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WHEAT STUDIES

OF THE

FOOD RESEARCH INSTITUTE

VOL. IV, NO. 6 MAY 1928

SURVEY OF THE WHEAT SITUATION

DECEMBER 1927 TO MARCH 1928

DURING the first half of the period under review, world wheat markets were quiet and prices fluctuated within narrow limits. Visible supplies, especially in Canada, were high; changes in the supply situation, aside from increasing tightness in the feed grain situation, were of little significance; speculation was not active; buyers of wheat exerted little pressure to obtain supplies. International trade followed a normal course throughout the period. Exports from Argentina and the Pacific coast of North America were exceptionally large, while very little wheat as wheat was exported from Atlantic and gulf ports of the United States. During February and March unfavorable reports of the United States soft red winter-wheat crop of 1928 led to a sharp increase in prices and a revival of speculative interest, most noteworthy in Chicago.

In the closing four months of the year international trade promises to be of large volume, though not so large as in 1926–27. A record export movement may occur from Canada, where stocks on March 31 where the largest in history; the United States will probably export little, especially of representative wheats. Total net exports for the crop year still seem likely to approximate 825 bushels. Carryovers in the more important positions in their aggregate bid fair to be as large as or larger than those of 1926–27. The outlook for 1928 crops is of course not clear, but on the basis of available data on acreage, condition, and abandonment of winter-wheat crops, and general statistical probabilities for spring-wheat crops, the Northern Hemisphere (ex-Russia) will probably harvest less wheat this year than last. The changing outlook for new crops bids fair to dominate price movements. In the United States milling activity seems likely to run above the usual seasonal level.

STANFORD UNIVERSITY, CALIFORNIA

May 1928

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

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

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

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

SURVEY OF THE WHEAT SITUATION

DECEMBER 1927 TO MARCH 1928

The features of the world wheat situation of outstanding interest during the second third of the international crop year were the enormous supplies of wheat accumulated in commercial visibles, especially in Canada, and the upward trend of prices after mid-February, as the effects of extensive deterioration during the winter became increasingly apparent in the soft red winter-wheat region of the United States. There were no extensive revisions of wheat-crop estimates during the period. The first official estimate of Russian production, appearing in February, was 60 million bushels lower than that of 1926, but exerted little influence on world markets. On the whole, the international statistical position appears to have changed but slightly since December, though high prices of rye and feed grains have probably encouraged the use of wheat both for food and feed, and German and Polish rye production estimates were somewhat lowered.

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According to official estimates now standing, the world wheat crop of 1927 (exclusive of China and Asia Minor) appears the largest of post-war years, about 70 million bushels larger than the crop of 1926; but, trends considered, it cannot be regarded as much above normal. In distribution between importing and exporting countries the crop of 1927 was not unusual. Among the exporting countries, Canada and Argentina harvested the second largest crops in history; moreover, the Canadian official estimate may be somewhat too low. The Australian crop, while not a failure, was the smallest in post-war years. The size and distribution of crops throughout the world suggested a fairly easy international statistical position for the crop year.

Until the crop outlook began to exert an influence in February, world markets were quiet and prices fluctuated within a narrow range. European buyers, faced with an easy international position and large visible supplies, pursued a policy of leisurely but not niggardly purchasing. As compared with 1926–27, prices of native wheats were distinctly lower in several countries of western Europe; import wheats in Europe were perceptibly lower, but not so much so as native wheats; and wheats in exporting countries were almost as high as was true a year ago. This situation was largely due to the abnormally high ocean freight rates prevailing during the first half of 1926–27.

With ocean freight rates again at a normal or low level, international trade, though of large volume, was not so heavy as in 1926–27, when the flow of wheat to export was restricted in the first third of the year and arrears were partially caught up in the second third. This year an exceptionally heavy movement of wheat and flour occurred from Argentina and the Pacific coast of North America, while very little wheat moved from gulf and Atlantic ports of the United States after November.

In the light of accumulated information, we regard our December estimate of probable net exports for the crop year, 825 million bushels, as reasonably in prospect of fulfilment, though slightly too low. On the basis of seasonal movements of exports in past years and official estimates of stocks, Canadian net exports in April–July may prove the largest in history, unless the carryover is built up to an extreme height; but United States exports (April–June) may prove small. The volume of trade from all sources promises to be large, but is likely to fall below the record figure established last year. Carryovers promise to be large for the second successive year, especially in Canada.

