY IN WORLD WHEAT YIELDS PER ACRE, 1909–23

Excess or deficiency from 1909-13 aver.		Excess or deficiency from 1914-18 aver.		Excess or deficiency from 1919-23 aver.	
1909	+1.0%	1914	+2.1%	1919	−8.3%
1910	−4.8	1915	+12.6	1920	−3.1
1911	−1.0	1916	−8.4	1921	+1.0
1912	+1.9	1917	−4.2	1922	+1.0
1913	+1.0	1918	−1.1	1923	+11.5

Coincident with high yields per acre, there was a further increase in the land devoted to wheat production in 1923–24. Exclusive of Russia, the total for the world was 219½ million acres, 2½ million acres greater than in the preceding year, and 23¾ millions above the 5-year pre-war average.[2] Including Russia in the comparison, there was an increase over 1922–23, but a pronounced decrease from the pre-war total.

TABLE 6.—CHANGE IN WHEAT ACREAGE BETWEEN 1922 AND 1923

(Million acres)

Increases			Decreases
British India	2.6	United States	2.6
Europe	1.3	Australia	.5
Argentina	1.1		
North Africa	.9		
Canada	.3		
Total	6.2	Total	3.1

British India increased her wheat acreage more than any other district, but there were also large increases in Europe, North Africa, and Argentina. In the United States there was a reduction of 2½ million acres, and in Australia a reduction of half a million acres, while in Canada there was a relatively small increase. Table 6 summarizes the principal changes in acreage between 1922 and 1923 in leading producing areas.

More Hard Wheat Available. The quality of the supply was for the most part excellent. Excepting the United States grain, the wheat produced was of high quality. As a result of the increase in the Canadian and Argentine crops, there was also a gain in the ratio of hard and semi-hard wheats to soft varieties. Canada led with 75 million bushels more hard wheat than in the preceding year, and 275 million more than before the war. Argentina furnished a dark wheat of a quality somewhat lower than Canada's, ranking as semi-hard and semi-strong, to the extent of 50 million bushels over the 1922–23 crop, and 100 million over the pre-war average. Similar wheat, of only moderately high quality, however, from the Danube countries, amounted to 40 million more—a total of 165 million bushels of strong hard wheat in excess of the preceding year's supply. Even so, however, the amount available, as compared with the pre-war supply, was not so large as these figures indicate, since a large part of the vanished Russian production had been of this type.

Wheat Substitutes Also Plentiful. The availability and price of other grains which may be used as substitutes for wheat are also factors of importance in the consideration of wheat supplies. Substitution of one grain for another is usually of minor importance in the United States, except as a heavy corn crop may divert some low-grade wheat from stock-feeding to the export market, or *vice versa* when an excess of wheat and a deficiency of corn leads to the use of wheat as feed.[3] But in parts of Southern Europe and in many subtropical countries corn is a staple bread grain; while in northern Europe there is extensive use of rye, the baking qualities of which make it an excellent substitute for wheat. Similarly, throughout much of the Orient, wheat comes into competition with rice. Potatoes, because of their starch content, also serve, especially in Europe, as a substitute for wheat when the latter is in short supply or high in price.

In 1923–24 the large wheat harvest was

[1] *International Crop Report*, January 1924.
[2] See Appendix Table I (*B*).
[3] By "corn," as employed in WHEAT STUDIES, is meant what Europeans call maize.

reinforced by heavy supplies of rye and corn.[1] The rye crop of Europe—the only region where it is in direct competition with wheat—was about 16 per cent greater than the year before, while corn production for the world as a whole was higher by about 8 per cent. Not counting Russian production, the continent had a crop of 826 million bushels of rye, decidedly the largest crop harvested since the war, most of the increase being due to large crops in Germany and Poland. In addition, according to fairly reliable estimates, Russia harvested 549 million bushels, a crop, which although not quite so large as that of the preceding year, permitted an export to other sections of Europe of some 42 million bushels. Continental Europe, outside of Russia, consequently had a supply of rye approximately 150 million bushels larger than in the preceding year.

The European corn crop was also large —better than any since 1920, when the wheat crop was poor. The Danube countries, including Hungary, Roumania, Jugo-Slavia, and Bulgaria, increased their output 52 million bushels (chiefly from Roumania) or almost 20 per cent above the crop of the previous year, while the Italian output showed an increase of 12 million bushels. In the United States, the other most important producing area, there was also a good corn harvest, although not a record crop. The Argentine corn crop was exceptionally large.

Output of the other two leading substitute crops—potatoes (in Europe) and rice (in Asia)—was not so plentiful.[2] German and Polish potato-production was more than 20 per cent below the excellent crops of the preceding year, and in some other countries the decline was even greater. Nevertheless, the crops were not much below average. Statistics of rice-production are especially incomplete and imperfect, but there appears to have been an appreciably smaller supply in 1923 than in 1922, particularly in India, Indo-China, China, and Japan, the leading producing and consuming districts.

The variations in these crops help somewhat in explaining the variations in wheat-consumption in parts of Europe and Asia.

In short, wheat supplies were exceptionally abundant in 1923–24, even compared with pre-war standards, because generally favorable weather conditions brought unusually high yields per acre. The initial carryover was of fair size. Rye and corn crops were also good, especially in Europe. The potato crop, while generally smaller than in 1922–23, was by no means poor, and only the rice crops, of the various wheat substitutes, was short. Abundant wheat supplies were the dominant feature of the year 1923–24.

IV. NOTEWORTHY FEATURES OF THE DEMAND

The demand for wheat may be considered from two points of view,—the purposes for which wheat is used in every country, and the requirements for imports by countries which raise less than their own supplies. Both deserve careful attention, but it must be admitted that on no other phase of the wheat situation is it more difficult to reach reliable conclusions.

Use for Seed, Food, and Feed. Wheat is required chiefly for three purposes: for seed, for manufacture into flour and alimentary pastes, and for feed. The seed requirement varies little from year to year, and changes chiefly according to acreage planted. Thus it is unrelated to price or to the size of the crop except as these may affect new plantings. In 1923–24 the demand for seed wheat was slightly increased. In the United States, indeed, it was considerably smaller, because of reduced plantings. In Europe, however, this demand increased, since the planted acreage was apparently the largest since the war.

The demand for manufacture into flour and alimentary pastes is usually comparatively stable, but it is affected by several factors: the variation in carryover of flour from year to year, in all hands; the price of flour and bread in comparison with other staple foodstuffs such as potatoes, rice, cornmeal, rye flour, and sugar; the influence of prosperity or depression, each of

[1] See Appendix Table II.
[2] *Idem.*

which occasions substitution of wheat products for or by other foods, cheaper or dearer, or affects the absolute amount of food consumption; and trends of national preference, occasioned by changing dietary habits.

In 1923–24, the strength of the demand for wheat as food was favorably affected, except in Germany, by increasing business activity and by relatively higher prices for competing foods, notably potatoes, rice, corn, and sugar; while the universally low level of wheat prices tended to increase consumption of wheat. Moreover, the growing use of wheat in India and the Far East instead of rice, and in Italy and Southeastern Europe in place of corn, although specially stimulated by low wheat prices, apparently constitutes a permanent strengthening of the demand in those countries.

The demand for wheat for feed depends largely upon the price of wheat compared with more typical feedstuffs, and on the amount of livestock requiring feed. The amount actually used for feed, however, depends more upon the average quality of the crop, since low grade or tail wheat is commonly suitable only for feed, and the proportion of this tail wheat varies greatly from year to year.

Though conclusive evidence is lacking, it is safe to affirm that the use of wheat as feed was especially large in 1923–24. In the United States and in Canada the poor quality of part of the domestic wheat was an important factor. This was not true elsewhere, for in most countries the crop was of fair quality or better. But with low market-value for wheat, the tendency was strong for wheat farmers with livestock, who would otherwise have had to buy feed, to use part of their merchantable wheat for this purpose. While the amount of food wheat thus used for feed is small in comparison with the total feedstuffs used, the indications are that it accounts for much of the enlarged "domestic disappearance" of wheat, in both North America and Europe, in 1923–24.

In sum, the world's demand for wheat was probably stronger in 1923–24 than in other years since the war. It was not, however, the intensity of this demand, but rather the exceedingly low prices which caused the exceptional absorption of wheat, through substitution for other foods and feeds to a larger extent than in earlier post-war years.

The International Demand. Prices of domestic wheat in each country are greatly influenced by the quality and quantity of domestic crops of wheat and other cereals, by restrictions on import and export, and by a multitude of other factors. The international price of wheat, however, is determined by the combined strength of the import demands from deficiency countries and the volume of exportable surpluses from exporting areas. Roughly speaking, the effective demands of buying countries and the merchandisable surpluses of exporters tend to be equated at the so-called Liverpool price.[1]

Most important in the group of exporters are Canada, the United States, Argentina, and Australia, with North Africa (except Egypt), British India, the Danube basin, and Russia as minor contributors. The leading deficiency area lies in Europe,—west of Poland, Hungary, and the Balkans, and excluding Spain, which is almost self-sufficing in wheat; but the Far East is taking an increasing amount of wheat, and the West Indies and certain South American countries are of some importance as importers. In spite of the recovery and the growing importance of the ex-European trade, Europe remains the predominant factor on the demand side of the international market, taking over 80 per cent of wheat and flour shipments.[2]

The strength of the European demand for imported wheat depends on numerous conditions, the relative importance of which it is not easy to determine. The size of the domestic wheat crops is one, the abundance and price of wheat substitutes another, while the whole group of financial and trade factors known as "purchasing power" makes an important third. Still other factors might be mentioned. The amount

[1] This statement requires many qualifications, which are reserved for fuller discussion in a later issue of WHEAT STUDIES.

[2] See Appendix Table VIII for Broomhall's figures.

actually imported depends not merely upon the intensity of the demand, but upon the international price: with a given strength of demand, much more will be imported if the price is low than if it is high. The variability of the demand, however, must not be overemphasized. The demand for wheat, as compared with many other commodities, is decidedly inelastic, at least so far as the large fraction for food is concerned.[1] Europe is certain to import at least several hundred million bushels every year. The market problem revolves about how much more than this minimum she will actually take.

European import requirements cannot be accurately forecast by any known methods. This is due partly to imperfect statistics of crops, and partly to variation in invisible carryovers, but much more to variations in the utilization of wheat in different years. Since breadstuffs are so essential an element in the diet, it might be expected that in years of small European crops the volume of imports would be increased correspondingly, and similarly decreased in years of large crops, so as to maintain a fairly uniform supply. Such, however, was not the case before the war, and it has been even less true since the war.

TABLE 7.—EUROPEAN WHEAT CROPS, IMPORTS AND SUPPLIES (EX-RUSSIA), PRE-WAR AND POST-WAR*

(Million bushels)

Crop year	Crops	Net imports	Supplies
1909–14	1,348	405	1,749
1921–22	1,216	518	1,734
1922–23	1,044	548	1,592
1923–24	1,260	527	1,787

* See Appendix Tables I *(A)* and X. Net imports are computed by adding the official statistics for countries reporting net imports and subtracting net exports of Danube countries. These figures are only rough approximations, since crop estimates are far from accurate, import figures are imperfect, and pre-war and post-war figures are not altogether comparable because of boundary changes. Broomhall's figures of shipments to Europe are considerably larger than the sum of officially reported net imports. See Appendix Table IX.

This point is illustrated by Table 7, summarizing European crops (outside Soviet Russia), imports, and total supplies during the past three crop years, compared with a 5-year pre-war average.

The 1922–23 crops were some 170 millions less than in the preceding year, imports only 30 million bushels more, and supplies (neglecting carryover) 142 million bushels less. The 1923–24 crop was 216 million greater than the preceding year, but the imports were only 21 million less, and the supplies 195 million more. Comparing 1923–24 with 1921–22, both years of good European crops, an increase in crops was accompanied by an increase in imports, and supplies were some 53 million bushels greater.

Similar data for leading deficiency areas of Europe individually are difficult to secure, but the evidence supports the same conclusion.[2] Years of large crops tend to be years of large consumption, and years of small crops, of low consumption. It cannot even be inferred that with a larger crop imports will be reduced, or that with a smaller crop they will be increased. The experience in 1923–24 affords a striking example of heavy imports accompanying increased crops, and it is conceivable that 1924–25 may show the opposite,—moderate imports with decreased crops.

The demand from non-European countries is even less predictable. The indications are, however, that it is comparatively elastic, much more responsive to changes in prices of wheat and flour than that from Europe. During the first two years after the war, when world wheat prices were high in comparison with other commodities, shipments to non-European destinations were only about 50 million bushels a year, as compared with a pre-war 5-year average of 82. In the next two years, with lower wheat prices, shipments to non-European destinations were somewhat above the pre-war average; and in 1923–24, with still lower prices, they were 80 per cent higher (according to Broomhall's figures) than the average in the five pre-war years.

The difficulties experienced by even the most expert observers in attempting to estimate importers' requirements are illustrated by figures from Broomhall's *Corn Trade News*, summarized for the past three

[1] The demand for wheat as feed, on the other hand, is probably quite elastic.

[2] See below, pp. 12–18.

crop years in Appendix Table VIII. The early estimates, of course, are somewhat spoiled by the lack of adequate information about crops; while the estimates late in the crop year are improved because of known shipments in the early months. But estimates in November and December show marked underestimates in 1921, a marked overestimate in 1922, and a still more striking underestimate in 1923. It is quite evident that forecasting importers' requirements requires further knowledge, a consideration of more factors, and a better technique than have yet been utilized.

In retrospect, it is clear that the international demand for wheat in 1923–24, from Europe, from the Orient, and from other regions, was greater than had been anticipated, and that importers responded readily to the low prices prevailing throughout most of the crop year. This was due in part to a measure of improvement in European economic conditions, to exceptional conditions resulting from the earthquake in Japan, and to the belated harvests of 1924; but in large part also to the freer use of wheat for food, feed, or both, encouraged by the abundance of supplies at low prices.

V. THE SITUATION IN DEFICIENCY COUNTRIES

The world's principal wheat deficiency region lies in Western Europe, with an adjoining area in Central Europe. The flow of wheat into this low pressure area—to use a meteorological metaphor—is the chief feature of the international wheat movement. The region of lowest pressure, where domestic production is regularly less than imports, includes Great Britain, Belgium, Holland, Norway, and Sweden, as well as Austria and Greece. Of the countries producing more than they import, the most important are France, Germany, Italy, and Czecho-Slovakia.

The region described above as that of lowest pressure—Great Britain, the Scandinavian countries, Belgium, and the Netherlands—imports generally more than twice as much as the region of higher pressure—Italy, France, and Germany, while producing only one-fourth as much wheat as the latter region.

In the international market the importance of a deficiency country is largely dependent upon the quantity imported, not upon the amount produced. Table 8 shows the quantity imported by the chief deficiency countries before and since the war. The United Kingdom is by all odds the greatest single importer of wheat, taking roughly 40 per cent of the total European imports. The position of most of the other countries has been modified by the war and its aftermath. In Europe Italy has supplanted Germany as the second largest importer. Except for 1921–22, when she was sixth, France has been third, whereas she stood fifth before the war. With the exception of 1920-21, Belgium has retained fourth place. In the last two years Germany has been fifth; and, except for 1921-22, the Netherlands sixth. Practically all the countries except Germany show marked increases in imports in 1923–24, as compared with 1922–23 and with the pre-war average.

To present the significant features of international demand for wheat it is essential to discuss the situation in each of the important divisions of the European area, and also in the Far East, which is espe-

TABLE 8.—NET IMPORTS OF PRINCIPAL WHEAT IMPORTERS, PRE-WAR AND POST-WAR*

(Million bushels)

Crop year ending July 31	United Kingdom	France	Germany	Italy	Belgium	Netherlands	3 Scandinavian Countries	Switzerland, Austria and Czecho-Slovakia	Japan
1909–14	217.7	43.6	67.8	53.0	50.2	22.6	17.5	[b]	4.1
1920–21	200.1	68.3	59.8	99.4	32.2	18.9	10.8	45.8	5.8
1921–22	208.2	17.1	69.5	100.5	40.5	19.8	13.0	43.8	24.9
1922–23	211.9[a]	45.6	37.5	115.7	39.5	23.9	22.0	40.3	14.5
1923–24	236.6[a]	53.0	30.9	69.8	40.3	26.7	27.7	56.5	80.3

* See Appendix Table X for fuller details. [a] Including Irish Free State. [b] Comparable figures not available.

cially important in the consideration of 1923–24, when ex-European imports were unprecedentedly large.

Great Britain. The United Kingdom has been aptly characterized as a "nation of week-enders" in the production of wheat. The metaphor turns on the fact that domestic production furnishes little over one-fifth of the national requirements of wheat, or only enough to maintain the population on their week-ends. As a consequence of the small domestic production and a high per capita consumption,[1] Great Britain is the most important wheat-importing country in the world, taking usually from 30 to 40 per cent of the wheat and flour entering into international trade.

The year 1923–24 in Great Britain was characterized by reduced crops, large wheat imports, exceptional flour exports, and the largest supplies of wheat since the war. Table 9 illustrates this recent situation, in comparison with the pre-war average and other post-war years.

TABLE 9.—WHEAT SUPPLIES OF GREAT BRITAIN AND IRELAND, PRE-WAR AND POST-WAR

(Million bushels)

Crop year ending July 31	Crop	Net imports	Available supplies
1909–14	59.6	217.7	277.3
1920–21	56.8	200.1	256.9
1921–22	73.8	208.2	282.0
1922–23	65.2[a]	211.9[b]	277.1
1923–24	58.5[a]	236.6[b]	295.1

[a] Including Irish Free State crops.
[b] Including imports into the Irish Free State of 6.4 million bushels from April 1 to July 31, 1923, and 16.3 million bushels for 1923-24.

British production of wheat, which was stimulated during the war years, has tended downward since the war. Much wheat acreage, plowed up during the war, has gone back to grass because, at prevailing prices for wheat, its cultivation has been unprofitable. Indeed, English farmers have latterly suffered from a depression hardly less acute than that experienced by United States farmers.[2] With reduced acreage and only moderate yields per acre, the British crop of 1923 was slightly under the pre-war average.

Net imports of wheat and flour in 1923–24, however, increased by an amount more than offsetting the reduction in crop. They were by far the largest since the war, and 25 million bushels higher than in 1922–23. Supplies available were 295 million bushels, about 18 million greater than the amount in 1922–23 or the pre-war average. Even so, British per capita wheat consumption remains below the pre-war level. If this was true at the low wheat prices prevailing in 1922–24, with business depression making for large consumption of cheap foods such as bread, the consumption is not likely to increase with higher levels of wheat prices. The change has taken place despite considerable unemployment. It is apparently attributable to increased consumption of meat and to a somewhat higher standard of living among large sections of the working classes, which permits the use of a larger variety of foods.

Great Britain has long been a leading flour importer, but a flour exporter to some extent as well. In 1923–24, as shown by Table 10, flour exports increased so greatly that the net imports were the smallest for many years. In large part this is explained by the fact that since April 1, 1923, the Irish Free State has been treated as a separate trade entity, so that heavy shipments to southern Ireland,[3] formerly inter-

TABLE 10.—BRITISH FLOUR TRADE, PRE-WAR AND POST-WAR*

(Thousand barrels)

Year ending July 31	Imports	Exports	Net imports
1909–14	6,123	930	5,193
1919–20	7,406	180	7,226
1920–21	8,127	1,575	6,552
1921–22	8,976	1,416	7,560
1922–23[a]	7,087	1,508	5,579
1923–24[a]	6,190	3,239	2,951

* Sources: *International Yearbook of Agricultural Statistics* and *International Crop Report and Agricultural Statistics.*
[a] From April 1, 1923, the data are for Great Britain and Northern Ireland only. Since the Irish Free State imports British flour, this fact accounts for much of the recent increase in exports and for part of the reduction in imports.

[1] According to estimates of the International Institute of Agriculture, the pre-war consumption of wheat in the United Kingdom was slightly less than 6 bushels per capita.
[2] See R. R. Enfield, *The Agricultural Crisis.* (London, 1924).
[3] Nearly half the total exports in recent months have gone to the Irish Free State.

nal trade, now count as exports. But it is also due in part to the development of the British milling industry and to heavier exports to Germany and other markets.

Smaller Countries Resembling Great Britain. Several small deficiency countries of Northern and Western Europe resemble Great Britain in producing less wheat than they import. They too show heavily increased net imports in 1923–24, by far the largest since the war, but these countries generally, unlike Great Britain, harvested larger crops than in 1922–23. Table 11 summarizes the crops, net imports, and available supplies for six of these countries,—Belgium, Holland, Switzerland, and the three Scandinavian nations. In the aggregate the 1923–24 supplies were 11 per cent higher than in 1922–23, the best previous post-war year, and somewhat higher than before the war.

TABLE 11.—WHEAT SUPPLIES OF SIX SMALLER DEFICIENCY COUNTRIES OF EUROPE, PRE-WAR AND POST-WAR*

(Million bushels)

Crop year ending July 31	Crop	Net imports	Available supplies
1909–14	38.2	107.2	145.4
1920–21	38.6	74.8	113.4
1921–22	51.1	86.5	137.6
1922–23	38.4	102.0	140.4
1923–24	44.3	111.8	156.1

* Belgium, Holland, Switzerland, Denmark, Norway, and Sweden.

In the case of Belgium, net imports for the past three years have averaged about 40 million bushels as compared with 50 million before the war, in spite of some reduction in domestic crops. The marked decrease in wheat consumption in Belgium is explained primarily by a higher standard of living among the working classes, leading to heavier consumption of meat, potatoes, and sugar. The Scandinavian countries, on the other hand, show marked increases in per capita wheat consumption since the war, largely at the expense of rye consumption.

Italy. The Italian wheat crop in 1923 was of record size—nearly 225 million bushels, over one-third larger than the crop of 1922. If imports had been correspondingly reduced, the total for 1923–24 would have been about 44 million bushels. The tendency for consumption to vary with the crop, however, is quite marked in Italy. As a result increased production seldom results in a corresponding decrease in imports, or decreased production in an equal increase in imports. Early estimates of probable imports evidently disregarded this fact, for they ranged from 37 to 56 million bushels.[1] It soon became clear that these estimates were all too low, and in January Broomhall increased his estimate to 72 million bushels. This was roughly equal to the final official figure of net imports for the year, 70 million bushels, but well below the gross imports, which amounted to about 78 millions.[2]

TABLE 12.—ITALIAN WHEAT CROPS, NET IMPORTS, AND SUPPLIES, PRE-WAR AND POST-WAR

(Million bushels)

Crop year ending July 31	Production	Net imports	Available supplies
1909–14	183.3	53.0	236.3
1920–21	141.3	99.4	240.7
1921–22	194.1	100.5	294.6
1922–23	161.6	115.7	277.3
1923–24	224.8	69.8	294.6

As shown in Table 12, the Italian wheat supplies for domestic consumption were nearly 295 million bushels, practically the same as in 1921–22 but 17 million bushels larger than in 1922–23. The actual variation in consumption was probably smaller, if account is taken of carryovers and of the tendency to overestimate crops in good years and to underestimate them in bad years.

In the past three years Italian wheat consumption has been roughly 22 per cent higher than before the war. Much of this increase results from a considerable increase of population (amounting to some 15 per cent), caused, in its turn, by the addition of territory, the reflux of emigrants during the war, the lower rate of emigration during and since the war, and the natural increase of population. Clearly,

[1] *Foreign Crops and Markets*, Dec. 12, 1923, p. 484; Broomhall's *Corn Trade News*, Oct. 30, 1923.

[2] Broomhall's estimate was expressed in round numbers, as 9 million quarters.

however, there has been a notable increase in per capita consumption of both wheat and meat at the expense of corn and rice. In part this is undoubtedly attributable to the good Italian crops and the low level of wheat prices in the past three years, causes temporary in character. In 1923–24 the prevalence of industrial prosperity in Italy was another factor. But the change is also due in part to a trend, strengthened by war experiences and favored by present national policies, toward a more varied diet for the masses.

The value of wheat in relation to other commodities was extremely low in Italy in 1923–24, probably lower than in any other large wheat-producing country except Germany, particularly in the early months of the crop year. This is clearly shown by the following monthly index numbers of the Milan price of home-grown soft wheat, on a 1913 base, reduced by a Milan wholesale price index number:[1]

Aug.	61.3	Dec.	61.6	Apr.	73.0
Sept.	61.0	Jan.	64.6	May	73.5
Oct.	61.1	Feb.	67.4	June	74.1
Nov.	60.5	Mar.	73.2	July	69.8

Consequently there was considerable agitation for the reimposition of the import duty on wheat, which had been suspended since 1915. This agitation, however, was unsuccessful, and the suspension of the duty was continued. In January and February, however, prices of domestic wheat rose sharply, by some 20 per cent, largely, it would seem, as a result of a premature approach to exhaustion of domestic supplies.

[1] See also Appendix Table XVIII and above, p. 3.

[2] The official figures for exports during the past two years are as follows, in metric tons:

	1922–23	1923–24
Wheat flour	36,283	135,606
Semolina	888	2,579
Wheat pastes	14,950	18,278
Total	52,121	156,463

See also Appendix Table XI.

[3] "The exportation of semolina and wheat flour was limited to 100,000 quintals per month by an order approved by the council of ministers on August 6, 1924." *Commerce Reports*, Sept. 15, 1924, p. 684. The average monthly export of wheat flour and semolina in 1923-24 was 115 thousand quintals, but in several months it was much larger.

[4] Effective Sept. 18, 1924. *Commerce Reports*, Oct. 6, 1924, p. 53.

As a result of the large crop and low prices in Italy and conditions favorable to importing wheat to manufacture for export, the flour-milling and alimentary-paste industries in Italy prospered greatly in 1923-24. Flour exports rose to the record figure of 136 thousand tons, nearly double the prewar average and nearly four times the corresponding exports in 1922–23. Exports of semolina and wheat pastes also expanded greatly.[2] The economic revival of the smaller states of southeastern Europe, and improved commercial relations, contributed to furnish Italy a large export market for her wheat products, in part, however, at the expense of Budapest. Table 13, giving the destinations of Italian wheat flour exports for the past two crop years, indicates the general expansion and the heavy movement, especially to Austria, Switzerland, Jugo-Slavia, and Italian dependencies.

TABLE 13.—DESTINATIONS OF ITALIAN EXPORTS OF WHEAT FLOUR, 1922–24*

(Metric tons)

Destination	1922-23	1923-24
Austria	8,981	39,992
Czecho-Slovakia	.....	7,132
Switzerland	3,543	11,680
Fiume	3,924	2,926
Jugo-Slavia	8,028	20,331
Tripoli and Cyrenaica	5,273	19,740
Greece	2,111	11,077
Great Britain and Ireland	539	9,938
Other Countries	3,884	12,791
Total	36,283	135,606

* Source: *Ufficio Centrale di Statistica del Commercio Speciale di Importazione e di Esportazione.*

The growth of the Italian export trade in wheat flour is not likely to continue in 1924-25. The crop of 1924 was distinctly smaller than that of 1923, and measures have been taken to restrict the exportation of wheat flour and semolina.[3] Furthermore, the import duty on wheat flour has been reduced from 1.50 gold lire to 0.65 gold lire per quintal, and on semolina from 3.50 gold lire to 1.50 per quintal.[4]

France. Before the war France was nearly self-sufficing in wheat, importing only about 12 per cent of her supplies. The reattainment of substantial self-sufficiency in wheat, with the aid of French

colonies in North Africa, is an accepted national policy.[1] By promoting research in seed selection, wheat cultivation, milling and baking quality, transportation and merchandising of grain, by facilitating fertilizer consumption, by tariff duties on wheat, and by extensive propaganda, successive governments have undertaken to accelerate the attainment of this ideal.[2] Nevertheless in 1923–24, after a good wheat crop, the net imports, some 53 million bushels, were about 16 per cent of the total supply.

French wheat acreage, though it has tended upward since the war, is still some 15 per cent below the pre-war level, despite the addition of Alsace-Lorraine acreage. This deficiency is due only in small part to the devastation of the North of France, for the agriculture of that region is pretty well restored. It is due more largely to preference for animal husbandry and to the shortage and high price of farm labor, resulting chiefly from the heavy war casualties, from the attractiveness of industrial employment and town life, and from the low level of living conditions for rural laborers. The low prices of wheat have no doubt been a contributing factor. The work of reconstruction and the increased industrialization of France have been partly at the expense of agriculture. Thus, while yields per acre since the war have been rather above than below pre-war levels, total production has been much below.

In view of the financial difficulties involved in importing wheat, the Government has taken various measures to restrict wheat consumption. Thus when the harvest of 1922 proved disappointing, the Government established a regulation requiring the maximum extraction from wheat of flour suitable for baking. The average rate of extraction since then has been estimated at 75 to 80 per cent, as compared with about 70 per cent in the United States. Moreover, the addition of substitute cereals in the manufacture of flour was prescribed, and by the close of 1922 the addition of 10 per cent of rye was made compulsory. On July 12, 1923, these regulations were extended to August 31, 1924, barley and cassava being added to the list of possible substitutes and the percentage of substitutes reduced from 10 to 8. Although these regulations[3] have undoubtedly been enforced but poorly, they have unquestionably kept down domestic consumption. The "saving" has been liberally estimated at 25 to 32 million bushels for the year 1922–23. For 1923–24 the corresponding figures, not yet available, may be higher still, considering that the regulations were in force throughout the year. The turnover tax, which affects wheat at various stages between grower or importer and consumer, is also charged with some influence in restricting consumption.

The crop of 1923 was admittedly overestimated. The early official estimate was 291 million bushels. This was reduced in June 1924 to 276 million. In August 1923 it was officially asserted that France would need no wheat imports except those from North Africa. Broomhall estimated that 17 or 18 million bushels would probably be imported during the year for blending purposes and for milling in bond.[4] In the first five months, however, imports exceeded 23 million bushels, of which only 8½ million came from North Africa. In January, February, and March, imports were somewhat checked by the heavy depreciation of the franc, despite the reduction in the tariff on January 7; but in the last four months of the crop year they were again heavy. For the whole year, the net imports reached 53 million bushels, a higher figure than in 1922–23, when the crop was unquestionably smaller.

Table 14 (p. 16), utilizing official figures for crops and net imports,[5] shows the avail-

[1] Some enthusiasts, among them a recent minister of agriculture, have even advocated making France a net exporter of wheat. Provided yields can be economically increased by improved methods of cultivation, such a goal is not impossible of attainment; but it seems at present a remote possibility.

[2] See the Reports of the Semaine Nationale du Blé.

[3] See especially L. Machafel in *Almanach du Blé pour 1924* and Joseph Bernin, *Rapport . . . au Chambre des Deputes*, No.7331, Douzieme Legislature, 1924, p.67.

[4] *Corn Trade News*, Aug. 28, 1923.

[5] Unofficial estimates of French wheat crops, by Association de la Meunerie, *Bulletin des Halles*, and M. Sicot, show results differing considerably from the official figures. The pre-war crops seem to have been underestimated. There is some reason to believe that net imports in 1923-24 were smaller than those shown, because of unrecorded flour exports to occupied and unoccupied Germany.

able supplies in recent years as compared with the pre-war average. Disregarding carryovers, which account for part of the variations shown, it appears that French gross consumption in the past year has been about 9 per cent below the pre-war level, for a population of about the same size.

TABLE 14.—FRENCH WHEAT CROPS, NET IMPORTS, AND SUPPLIES, PRE-WAR AND POST-WAR

(Million bushels)

Crop year ending July 31	Production	Net imports	Available supplies
1909–14	317.6	43.6	361.2
1920–21	236.9	68.3	305.2
1921–22	323.5	17.1	340.6
1922–23	243.3	45.6	288.9
1923–24	275.6	53.0	328.6

In France, as in Belgium, the reduction in per capita wheat consumption is due in part to an improvement in the diet of the masses, accompanying an increase in the standard of living. In view of policies tending to restrict domestic consumption, it is unlikely that imports in the coming years will be made to the extent necessary to restore gross consumption to the pre-war level. This restoration, if it comes, is likely to await the increase of acreage and domestic crops.

Germany. Germany stands apart from the other large countries of western Europe on account of the prominence of rye and potatoes in the national dietary. According to the report of the Eltzbacher Commission, over 45 per cent of the calories in the pre-war German diet was supplied by rye, wheat, and potatoes; and of the amount thus supplied, rye contributed 40 per cent, wheat 35 per cent, and potatoes 25 per cent. The consumption of wheat was heaviest in the cities, that of rye and potatoes heaviest in the country districts. Since only 25 or 30 per cent of the potato crop was customarily used for food in an average year, additional substitution of potatoes for bread grains in a particular year was a ready adaptation. There was more feeding of bread grains to domesticated animals in Germany than in the other large European countries; normally, 10 per cent of the wheat and 25 per cent of the rye, after subtraction of seed, was thus utilized.

Prior to 1914 Germany was second only to Great Britain in the magnitude of imports of wheat. Since the war, however, German imports have been less prominent. In 1920–21, with a wheat crop estimated at 82 million bushels—only a little more than half as large as the average pre-war crop, Germany was the third largest importer. In 1921–22, when the crop had improved by 25 million bushels, she fell to fourth place. In 1922–23 the crop was officially estimated at only 72 million bushels, and a considerable increase in German imports was anticipated. Instead, imports declined until Germany stood fifth among importing countries.

It is generally admitted that German consumption of wheat and other bread grains was notably reduced in 1922–23. In the fall of 1923 Broomhall fairly described the German wheat and rye situation in the following words:

> In 1921–22 the quantity of these bread-cereals used for all purposes amounted to 53.7 million quarters, whereas in the following season it dropped to 43. Part of this difference may be due to underestimation of the 1922 crops and variations in end-of-season stocks, but it is evident that there has been a tendency towards reduced consumption, owing to the financial difficulty of importing foreign grain. With much better production this year, it remains to be seen whether consumption will be increased or whether the country will continue on short rations and so make itself practically independent of foreign supplies.[1]

With the accelerating depreciation of the mark during August, September, and October, 1923, farmers and other holders of grain refused to sell. As a result consumption for the nation as a whole declined, and the food situation in the cities became acute. This condition was not materially relieved by the announcement of the Ministry of Food in August 1923 that bread grains sufficient to last until October were in the possession of the Government.[2] Widespread unemployment and low wages considerably reduced the purchasing power of the industrial population. The situation

[1] Broomhall's *Corn Trade News*, Sept. 17, 1923.

[2] *Ibid.*, Aug. 14, 1923. These holdings are said to have amounted to 920,000 tons as of August 15, 1923.

continued to be so grave that in December the German Government requested the permission of the Reparation Commission to borrow 70 million dollars, which American interests were willing to lend if priority over reparations were given. The credits thus secured were to be used in financing imports of foodstuffs, on the assumption that the food crisis was the result of inability to secure supplies from abroad. While the crisis was developing and the request was being considered, the rentenmark currency became established, and before final action on the request was taken by the Commission, this phase of the crisis had largely disappeared.[1] With improvement in the currency, domestic grain appeared on the market in surprising amounts. During the winter and spring, unemployment declined, wheat prices fell, and it is safe to assume that at length a considerable increase occurred in the consumption of bread grains.

In the first half of the crop year German imports of wheat averaged about 2 million bushels a month, according to the official figures. In the last half of the year the monthly average was about 3 million bushels. Imports of wheat and rye flour increased relative to imports of wheat and rye as grain.

In order to compare the post-war bread grain consumption with that of the pre-war period, it is necessary to apply a correction to the pre-war crop estimates. It has been officially recognized in Germany that the reported pre-war estimates of wheat and rye were exaggerated and post-war estimates set too low. Accepting corrections computed by Dr. Kurt Ritter,[2] Table 15 shows a comparison of bread grain supplies in pre-war and post-war years ending July 31, combining net imports with crops.

TABLE 15.—GERMAN BREAD GRAIN SUPPLIES, 1911–14, 1920–24

(Million pounds)

Crop Year	Wheat	Rye	Total	Pounds per capita
1911–12	11,606	20,071	31,677	481
1912–13	12,105	19,146	31,251	470
1913–14	12,764	21,000	33,764	501
1920–21	9,776	14,922	24,698	408
1921–22	11,607	17,580	29,187	476
1922–23	7,199	15,676	22,875	369
1923–24	8,772	17,418	26,190	417

There is reason to believe that the figures for imports err in the direction of understatement, particularly those for 1921–22 and 1922–23. The import figures do not include the occupied areas or the Saar; and the Ruhr occupation, extending from January 1923 to September 1924, greatly increased the population in occupied zones. This territory is of considerable importance for both milling and consumption. Usually the major portion of German bread grain imports enter through the Western provinces. It is impossible to obtain any precise estimate of the quantity of wheat that entered Germany through the occupied territory. A comparison of the German official figures of imports of wheat flour from the Netherlands with the Dutch figures of exports to Germany, indicates that this movement must have been considerable. The Dutch records of wheat flour exports to Germany for the first eleven months of the crop year show 415 thousand barrels (equivalent to nearly 2 million bushels of wheat) more than the German records of imports from the Netherlands. If the figures for both wheat and wheat flour from all other sources could be compared in the same way, an appreciably higher estimate of domestic disappearance would undoubtedly be secured. The figures for supply are, therefore, minimal figures.

There is evidence that in Germany less than the normal amount of wheat and rye has been fed to domesticated animals; also that the extraction in milling has been higher than in pre-war days. This would mean that the flour supply has been larger

[1] J. S. Davis, "Economic and Financial Progress in Europe, 1923-24," *Review of Economic Statistics*, July 1924, p. 210.

[2] "Die Landwirtschaftstatistik und die Landwirtschaft," in *Deutsche Tageszeitung*, Jan. 12, 1924.

WHEAT, RYE, AND SPELT *(million bushels)*

Year	Official estimates	Ritter's estimates	Percentage error
1911	563	507	+11.1
1912	601	496	+21.1
1913	636	541	+17.6
1920	272	340	−20.0
1921	365	420	−13.0
1922	268	309	−13.0
1923	373	411	−9.1

than would be indicated by the supply of bread grains. How much larger, however, it is impossible to suggest. The figures clearly indicate that the bread-grain supply of the country during the past year was below the normal per capita level. To what extent this was borne by the human population and to what extent by domesticated animals, is not determinable.

If these data are trustworthy, we must conclude that wheat consumption was lower in 1923–24 than in 1920–21 and 1921–22, but considerably higher than in 1922–23; and that rye consumption was lower in 1923–24 than in 1921–22, but considerably higher than in 1920–21 and 1922–23. The total bread grain supply was highest in 1921–22, followed by 1923–24, then 1920–21, with 1922–23 notably the lowest. The figure for 1922–23 would seem to be fictitiously low, for reasons affecting wheat rather than rye.

In view of the price situation in 1923–24 it is surprising that German consumption of wheat was not larger. When wheat prices are corrected for the general price level, their values, on a percentage basis, for the last three crop years are 105, 100, and 64.[1] With similarly low wheat values, other continental countries imported much more heavily. A comparison of wheat and rye prices is also informing. For equal quantities of the two cereals, rye cost 76, 77, and 84 per cent of the price of wheat in the three crop years ending with 1923–24. In other words wheat was relatively cheaper, in terms of rye, in 1923–24 than in the two preceding crop years. That Germany has imported wheat when cheaper rye was equally available is an illustration of the power of taste over price. That imports were not larger seems, for the most part, to have been a result of the extremely unfortunate financial conditions in the first few months of the crop year, which affected both imports and consumption, and of the low income of the masses of the population in the year as a whole.

The potato crop of 1923 was of fair size, considerably above the average of the post-war years, though much below the huge crop of 1922. The marketing of the crop, however, suffered from the disorganization of transport, occasioned by the occupation of the Ruhr. Nevertheless, the supply of potatoes was sufficiently large to make them available as a substitute for bread grains to a greater extent than was the case in 1920–21 and 1921–22, though less than in 1922–23. Table 16 presents the figures for apparent supplies of wheat, total bread grains, and potatoes during the past three seasons. Obviously, the adaptation lay in the supply of potatoes.

TABLE 16.—GERMAN SUPPLIES OF WHEAT, BREAD GRAINS, AND POTATOES, 1921–24

(Million metric tons)

Crop year	Wheat	Bread grain	Potatoes
1921–22	5.3	13.2	26.2
1922–23	3.3	10.4	40.7
1923–24	4.0	11.9	30.4

China and Japan. One of the most striking features of the year 1923–24 was the extraordinary purchasing of wheat and flour by ex-European countries. Although this broad fact is unmistakable, it is impossible to give it quantitative expression. The diversity of opinion regarding the total of ex-European imports becomes quite evident upon an examination of the statistics of movement. Broomhall estimates ex-European takings at 149 million bushels, Sir James Wilson at 192. Compilations from official figures indicate ex-European takings of from 225 to 250 million bushels.[2]

Despite these differences as to the amount purchased by ex-European importers, there is unanimity on the conclusion that it surpassed all preceding records. Broomhall and Sir James Wilson agree that it was about 56 million bushels greater than in 1922–23. Broomhall considers it 67 million bushels above the average from 1909–10 to 1913–14.

Part of this ex-European movement of

[1] See above, Table 2.

[2] Broomhall gives total movement as 775 million bushels. Official figures indicate that it was nearer 800. Broomhall estimates European imports at 626; official figures show net European imports of about 527. Since Broomhall's chief sources are the exporting ports it may be assumed that some diversion to ex-European destinations occurred without being reflected in his estimates. His figures include shipments from the Danube area and do not take account of exports of European flour to ex-European markets.

wheat and flour consists of small quantities sent to widely scattered markets; but the most important current is that which flows to the second greatest low-pressure area, China and Japan. Japan alone imported 80 million bushels of wheat and flour in 1923–24, more than twice as much as her domestic production, as compared with 14½ millions in 1922–23, and with slightly over 4 millions, on the average, in the five years before the war. The imports of China are not definitely known. It may safely be assumed, however, that these two Oriental countries were the recipients of fully half of the ex-European shipments.

This increase in Oriental imports was especially important to Australia and the Pacific coasts of the United States and Canada. Combined with the unusually large surplus in the Pacific Northwest and the relatively small surplus east of the Rocky Mountains, this resulted in a considerable increase in the proportion of United States exports that found an outlet through the Pacific ports.[1]

These unusually heavy purchases by ex-European countries were not anticipated at the beginning of the crop-year 1923–24. During the year Broomhall increased his estimates of ex-European imports from 100 million bushels to 148 million bushels, while Sir James Wilson increased his from 152 million bushels to 192 million bushels.

The large importations by Oriental countries may be explained in part by the growing demand for wheat in China and Japan. The immediate causes of the increase, however, are to be found in crop conditions and the price situation. In 1923 China experienced her third successive crop failure,—two years of drought and one of floods. It is impossible to secure any quantitative expression of the extent of these disasters, since opinions as to the average production in China vary from 200 to 600 million bushels. Practically all authorities agree, however, that the Chinese wheat crop in 1923 was decidedly below normal.

In Japan the production was not much below normal; but there was little prospect of the usual imports from Manchuria because of the poor crops there, and rice supplies, in Japan and her foreign sources of supply, were smaller than usual. In the fall of 1923 the import duty of about 22 cents per bushel was suspended until March 31, 1924,[2] in consequence of conditions occasioned by the earthquake of September 1.

The low level of wheat prices in 1923–24 was clearly responsible for much of the increased purchases of wheat and flour by buyers in China and Japan. The tendency of Oriental imports to increase with low prices has often been noticed.[3] This tendency is perhaps accentuated by the fact that the Oriental is by temperament a gambler. When the price seems low, importers purchase with little regard to current needs. The result is a buying orgy such as American Pacific Coast markets experienced in the fall of 1923. The natural result was an excessive accumulation of stocks in the Oriental market. This condition became acute in May 1924, and was accompanied not only by a slackened demand, but by efforts to cancel orders. In the late summer of 1924 it was reported that stocks had piled up in Oriental markets until it was possible to purchase wheat cheaper in Shanghai than in America.[4] Consequently, the prospect is that, despite poor harvests in 1924, Oriental imports of wheat in the coming crop year will be very much less than in 1923–24, particularly at current prices.

In short, almost every European country except Germany imported wheat heavily in 1923–24, in spite of large crops, so that in most deficiency countries wheat supplies

[1] As shown by the following tabulation of United States wheat and flour exports by customs districts, in percentages of each year's total. From *Foreign Crops and Markets*, Aug. 6, 1924.

District	1921	1922	1923	1924
Canadian and Lake Ports	3.4	11.4	14.7	11.7
Atlantic Coast Ports	36.7	28.7	38.3	26.3
Gulf Coast Ports	47.9	36.9	28.7	19.9
Mexican Border Ports	.3	.5	.5	1.6
Pacific Coast Ports	11.7	22.5	17.8	40.5

[2] Broomhall's *Corn Trade News*, Oct. 2, 1924. Imports were especially heavy in February and March.

[3] Cf. A. Berglund, "The Wheat Situation in Washington," *Political Science Quarterly*, September 1909, XXIV, 489; John B. Watkins, *The Development of the Export Market for Wheat and Flour of the Pacific Northwest*, MS. Thesis, University of Chicago, August 1924, p. 89.

[4] *Corn Trade News*, May 30, 1924, Aug. 6, 1924. Imports in May and June were only about 1½ million bushels.

were by far the largest since the war, while the Oriental countries absorbed unexpected amounts, of which a considerable part was carried over into the new year. As compared with pre-war days, per capita supplies were appreciably smaller in Great Britain, Belgium, and France, because of changes in dietary habits, supplemented in France by public measures to restrict consumption, while in Germany an even greater reduction in per capita supplies was brought about by peculiarly unfavorable economic conditions. In Norway, Sweden, Italy, and Japan, on the other hand, per capita supplies were larger than before the war, because of other changes in dietary habits. The major factor making for large imports in 1923–24 was the availability of abundant supplies at low prices.

VI. DEVELOPMENTS IN SURPLUS-PRODUCINIG COUNTRIES

The wheat requirements of the deficiency countries, beyond their domestic crops, are met largely by exports from overseas sources, notably the United States, Canada, Argentina, and Australia. Secondary sources of international wheat supplies are Russia, the countries of the lower Danube basin, North Africa, and British India; all of these except North Africa were far less important in 1923–24, notwithstanding good crops, than before the war. Wheat imports are supplemented, to a degree more or less important, by rye exports from North America and normally, as in pre-war years and in 1923–24, from Russia.

The relative importance of the exporting countries is indicated by Table 17, showing net exports of leading exporters before and since the war. The impressive features are the predominating importance of the four major sources of supply, the rise of Canada, Argentina, and Australia as wheat exporters, the declining importance of the United States since 1918–20, and the reappearance of exports from Russia, the Danube area, and British India, now as minor exporters.

In the United States, where exports regularly are far less than domestic consumption, and where the exports of 1923–24, while of large absolute importance, were relatively small, the situation was peculiar in several respects and is reserved for discussion in the next subsequent section. In this section the significant developments in other surplus-producing countries can be summarized, with particular reference to the export situation.

TABLE 17.—NET EXPORTS OF WHEAT (INCLUDING FLOUR) BY LEADING EXPORTERS, PRE-WAR AND POST-WAR YEARS ENDING JULY 31 *

(Million bushels)

Country	1909-14	1921-22	1922-23	1923-24
United States	110	251	200	127
Canada	96	187	281	348
Argentina	85	118	139	172
Australia	55	115	50	86
British India	50	(14)[a]	29	20
Russia[d]	165	(5)[a]	2	23
Danube basin	109[b]	21	8[c]	25[c]
Algeria and Tunis	4½	5½	3	10
Total	675	679	712	811

* See Appendix Table X.
[a] Net imports.
[b] Excluding Serbia.
[c] Excluding Bulgaria.
[d] Figures for Russia from *Foreign Crops and Markets.*

Canada. The Canadian crop of 1923 was the largest ever harvested, with a total production of 474 million bushels, compared with 400 million bushels in 1922 and an average of 236 million bushels for the five years 1917–21. The population of Canada is relatively small; consequently the amount of wheat used in Canada for human consumption, though large per head of population, is only a small part of the crop. Since the wheat belt is in the main a one-crop region, with little diversified farming, particularly in the newer areas of the North and West, feeding is not a practicable outlet for any large portion of the surplus. Moreover, farmers find it necessary to turn the wheat into money, since in much of the wheat-growing area it is the only source of money income. As a result, the great bulk of the Canadian crop must be marketed abroad, and in 1923 the exceptional size of the crop created a huge export problem.

The season of 1923 was late, and the delay in harvesting, complicated by a strike affecting transportation, postponed the shipment of a considerable portion of the

crop until navigation on the Great Lakes and the St. Lawrence River had opened in the spring, when Canadian wheat encountered the competition of the new crop of the Southern Hemisphere. Moreover, the crop, though of high protein-content, was below average in weight per bushel.[1]

In spite of these internal difficulties, and the generally heavy production throughout the world, the predominating feature of the year in Canada was the immense export, the total movement being the greatest ever reported by a single nation. The high milling quality of Canadian hard spring wheat, which makes up the bulk of the crop, had brought it into general favor throughout the world, thus greatly simplifying the marketing of the increased 1923 supply. Not only has the wheat been in great demand abroad, but flour-milling for export has also increased rapidly, the shipments from Canada having very nearly doubled between the crop years 1920–21 and 1923–24. While the use of wheat for feed was high, though not as high as in 1922–23, when it slightly exceeded domestic food consumption, a tabulation of the disposition of the crop for the last four years shows that the increase in the crop of 1923 over that of 1922 was largely taken care of by increased exports.[2]

The supply of grain retained within the country was only slightly larger than in 1922–23. When the stocks remaining on August 31, 1924, are deducted it is apparent that the disappearance of wheat and flour within the country was smaller during 1923–24 than in the preceding season, in spite of the increased size of the crop, and more nearly approached the quantity used for consumption in 1920–21 and 1921–22, when the crops were much smaller. It is evident that, even under somewhat unfavorable conditions during the past year, the marketing facilities of Canada were adjusted to the handling of larger crops than Canada formerly produced. The development of terminal and shipping facilities at the port of Vancouver, through which grain can be shipped from the western provinces the year round, has proceeded apace. A considerable portion of the 1923 crop was shipped out in the spring, despite the competition of large crops in the Southern Hemisphere. These achievements have an important bearing upon the distribution of future large crops in Canada.

TABLE 18.—CANADIAN WHEAT SUPPLIES AND THEIR DISPOSITION, CROP YEARS ENDING AUGUST 31, 1920–24

(Million bushels)

	1920-21	1921-22	1922-23	1923-24
Available supplies	273.6	309.0	416.2	483.5
Exports, wheat and flour	167.2	194.1	279.5	343.2
Domestic use	98.6	98.9	127.8	113.8
Stocks, August 31	7.9	16.0	8.9	26.5

The total value of the Canadian crop of 1923 was less than that of 1922,[3] notwithstanding its increased size. In Saskatchewan and Alberta, the largest producing areas, on the other hand, the crop was not altogether unremunerative, because high yields per acre reduced costs per bushel. This is indicated by a comparison of farm prices with costs of production per bushel for the crop of 1923 in the Prairie Provinces, furnished in a study made by the Dominion Bureau of Statistics.[4] On this showing, Alberta farmers slightly more than covered their total costs, while Saskatchewan farmers covered all but part of their land charges. It must be pointed out that these figures are averages of returns from individual crop correspondents, and that the costs of many farmers may be more and those of other farmers less than

[1] The average weight per bushel, a partial index of quality, was low in 1923, as the following figures show:

1913-22 average	59.28 lbs.
1922 "	60.24 "
1923 "	58.80 "

Monthly Bulletin of Agricultural Statistics, January 1924, p. 29.

[2] See Appendix Table VII *(B)* for greater detail.

[3] Farm values compare as follows: 1922—$339,419,000; 1923—$316,934,700. *Monthly Bulletin of Agricultural Statistics*, January 1924, p. 4.

[4] Farmers in Manitoba, where the yield was not heavy, lost considerably. *Monthly Bulletin of Agricultural Statistics*, January 1924, pp. 19-24; June 1924, p. 184.

Province	Production *mil. bus.*	Cost of production After stubble	Cost of production After summer fallow	Average farm price
Manitoba	32.8	$1.00	$1.04	$0.67
Saskatchewan	252.6	0.75	0.73	0.65
Alberta	166.8	0.63	0.62	0.65
Prairie Provs.	452.3	0.72	0.71	0.66

the averages. Naturally, also, the price received by farmers depended greatly upon the time when the crop was sold, as an examination of wheat prices at Winnipeg will show.[1] Nevertheless, the comparison suggests that the new lands in the western Prairie Provinces can raise wheat profitably under all but extremely unfavorable conditions of the world market.[2]

The carryover on September 1, 1924, was unusually large, partly because of the difficulty of marketing the large crop, but more because of unfavorable reports during the summer of 1924 concerning the new crop. The stocks were accumulated in elevators and mills, in the main, although the amount left in farmers' hands increased to some extent.[3] The new crop is at present estimated at only 272 million bushels,[4] which makes the large carryover of some significance in the Canadian supply for 1924–25.

Argentina. The wheat crop of the Southern Hemisphere is harvested in December and January. As a result, the old crop is still drawn upon for consumption and export during the fall months. During the early part of the crop year 1923–24, exports were large because of favorable reports of the new crops. These reports were influenced not only by favorable weather, but also by the fact that the acreage planted to wheat was more than a million acres greater than in the preceding year, an expansion due largely to poor conditions in the cattle industry. As a result of active exporting, by the first of January 1924 the stock of wheat on hand in Argentina was nearly exhausted.

The new crop turned out as well as had been expected. The estimate in January was 259 million bushels, later reduced by 12 million bushels. Domestic consumption was approximately the same as in the preceding year, since the population of Argentina is small and the export market is the primary outlet for their wheat crops. Feeding of wheat was moderate, particularly since the corn crop was large. As a result, exports during the spring of 1924 were very heavy, so that the shipments from January through July reached nearly 140 million bushels, practically as much as the total exports in the preceding year. A summary of Argentine wheat supplies and their disposition in the past three years is shown in Table 19.[5]

TABLE 19.—ARGENTINE WHEAT SUPPLIES AND THEIR DISPOSITION, CROP YEARS ENDING DECEMBER 31, 1922–24

(Million bushels)

	1922	1923	1924
Available supplies	220.4	206.5	247.6
Exports	145.5	140.2	139.0[a]
Domestic use	64.2	65.7	65.6
Stocks, Dec. 31	10.7	0.6	....

[a] Exports of first seven months.

The outward movement consisted mainly of wheat, although flour exports were greater than for several years past.[6] Exports were somewhat facilitated by the reduction of the export duty by approximately 2 cents per bushel in February, and by its removal, in April, for the remainder of the crop year 1923–24.[7] The cost of producing wheat in Argentina is probably lower than in any other exporting country because of low labor costs and the low value of land. There is reason to believe that, despite low wheat prices, profits were realized to a greater extent than in any other wheat-exporting nation, as a result of the large crop and the low cost of production.

Australia. Weather conditions were not favorable during the fall of 1923 in Australia, and it was expected the harvest would be no greater than in 1922–23. Early in November, however, there was rain throughout most of the country, and crop prospects improved greatly. The harvest turned out to be considerably larger than in the preceding year, although not a bumper crop. Exports were not large during the fall, because of the prospect of a short crop, and when receipts of new wheat began to come in the stock on hand was large.

Domestic consumption of wheat and

[1] See Appendix Table XVII.

[2] Unfortunately the technique of farm cost of production studies is still too imperfect to afford a thoroughly safe basis for such statements.

[3] See Appendix Table XVI.

[4] November 1 official estimate.

[5] See also Appendix Table VII (*C*).

[6] See Appendix Table XI (*A*).

[7] This was due not to new legislation, but to the operation of the existing law which provides a sliding scale of export duties.

flour in Australia has increased in late years but is still small in comparison with the crop. Requirements for seed and feed have not increased to any large extent, and the total supply from the harvest of January 1924 destined for home use was not much greater than in the previous year.

TABLE 20.—AUSTRALIAN WHEAT SUPPLIES AND THEIR DISPOSITION, CROP YEARS ENDING DEC. 31, 1922–24

(Million bushels)

	1922	1923	1924
Available supplies	136.1	115.3	135.5
Exports	84.5	62.2	64.5[a]
Domestic use	45.6	43.1	43.9
Stocks, Dec. 31	6.0	10.0	....

[a] First seven months.

Accordingly, the carryover plus the supply from the new crop made a large exportable surplus, which was shipped out rapidly in the spring. While autumn estimates of exports during 1923–24 were from 56 to 64 million bushels,[1] actual shipments for the year were 86 million bushels, notwithstanding the light export during the fall months. Shipping was relatively easy to secure, and the Orient afforded an adjacent market for large quantities of both wheat and flour. The flour exports alone exceeded 5 million barrels, 30 per cent larger than in 1922–23, and nearly three times the pre-war average.[2]

The Danube Basin. The countries of the lower Danube basin—Hungary, Roumania, Bulgaria, and Jugo-Slavia—had good crops in 1923–24, and had the largest exports of wheat and flour since the war. Table 21 shows that the production of these four countries was nearly 40 million bushels greater than in 1922 and that exports were also much greater, increasing from 8 million bushels in 1922–23 to nearly 25 million bushels in 1923–24, and exceeding the 1921–22 exports of 21 million bushels. Both production and exports, however, were small as compared with pre-war years.

The domestic utilization of wheat in these nations was more than 20 million bushels greater than in the preceding year. This was to be expected in view of the increase in crops. Another important factor was that currency fluctations made the peasants reluctant to sell their grain except as it was necessary to meet financial obligations. Governmental restrictions of wheat exports, coupled with the fluctuations in the currencies and exchange rates, made wheat-trading a hazardous and speculative undertaking throughout much of the year, with the result that exports from these nations were curtailed to some extent.

TABLE 21.—WHEAT PRODUCTION AND EXPORTS OF COUNTRIES IN THE DANUBE BASIN, 1922–24

(Million bushels)

	1922-23		1923-24	
	Production	Exports	Production	Exports
Roumania	92.0	1.6	101.0	2.5
Bulgaria	37.7	[a]	36.2	[a]
Hungary	54.7	5.2	67.7	16.8
Jugo-Slavia	44.5	1.0	61.1	5.2
Total	228.9	7.8[b]	266.0	24.5[b]

[a] Figures not available. [b] Excluding Bulgaria.

Exports of wheat and flour from Rumania were prohibited throughout the early fall, and the prohibition was replaced in November by a very high export tax. Transportation was slow and uncertain; and the Danube was frozen over for a longer period than usual, greatly hindering the export during the winter months. The largest shipments were made by rail to Austria and Czecho-Slovakia. Later in the crop year the duties were lowered somewhat, when it was seen that the grain on hand was more than sufficient to last until the new harvest.

A somewhat similar situation prevailed in Hungary, although there exports were much larger. The Government kept close control of the wheat and flour trade during the fall, and numerous restrictions made business slow. In January the millers succeeded in raising a loan of £750,000 for the government, chiefly in London, and in return the decrees hindering export were withdrawn. Prices of wheat remained high, however, because of the refusal of the peasants to sell their wheat except as necessity arose, and the position of millers became

[1] Broomhall's *Corn Trade News*, Aug. 14, Oct. 16, and Dec. 4, 1923.

[2] See Appendix Table XI *(A)*.

even more difficult when in March the Czecho-Slovakian government prohibited further import of Hungarian flour, as the quota of flour imports from Hungary which they had fixed upon had been filled.[1] In spite of this, export conditions gradually improved, and in May the export duties on flour were abolished and the wheat export tax was reduced to 5 per cent. The differential in favor of flour was due to the desire of the government to protect the milling industry, which has been severely injured by territorial changes affecting both the securing of grain and the export of flour, so that the capacity of the mills within the country is several times the quantity required for domestic consumption.

The crops of Jugo-Slavia were large, but exports were not as great as anticipated. The difficulty of securing supplies from the farmers at a price low enough to make profitable sales in the international market, and Italian competition in the flour trade in Adriatic ports, were the principal causes for the small export. Bulgarian exports were restricted by a high duty, although this was reduced between December and April, during which time practically all the surplus grain was exported.

The wheat industry of the lower Danube area continues to suffer from the results of the war and post-war changes. The growing and the marketing of wheat are less efficient than previously, largely because of the subdivision of large holdings. The large landowner tended to exploit labor and tenants in order to secure exportable grain. The small peasant endeavors, through diversification, to approximate a self-sufficient household. The standard of living has risen, which means relatively less export. Finally, the quality of wheat seems to have deteriorated during the war, and this has continued in the direction of lower protein-content and decreased hardness. The milling trade has been disorganized by new boundaries which raise obstacles not only to the flow of wheat to the mills but also to the distribution of grain by-products. This situation is intensified by the aversion of the "succession" countries to the employment of the milling facilities of Budapest.

Russia. The return of Russia to the ranks of grain exporters on a considerable scale was a feature of the year. The Russian crops of 1923 were considerably larger than those of 1921, when crop failure occurred in several important districts, or those of 1922, when plantings were greatly reduced for lack of seed and work stock. Broomhall's estimate of the 1923 wheat crop was 240 million bushels, as compared with crops of 160 million bushels in 1921 and 202 millions in 1922.[2] Even at this figure, the crop was probably less than a half, perhaps not over a third of the pre-war harvest. The United States Department of Agriculture estimates the average pre-war crop of the present Russian area, as 735 million bushels,[3] including 584 million bushels for Soviet Russia in Europe and 151 millions for Asiatic Russia.[4] The rye crop, which is of special importance in Russia, was better than the wheat crop, and perhaps within 20 per cent of the pre-war average. Crops of barley and oil seeds, similarly, were good as compared with the preceding years, though smaller than before the war.

Because of the urgent necessity for importing industrial materials and products in order to repair and supply industrial equipment, the Soviet Government adopted the policy of collecting the largest possible volume of products for export, at the expense of domestic consumption and to the extent of even considerable shortage in certain districts. Thus Russian exports were made, not out of a genuine surplus over domestic needs, but out of a surplus created by ruthless neglect of the normal consumption requirements of deficiency districts. This policy was easier to adopt because deficient facilities for internal trade, notably railway transport, made it cheaper to export grain from surplus-producing areas than to distribute it to deficiency areas.

[1] Broomhall's *Corn Trade News,* March 11, 1924.

[2] *Ibid.,* August 19, 1924.

[3] The official estimates for 1923, on the 1911-15 base, are as follows: rye, 83.4 per cent; winter wheat, 64.4; spring wheat, 33.2; oats, 55.7; barley, 50; buckwheat, 134.8; millet, 155; corn, 184.4. *Commerce Reports,* May 26, 1924, p. 546.

[4] *Foreign Crops and Markets,* Sept. 24, 1924, pp. 304-305.

Exercising a monopoly in both internal and external trade, the Government purchasing agency bought all surplus grain in districts producing a surplus, leaving to private trade only the grain for local use. As sole buyer it was in a position to purchase at low prices and could determine how much of the purchases to distribute for domestic consumption and how much to export. Partly because of the currency chaos and industrial disorganization, grain prices were extremely low in the first half of the crop year, rising rapidly in the spring and summer of 1924. The "Gosplan" reports prices in South Russia and export regions as follows, in cents per bushel:[1]

	Wheat	Rye
Aug. 1, 1923	79	39
Sept. 1, 1923	62	36
Aug. 1, 1924	141	80
Sept. 1, 1924	130	70

The export business was handled through the Government sales monopoly, with foreign headquarters in Berlin and London and subsidiary offices in other leading centers throughout Europe. In general, this office won the business esteem of grain-importers by its prompt and satisfactory fulfillment of contracts. The government instituted a modern system of grain-grading. With a view to securing the best selling prices and establishing its prestige as a grain seller, it shipped out only the best grades from a crop of high average quality. Consequently, Russian wheat and rye exports compared favorably in quality with the best grain imported into Europe from other export areas. But notwithstanding the low price at which grain was purchased, the export business was far from profitable. "Krassin, the head of the foreign trade monopoly, estimates that export expenses, including transportation, during 1923–24, amounted to more than 60 cents a bushel."[2]

Reliable statistics of Russian grain exports are impossible to secure. Last May, Soviet authorities, whose figures are likely to be excessive, announced that exports of grain and oilcake for the year ending June 1, 1924, were 4,013,000 short tons.[3] More recent information puts the figure at about 3 million short tons. Trade figures account for some 2,320,000 short tons of the five chief cereals in the year ending June 30, distributed as follows:

Wheat	23.1	million bushels
Rye	42.5	" "
Corn	5.2	" "
Oats	2.7	" "
Barley	19.4	" "

Including minor cereals and oil-cake, it is safe to say that the aggregate export was between 2½ and 3 million short tons.[4] A total of 66 million bushels of wheat and rye represents about 35 per cent of the average exports of bread grains from the Russian Empire in the five pre-war years 1909–14. The rye exports in 1923–24, however, were considerably greater than before the war, and the wheat exports only about 15 per cent of the pre-war exports.

The Russian exports were distributed among many countries. Germany took the largest amounts, partly through direct shipments to German ports, partly through shipments via Rotterdam and the Rhine. But Finland, Scandinavian countries, Holland, Belgium, Great Britain, France, and Italy all imported considerable Russian grain.

The bulk of the exports were shipped out in the first eight months of the crop year. By April 1924 it was evident that Russian exports had been excessive. Domestic prices of grain had risen to a point exceeding prices in foreign ports, and complaints of domestic shortage were rife. Accumulating evidence throughout the spring and summer pointed to reduced crops in 1924, making exceedingly problematical the quantity for later export, even with the continuance of the ruthless export policy. Comparatively little grain was shipped from Russia after mid-April.

[1] *Foreign Crops and Markets*, Nov. 12, 1924, p. 491.
[2] *Ibid.*
[3] *Foreign Crops and Markets*, June 25, 1924, quoting Moscow *Pravda*, May 10. See *Commerce Reports*, Feb. 25, 1924, p. 499, and *Foreign Crops and Markets*, Feb. 6, 1924, p. 130, March 19, 1924, p. 240, for earlier figures compared with pre-war averages, with some details by crops and destinations.
[4] *Foreign Crops and Markets*, Nov. 12, 1924, pp. 489, 497. Cf. Broomhall's *Corn Trade News*, April 23, Aug. 6, 1924.

Russian grain production is seriously handicapped by the shortage of work stock and modern farm machinery, and by the gross inefficiency of farming methods. Furthermore, there is only a weak stimulus and slight opportunity to improve in these respects. Such conditions appear to be getting better rather than worse, but at a snail's pace. The abandonment (since 1921) of the policy of confiscating surplus crops, and the substitution of a policy of purchase for the policy of exacting taxes in kind, has removed a special handicap upon farmers capable of producing a surplus. But the abnormally low prices paid to farmers for the 1923 crop did not improve the peasant's ability or disposition to work for increased output. Transportation facilities, particularly for export, have been considerably improved since 1921, but are yet much below normal. In the current year, though acreage was increased, unfavorable weather conditions so greatly reduced the yields per acre that exports bid fair to be negligible. No rapid recovery of Russian grain production is in early prospect. A true surplus of production over domestic requirements may not be achieved for years, except under specially favorable weather conditions; and the amount exported will depend not merely on the size of the crops but on the effective policy of the government. All things considered, however, Russia must ordinarily be reckoned a substantial factor in the world wheat trade.

This review of the surplus-producing countries, outside the United States, throws into relief the high level of production in these areas, the huge exports from Canada, Argentina, and Australia in spite of low world prices, the re-entry of Russia as an important grain exporter even with moderate crops, and the forces tending to restrict exports from the Danube basin. The net export of wheat and flour from these areas was a third larger than in 1921–22. As compared with pre-war averages, the net export of these areas was 120 million bushels larger; the decline in Russian, Danubian, and Indian exports being much more than offset by increases from Canada, Argentina, and Australia.

VII. DEVELOPMENTS IN THE UNITED STATES

Of the four leading wheat export areas, the United States is the only one whose consumption greatly exceeds its exports, the only one which normally exports its lower grade wheat and flour while retaining the best for domestic consumption. In the past crop year, the United States was exceptional for several other reasons. Instead of a record crop of high quality such as was obtained in Canada and the Southern Hemisphere, the United States harvest yielded less than the average per acre and was below average in quality, especially in protein-content. The acreage harvested was also less than in recent years. With low prices and fairly high costs per bushel, the financial return from the crop was exceptionally small. Moreover, export expectations were not fulfilled. Early in the year it appeared that, with a carryover well above average, the United States would have a large export surplus, though less than in the preceding year. But as the record crops of Canada and the Southern Hemisphere were harvested and large quantities of excellent wheat came upon the international market at low prices, it became increasingly difficult for American exporters to get rid of their low grade surplus. Consequently, exports rapidly declined, and throughout most of the year American grain, except durum and Pacific white wheats, was scarcely a factor in the international market.

Supplies Somewhat Reduced. Emphasis has been placed upon the abundance of the wheat supply in 1923–24. In the United States, however, supplies were not remarkably large or small. The crop year opened, indeed, with a large carryover from the preceding year, estimated at 102 million bushels, 21 million greater than that of 1922 and 14 million above the 1909–13 average. Both in commercial warehouses and at country points stocks were considerably above those of the preceding year and the pre-war average;[1] but they were not so

[1] See Appendix Table XV. This table does not include flour stocks, for which no comprehensive data are available.

large as to glut the market or in any other way seriously to depress prices.

The 1923 crop, finally estimated at 797 million bushels, was quite the smallest since the war, but still 116 million bushels above the 10-year pre-war average, and well above normal domestic requirements. As

TABLE 22.—ACREAGE, YIELD, PRODUCTION, AND FARM VALUE OF WHEAT IN UNITED STATES, PRE-WAR AND POST-WAR*

Year	Acreage harvested (Million acres)	Yield per acre (bushels)	Total production (Million bushels)	Farm value Dec. 1 (Million dollars)
1904–13	47.2	14.4	681	570
1919	75.7	12.8	968	2,080
1920	61.1	13.6	833	1,197
1921	63.7	12.8	815	755
1922	62.3	13.9	868	873
1923	59.7	13.4	797	736
1924	54.2	16.1	873	1,137

* U. S. Dept. of Agric., *Yearbook 1923*, p. 602, supplemented by final crop report for 1924.

shown by Table 22, the reduced crop was due both to reduced acreage (from the preceding years) and to yields below normal, while the excess over pre-war crops was due, in spite of low yields per acre, to the harvesting of larger acreage.

The reduction in acreage harvested in 1923 (which continued in 1924) was due primarily to reduced plantings on account of the persisting unprofitableness of wheat production in the United States at prices ruling in 1921–23. The conditions which had occasioned great expansion in wheat acreage had ceased to exist, and seemed unlikely soon to return. Ordinarily wheat plantings are not greatly influenced by current prices or the immediate price outlook, but in this case these influences had been reinforced by severe losses over two preceding years.

Kansas farmers reduced their area of hard winter wheat for the 1923 crop by 2 million acres. In other important western winter wheat states there were comparable though smaller reductions. Spring wheat farmers of the Dakotas, Montana, and Minnesota followed this lead with a cut of over a million acres. East of the Mississippi, however, in the soft-wheat area, there was an appreciable increase in acreage. In the far West there was no material change in either winter or spring wheat planting. The total area planted to winter wheat was 46,100,000 acres, as compared with 49,800,000 in the preceding year and 31,800,000 as the 10-year pre-war average. The spring wheat acreage was 20,100,000 compared with 20,000,000 in 1922 and 18,100,000 before the war.[1]

With such a reduction in acreage there was reason to anticipate a smaller crop than in the preceding year. As the season progressed it became more and more apparent that weather conditions were not favorable to a large crop. There was a heavy abandonment of winter wheat between December and April, the acreage harvested being estimated as 6,600,000 acres less than that planted.[2] Although there was some improvement in the winter crop during the later growing season, the spring wheat crop suffered steady and marked deterioration, and both came to harvest in condition well below average. As estimated on December 1 at 786 million bushels, the crop was 31 to 35 million bushels below the June 1 and July 1 forecasts. The revised figures, issued December 16, 1924, show an increase of 11 million bushels, to 797 millions.[3]

Shortage of Hard Wheats. Although the crop exceeded domestic requirements there was a shortage of high grade hard wheat, which, with present milling and baking practices, is required by millers for the production of "strong" flours commonly used by the baking trade.[4] The spring wheat crop, though of high quality, was short. The hard winter wheat crop was of mediocre quality and of moderate size. The surplus consisted of durum and Pacific white wheats, which have special markets abroad, and of mediocre and low grade winter wheats, chiefly hard but partly soft, which were not in great demand at home.

To supply the deficiency in good hard wheats some 27 million bushels of Cana-

[1] See Appendix Table III.
[2] *Idem.*
[3] See Appendix Table V.
[4] See C. L. Alsberg, "The Coming Hard Wheat Deficiency," *Baking Technology*, February 1924, pp. 54-58.

dian hard spring wheat were imported, about half of it for domestic consumption, the other half for grinding into high grade flour for export.[1] The imports for domestic consumption were subject to the tariff, and came in mostly before the duty was raised from 30 cents to 42 cents. Both classes of imports were subject to heavy transportation charges. Consequently through much of the year No. 1 Dark Northern Spring at Minneapolis was from 25 to 35 cents a bushel higher than No. 1 Northern Manitoba at Winnipeg, and at times the Minneapolis price was well above the Liverpool price of Canadian wheat.[2] High grade hard winter wheat was also comparatively high in price because it was substituted for hard spring wheat. No. 2 Hard Winter was not quoted in Liverpool after November 1923. Though some 19 million bushels of Hard Winter wheat were exported, most of it graded No. 2 by inspectors at ports of shipment, it is admitted in the trade that this consisted largely of comparatively low grade wheat.

Low Wheat Exports. The result of these conditions was a great reduction in the amount of wheat exported as grain, amounting for the year ending June 30, 1924, to only 78 million bushels, by all odds the smallest grain export since the war.[3] By no means the full exportable surplus of lower grade wheat was exported, since in competition with the abundant supplies of hard wheat on the export market these wheats were salable only at a discount; and since, at such prices, far below domestic prices for good hard wheats, farmers preferred to use larger quantities on the farm. Pacific white wheat, which normally does not move eastward in the United States, found a ready market abroad. Indeed in Liverpool it frequently sold at a premium over other wheats. Durum wheat, suitable chiefly for the manufacture of alimentary pastes, was exported at prices in line with the prevailing low world prices of other wheats, but in the United States was more largely used than heretofore for mixing with other spring wheats for the manufacture of flour.

Exports of wheat as grain were equalled by exports as flour, produced in part from Canadian grain, of which about 14 million bushels were imported in bond for grinding into export flour. The flour exports consisted, as usual, of two distinct types—high-grade trade-marked flours sent to select and tropical markets abroad, and low grade flours, chiefly "clears," which are not marketable to any extent in the United States and are essentially a by-product of the milling of high-grade flour for domestic use. The demand from the Orient and the relatively improved position of certain European markets made possible a flour export exceeding that of the previous two years.[4]

Relations Between World Prices and American Prices. The world price of wheat, in the loose sense in which this term is used, was largely determined in 1923–24 by considerations outside the United States, primarily the abundant supplies resulting from high crop-yields per acre. The developments in the United States tended to check the tendency to declining prices rather than to accentuate it. To the international supply the United States contributed a net export of only 127 million bushels in grain and flour, much less than in any other recent year and a smaller proportion than before the war.[5] Undoubtedly a larger contribution from the United States, which would have been forthcoming if acreage, yields, and quality had not been reduced, would have tended to lower the world price still further.

[1] See below, p. 37.

[2] See Appendix Table XVII, Chart 1, p. 3, and Chart 5, p. 35.

[3] See Appendix Table XXII for a partial and imperfect classification of these exports compared with those of previous years.

[4] See below, p. 36.

[5] Compare the following percentages of United States production and net exports to world production and net exports (computed from data of International Institute of Agriculture):

Crop year	Crops (ex-Russia)	Net exports: Wheat	Net exports: Wheat and flour
1909–14	23.0%	11.2%	16.3%
1919–20	[a]	25.9	41.1
1920–21	28.8	47.1	48.7
1921–22	26.2	33.5	36.7
1922–23	27.5	23.9	28.4
1923–24	22.7	7.8	16.1

[a] Not available.

It is ordinarily assumed that the United States prices of wheat are determined by the world price, less costs of shipment from American markets to Liverpool. This assumption is by no means wholly sound, even in years when the United States is a large wheat exporter, since in certain markets and for certain wheats domestic considerations make prices more or less independent of world prices. For 1923–24, the assumption was quite untrue, except for durum, Pacific, and low grade wheats. Other wheats were generally well above the world price level (allowing for shipment costs), owing to the domestic shortage of these wheats and to the tariff, which unquestionably restricted the import of Canadian wheats.

The influence of world prices on United States prices was exerted through the competition of our exports in the world market and the competition of these export wheats with other wheats in the domestic market. Had there been no exportable surplus at all, undoubtedly wheat prices in the United States would have been higher than they were. On the other hand, had the same exportable surplus consisted of high grade wheats, less wheat would have been fed, more would have been exported, the world price would probably have been lower still, and United States prices would probably have been much more closely in accord with the world price, and considerably lower than they actually were.[1]

Heavy Farm Consumption. As a result of low prices, particularly for low grade wheats, and of a larger amount of unmerchantable wheat than usual, more than the usual quantity was fed in 1923–24 to animals. Furthermore, the relatively high price of corn, particularly in the first five months of the crop year, made it financially advantageous for farmers in many sections to substitute some wheat for corn as feed.[2] Such substitution is not practiced to the full extent which might seem economical, chiefly because of inertia, ignorance of relative feeding values and of appropriate methods of preparing wheat for feeding, lack of proper equipment, and so on. Nevertheless there is no doubt that some such substitution was made.

No statistics of wheat used for feed are assembled, and reliable estimates are exceedingly difficult to obtain. Reporting to the Department of Agriculture in November 1923, farmers in twenty-seven leading wheat states indicated an intention to use 11.6 per cent of the crop for feed, some 92 million bushels, as compared with a reported usual disposition of 8 per cent for this purpose. The Department stated, however, that because of the unsatisfactory wheat-price situation at the time of the inquiry, these estimates might be slightly excessive. A summary of the wheat supplies available in 1923-24 and their disposition,[3] in which most elements except farm consumption can be approximated within narrow limits, leads to the conclusion that some 94 million bushels were used for feed on the farms. This figure is probably too high,[4] but it is difficult to avoid the conclusion that the use of wheat for feed was much above average in 1923–24. The domestic utilization for food and feed was about 5.3 bushels per capita, well above figures for recent post-war years, but slightly below pre-war averages.

TABLE 23.—UNITED STATES WHEAT SUPPLIES AND THEIR DISPOSITION, PRE-WAR AND POST-WAR CROP YEARS ENDING JUNE 30

(Million bushels)

	1909-14	1921-22	1922-23	1923-24
Available supplies	781.9	932.4	976.5	937.9
Exports, wheat and flour	105.0	279.4	221.9	156.4
Domestic use	580.0	564.0	642.1	668.6
Stocks, June 30	96.9	89.0	112.5	112.9

Table 23 summarizes the general situation in the United States as regards wheat

[1] A contrary view is expressed in the U. S. Dept. of Commerce *Trade Information Bulletin No. 210*, "International Competition in the Production of Wheat for Export," March 17, 1924, pp. 4, 25.

[2] See table on corn prices and equivalent wheat prices based upon relative feed values of the two grains for poultry, sheep hogs, and beef cattle, and comparative farm prices of corn and wheat, in U. S. Dept. of Agric. *Yearbook 1923*, pp. 130, 624, 674. A comparison state by state where both corn and wheat are produced would emphasize the point.

[3] See Appendix Table VII (*A*).

[4] Mr. Nat C. Murray of Clement Curtis & Co., a leading unofficial observer, estimated in August that 56 million bushels of the crop had been used for feed. Later he was inclined to revise this estimate downward.

supplies and their disposition in the past three years as compared with the 5-year pre-war average.[1]

Financial Difficulties and Proposed Remedies. The year 1923–24 was clearly a bad year for American wheat producers. Despite the advantage afforded by a level of wheat prices above the international level for much of the crop, United States wheat farmers suffered acute financial distress, the more severe because the two preceding crops had also been unremunerative.[2] The crisis was especially acute in the semi-arid sections extending from western Kansas and eastern Colorado to the Canadian border. Although there has been a tendency to exaggerate the distress, to generalize from the plight of the one-crop wheat farmers, and to overlook the reserve strength of farmers, the broad fact is clear. It is consistently reflected by numerous indicators, such as increased foreclosures and bankruptcies, frozen loans, delinquent taxes and interest payments, small buying of farm equipment, and the resort to public resources for feed and seed loans.[3]

Low farm prices, low yields per acre, and high costs of cultivation per acre were not, of course, the sole factors in causing this distress. In part, it was due to purchases of lands at high prices and excessive use of credits during the boom period of 1918–20, in part to the operation of unsuitable lands and the resort to wheat farming by men ill-adapted to it or inexperienced in it, in part to the catastrophic decline in the general price level in 1920–21 after price inflation and to the maintenance of prices of products purchased by the farmer at a level somewhat above the general price level. Still other causes may be adduced. Nevertheless, prices and yields were the important influences which affected the wheat farmer in particular.

Naturally this situation called forth numerous proposals for the relief of the wheat farmer, by his own efforts, by legislative measures, and otherwise. Some of these were carried into effect during the year.

In February Congress extended the life of the War Finance Corporation to the end of 1924, primarily for the benefit of the wheat farmer. The Corporation made extensive loans to assist in marketing the crop, opening a branch office in North Dakota to aid and supplement insolvent banks serving that wheat section. Seed loans were made rather widely, by county, state, and federal agencies, as well as by private groups. On recommendation of the Tariff Commission, the President raised the duty on wheat, effective April 7, from 30 to 42 cents a bushel.

Other proposed palliatives or remedies failed of adoption. Various schemes for large public or private loans to Germany, or a national gift to Germany, to assist in the importation of wheat and other foods, were regarded in part as aids to the wheat farmer; but they were not adopted. The Interstate Commerce Commission, in response to a widespread demand for reductions in freight rates on grain, made an extensive investigation, but eventually, on July 17, 1924, declared the existing rates reasonable. The most elaborate proposal for farm relief was the McNary-Haugen bill, which called for setting up an agricultural export corporation, operating with a federal appropriation of 200 million dollars, to purchase certain classes of agricultural products at prices bearing the same relation to the general level of prices as obtained, on the average, in five pre-war years, and to maintain these prices in this country by sale abroad of the surplus which could not be sold at home. Though strongly supported in many quarters, the bill was defeated in the House near the close of the session in June.

[1] See Appendix Table VII (*A*) for details.

[2] Returns to the Department of Agriculture from a questionnaire lead to the conclusion that in 1922 the net cost of producing wheat on some 2500 farms was $1.23 per bushel, while the farm value of the product was only $1.11; similar figures for 1923 for some 8,000 farmers showed a net cost of $1.24 per bushel as compared with a farm value of $0.99. "Cost of Producing Corn, Wheat, and Oats—1922," *Weather, Crops and Markets*, Sept. 1, 1923, p. 218; and "Cost of Producing Field Crops—1923," *Crops and Markets, Monthly Suppl.*, June 1924, p. 176. These figures, while subject to a wide margin of error, bear out a conclusion for which very little precise evidence can be presented.

[3] See especially reports to the President on the wheat situation in November 1923, by Henry C. Wallace, Secretary of Agriculture; and by Eugene Meyer and Frank W. Mondell of the War Finance Corporation.

Not as means of immediate relief, but as measures calculated to improve basic conditions, wheat growers were strongly urged to reduce their wheat acreage and to diversify their farm efforts; and progress was made in both directions. To promote diversification, the Norbeck-Burtness bill was drawn up, calling for public loans to farmers; but this failed to pass. An Agricultural Credit Corporation, with a capital of 10 million dollars, was formed in the spring, as the outgrowth of a conference called by the President, to extend credits to farmers in the Northwest. There was also much agitation for the extension of coöperative marketing among wheat farmers, despite some unsatisfactory experiences of wheat-marketing coöperatives in recent years; and early in the summer a coöperative Grain Marketing Company was formed, on a new plan.

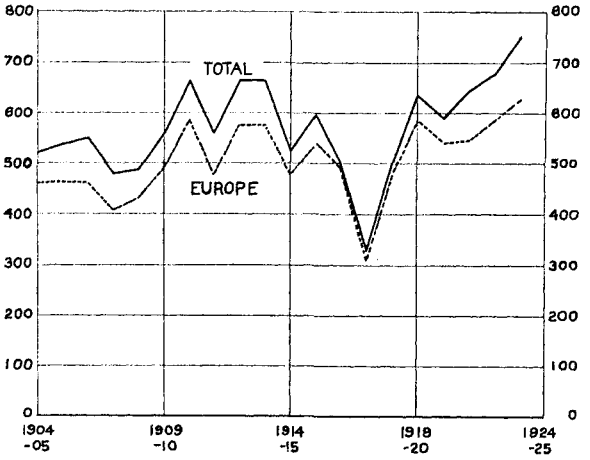
It is safe to say that the relief measures adopted were of limited importance, and that most of those which failed of adoption were defective either in disregarding the causes of the emergency or in failing adequately to take these causes into account. The change in the American wheat-farmer's position in 1924 has come not from the adoption of any remedies, but from a marked change in the peculiar combination of circumstances which created his difficulties.

VIII. HEAVY INTERNATIONAL MOVEMENT

The international movement of wheat and flour in 1923–24 was the largest in the history of the world. Broomhall's figures for world shipments of wheat and flour,[1] admittedly incomplete and inexact, but still a fair approximation of the world's international wheat movement, reached in 1923–24 the record figure of 775 million bushels, as compared with 676 million in 1922–23, the largest post-war year, and 622 million, the average of five pre-war crop years. The exceptional magnitude of the movement is illustrated in Chart 3, which shows Broomhall's figures for shipments to Europe and to all destinations by crop years since 1905–06. Appendix Table IX summarizes the same data by areas of shipment and destination for the past five crop years compared with pre-war and post-war averages.

CHART 3.—WHEAT AND FLOUR SHIPMENTS AS REPORTED BY BROOMHALL, FOR CROP YEARS, 1905–24 *

(Million bushels)



* Source: Broomhall's *Corn Trade News.*

North American shipments were about the same as in 1922–23, but nearly 2½ times as large as before the war. Argentine and Uruguayan shipments were 174 million bushels, a record figure, as compared with the large figure of 138 millions in 1922–23 and a pre-war average of 82 millions. Australian shipments, 78 millions, though smaller than in two recent years, were 30 millions larger than in 1922–23, and compare with 54½ millions as a pre-war average. British India's shipments, 17½ million bushels, were small as compared with the pre-war average of 47 millions, but larger than in any post-war year except 1922–23. North African shipments, though absolutely small, were relatively high. Shipments from Russia and the Danube

[1] See Appendix Table X for statistics of net exports and net imports of wheat and flour. In most cases Broomhall's figures of shipments are somewhat lower than corresponding figures derived from official statistics of net exports, while his figures for shipments to Europe are higher than official statistics of net imports by European countries. It is impossible to reconcile the figures, though various reasons for the differences could be pointed out.

area, 36 million bushels, were very small by comparison with pre-war years, but much larger than in any previous year since the war. In short, the reductions in European export areas were much more than made up by increases from North America, the Plate, and Australia.

As usual, the bulk of the shipments went to European deficiency countries, which, according to Broomhall, were the destination of 626 million bushels in 1923–24 as compared with 586 million in 1922–23, and an average of 541 million in the five pre-war years; but a record volume also went to ex-European destinations, 149 million, as compared with 90 million in 1922–23 and an average of 82 million in 1909–14. The official statistics of imports tell much the same story of large shipments, but show net imports to Europe considerably smaller than Broomhall's figures, and somewhat less than in 1922–23.

A movement of this magnitude was not anticipated during the early part of the crop year, when it was estimated that total shipments would be less than in the preceding year. It was expected that heavy crops in Europe, the chief importing region, would make large imports unnecessary. The first estimate made by Broomhall's *Corn Trade News* on August 14, 1923, for example, placed total shipments at only 632 million bushels, which may be compared with Broomhall's final estimate of 659 million bushels for 1922–23.[1] Sir James Wilson in October 1923 predicted a movement of 640 million bushels compared with his final estimate of 693 million bushels for the preceding year.

It has already been noted that certain European countries which are heavy importers had rather light crops in 1923.[2] They began to import more heavily than in the previous year, while other nations did not decrease their imports to the extent expected. In addition, heavy purchases made by China and Japan soon began to affect the movement of grain, and shipments became considerably greater than had been anticipated. As the new developments became apparent, Broomhall successively increased his estimate[3] to a final figure of 768 million bushels, 136 million bushels greater than his original estimate. Sir James Wilson's second estimate, which appeared in May 1924, placed the total shipments at 720 million bushels, an increase of 80 million bushels over his earlier estimate.

As a basis for appraising the outlook for future wheat movements, it is essential to summarize the factors which account for this unexpectedly huge international movement in 1923–24. In retrospect, four appear to deserve emphasis.[4]

First, the low level of wheat and flour prices, particularly in relation to other commodities (see Section II, above), gave a marked stimulus to wheat-consumption, both as food and feed, in importing countries as well as in exporting countries. Farmers, discouraged by low market prices, used more wheat locally, and with reduced domestic supplies in internal grain markets larger imports were necessary to meet requirements of urban consumers. In comparison with the previous year, European potato crops were mediocre, especially in Germany, so that there was a tendency to substitute wheat for potatoes, both directly and indirectly. The availability, at such low prices, of abundant supplies of high grade wheat from Canada, was especially tempting.

Secondly, Europe, except Germany, was on the whole somewhat busier and more prosperous in 1923–24 than in the preceding year. The purchasing power of the populace was somewhat higher. Moreover, particularly in the last few months of the year, the international purchasing power of Europe, owing to improved exports and easier foreign credits, was somewhat enlarged, as compared with the corresponding period of 1922–23. This was true even in Germany, where low wages and unemployment reduced consumptive demand.[5]

[1] See Appendix Table VIII.

[2] United Kingdom, Denmark, Belgium, and Netherlands; see p. 12.

[3] On Oct. 16, Dec. 4, 1923; Feb. 5, May 13, and June 24, 1924.

[4] It is also to be noted that Broomhall's figures for 1923-24 include 53 weeks, whereas his usual year is 52 weeks.

[5] See Joseph S. Davis, "Economic and Financial Developments in Europe." *Review of Economic Statistics*, July 1924.

Third, the prospects for late and poor harvests in Europe in 1924 increased the demand in the later months of the crop year,—prospects which have been, on the whole, more than borne out as the harvesting and threshing have proceeded.

Finally, there was an exceptional demand from the Far East, due in part to low wheat and flour prices, in part to small domestic crops of wheat and (to a more important degree) of rice; and in part to the suspension of the Japanese import duties after the earthquake, from September 1923 to March 31, 1924.

Favorable Tariff Influences. Furthermore, the tariffs in leading importing countries generally favored larger imports in 1923–24.[1] Great Britain, Denmark, Holland, China, and Hong Kong maintained their traditional policy of unrestricted import of wheat and flour. Germany has recently maintained no tariffs on wheat and flour, though before the war she imposed substantial protective duties on both. Belgium continues to admit wheat free, and her duty on flour is small. Italy, which before the war had high duties on both wheat and flour in 1923–24, admitted wheat free of duty and flour at a very low rate. French import duties were only two-thirds of pre-war rates early in the year, and in January 1924 were reduced by half until August 1. Japan's high duties on wheat and flour were suspended after the earthquake in September 1923 and reimposed only from April 1, 1924. Brazil's duties on wheat and flour were temporarily reduced 40 per cent in March 1924. Import duties were higher than before the war only in a few countries which import little wheat or flour,—notably Mexico, Finland, Spain, and Turkey.

Broadly speaking, changes in tariffs on wheat and flour depend upon the position and relative strength of the agricultural interests and the industrial classes interested in low costs of living. High tariffs on wheat and flour are designed to stimulate domestic production. High tariffs on flour as compared with wheat are designed to encourage domestic milling. Both, however, tend to raise domestic bread prices and are opposed by spokesmen of the working classes because of their tendency to increase costs of living. Since the war, and especially in 1923–24, the influence of the industrial classes has been sufficiently strong to outweigh the arguments of farmers' representatives.

The Movement Through the Year. The course of the movement in 1923–24 reveals certain characteristics of the pre-war and earlier post-war period,—notably the great variation in exports from individual countries in the different months of the year, and the more uniform distribution of total exports through the year. This is illustrated by Chart 4 (p. 34), which shows exports for principal exporting areas by months for 1923–24 compared with pre-war and post-war averages. The peculiarities of the movement in 1923–24 are largely accounted for by the huge Canadian exports, which were especially heavy in November, December, and May, and by the small exports of United States wheat as compared with other post-war years.

During the first two months of the crop year the United States was the leading exporter, as may be seen from the chart and Table 24. By November the shipments were considerably lower. They remained light throughout the remainder of the year, being held up only by flour exports and grain shipments to the Orient. In October the United States was succeeded by Canada in the rôle of leading exporter. While the wheat crop of Canada was finally reported as record-breaking, the harvest was late. This made it doubtful whether a correspondingly heavy export of wheat could be effected before the closing of navigation on the Great Lakes. During the early fall,

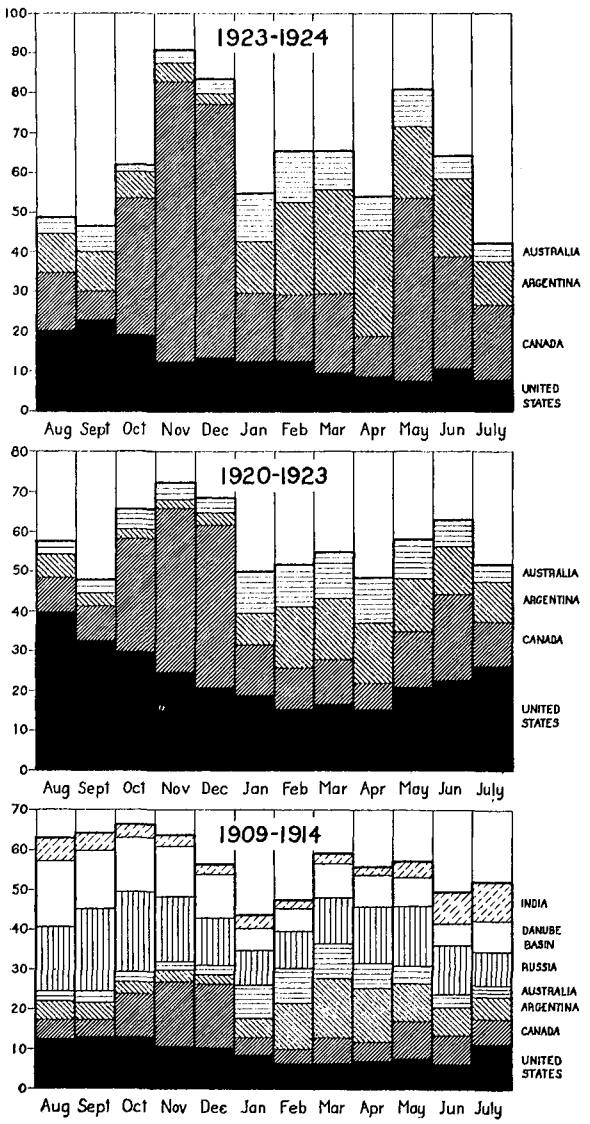
TABLE 24.—RANK OF LEADING EXPORTING COUNTRIES BY QUARTERS, DURING THE CROP YEAR 1923-24

	Aug.–Oct.	Nov.–Jan	Feb.–Apr.	May–July
United States	1	2	4	3
Canada	2	1	2	1
Argentina	3	3	1	2
Australia	4	4	3	4

[1] See especially U. S. Dept. of Commerce *Trade Information Bulletin No. 233*, June 2, 1924: "Foreign Import Duties on Wheat, Wheat Flour, Meat, and Meat Products" by Frank W. Fetter and Henry Chalmers.

CHART 4.—EXPORTS OF WHEAT AND FLOUR FROM PRINCIPAL EXPORTING COUNTRIES BY MONTHS, 1923–24, AND FOR CROP YEARS 1920–23 AND 1909–14, AVERAGING IDENTICAL MONTHS *

(Million bushels)



* Source: *International Yearbook of Agricultural Statistics* and *International Crop Report.*

moreover, marketings by farmers were lower than in the previous year, as shown by platform loadings and the receipts of grain at country elevators.[1] By the middle of November the receipts of grain at Fort William and Port Arthur exceeded those of 1922 and the shipments from these ports became heavier. The lakes remained open a week longer than in the preceding year, and it soon became apparent that fall shipments would exceed even the immense export of the previous season. In the two months of November and December, 1923, Canadian exports were nearly 135 million bushels, most of which passed out through the Great Lakes.

By February the exports from the Southern Hemisphere had assumed the dominant position, and they continued to be large through March and April. The Argentine crop harvested in January 1924 was large, and heavy exports followed throughout the remainder of the crop year, although the movement was heaviest in February, March, and April, despite high rates of ocean freight.[2] Australian shipments were also heavy as a result of the good crop. Consequently, the shipments from the Southern Hemisphere in the early spring were considerably larger than the average for the post-war years.

With the opening of navigation on the Great Lakes on April 19, exports from Canada became unusually large; over 45 million bushels were exported in the month of May. In May the exports of flour from Canada exceeded those from the United States, a remarkable occurrence considering the dominant position which the United States has occupied in the flour export business for many years. The heavy movement of Canadian grain continued throughout the remainder of the crop year, and the total export of nearly 350 million bushels of wheat and flour broke all records for shipments from a single country.

Exports from India were small throughout the year, but increased greatly in June, although the total export in that month was only 8 million bushels. Exports from North Africa, the Danube basin, and Russia were made largely during the early portion of the year, but the total was small compared with the movement from the four leading exporters.

A comparison of the course of the movement of wheat shown by the official export figures and the shipments reported by

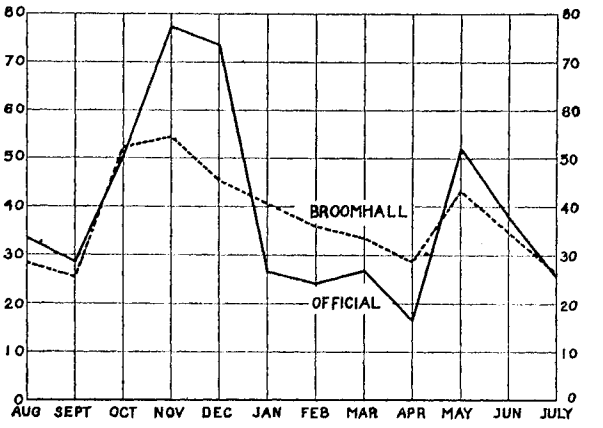
[1] Dominion Bureau of Statistics, *Report on the Grain Trade of Canada*, 1923, p. 57.

[2] See Appendix Table XIII.

Broomhall's *Corn Trade News* is of considerable interest. Broomhall's shipment figures show a high peak in the total movement in December but an even higher one in February. The official export figures, on the other hand, show the highest point in December, with only a very minor peak in February. The difference is explained primarily by the fact that Canadian exports, which go by way of the United States, are reported by the Canadian Government as they leave Canada, chiefly in October, November, and December, but do not appear in Broomhall's shipments until a month or more later, the time being spent in transit on the Great Lakes and railways leading to the seaboard, or in storage at ports of shipment. In November and December, 1923, 84 million bushels of Canadian wheat and flour were exported from Canada through the United States to be actually shipped abroad in succeeding months. This difference is shown graphically in Chart 5, which compares the monthly exports from Canada and the United States with Broomhall's weekly shipments from North America placed upon a rough monthly basis.[1]

CHART 5.—WHEAT AND FLOUR SHIPMENTS (BROOMHALL) AND NET EXPORTS (OFFICIAL) FROM NORTH AMERICA, MONTHLY, 1923–24 *

(Million bushels)



* Source: Broomhall's *Corn Trade News*, *International Crop Report*, and *Monthly Summary of Foreign Commerce of U. S.*

Large Flour Movement. The international movement of flour was exceptionally large in 1923–24, and was 25 per cent larger than in 1922–23. The aggregate export for the year ending July 31, 1924, was some 46½ million barrels, as compared with 38½ millions in the preceding year.[2] Practically every exporting country, including several in Europe, showed a considerable increase in flour exports over 1922–23, and a still larger increase over 1921–22.[3] The increases in Argentine, Australian, Hungarian, Italian, and Belgian exports were especially noteworthy. British flour exports increased from 1,508 to 3,239 thousand barrels, while her flour imports slightly decreased, so that, while Britain remained a flour importer, her net imports were little more than half those of 1922–23 and smaller than for many years. As already noted, much of this alteration was due to the separation of the Irish Free State on April 1, 1923. When a country is a net importer of wheat and an active exporter of flour, it possesses an efficient milling industry working on toll.

Europe is a net importer of flour, on a much larger scale than before the war.[4] The most striking change in imports is shown by Germany, which before the war was a large flour exporter. The reported 1923–24 figures for Germany show total flour imports of 4,189,000 barrels as compared with 567,000 in 1922–23. Both figures understate the truth, because in neither year did Germany have full control of her customs offices, and large imports were unrecorded. Since the omission was undoubtedly greater in 1923–24 than in 1922–23, it is safe to say that German flour imports for the past year were five or six times as large as in 1922–23. The increase in British, Belgian, French, and Dutch exports is partly accounted for by sales to German buyers. There were also notable increases in imports by Holland, Austria, and Czecho-Slovakia.

[1] A comparison over a period of years shows that the official export figures run higher than Broomhall's figures of shipments. This is attributed largely to duplication in the official figures, some Canadian grain being counted in both Canadian and United States exports.

[2] *International Crop Report and Agricultural Statistics*, September 1924.

[3] See Appendix Table XI.

[4] *Idem.*

Over 60 per cent of the large flour exports in 1923–24 came from North America. Exports from the United States, for the year ending June 30, were 17¼ million barrels, roughly equal to the gross exports

TABLE 25.—UNITED STATES EXPORTS OF WHEAT FLOUR, PRE-WAR AND POST-WAR YEARS ENDING JUNE 30

1898–1904, 6-yr. ave.	18,385,164 bbls.
1909–1914, 5-yr. ave.	10,678,635 "
1917–1920, 3-yr. ave.	22,571,207 "
1920–21	16,180,226 "
1921–22	15,796,822 "
1922–23	14,882,806 "
1923–24	17,252,620 "

of wheat as grain. As shown by Table 25, these exports were larger than in any of the three preceding years, and 62 per cent larger than the 5-year pre-war average. They have been exceeded in only two previous periods, the six years 1898–1904, when the average export was 18½ million barrels a year, and the three years 1917–20, when the average was 22½ millions.

Canadian flour exports continued in 1923–24 their notable increase of recent years.[1] The exports for the Canadian crop year were 12 million barrels, the largest ever reported, three times the average exports for 5 pre-war years and within 30 per cent of the United States exports for the year. Australia, with exports of over 5 million barrels, has come to rank third as flour exporter, whereas before the war her exports were very small.

Italian flour exports became important for the first time since the war, and were the largest ever reported. Large crops, stable financial conditions favoring grain imports, commercial treaties with Jugo-Slavia and Austria, impressive financial improvement in Austria, and economic recovery in other nearby markets, such as Czecho-Slovakia and Switzerland, were important contributing factors.

During the middle of the crop year, French flour exports rose to exceptional figures. The official statistics show that the great bulk of the exports went to the Saar region of Germany, which, though under the jurisdiction of the League of Nations, is subject to strong French influence. These figures probably do not tell the whole story. The Franco-Belgian occupation of the Ruhr facilitated the entry of French flour into that area of Germany. The decline of the franc, till the middle of March, put so heavy a premium on German purchases of French flour that in January the French government limited these exports. Nevertheless, German purchasers who had bought on credit were severely pinched when the franc recovered so strikingly in March and April, because fulfilment of their contracts cost so much more than they had expected. This episode resulted in great disorganization of the German grain and flour trade, and extreme depression among south German mills, in the spring months, when much flour had to be auctioned off to relieve the necessities of flour importers.

Features of North American Trade. An increase in the proportion of Canadian grain exported from Canadian seaports was a feature of the year. Whereas in 1921–22 little more than one-third of the grain passed out through Dominion ports, nearly half of the total shipments were made through these ports in 1923–24, as may be seen from Table 26. Canadian shipments through the Great Lakes and thence out through American ports such as New York, Boston, Baltimore, and Philadelphia were somewhat larger than in 1922–23, but the movement through Canadian ports in-

TABLE 26.—EXPORTS OF CANADIAN WHEAT AND FLOUR FROM CANADIAN AND UNITED STATES SEABOARD PORTS, FOR CROP YEARS ENDING JULY 21, 1922–24 *

Ports of	1921-22	1922-23	1923-24
	Million bushels		
United States	109.7	150.8	164.8
Canada	58.3	112.5	158.8
Totals	168.0	263.3	323.6
	Percentages of total		
United States	63.3	57.3	50.9
Canada	34.7	42.7	49.1

* Sources: Canadian Dominion Bureau of Statistics, *Report on the Grain Trade of Canada*, 1921, 1922, and 1923; *Canadian Grain Statistics*, August 8, 1924. These figures do not include wheat exported by lake or rail to the United States, hence the totals do not agree with figures of net exports from Canada.

[1] See Appendix Table XI.

creased at a much faster rate. The development of the port of Vancouver for shipments to Europe via the Panama Canal, and to the Orient, accounts for most of the increase in shipments from Canadian seaboard ports. Exports of wheat and flour from Vancouver for the crop year ending July 31, 1923, were 21½ million bushels. During the following year the export was nearly 59 million bushels, an increase of 37½ million bushels, or four-fifths of the increase in exports from Canadian seaports. Vancouver seems destined to be of increasing importance as a wheat shipment port.

Of equal interest, although of less importance, was the decrease in shipments of United States grain by way of Canada. In the past few years considerable amounts have been exported by way of the St. Lawrence River, especially during the late summer and early fall, when shipments from the United States are largest. These exports by way of Canada were much smaller in 1923–24 than in the two previous years. Thus receipts of United States wheat by public elevators at St. Lawrence River ports, almost wholly for export, were as follows in the past four crop years:[1]

1920–21	14.2	million bus.
1921–22	33.5	" "
1922–23	31.5	" "
1923–24	19.4	" "

The decline is explained chiefly by reduced American grain exports, particularly of spring wheat, and the larger demand on Canadian facilities for Canadian grain exports.

[1] Dominion Bureau of Statistics, *Report on the Grain Trade of Canada*, 1921, 1922, 1923; *Canadian Grain Statistics*, September 1923 to September 1924.

[2] Approximate figures, which do not check exactly with the final figures of the year, show the distribution as follows in thousand bushels.

	July 1-Apr. 12	Apr. 13-June 30	Total
For consumption, paying duty	13,353	921	14,274
For grinding into flour for export	10,857	3,040	13,897
Totals	24,210	3,961	28,171

[3] See Appendix Table XVII.

[4] See Joseph S. Davis, "Economic and Financial Developments in Europe," *Review of Economic Statistics*, July 1924, pp. 218-220.

An impressive feature of the 1923–24 wheat movement was the importation of 27,284,000 bushels of Canadian grain into the United States. This was the largest importation of any year except that of 1920–21; it amounted to over one-sixth of the gross exports of wheat and flour from the United States. Over half of this was imported for domestic consumption, largely before April 7, thus paying a duty of 30 cents a bushel instead of the new tariff of 42 cents.[2] In addition it bore heavy transportation charges. The rest of it was imported by bonded mills to be ground into flour for export, on which a "drawback" of the duty is allowed.

The explanation for this large movement at such expense into a wheat-exporting country lies in the shortage of hard spring wheat, and the moderate crop of hard winter wheat, in the 1923 crops in the United States. Standards of flour are high and inelastic, so that millers are willing to pay large premiums for hard wheats, if necessary to secure the quantities sufficient to enable them to supply their trade with the customary and preferred qualities of flour. With short supplies of hard wheats in the United States, the price of those wheats rose to a point which not only made export unprofitable but made it remunerative to millers to import Canadian hard wheats often at a price strikingly above Winnipeg and, in certain instances, above Liverpool prices for the wheat.[3] The tariff thus served to "protect" the American growers of hard wheats from bearing the full impact of Canadian competition. On the other hand, it made for higher prices of flour in the United States.

Ocean Freight Rates. The general level of ocean freight rates has been low for two years, owing to the over-supply of world tonnage. Much shipping has been idle; much more has been employed at a loss or at only a slight profit. The unemployment decreased considerably in 1923–24, and during the fall and winter the level of freight rates rose, partly in consequence of shipments to Japan following the earthquake of September 1, 1923.[4]

The heavy wheat and flour movement undoubtedly contributed to increase rates

in 1922–23. On the whole, as shown by Appendix Table XIII, the level of freight rates on wheat was appreciably higher in 1923–24 than in 1922–23, on most of the principal wheat routes. The greatest increases occurred on routes affected by Canadian shipments from Atlantic ports, notably the New York-Liverpool route. On the other hand, rates from Pacific ports were below those of 1922–23, and during most of the year below the 1913 level. In the case of Argentina, the average for the year was lower than in 1922–23, but during the period of heavy shipments rates were much higher than in the corresponding period of the preceding year. On the whole, however, ocean freight rates were not sufficiently high seriously to restrict the international wheat movement, though in the winter months they increased the margin between import and export prices.

The extraordinarily large international movement of wheat in 1923–24 greatly exceeded early expectations, owing to the pressure of Canadian, Argentine, Australian, and Russian supplies on the international market and the unsuspected absorptive capacity of Europe and the Orient, favored somewhat by tariff changes. The movement was heavy throughout the year; but in November–December 1923 and again in May 1924 huge Canadian exports made the aggregate shipments especially large. International shipments of flour were also of record volume, 15 per cent larger than in the preceding year. Sixty per cent of the combined total came from North America, but Argentina and Australia, among wheat exporters, and Great Britain and Italy among wheat importers, also exported heavily, while German flour imports were extremely large. The wheat export movement from North America showed certain peculiarities, resulting from the relatively large exportable surplus of Canada as compared with the United States, and the development of export facilities at Vancouver. Nearly half the Canadian grain moved out through Canadian seaports, while little American grain went out through these ports. Heavy exports of Canadian wheat to the United States were due to the hard wheat deficiency in this country. Ocean freight rates, influenced by the large volume of shipments, were on the whole somewhat higher than in the preceding year, but remained on a fairly low level.

IX. STOCKS AND CARRYOVERS

Statistics of stocks of wheat and flour, though in no sense complete or accurate, afford useful indications of the relative abundance of supplies available at different dates. Significant figures of these are assembled in Appendix Tables XIV–XVI. Broomhall's statements are summarized in Table 27. Broadly speaking, stocks of wheat were ample at the beginning of the crop year, abundant during its course, and large at its close; but the absorption of wheat during the year was so much larger than most expert observers had expected, that the carryover into the current crop year was far less excessive than had been anticipated.

TABLE 27.—BROOMHALL'S ESTIMATE OF VISIBLE WHEAT SUPPLIES, AUGUST 1, 1919–24, COMPARED WITH PRE-WAR AND POST-WAR AVERAGES *

(Million bushels)

Year	North America	Argentina	Australia	U. K. and afloat	Total
1910–14	69.6	1.3	*a*	50.6	*a*
1919–23	64.3	3.7	39.7	68.9	176.5
1919	55.7	4.4	120.0	86.6	266.7
1920	50.9	3.7	27.5	89.0	171.1
1921	65.1	3.7	30.0	65.5	164.3
1922	62.4	2.2	3.0	56.0	123.6
1923	87.4	4.4	18.0	47.2	157.0
1924	103.7	6.8	30.0	51.7	192.2

* Compiled from *Corn Trade News*.
a Not available.

In the United States, according to estimates of the Department of Agriculture,[1] wheat stocks amounted to 102 millions on July 1, 1923, and to 104 millions a year later, as compared with 88 millions as the average for July 1, 1909–13 and 1919–23. Stocks on farms were below average, owing partly to prospects for a large new crop, and stocks in country mills and elevators

[1] See Appendix Table XV.

only moderately above average; but the commercial visible supply (in transit and terminal elevators) was considerably above average July 1, 1923, and larger still July 1, 1924.

Canadian wheat stocks[1] were relatively moderate at the beginning of the Canadian crop year, September 1, 1923, owing to prospects for the huge crop of 1923, but quite exceptionally large on September 1, 1924, in all positions except in transit. Broomhall's estimate of North American visible supplies, of wheat and flour combined, showed 87 million bushels August 1, 1923, and 104 millions August 1, 1924, as compared with a 5-year pre-war average (1910–14) of 70 millions and a 5-year post-war average (1919–23) of 64 millions.[2]

For Argentina and Australia no comprehensive estimates of stocks are available for this period of the year, and the reports of visible supplies are much less significant because the elevator system is but slightly developed in these countries. Comparisons, moreover, are affected by the facts that, particularly in Australia, there were accumulated war stocks in 1919, and that within the past two years elevator construction has substantially increased the available storage space. Suffice it to remark that Broomhall reported the Argentine visible supply on August 1, 1923, as over three times the pre-war average, and a year later over five times the pre-war average, while the Australian visibles were moderate on August 1, 1923, and fairly large at the close of the year.

Since the war no comparable statistics for Continental visible supplies have been reported. Broomhall reports British stocks and wheat afloat for Great Britain, the Continent, and orders. The total of these categories was exceptionally large at the close of the war and until the relinquishment of British Governmental control in 1920. After 1920 it tended downwards until on August 1, 1923, it was somewhat below the corresponding pre-war average. On August 1, 1924, the figure showed a slight increase, to slightly above the pre-war figure.

[1] See Appendix Table XVI.
[2] See Appendix Table XIV.

Russia overexported before the end of the crop year, and carried over small stocks, including no exportable surplus, into the new crop year. Of the large Argentine and Australian crops, considerable amounts, perhaps 105 or 110 million bushels in the aggregate, remained to be exported,—an average figure. Of the good crop of British India, little had been exported previous to August 1, but the bulk of the crop is destined for domestic utilization, and the export fraction, small at best, depends so largely upon the influence of prices that no calculation of stocks, if it were possible, would be highly significant.

Concerning European Continental supplies in 1923–24 a few words are in point despite the lack of statistical information. In general, financial considerations dictated the keeping of only moderate stocks of imported grain, inasmuch as supplies in exporting countries were large and readily accessible at low prices.

In France the crop of 1923 was overestimated. Domestic supplies came from the farms more slowly than had been expected. For a time this was attributed to holding by peasants who expected higher prices. As early as March, however, it was the opinion of the French grain trade that domestic supplies available for central milling were largely exhausted. In Italy, also, the crop of 1923 was probably overestimated. Local consumption and feeding of domestic wheat were unusually large. As early as February domestic supplies were recognized as being exceptionally low, considering the season, and prices of domestic wheat rose rapidly between January and March. In both France and Italy the large imports in the later months of the crop year went largely into current consumption, but in view of the late harvest, there is reason to believe that carryovers of imported wheat were rather above average.

In Germany, the Ministry of Food built up a reserve of wheat and rye early in the year, which it gradually released. For this reason, centrally held stocks were large throughout most of the year. Beginning in December, a period of heavy imports of wheat and flour led to abnormal piling up of stocks, which embarrassed both the

millers and the grain trade in the spring months after the unforeseen recovery of the French franc had caused heavy losses to purchasers of French flour on credit. Restrictions on foreign exchange limited imports in subsequent months, and by the end of the crop year stocks had attained more normal proportions. Both in Germany and in Czecho-Slovakia, however, expectations that import duties would be imposed, or raised, on wheat and flour, led to somewhat larger importations than would otherwise have occurred.

Competent trade opinion agrees that Oriental stocks of wheat and flour were large at the close of the crop year 1923–24. This is borne out both by the extremely heavy movement last year to China and Japan, and by the reports from ports, warehouses, and mills.

In conclusion,—wheat stocks were large throughout 1923–24, in exporting countries in particular and for the wheat world as a whole. Toward the close of the crop year they declined much more rapidly than usual in that period, and the carryover at the end, while larger than usual, made only a moderate contribution to offset the reduced wheat crops of 1924–25.

X. COMPARATIVE STABILITY IN WHEAT PRICES TO MAY 1924

The factors bearing upon the wheat market during 1923–24 have been reviewed. It remains to describe the course of prices in somewhat greater detail, and to suggest reasons for the fluctuations. The movements can best be followed by the aid of Chart 6, showing weekly prices (expressed in dollars) of representative wheats in the leading markets in exporting countries, on the one hand, and on the other, in Liverpool and London, the chief importing markets. Average monthly prices are shown in dollars per bushel, in Appendix Table XVII.

The striking advance in prices in the last two or three months of the crop year, in practically all grades and all markets, is reserved for separate discussion in Section XI, since it was caused by influences radically different from those operating during most of the year. The earlier period, however, was one of comparative stability of prices, on a low level. This is emphasized by Chart 1, on page 3, which covers a period of several years.

Significant Price Movements. Within this period of low and fairly stable prices one may distinguish certain movements, varying with different wheats in different markets. Broadly speaking, there was a rise in the early weeks of the crop year, followed by a decline until December or January, a recovery late in the winter, followed by a decline in the spring. To those tendencies the principal exception was the price in Argentina, which rose steadily until December, and declined in the following three months, without rising materially until June. The early rise and the early decline were greatest in Canada. The characteristics of the movement are most clearly revealed in British prices of Canadian wheat, which was of importance in British markets throughout most of the year.

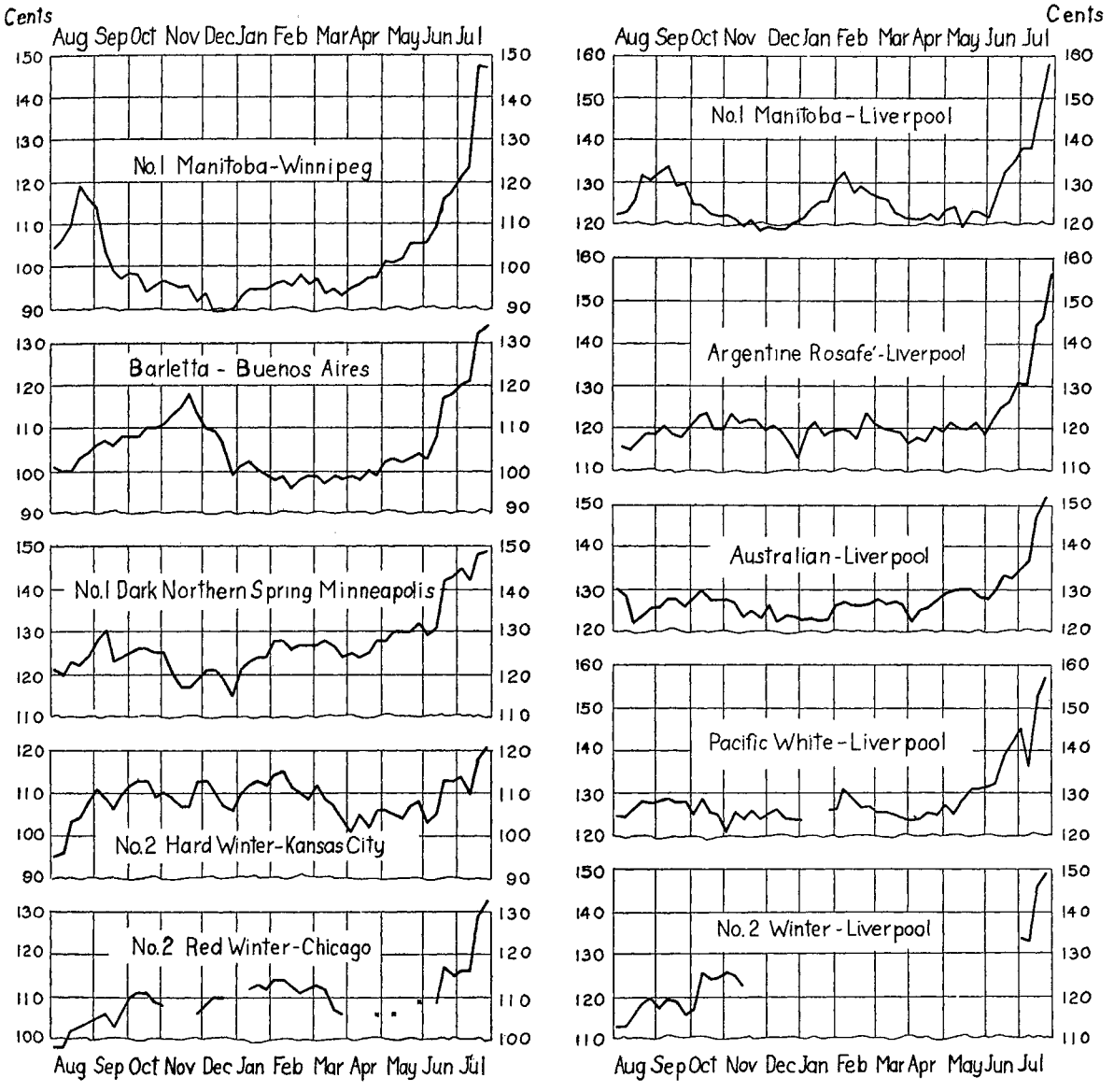
The early rise was attributable to temporary conditions. The new Canadian crop was first decidedly underestimated,[1] was harvested late, and came forward slowly because of transportation difficulties. The seasonal factor alone was important, for Canadian prices are at their maximum in the weeks preceding the marketing of the new crop and drop rapidly when it comes to market. The rise in Argentina was similarly due largely to a seasonal cause, the ending of the Argentine crop year in December. Unfavorable weather conditions during August 1923 and relatively light receipts of wheat at primary markets in September and October were mainly responsible for the strength of prices in the United States during this period. Accordingly, London and Liverpool prices advanced moderately, but not strikingly, because the cheapest export market could be sought.

The advance of Canadian wheat prices

[1] See Appendix Table VI showing monthly forecasts and estimates of recent Canadian wheat crops. The July 31 estimate of the spring wheat crop was 361 million bushels. On August 31 this was raised to 451 millions, which was close to the final official figure.

CHART 6.—WEEKLY CASH PRICES OF WHEAT IN PRINCIPAL EXPORTING AND IMPORTING MARKETS, AUGUST 1923–JULY 1924 *

(U. S. cents per bushel)



* Source: See Appendix Table XVII.

Note: The prices are for Friday of each week, except the Argentine Rosafé prices, which are for Tuesdays.

was quickly followed by decline, both in Canada and in Liverpool, as Canada's bumper crop began to flow to market; and other prices in England tended downward under the influence of competition from Canadian wheat. In the United States the slump was small because of special conditions, including limited supplies of good wheat, tariff protection, light marketings, and strong domestic milling demand. But spring wheat, though it remained relatively high in price, declined as the new crop came to market, reaching a low point late in December. Argentine prices failed to share in this decline, for seasonal reasons.

From late in December until late in Feb-

ruary certain more or less fortuitous factors served to strengthen the market. The closing of navigation in Canada cut down supplies from this source, bad weather in the United States prevented the movement of grain in certain sections, and insufficient tonnage in Argentina curtailed shipments from there.[1] Consequently there was a gradual rise in prices—more pronounced in England than elsewhere because of her dependence on outside sources of supply[2]—until, with improvement in these conditions, the market weakened again under the volume of surplus supplies.

Price Comparisons. A comparison of prices in different markets[3] shows the very low level of Canadian prices during this period, especially after August 1923; the relatively close parity of United States winter wheat and Argentine wheat, in Kansas City and Buenos Aires respectively, until January, when the new Argentine crop came on the market and Argentine prices declined; and the high level of spring wheat prices in this country due to local scarcity of high-protein spring wheat and to tariff protection.

In the leading importing markets, London and Liverpool, no one type of wheat is uniformly cheaper or dearer than other types; the scarcity or abundance of the particular variety is the primary determinant of price relationships. During most of the past year, owing to the abundance of hard wheat[4] and the relative scarcity of good soft varieties, Australian and Pacific white wheat commanded a premium, while the best quality of Canadian wheat sold at lower prices. So long as good United States winter wheat was available for export, it was about on a parity with Argentine wheat, and both sold at a considerably lower price than other leading grades.

The seasonal character of prices of different types of wheat in the international market is also apparent. Immediately after the United States harvest last year, American winter wheat was relatively cheap in Liverpool. It rose sharply in October, and after the middle of November it ceased to be quoted. Similarly, when new Canadian wheat came on the market, it became especially cheap and remained the cheapest until the new Argentine crop came forward. Prices of Argentine wheat in Liverpool were not so low during the period of heaviest shipment—February, March, and April—as might have been expected, largely because of a special shortage of tonnage and the relatively high freight rates from Argentina to Europe. Nor did Australian prices decline during the heavy shipping season, in this case because of quality considerations.

A striking feature of the latter portion of this period was the high level of United States prices as compared with prices in other parts of the world. Hard spring wheat in Minneapolis was quoted at an average of 10 to 35 cents above quotations for similar wheat in Winnipeg, while the Chicago future quotation was usually several cents above the comparable price in Winnipeg or Buenos Aires. The primary reason for the high price of spring wheat here was the insufficiency of the crop to supply domestic needs. However, with an abundant crop of the same type of wheat just across the Canadian border this price could not have been maintained without the tarifff, which amounted, during most of this period, to 30 cents a bushel.

Continental Prices Subject to Special Influences. In continental markets prices of imported wheats fluctuate more or less

[1] See Appendix Table XIII for high freight rates existing at this period. Shortage of tonnage in Argentina at this time is reflected by the decline in shipments in the second half of February after the large seasonal movement had got under way. Following are the weekly shipments from Argentina and Uruguay for the 8 weeks from the middle of January to the middle of March, as reported by Broomhall:

Week ending	mil. bus.	Week ending	mil. bus.
Jan. 24	3.3	Feb. 21	4.9
Jan. 31	5.4	Feb. 28	4.3
Feb. 7	6.7	Mar. 8	5.9
Feb. 14	5.4	Mar. 13	5.2

[2] Port stocks were light in the United Kingdom at this time. Broomhall's weekly estimates ran as follows:

Week ending	mil. bus.	Week ending	mil. bus.
Jan. 22	6.4	Feb. 19	3.4
Jan. 29	5.6	Feb. 26	3.2
Feb. 5	5.2	Mar. 4	3.6
Feb. 12	4.2	Mar. 11	5.6

[3] See Appendix Table XVI and Chart 6 above.

[4] This applies to the world as a whole. In the United States there was a scarcity, as explained on page 37.

closely with similar prices in British markets, making allowance for rates of exchange, tariff duties, and freight charges. Prices of domestic wheat, however, while influenced by import prices, do not fluctuate in close accord with them. Imported wheat goes in large part to the big mills, many of them located at the ports, which supply much of the urban trade and practically all of the export flour. Domestic wheat is locally ground, to a considerable extent, and hence it is not always in direct competition with imported wheat. There are wide variations in prices of domestic wheat in different parts of each country, as in the United States, because of local surplus and deficiency areas and the transportation costs. The internal wheat markets are not highly organized, and even the quotations on large central markets are not regarded as truly representative.

Nevertheless, domestic prices on the Continent in 1923–24 deserve some consideration. Monthly average figures in leading markets in France, Italy, and Germany are shown in Appendix Table XVIII, first in the local currency and then in dollars converted at average monthly exchange rates on New York. It is clear that, on either basis, the movements were out of line with corresponding prices in British and overseas markets. Similarity lies chiefly in the fact that prices were relatively low in the earlier part of the year, and considerably higher at its close.

French wheat prices rose almost steadily until the middle of March; the average, 104.20 francs per quintal, was nearly 30 per cent above the average for August 1923, 81.10 francs. This rise was due primarily to the heavy depreciation of the franc, culminating on March 14, 1924, which led to a striking increase in import prices. There were, however, some other factors. Prices in August 1923 were exceptionally low, resulting from an exaggerated estimate of the domestic crop and from official statements that no imports from overseas would be required. The movement from the farms was so slow as to give rise to assertions that the peasants were holding for better prices; but early in 1924 it was generally agreed that the crop had been radically overestimated, and that domestic supplies had been largely marketed. After the recovery of the franc, domestic prices fell, primarily under the influence of the currency developments and the decline of import prices. Through the year as a whole, however, domestic wheat prices in France, in terms of dollars, ruled above British prices, except in January and February, when local prices were adjusting themselves slowly to the decline of the franc, and when the reduction in the import duty, by about 5 cents a bushel, exerted an influence.

In Italy prices were quite stable until December, but rose sharply from then until April. Here exchange fluctuations played only a small rôle, for the Italian lira was fairly stable at 4.3 to 4.5 cents. In the first four months there was a heavy marketing of native wheat, and imports, too, were heavy. Early in the year the domestic movement slackened greatly, so that prices of native wheat, which had been below import prices, rose above them. Some overestimation of the 1923 crop, and a considerable increase in local consumption, combined with a high degree of business activity, largely account for this rise. Toward the close of the year, prices declined slightly, in sharp contrast with the movement in international markets. Here, the chief influence was the coming of native wheat to market from the new crop, in June and July; for the seasonal tendency downward tended to counterbalance the upward movement in the international market.

In Germany, gold mark prices were fairly stable in the first three months of the year, though prices in paper marks rose strikingly. In November, gold mark prices rose nearly 40 per cent, under the combined influence of the breakdown of the process of domestic marketing and the economic crisis attending the substitution of a stable currency for the discredited paper mark. Within a few weeks, however, prices settled at a more normal level. In March and April a moderate rise occurred, as the severe unemployment diminished and confidence increased; but this was followed by a severe reaction, caused directly or indirectly by the heavy losses of flour importers who had

bought French flour on credit and were forced to liquidate their stocks to meet their commitments after the franc had risen in value.

During most of the year German wheat prices were below international prices, if both are expressed in dollars. Prices of many other commodities, as well as wheat, were out of line with international prices because of the restrictions upon trade between Germany and the rest of the world. While it is impossible to account fully for this situation, two factors doubtless contributed to cause it: consumption was low because of the exceedingly low purchasing power of the masses; and the domestic crop had been underestimated and the government reserves continued relatively large, so that producers marketed their wheat at a disadvantage.[1] In fact, late in the crop year, Germany actually exported some wheat and flour, though her per capita supplies were exceptionally small. It is also significant that Germany was in the best position to obtain cheap grain from Northern Russia.

To sum up: throughout most of the crop year, notably from September 1923 to May 1924, wheat prices in the principal exporting and importing markets were comparatively stable, and particularly so in Liverpool. The changes in the different exporting markets were occasioned largely by seasonal factors affecting harvests and transportation. Price movements in the United States were largely independent of international market prices, because domestic supplies of most wheats in demand for milling purposes were deficient and the tariff restricted imports of Canadian wheat. Prices of domestic wheat on the continent of Europe were subject to special influences in different countries,—notably exchange fluctuations in France, the financial crisis in Germany, and rapid consumption in Italy; hence these prices by no means paralleled the movements in international markets. While prices in terms of gold were characteristically low, the year showed a marked diversity in wheat prices in different markets of the world.

XI. MARKED CHANGES IN CLOSING MONTHS

By March and April the wheat market begins to feel the influence of new crop conditions in the Northern Hemisphere. It is then fairly apparent how the crops sown in the preceding autumn have wintered, and there are indications of the amount and condition of spring sowings, as well as of the probable harvests in Southern Europe and Northern Africa. On account of their importance in the export trade of the next few months, and their absolute size, the Canadian and United States crops are subject to special scrutiny, and weather and soil conditions in the two countries become increasingly important market considerations as the season progresses.

Early in the spring of 1924 the price situation, as already described, was decidedly unfavorable to producers. The official report of stocks on March 1 in the United States had shown a total of 288 million bushels, only 8 millions less than on the same date of the preceding year, although unofficial observers had anticipated a reduction of perhaps 40 million bushels.[2] Stocks on farms had been estimated unofficially at between 120 and 130 million bushels (as compared with 155 million the year before), but when the official report came out it disclosed a total of 134 million bushels.[3] The March 31 official report of Canadian stocks was even more unfavorable to selling interests,[4] showing a total of

[1] The representativeness of the quoted prices also may be called in question.

[2] Broomhall's *Corn Trade News*, March 4, 1924.

[3] The U. S. Dept. of Agriculture reported the reserve on March 1 as follows in millions of bushels:

	1923	1924
"Visible"	48	64
On farms	155	134
In mills and elevators	93	90
Totals	296	288

[4] Canadian stocks were officially reported on March 31 in millions of bushels as follows:

	1923	1924
Elevators	70	111
Flour mills	7	6
Transit by rail	8	14
Farmers' hands	55	71
Totals	140	202

202 million bushels as compared with 140 millions in the preceding year.

Other factors were also unfavorable to sellers. The Oriental demand had been largely filled by this time and the Japanese tariff was reimposed. The reopening of Canadian navigation would soon release the large supplies held through the winter at the head of the lakes. The financial position of the principal continental importers was uncertain, particularly in view of the French exchange crisis, which entailed severe reactions all over Western Europe, and the extreme financial stringency in Germany. The advance in the United States tariff on wheat on April 7, from 30 cents a bushel to 42 cents, had given no stimulus to the domestic market. Altogether, there was reason to expect another year of low wheat prices *provided* new crops turned out well.

During April, however, before much was known about the new crops, and owing mainly to the revival in continental buying that followed the striking improvement in the franc exchange, there was some improvement in the market. Mention has already been made of the fact that the 1923 crops had probably been overestimated in France, Italy, and other European importing countries, though not in Germany. By this time, in any case, their domestic reserves were low, and it had become necessary to increase imports of foreign wheat. The foreign trade figures show the pronounced increase that occurred, especially in the imports of France and Italy, in the second quarter of the year. (See Table 28.)

TABLE 28.—IMPORTS OF WHEAT AND FLOUR BY FRANCE, ITALY, AND GERMANY, JANUARY TO JULY, 1924

(Thousand bushels)

1924	France	Italy	Germany
Jan.	1,822	4,884	2,342
Feb.	1,877	3,777	3,060
Mar.	2,428	3,733	3,195
April	2,946	5,955	4,266
May	5,812	8,571	3,123
June	7,873	8,528	2,704
July	7,409	11,391	2,153

In Germany, on the other hand, imports declined from the high level of April because of the crisis among importers who were injured by the rise of the French franc, the financial obstacles to further imports, the availability of large government stocks of domestic grain, and the continuance of low consumption.

The advance thus started by the revival of European buying was supported by crop and weather factors. It was known that the acreage sown to winter wheat in the United States had been reduced by 6 million acres,[1] and it was anticipated that there would be a reduction in spring-wheat acreage in the United States and possibly in Canada. French and Italian acreage was also known to be somewhat less than in the preceding year,[2] and there were predictions that the Australian acreage might be reduced. Losses in these regions might be made up, at least in part, by increases in Argentina, Russia, and other parts of Europe, but there was not much likelihood of it.

By March it was also clear that the winter had been hard on the European crops; and as time went on it became apparent that the spring was cold and late. As early as April 1 Broomhall stated in the *Corn Trade News* that it was not unlikely that 1924 production would be below that of 1923. In the United States the fall-sown hard wheat had wintered well, but soft wheat had suffered from frost. The spring-wheat sowing was late in both the United States and Canada.

Continental buying continued in May on a generous scale, but crop factors came to play an increasingly important part in making the price. The May report of the United States Department of Agriculture was considered not unfavorable, since it showed an abandonment of only 3 million acres of winter wheat (about half that of the preceding year) and a probable production of 553 million bushels as compared with 572 millions in 1923.[3] Hard winter wheat was

[1] See Appendix Table III. From 46.1 to 40.2 million acres.

[2] Acreage planted to wheat:

	1923	1924
France	13,700,000	13,500,000
Italy	11,600,000	11,200,000

[3] See Appendix Table V.

in excellent condition; losses were anticipated in soft wheat. Late sowing in Canada and the reduction in spring-wheat acreage in the United States were more bullish factors, as was the drought that spread over northern Africa and southern Europe and Russia during this month.

By early June, European demand had declined somewhat and crop conditions appeared to have improved. The resulting slump in prices in all important markets during the first week of the month was followed, however, by a sharp advance on the publication of United States crop estimates as of June 1, which showed a decrease in the probable output of winter wheat amounting to 44 million bushels as compared with the May estimate, and to 63 millions as compared with 1923 production. Spring-wheat production was estimated at 184 million bushels as compared with 213 million in 1923.[1] On the basis of these forecasts the United States would harvest almost 100 million bushels less than in 1923, when the crop was not especially large.

Between this date and the end of the crop year there was a steady advance of prices, mainly because of crop news. The condition of the United States crops improved during the later growing season,[2] but the Canadian, Russian, and southern European crops deteriorated. The Canadian estimates were of special importance. In the first place, because of the late spring, there was a reduction of approximately 10 per cent in the acreage sown to spring wheat. The condition at the end of May was not so good as in 1923 but was considered not seriously unfavorable. By June 30, however, it was apparent that drought had done considerable damage, and the official estimate of the spring wheat crop was placed at 304 million bushels, as compared with the 1923 crop of 455 millions. In July dry weather caused further deterioration, with the result that the estimate made at the end of that month was placed at 263 million bushels, nearly 40 per cent less than the final production in 1923.[3]

[1] This figure was recently revised upwards to 225 millions. See Appendix Table V.
[2] See Appendix Table V.
[3] See Appendix Table VI.

The net result of these influences was a sharp up-turn in wheat prices, which extended to almost every market. Table 29 shows the amount of these changes, comparing prices early in August 1924 with those of early August 1923 and early June 1924. In the last two months of the crop year, wheat prices rose by some 20 to 46 cents a bushel, and on August 1 they stood 20 per cent or more above the level of late May and June. The new crop year opened with prices from 27 to 45 cents a bushel higher than in August, 1923. The rise was most pronounced in Canada, where prices had been exceptionally depressed and where the most striking change in crop appeared, and in the Argentine market, which is especially sensitive to changes in the international situation; but the rise in Liverpool was hardly less noteworthy. In the United States the rise was smaller because in June American prices were above world prices.

TABLE 29.—COMPARATIVE WHEAT PRICES IN LEADING MARKETS AT SELECTED DATES 1923–24

(Dollars per bushel)

Market and grade	First week of August 1923	June 1924	August 1924
United States			
Farm price	.84	.99 [a]	1.17 [a]
No. 2 Hard, Kansas City	.95	1.03	1.24
No. 2 Red, Chicago	.98	1.09	1.34
No. 1 Dark Northern, Minneapolis	1.21	1.29	1.52
Canada			
No. 1 Manitoba, Winnipeg	1.04	1.06	1.49
Argentina			
Barletta, Buenos Aires	1.01	1.03	1.46
Great Britain			
No.1 Manitoba, Liverpool	1.22	1.21	1.67
Argentina Rosafé, "	1.16	1.18	1.55
Australian, "	1.30	1.28	1.57
Pacific white, "	1.24	1.31	1.61

[a] Price of the 15th of the month.

In short, the close of the year was marked by a strong upward movement of wheat prices, which continued into the next crop year. The rise was initiated by heavy purchases by European importers. The major influence, however, was the prospect of late

and poor harvests in Europe and Russia, and greatly reduced yields in North America. Within a few weeks prices rose by 20 to 45 per cent; but so low had prices been that the recovery by August 1 was insufficient to raise prices in most countries to their pre-war level in relation to commodity prices in general.

XII. CONCLUDING OBSERVATIONS

It is now possible, in the light of the foregoing discussion, to answer the questions raised at the outset.

Wheat prices were exceptionally low throughout most of the crop year primarily because of large world crops of high quality. They fell no lower because at these low prices low-grade wheats were fed heavily to livestock, and unusual quantities were consumed as food, especially in Europe and the Orient. The striking rise at the close of the crop year was caused in the main by the prospect of poor crops in 1924, notably in Canada and Europe.

The exceptionally good crops of 1923 were attributable primarily to unusually favorable weather conditions in almost all producing areas except the United States, with resulting high yields per acre. In spite of better crops, Europe imported much more wheat than in 1922–23, chiefly because of relatively low wheat prices, but partly because of smaller potato crops and, outside of Germany, improved economic conditions. The exceptional demand from the Orient was due in part to poor rice crops, in part to the suspension of the Japanese tariff for several months, but in large measure also to the belief that wheat was an exceptionally good buy.

Russia, with crops insufficient to cover normal domestic requirements, made large shipments of bread grains, as a result of a ruthless export policy designed to facilitate purchase of essential imports even at the risk of shortage at home. The United States, with a large exportable surplus of wheat, imported some 27 million bushels of wheat from Canada, half of it over a duty of 30 to 42 cents a bushel, in order to make up a deficiency in hard wheats required for milling purposes.

American wheat farmers were exceptionally hard hit because in a year of bumper crops and low world prices, their crops cultivated at high costs, yielded low returns per acre, and because they had had two previous years of unprofitable production.

Most of the impressive features of the past crop year were more or less peculiar to it, whether one considers crops, movements, or prices. On the other hand, the upward trend in European acreage and production, the gradual improvement in economic conditions in Europe, the disorganization of Russia, and the tendency toward increased wheat-consumption in Italy and the Far East, are persisting factors, which nevertheless in any one year may be overshadowed by others of a more temporary character.

Viewing the year 1923–24 in retrospect, one is warranted in making a few other observations. The experience of the year indicates that within limits, when the value of wheat in relation to other commodities drops to a distinctly low point, there is considerable elasticity in the demand, both in exporting and in importing countries; and that for this reason there is, below a certain point, considerable resistance to further decline in prices. Had it not been for this surprising degree of elasticity of demand, wheat prices and values might have fallen in 1923–24 to much lower levels. This elasticity is afforded by the ready use of wheat as feed, which was furthered in several countries by relatively high prices for corn and potatoes, and by the ease of substitution in human diet.

Furthermore, exceptionally large crops of grain are likely to be absorbed during the year following the respective harvests, rather than stored up against future needs. Under peace conditions, variations in carry-over are not likely to be large enough to make a momentous difference in supplies. They are more significant as effects than as causes of price-changes. They are a smaller factor than annual variations in quality of crops and annual differences in harvest dates. In the past year there were exceptional reasons for increased carry-overs—low prices during much of the year, poor prospects for new crops; yet carry-

overs were increased but moderately. Under competitive conditions in the wheat trade, so-called surplus production will be currently absorbed, in the main; and, quite as truly, deficiencies in production as compared with the average will be met by resort to other foods and feeds.

The American wheat farmer's recent emergency is clearly ended. He suffered in 1923–24 because of a specially unfavorable combination of circumstances: the average quality of his crop was not high, and yields per acre, which are the dominant factor in cost per bushel, were low and costs per bushel relatively high, at a time when world prices were exceptionally depressed. This year the situation is reversed. American yields per acre are good; the wheat is of high quality; and world prices have definitely improved, largely in consequence of low yields of mediocre quality in Canada and Europe. This year, for the first time since 1919–20, the American wheat crop will be clearly remunerative to the growers. In many other countries the price advantage to growers will be largely or wholly offset by reduced yields and lower quality.

Undoubtedly an important factor in the recovery in the United States is the recent extensive reduction in wheat acreage here, resulting from unsatisfactory wheat prices for three years. With weather conditions such as this year's, an acreage as large as in 1921 might this year have yielded a crop some 160 to 200 million bushels larger than it actually was, perhaps sufficient to offset the decline in Canadian production and to prevent much of the price increase which has occurred. Or had there been no reduction in acreage, crops during the past few years would have been larger than they were, prices might all along have been still more depressed, and the recovery this year would have been to a distinctly lower level. Although the production of a larger acreage would have been remunerative at the prices of this year, the reduction in acreage has been well-advised, and there is danger in reversing the practice. There is as much reason to expect an early recurrence of the generally high yields per acre characteristic of 1923, as of the generally low yields of 1924.

While recent wheat prices have been abnormally low, there is no clear warrant, in history or statistics, for the prevalent assumption that the pre-war relation of wheat prices to the general level of prices should be and will be re-established. Textiles are a large element in the price indexes, and they have been notoriously high, chiefly in consequence of the high price of cotton. Coal also, in part for more temporary reasons, has been high. Because of higher wage levels, incompletely offset by corresponding increase of productivity, goods requiring much labor in their production are also relatively high. Yet the production of corn, potatoes, and other farm produce was profitable in 1922–23 and 1923–24, despite the fact that farm prices for these products stood below the pre-war levels in terms of their purchasing power over goods in general. It is quite conceivable that, even in an average year, wheat may be a remunerative crop at a price which, in terms of goods in general, is lower than that of 1909–14. Canada, Argentina, and Australia, as well as Europe, seem altogether likely to cultivate increasing acreages at a profit at such prices, and prices at all higher bid fair to stimulate still further expansion of wheat acreage.

The trend of wheat production since the war is clearly upward, for the world as a whole. Especially in Europe and the Southern Hemisphere, this trend is pronounced. No rapid expansion, however, is in early prospect, in view of unfavorable conditions in Russia and the Danube basin, where the deficiency as compared with pre-war years is greatest. The 1923–24 crops were exceptionally large considering this trend; the 1924–25 crops promise to be definitely below the line of trend. Such a reversal has frequently occurred in the past, with pronounced effects upon prices and movements. The current year presents a number of striking contrasts to 1923–24. It is equally erroneous to consider it typical, and it is dangerous to reason too closely from one exceptional year to another.

APPENDIX

Tables Relating to Wheat Supplies, Movements, and Prices

NOTE: Figures for crop years, unless otherwise stated, relate to years ending July 31. Statistics for Southern Hemisphere acreage, crops, and yields per acre, are compared and combined with Northern Hemisphere statistics for the preceding harvest. Flour, where included with wheat, is converted on the assumption of 70 per cent extraction, except that Canadian official statistics convert flour at 75 per cent extraction and United States official statistics at 4½ bushels of wheat to a barrel of flour.

TABLE I.—WHEAT PRODUCTION, ACREAGE, AND YIELD PER ACRE IN PRINCIPAL WHEAT-PRODUCING AREAS, PRE-WAR AND POST-WAR*

(*A*) PRODUCTION (*million bushels*)

Area	Average 1909–13	1919	1920	1921	1922	1923	1924 a
World (ex-Russia)[b]	3,005	c	2,894	3,116	3,156	3,488	c
Northern Hemisphere[b]	2,725	c	2,544	2,740	2,802	3,062	2,728
Southern Hemisphere	280	301	350	375	353	426	c
United States	690	968	833	815	868	797	873
Canada	197	193	263	301	400	474	272
Europe (ex-Russia)	1,348	c	948	1,216	1,044	1,260	1,084
North Africa	92	75	63	106	70	107	84
India	352	280	378	250	367	369	364
Japanese Empire	32	41	41	39	38	37	36
Argentina	147	217	156	191	196	247	190 f
Australia	90	46	146	129	109	126	130 f

(*B*) ACREAGE (*million acres*)

Area	Average 1909–13	1919	1920	1921	1922	1923	1924 a
World (ex-Russia)[b]	195.7	c	206.8	213.7	216.8	219.4	c
Northern Hemisphere[b]	169.0	c	179.4	186.5	187.1	189.5	182.5
Southern Hemisphere	26.7	26.9	27.4	27.2[d]	29.7	29.9	c
United States	47.1	75.7	61.1	63.7	62.3	59.7	54.2
Canada	9.9	19.1	18.2	23.3	22.4	22.7	21.7
Europe (ex-Russia)	73.0	c	60.3	63.9	64.4	65.7	65.4
North Africa	7.9	7.7	7.6	7.7	7.6	8.5	8.2
India	29.2	23.8	29.9	25.8	28.2	30.8	30.9
Japanese Empire	1.8	2.2	2.2	2.2	2.1	2.1	2.1
Argentina	16.1	17.0	15.0	13.9	16.1	17.2	17.7
Australia	7.6	6.4	9.1	9.7	10.0	9.5	10.0

(*C*) YIELD PER ACRE (*bushels*)[e]

Area	Average 1909–13	1919	1920	1921	1922	1923	1924
World (ex-Russia)[b]	15.3	c	13.9	14.5	14.5	15.9	c
Northern Hemisphere[b]	16.1	c	14.1	14.6	14.9	16.2	14.9
Southern Hemisphere	10.5	11.2	12.8	13.8	11.9	14.3	c
United States	14.7	12.8	13.6	12.8	13.9	13.4	16.1
Canada	19.8	10.1	14.4	12.9	17.8	20.9	12.5
Europe (ex-Russia)	18.5	c	15.7	19.0	16.2	19.2	16.6
North Africa	11.7	9.6	8.3	13.8	9.3	12.6	10.2
India	12.0	11.8	12.6	9.7	13.0	12.0	11.8
Japanese Empire	18.2	18.7	18.8	18.3	18.0	17.7	16.9
Argentina	9.2	12.8	10.4	13.7	12.2	14.4	10.7
Australia	11.9	7.2	16.1	13.3	11.0	13.3	13.0

* Sources: U. S. Dept. of Agric., *Yearbook 1923* (for 1919 figures) and *Foreign Crops and Markets*.

a Figures for 1924 are revised to November 26, 1924. The United States figures are revised to December 16, 1924.

b The totals include all countries for which there are comparable data for the pre-war and post-war periods. The only large producing areas omitted are Russia, for which (present territory) the pre-war output is estimated at 730 million bushels, produced from 73 million acres; and China, including Manchuria. World totals include Mexico's production but not Mexican acreage.

c Data not available.

d The figure for Peru in this total, 213,000 acres, is from *The International Yearbook of Agricultural Statistics, 1923*

e Computed from the total production and acreage of the areas named, using figures in thousands.

f Forecast.

TABLE II.—PRODUCTION OF RYE, CORN, POTATOES, AND RICE IN PRINCIPAL PRODUCING AREAS, PRE-WAR AND POST-WAR*

(*A*) RYE *(million bushels)*

Area	Average 1909–13	1919	1920	1921	1922	1923	1924 a
Northern Hemisphere[b]	1,014	c	603	840	848	912	776
United States	36	76	61	62	103	63	64
Europe (ex-Russia)	976	c	532	757	713	826	699
France	53 d	31	34	44	38	37	40
Spain	28	23	28	28	26	28	30
Germany	368 d	240	194	268	206	263	236
Czecho-Slovakia	64 d	33	33	54	51	53	46
Hungary	31 d	c	21	23	25	31	23
Poland	219 d	c	74	168	197	235	179

(*B*) POTATOES *(million bushels)*

Area	1909–13	1919	1920	1921	1922	1923	1924 a
United States	358	323	403	362	453	416	455
Canada	78	126	134	107	93	92	83
England and Wales	100	102	119	110	150	103	99
Netherlands	104	127	122	107	162	90	97
Belgium	108	104	83	72	145	89	c
France	489 e	313	428	305	465	350	c
Spain	113 f	101	108	102	109	96	c
Germany	1,374 d	761	1,024	961	1,494	1,117	1,336
Czecho-Slovakia	c	84	184	159	333	231	c
Poland	449 g	386	665	617	1,240	974	973

(*C*) CORN *(million bushels)*

Area	Average 1909–13	1919	1920	1921	1922	1923	1924
World	3,904	3,962	4,437	4,076	3,972	4,300	c
United States	2,712	2,811	3,209	3,069	2,906	3,054	2,437
Italy	103 d	86	89	92	77	89	98
Hungary	61 d	c	50	32	49	49	80
Jugo-Slavia	112 d	c	101	74	89	81	106
Bulgaria	26 d	c	21	16	16	27	19
Rumania	193 d	141	182	111	111	151	154
Argentina	192	224	259	230	176	277	c

(*D*) RICE *(thousand short tons of cleaned rice)*

Area	1909–13	1919	1920	1921	1922	1923	1924 a
World [h]	54,243	c	57,439	62,531	63,324	59,000	c
United States	330	583	723	522	575	470	473
Spain	150	206	197	178	187	165	150
Italy	323	331	307	321	316	354	374
India	32,072	35,821	30,981	37,223	37,147	31,694	c
Japan	7,894	9,553	9,925	8,668	9,533	8,713	9,120
Formosa	706	773	761	782	914	817	c
French Indio-China	3,666	3,266	3,142	3,966	3,888	3,500	c
Siam	2,724	3,430	3,329	3,112	3,500	----	c
Ceylon	238	244	240	247	261	148	173
Philippine Islands	583	1,044	1,124	1,282	1,341	1,351	c
Java and Madura	3,590	4,899	4,174	3,680	3,225	3,360	3,862

* Sources: U. S. Dept. of Agric., *Yearbooks*, chiefly 1923; and *Foreign Crops and Markets*. Data derived largely from official estimates reported to International Institute of Agriculture, supplemented or modified in certain instances by Department of Agriculture estimates or adjustments.

a Data for 1924 are preliminary, hence especially subject to change.

b This total includes every country in the Northern Hemisphere whose production is of any size, except Russia, for which the pre-war estimated output for present territory is 776,198,000 bushels. The Southern Hemisphere production is of minor importance, the pre-war average being about 2½ million bushels and 1923–24 probably less than 5 million bushels.

c Data lacking or incomplete.

d U. S. Dept. of Agric. estimate for present territory.

e Pre-war boundaries.

f Two-year average.

g Preliminary estimate for former Russian territory within 1923 boundaries.

h Exclusive of China, where a normal crop is around 30 million short tons. A prominent Chinese authority has estimated the 1923 crop at 25 million tons.

TABLE III.—UNITED STATES WHEAT ACREAGE PLANTED, ABANDONED, AND HARVESTED *

(Million acres)

Crop of	Winter Wheat			Spring Wheat	Total
	Planted	Abandoned	Harvested	Harvested	Harvested
Average 1909-13	32.1	3.71	28.4	18.7	47.1
1919	51.1	0.56	50.5	25.2	75.7
1920	44.9	4.85	40.0	21.1	61.1
1921	45.6	2.19	43.4	20.3	63.7
1922	49.8	7.42	42.4	20.0	62.4
1923	46.1	6.59	39.5	20.1	59.6
1924	40.2	3.85	36.4	17.8	54.2

* Sources: U. S. Dept. of Agric., *Yearbook 1923*, p. 603; *Crops and Markets*, 1924, supplemented by December 16 crop report.

TABLE IV.—UNITED STATES WHEAT CROP CONDITION ESTIMATES, PRE-WAR AND POST-WAR *

(Percentages of normal)

(*A*) WINTER WHEAT

Date	1909–13 average	1920	1921	1922	1923	1924
Dec. 1	88.7	85.2	87.9	76.0	79.5	88.0
Apr. 1	83.7	75.6	91.0	78.4	75.2	83.0
May 1	84.7	79.1	88.8	83.5	80.1	84.8
June 1	79.8	78.2	77.9	81.9	76.3	74.0
Harvest	79.1	79.7	77.2	77.0	76.8	77.9
Yield per acre	15.6 bushels	15.3 bushels	13.8 bushels	13.8 bushels	14.5 [a] bushels	16.2 [a] bushels

(*B*) SPRING WHEAT

June 1	94.4	89.1	93.4	90.7	90.2	82.3
July 1	78.2	88.0	80.8	83.7	82.4	81.9
Aug. 1	75.4	73.4	66.6	80.4	69.6	79.7
Harvest	74.9	64.1	62.5	80.1	65.1	82.3
Yield per acre	13.3 bushels	10.5 bushels	10.6 bushels	14.1 bushels	11.2 bushels	15.9 bushels

* Sources: U. S. Dept. of Agric., *Yearbook 1923*, p. 606; *Crops and Markets* (for 1924 data), supplemented by December 16 crop report.

[a] Note that yield per acre was greater than suggested by condition at harvest.

TABLE V.—UNITED STATES WHEAT CROP FORECASTS AND ESTIMATES, 1922–24 *

(Million bushels)

	Winter	Spring	Total
1922 Revised	587	281	868
1923 Apr. 1	572	----	----
May 1	578	----	----
June 1	581	236	817
July 1	586	235	821
Aug. 1	568	225	793
Sept. 1	568	220	789
Oct. 1	568	213	782
Dec. 1	572	213	786
Revised	572	225	797
1924 Apr. 1	549	----	----
May 1	553	----	----
June 1	509	184	693
July 1	543	197	740
Aug. 1	589	225	814
Sept. 1	589	247	837
Oct. 1	589	266	856
Dec. 1	590	283	873

* Sources: U. S. Dept. of Agric., *Weather, Crops and Markets; Crops and Markets* (supplemented by December 16 crop report).

TABLE VI.—CANADIAN SPRING WHEAT PRODUCTION FORECASTS AND ESTIMATES, 1920–24 *

(Million bushels)

Date	1920	1921	1922	1923	1924
May 31	262	298	341	323	[c]
June 30	271	293	326	349	304
July 31	250	273	304	361	263
Aug. 31	271	279	372	451	271
Oct. 31	274	314	373	448 [a]	251 [b]
Dec. 31	244	285	381	455	[c]

* Sources: Dominion of Canada Bureau of Statistics, *Monthly Bulletin of Agricultural Statistics*. The May 31 and June 30 figures were computed from estimated acreage and condition figures. The July 31 and August 31 figures are forecasts of production. The October 31 figures are provisional estimates of production, and the December 31 figures are final estimates. Winter wheat production is usually around 20 million bushels.

[a] Computed.

[b] Total estimate less August 31 estimate for winter wheat.

[c] Not available.

TABLE VII.—WHEAT SUPPLIES AND THEIR DISPOSITION IN LEADING EXPORT COUNTRIES *

(Million bushels)

(*A*) UNITED STATES:
CROP YEARS ENDING JUNE 30

	1909–14 5-yr. ave.	1921–22	1922–23	1923–24
Stocks, July 1	90.0	100.2	89.0	112.5
New crop	690.1	814.9	867.6	797.4
Imports	1.8	17.3	19.9	28.0
Available supplies	781.9	932.4	976.5	937.9
Exports of wheat	56.9	208.3	154.9	78.8
Exports of flour	48.1	71.1	67.0	77.6
Total exports	105.0	279.4	221.9	156.4
Seed requirements	72.4	93.2	89.3	78.5
Milled for consumption	507.6	470.8	552.8	496.1
Feed and waste				94.0
Total domestic use	580.0	564.0	642.1	668.6
Stocks, June 30	96.9	89.0	112.5	112.9
Population (millions)	94.4	108.5	110.0	111.4
Food and feed use per capita (bushels)	5.38	4.34	5.03	5.29

(*B*) CANADA:
CROP YEARS ENDING AUGUST 31

	1920–21	1921–22	1922–23	1923–24
Stocks, September 1	9.8	7.9	16.0	8.9
New crop	263.2	300.9	399.8	474.2
Imports	.6	.2	.4	.4
Available supplies	273.6	309.0	416.2	483.5
Exports of wheat	136.2	158.6	229.7	289.2
Exports of flour	31.0	35.5	49.8	54.0
Total exports	167.2	194.1	279.5	343.2
Seed requirements	40.7	39.2	39.8	38.0
Milled for consumption	39.5	37.0	40.9	42.2
Feed and waste	18.4	22.7	47.1	33.6
Total domestic use	98.6	98.9	127.8	113.8
Stocks, August 31	7.9	16.0	8.9	26.5

(*C*) ARGENTINA:
CROP YEARS ENDING DECEMBER 31

	1922	1923	1924
Stocks, January 1	29.4	10.7	0.6
New crop	191.0	195.8	247.0
Available supplies	220.4	206.5	247.6
Exported Jan. 1 to July 31	109.1	106.2	139.0
Exported Aug. 1 to Dec. 31	36.4	34.0	
Total exports	145.5	140.2	
Seed requirements	17.5	18.7	19.3
Consumption, feed, and waste	46.7	47.0	46.6
Total domestic use	64.2	65.7	65.9
Stocks, December 31	10.7	0.6	

(*D*) AUSTRALIA:
CROP YEARS ENDING DECEMBER 31

	1922	1923	1924
Stocks, January 1	7.0	6.0	10.0
New crop	129.1	109.3	125.5
Available supplies	136.1	115.3	135.5
Exported Jan. 1 to July 31	75.8	41.1	64.5
Exported Aug. 1 to Dec. 31	8.7	21.1	
Total exports	84.5	62.2	
Seed requirements	9.4	8.9	9.4
Milled for consumption	30.0	30.7	31.5
Feed and waste	6.2	3.5	3.5
Total domestic use	45.6	43.1	44.4
Stocks, December 31	6.0	10.0	

* Sources: (*A*) United States: Dept. of Agric., *Yearbook 1923*, pp. 614, 621, supplemented by additional figures from various sources for 1924.

(*B*) Canada: Dominion Bureau of Statistics, *Report on the Grain Trade of Canada*, 1922, p. 122, and 1923, p. 124, supplemented by *Monthly Bulletin of Agricultural Statistics*, April 1924, p. 2; *Canadian Grain Statistics*, September 12, 1924, pp. 12–14, October 3, 1924, p. 21; and *Monthly Report of Trade of Canada*, August 1923, pp. 48–50, March 1924, pp. 48–50, and August 1924, pp. 47–49. Figures for 1923–24 domestic use include certain approximations not yet covered by official estimates.

(*C*) Argentina and Australia: *Foreign Crops and Markets*, March 19, 1924, and September 24, 1924, supplemented by *International Crop Report and Agricultural Statistics*.

TABLE VIII.—BROOMHALL'S SUCCESSIVE ESTIMATES OF THE WHEAT POSITION, 1922–23, 1923–24 *

(Million bushels)

Crop year 1922–23	Available for export	Probable shipments	Importers' requirements		Crop year 1923–24	Available for export	Probable shipments	Importers' requirements	
			Europe	Ex-Europe				Europe	Ex-Europe
1922 Aug. 15	776	672	592	64	1923 Aug. 14	896	632	532	100
Sept. 19	800	672	592	64	Sept. 11	936	632	532	100
Oct. 3	800	704	640	64	Oct. 16	960	656	532	124
Nov. 7	816	720	640	80	Nov. 6	952	656	532	124
Nov. 28	808	720	640	80	Dec. 4	984	688	560	128
Dec. 19	840	720	640	80	Dec. 11	936	688	560	128
1923 Jan. 2	832	720	640	80	1924 Feb. 5	952	704	560	144
Jan. 30	872	720	640	80	May 13	1,004	764	620	144
Mar. 20	848	688	608	80	June 17	966	764	620	144
Apr. 10	848	696	608	88	June 24	1,000	768	620	148
Apr. 24	912	696	608	88					
June 19	888	696	608	88					
Net change	+ 112	+ 24	+ 16	+ 24	Net change	+ 104	+ 136	+ 88	+ 48
Actual shipments		676	586	90	Actual shipments		775	626	149

* Source: Broomhall's *Corn Trade News.*

TABLE IX.—BROOMHALL'S ESTIMATES OF INTERNATIONAL SHIPMENTS OF WHEAT, RYE, AND CORN, PRE-WAR AND POST-WAR *

(Million bushels)

(*A*) WHEAT, INCLUDING FLOUR: CROP YEAR APPROXIMATELY JULY 31

Export area	1909–14 5-yr. ave.	1919–20	1920–21	1921–22	1922–23	1923–24 a
North America	206.2	291.6	432.2	404.0	455.1	454.4
Argentina and Uruguay	82.1	259.2	63.8	118.3	138.3	174.4
Australia	54.5	85.9	82.1	110.8	47.8	77.9
Russia, Danube and Black Sea	224.7	------	1.6	5.6	6.9	36.0
British India	46.9	------	11.2	0.2	26.1	17.4
Other countries	8.0	------	------	8.1	2.1	15.1
Total	622.5	636.7	591.0	647.1	676.4	775.2 a
Destination						
Europe	540.8	587.5	541.7	546.7	585.9	626.5 a
Ex-Europe	81.7	49.0	49.5	100.4	90.5	148.7 a

(*B*) RYE, INCLUDING RYE FLOUR: CROP YEAR ENDING APPROXIMATELY JULY 31

Export area	1909–14 5-yr. ave.	1919–20	1920–21	1921–22	1922–23	1923–24
Russia and Danube	24.3	.03	1.3	.02	2.7	41.3
North America	.9	41.7	40.0	34.9	58.7	26.8
Miscellaneous	28.8 b	1.3	1.7	1.3	1.5	------
Total	54.0	43.0	43.0	36.2	62.9	------

(*C*) CORN: CROP YEAR ENDING APPROXIMATELY OCTOBER 30

Export area	1909–14 5-yr. ave.	1919–20	1920–21	1921–22	1922–23	1923–24
Atlantic America	26.7	4.5	88.9	144.5	46.5	11.3
Russia	20.9	------	------	------	------	------
Danube	41.6	9.2	33.0	10.0	6.2	41.0
Argentina	112.0	136.4	126.8	86.2	128.5	155.0
Miscellaneous	4.4	.4	4.2	10.1	16.8	10.7
Total	205.6	150.5	252.9	250.9	198.1	218.0

* Source: Broomhall's *Corn Trade News.*

a For 53 weeks.

b Chiefly Germany, which since the war has ceased to be a rye exporter.

TABLE X.—INTERNATIONAL TRADE IN WHEAT, INCLUDING FLOUR AS WHEAT, PRE-WAR AND POST-WAR *

(Million bushels)

(*A*) NET EXPORTS FROM PRINCIPAL EXPORTING COUNTRIES

Year ending July 31	United States	Canada	Argentina	Australia	British India	Roumania	Hungary	Bulgaria	Jugo-Slavia	Algeria and Tunis	Russia
1909-14 ave	110.2	96.0	84.7	55.1	49.8	54.62 a	43.14 a	11.26 a	d	4.50	164.5 a
1919-20	239.3	93.9	266.0	101.0	2.5	d	(.54) b	.05	d	2.58	d
1920-21	318.4	167.9	63.6	88.9	15.1	1.41	(.01) b	1.77	3.76	(6.90) b	d
1921-22	251.2	186.7	118.1	114.6	(13.8) b	3.51	9.40	4.52	3.90	5.54	d
1922-23	199.6	281.0	139.4	50.3	28.6	1.65	5.16	d	1.01	3.04	d
1923-24	126.8	348.2	172.2	85.6	20.1	2.54	16.79	d	5.24	10.34	23.2 g

(*B*) NET IMPORTS BY PRINCIPAL IMPORTING COUNTRIES

Year ending July 31	United Kingdom	France	Germany	Italy	Belgium	Netherlands	Switzerland	Spain	Portugal	Denmark
1909-14 ave	217.7	43.6 a	67.8 a	53.0 a	50.2	22.6	16.9	6.19	2.41	6.65 a
1919-20	212.9	88.1	d	79.8	29.8	18.7	11.9	17.16	d	1.61
1920-21	200.1	68.3	59.8	99.4	32.2	18.9	12.9	19.83	d	.35
1921-22	208.2	17.1	69.5	100.5	40.5	19.8	13.2	8.02	d	4.01
1922-23	211.9 e	45.6	37.5	115.7	39.5	23.9	16.6	(.19) c	d	6.28
1923-24	236.7 e	53.0	30.9	69.8	40.3	26.7	17.1	d	d	9.19

Year ending July 31	Sweden	Norway	Austria	Czecho-Slovakia	Poland	Latvia	Finland	Greece	Egypt	Japan
1909-14 ave	7.07	3.78	10.5 a	d	d	d	d	d	.02	4.1
1919-20	7.39	6.48	13.6	d	d	d	d	d	9.12	12.8
1920-21	6.61	3.85	14.6 f	18.3	d	.58	2.46	10.6	11.21	5.8
1921-22	3.85	5.17	19.0 f	11.6	1.20	.74	3.39	13.7	6.84	24.9
1922-23	8.78	6.90	13.4 f	10.3	2.52	1.11	5.12	17.3	7.68	14.5
1923-24	12.39	6.11	18.2 f	21.2	.97 h	1.29 h	5.12	18.8	8.54	80.3

* Sources: Official statistics, compiled in *International Yearbook of Agricultural Statistics, 1923*, and *International Crop Report*, September 1924.

a Data not comparable with those of post-war years because of boundary changes.

b Net imports. c Net exports. d Data not available.

e Including, for comparative purposes, Irish Free State imports of 6.4 million bushels from April 1 to July 31, 1923, and 16.3 million bushels for 1923–24.

f Data incomplete, because of territories occupied by foreign armies.

g Unofficial: Broomhall's estimate. h Nine months only.

TABLE XI.—INTERNATIONAL TRADE IN WHEAT FLOUR, PRE-WAR AND POST-WAR *

(Thousand barrels of 196 lbs.)

(*A*) NET EXPORTS FROM PRINCIPAL EXPORTING COUNTRIES

Year ending July 31	United States	Canada	Australia	Argentina	India	Roumania	Hungary	Bulgaria	Jugo-Slavia	Italy	France	Belgium
1909-14 ave	10,640	3,897	1,802	1,307	613	1,091 a	7,443 a	502 a	d	793 a	133 a	704
1919-20	22,153	6,445	5,872	3,254	620	(93) b	(105) b	10	d	(1,458) b	(3,136) b	(206) b
1920-21	13,666	6,688	2,281	353	835	150	(2) b	83	426	(123) b	66	2
1921-22	14,904	7,702	3,677	949	496	115	1,864	243	393	91	372	236
1922-23	14,457	10,956	4,081	842	538	294	1,137	d	164	394	478	(24) b
1923-24	17,019	11,957	5,221	1,771	709	d	2,333	d	344	1,508	320	412

(*B*) NET IMPORTS BY PRINCIPAL IMPORTING COUNTRIES

Year ending July 31	United Kingdom	Netherlands	Denmark	Norway	Sweden	Germany	Austria	Czecho-Slovakia	Poland	Latvia	Finland	Greece
1909-14 ave	5,193	2,028	586 a	87	639	(1,827) ac	(115) ac	d	d	d	d	92 j
1919-20	7,226	110	252	72	385	d	1,914	d	d	d	470	661
1920-21	6,552	592	45	272	241	306 f	1,361	3,135	d	92	434	229
1921-22	7,560	560	555	34	457	62 f	1,811	2,130	115	103	724	148
1922-23	5,579 i	659	555	75	603	567 f	2,016	1,997	534	72	1,091	1,094
1923-24	2,951 i	1,287	453	274	635	4,189 f	2,616	3,584	207 h	32 h	1,098	1,300

* Sources: Same as for Table X. a, b, c, d, e, f, g, h See corresponding footnotes to Table X.

i From April 1, 1923, for territory excluding Irish Free State. j Average for calendar years 1909–13.

TABLE XII.—UNITED STATES WHEAT INSPECTED FOR EXPORT, YEARS ENDING JUNE 30, 1921–24 *

(Thousand bushels)

Class	1920–21	1921–22	1922–23	1923–24
Hard red spring	10,081 a	20,145 a	8,718 a	1,022 a
Durum	4,872 b	8,697 b	12,271 b	4,908 b
Hard red winter	132,701	78,477	51,654	19,640
Soft red winter	34,281	18,998	20,846	9,810
White (Pacific)	27,729 c	43,652 c	13,602	18,653
Mixed	68,615 d	18,963 e	25,047 e	5,435
Total above classes	278,279	188,932	132,138	59,648
Unclassified	14,989	19,389	22,813	19,145
Total wheat export	293,268	208,321	154,951	78,793

* Sources: H. C. Wallace, *The Wheat Situation*, p. 89; *Crops and Markets, Monthly Suppl.*, July 1924, p. 247; U. S. Dept. Agric., *Yearbook 1923*, p. 622.

a Imports of hard red spring wheat from Canada largely exceeded U. S. exports of hard red spring wheat, except in 1921–22. U. S. Dept. Agric., *Yearbook 1923*, p. 622.

b See notes *d* and *e*.

c Including mostly "Portland (Ore.) Chamber of Commerce type sample" wheat, as most white wheat was shipped prior to July 1, 1922.

d Including some 20,030,000 bushels of durum mixed with hard spring wheat. Most of the rest was mixed hard and soft winter wheats shipped through Gulf ports.

e Including about 70 per cent estimated as durum, in 1921–23, and probably at least as large a proportion in 1923–24.

TABLE XIII.—OCEAN FREIGHT RATES ON WHEAT AND CORN, YEARLY AVERAGES 1913 AND CROP YEARS 1921–24, MONTHLY AVERAGES 1923–24 *

(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	8.3	5.8	8.0	11.9	25.7	10.6	12.2	20.4
1921–22	10.7	8.5	10.3	12.5	25.3	14.6	12.8	28.6
1922–23	9.2	5.5	8.0	11.0	22.2	14.3	15.4	23.6
1923–24	9.4	6.8	8.6	10.4	21.2	13.7	15.0	21.8
1923 August	7.4	4.3	7.1	9.4	21.7	11.6	14.5	19.8
September	7.6	4.6	7.1	9.9	21.1	11.6	14.4	21.1
October	9.4	6.0	8.3	11.0	22.2	10.5	14.7	22.4
November	10.4	8.1	9.0	10.7	22.0	10.7	15.4	22.9
December	9.2	7.9	8.7	10.5	22.0	12.4	15.5	23.2
1924 January	9.3	7.9	8.9	10.2	22.8	15.1	15.8	25.2
February	11.2	10.1	10.7	11.2	23.1	17.2	16.7	26.7
March	11.0	9.2	9.7	11.4	21.4	16.6	15.7	24.6
April	10.2	7.1	8.9	11.0	19.8	16.0	14.5	19.9
May	10.2	6.8	8.6	10.5	20.1	16.3	14.7	18.7
June	8.7	5.2	8.3	10.3	19.0	14.0	14.2	18.2
July	7.7	4.1	7.0	8.9	18.8	12.4	13.4	18.8

* Computed from weekly rates published by the International Institute of Agriculture in *International Crop Report and Agricultural Statistics.*

TABLE XIV.—BROOMHALL'S ESTIMATES OF VISIBLE WHEAT SUPPLIES ON AUGUST 1, 1919–24, COMPARED WITH PRE-WAR AND POST-WAR AVERAGES*

(Million bushels)

	1919	1920	1921	1922	1923	1924	1910–14 5-yr. ave.	1919–23 5-yr. ave.
United States—wheat								
East of Rockies	38.0	31.0	46.3	34.1	58.7	58.4	48.5	41.6
West of Rockies	1.7	3.0	2.2	1.6	3.9	4.1	1.8	2.5
Canada—wheat	7.8	7.6	8.7	19.1	13.9	31.3	10.2	11.4
U. S.—flour as wheat	8.0	8.7	7.7	7.4	10.7	9.6	8.5	8.5
Canada—flour as wheat	.2	.6	.2	.2	.2	.3	.6	.3
Total	55.7	50.9	65.1	62.4	87.4	103.7	69.6	64.3
Argentina	4.4	3.7	3.7	2.2	4.4	6.8	1.3	3.7
Australia	120.0 [a]	27.5	30.0	3.0	18.0	30.0	[b]	39.7
Total	124.4 [a]	31.2	33.7	5.2	22.4	36.8	[b]	43.4
United Kingdom—wheat	7.2	10.0	6.4	5.2	7.0	8.4	12.4	7.2
United Kingdom—flour as wheat	10.8	2.8	1.2	1.9	1.2	1.5	3.0	3.6
Afloat for United Kingdom	14.5	24.9	18.5	12.3	14.1	14.4	13.9	16.9
Afloat for Continent	20.4	39.9	28.8	22.3	18.2	15.2	12.3	25.9
Afloat for orders	33.7	11.4	10.6	14.3	6.7	12.2	9.0	15.3
Total	86 6	89.0	65.5	56.0	47.2	51.7	50.6	68.9
Grand total	266.7 [a]	171.1	164.3	123.6	157.0	192.2	[b]	176.5
Excluding Australia	146.7	143.6	134.3	120.6	139.0	162.2	120.4	136.8

* Source: Broomhall's *Corn Trade News.* [a] Exceptional figures due to Australian war stocks. [b] Data incomplete.

TABLE XV.—UNITED STATES WHEAT STOCKS (EXCLUDING FLOUR), JULY 1, 1919–24, COMPARED WITH PRE-WAR AND POST-WAR AVERAGES*

(Thousand bushels)

Year	Total	On farms	In country mills and elevators	Commercial visible (Bradstreet's)
1919	49,806	19,261	19,672	10,873
1920	110,254	49,546	37,304	23,404
1921	93,840	56,707	27,167	9,966
1922	81,457	32,359	28,756	20,342
1923	102,414	35,894	37,117	29,403
1924	103,728	30,696	34,435	38,597
1909–13 ave.	88,317	32,276	31,000	25,041
1919–23 ave.	87,554	38,753	30,003	18,798

* U. S. Dept. of Agric., *Yearbook 1923*, p. 614, with certain revisions and additions. Flour stocks, not included here, are estimated by the U. S. Dept. of Agric., in wheat equivalent (thousands of bushels) as follows: 1909–13 ave., 8,555; 1919, 7,402; 1920, 10,273; 1921, 6,651; 1922, 7,461; 1923, 10,049; 1924, 9,207. These figures are by no means comprehensive.

TABLE XVI.—CANADIAN WHEAT STOCKS, SEPTEMBER 1, 1919–24 *

(Thousand bushels)

Year	Total	On farms	In elevators	In transit	In flour mills
1919	[a]	2,149	3,305	[a]	[a]
1920	[a]	2,122	6,930	[a]	238
1921	13,727	2,144	4,831	6,032	720
1922	19,463	2,360	11,025	4,578	1,500
1923	11,750	1,441	5,051	2,758	2,500
1924	28,358	5,035	17,507	1,816	4,000

* *Canada Year Books*, and U. S. *Crops and Markets*, September 27, 1924. [a] Figures not available.

TABLE XVII.—AVERAGE CASH PRICES OF REPRESENTATIVE WHEATS IN LEADING EXPORTING AND IMPORTING MARKETS, MONTHLY, 1923–24*

(U. S. dollars per bushel)

Month	United States				Canada	Liverpool	Argentina	Liverpool		
	Average farm price (a)	No. 2 Red Winter (Chicago)	No. 2 Hard Winter (Kansas City)	No. 1 Dark Northern (Minneapolis)	No. 1 Manitoba (Winnipeg)	No. 1 Manitoba	Barletta (Buenos Aires)	Argentine Rosafe	Australian	Pacific White
1923 July	.95	1.00	.96	1.18	1.06	1.28	1.06	1.22	1.34	1.28
Aug.	.84	1.00	1.01	1.22	1.11	1.27	1.02	1.16	1.26	1.26
Sept.	.89	1.05	1.09	1.26	1.03	1.31	1.07	1.19	1.27	1.28
Oct.	.93	1.11	1.12	1.26	.97	1.23	1.09	1.21	1.28	1.26
Nov.	.95	1.06	1.09	1.20	.95	1.20	1.14	1.22	1.25	1.24
Dec.	.92	1.09	1.09	1.19	.91	1.19	1.06	1.19	1.24	1.24
1924 Jan.	.97	1.13	1.13	1.23	.94	1.24	1.00	1.18	1.23	1.25
Feb.	.98	1.13	1.11	1.27	.96	1.29	.98	1.20	1.26	1.28
Mar.	.99	1.09	1.09	1.27	.95	1.24	.98	1.20	1.27	1.24
Apr.	.96	1.06	1.04	1.26	.96	1.21	.99	1.18	1.25	1.24
May	.97	1.07	1.06	1.30	1.03	1.23	1.03	1.21	1.29	1.28
June	.98	1.15	1.08	1.36	1.12	1.29	1.12	1.23	1.31	1.36
July	1.06	1.26	1.17	1.46	1.35	1.46	1.27	1.42	1.43	1.48

* Sources: U. S. prices from U. S. Dept. of Agric., *Yearbook* and *Crops and Markets;* foreign prices from *International Yearbook of Agricultural Statistics* and *International Crop Report and Agricultural Statistics,* except Rosafé, which is from Broomhall's *Corn Trade News.* Prices converted to U. S. dollars on a weekly basis for a certain day of each week and then reduced to monthly averages.

a Prices for first of month in 1923 and 15th of month in 1924.

TABLE XVIII.—AVERAGE PRICES OF DOMESTIC WHEATS IN EUROPEAN MARKETS, MONTHLY, 1923–24*

Month	Great Britain	France (Chartres)	Italy (Milan)	Germany (Berlin)	Great Britain	France (Chartres)	Italy (Milan)	Germany (Berlin)
	s. d. per quarter	*francs per quintal*	*lire per quintal*	*gold mks. per quintal*	*U.*	*S. dollars*	*per bushe*	l[a]
1923 August	43-3	81.10	91.00	13.88	1.24	1.25	1.07	.90
September	38-3	85.05	91.00	14.37	1.09	1.36	1.10	.93
October	38-4	85.70	91.50	13.84	1.08	1.39	1.12	.90
November	38-10	90.00	89.90	19.32	1.09	1.36	1.07	1.25
December	41-10	93.55	92.50	17.06	1.14	1.34	1.09	1.11
1924 January	42-7	96.03	98.50	15.89	1.13	1.22	1.16	1.03
February	46-6	99.95	102.90	16.05	1.25	1.20	1.22	1.04
March	46-4	104.20	112.75	16.76	1.24	1.33	1.31	1.09
April	45-3	92.25	112.88	17.36	1.23	1.55	1.36	1.12
May	46-11	92.50	112.90	16.20	1.28	1.46	1.36	1.05
June	48-5	97.65	111.62	14.49	1.31	1.40	1.32	.94
July	51-11	97.25	106.88	16.51	1.42	1.36	1.26	1.07

* Sources: Great Britain, London *Economist;* France, U. S. Federal Reserve Board; Italy, *International Crop Report and Agricultural Statistics;* Germany, *Wirtschaft und Statistik.*

a Conversions made at average exchange rates for the month.

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