The winter proved unfavorable for fall-sown wheat in the United States east of the

Mississippi and in some European countries, especially France; in these areas abandonment has apparently been exceptionally heavy. On the other hand, the areas sown throughout the Northern Hemisphere in the autumn of 1927 were larger than in the autumn of 1926, the greatest increases being reported in Russia and the United States. The outlook for the crops of 1928 is of course not clear. Against heavy abandonment and low condition in the American soft red winter-wheat belt, not altogether satisfactory supplies of moisture in parts of the hard red winter-wheat belt, and spring condition apparently below average in parts of Europe, are to be set the large acreage sown to winter wheat and the fair supplies of subsoil moisture elsewhere, including most of the North American spring-wheat belt. Principally on account of a prospective reduction of the United States winter-wheat crop, and the general probability that the American and Canadian spring-wheat crops are unlikely to attain the exceptionally high figures of 1927, the Northern Hemisphere crop of 1928 seems likely to fall below that of 1927. But even so much cannot be said with assurance while weather during the growing season remains unpredictable. Changing prospects for new crops may be expected to dominate price movements.

I. SUPPLY AND DEMAND FOR THE CROP YEAR

Changes in Supplies

On the side of supply, the international statistical position has been little affected either by the appearance of the first official estimates of wheat production for a few countries, or by revisions of official estimates for several others. Earlier estimates of the Canadian and Australian crops were revised downward by 4 and 6 million bushels respectively; estimates for Tunis and Germany were revised upward by 3 and 7 million bushels. The final estimate of the Argentine crop, 239.2 million bushels, was only about half a million bushels below the December estimate.

Other revisions were not especially noteworthy for their bearing on trade and prices. The new estimates of production in Denmark, Chile, and Uruguay indicated crops well above average, with a bumper post-war crop of 33 million bushels in Chile; but the South African crop is small. The first official Russian estimate, appearing in February, placed the crop as 750 million bushels as compared with 810 million in 1926 and 713 million in 1925. On the whole the estimate merely served to confirm the impression of observers that smaller exports might be expected this year than last. The reduction from 1926 was not regarded as indicating a shortage of wheat for domestic consumption, not only because stocks in peasant hands were thought to be large, but also because the rye crop was placed at 968 million bushels, as against 897 million in 1926 and 816 million in 1925.

Table 1 summarizes the latest available official data on wheat production in 1927, with comparisons for earlier years. As seemed likely in December, the world wheat crop exclusive of Russia, China, and Asia Minor approximates the bumper post-war crop of 1923; and it exceeds the crop of 1926 by about 130 million bushels.[1] With Russia included in the comparison, the crop of 1927 exceeds that of 1926 by about 70 million bushels, and probably exceeds the crop of 1923 by a still larger amount.[2] Yet, in view of the upward trend of wheat production and consumption since the war, it can hardly be regarded as much above normal. Recent revisions have scarcely affected the distribution of crops between importing and exporting countries. The Danube countries, Russia, and the Southern Hemisphere have smaller crops this year than last, while European importing countries and North America have larger. But on the whole the distribution is normal, as in 1926 and 1923.

[1] These comparisons are based on official estimates. There is reason to believe that official estimates are too low for the United States crops of 1925 and 1926, the Canadian crops of 1924–27, and the French crop of 1926. Rough allowances for apparent underestimates suggest that the wheat crop of the world (excluding Russia, China, and Asia Minor) in 1927 was not so much as 130 million bushels larger than the crop of 1926.

[2] Russian official estimates are comparable only for the past three years. In 1923, however, the Russian crop seems not to have exceeded 500 million bushels.

The most conspicuous features of production are the large crops of Canada and Argentina — for each country the second largest of post-war years; and the small crop of Australia, which was considerably exceeded in each year except 1922, when the crop was less than half a million bushels larger.

In recent months no indications have appeared to suggest that the world's wheat crop differs noticeably in quality from what was earlier apparent or expected. The Australian crop is reported to be of good quality. Test weight per bushel of the Argentine crop is high, and many sales have been made under a guaranty of 64 pounds

TABLE 1.—WHEAT PRODUCTION IN PRINCIPAL PRODUCING AREAS, PRE-WAR AND POST-WAR*

(Million bushels)

Year	United States	Canada	Soviet Russia	Lower Danube[a]	Other Europe	North Africa	India	Japan, Chosen	Northern Hemisphere ex-Russia	Argentina	Australia	Southern Hemisphere	World ex-Russia
1920.....	833	263	...	172	775	71	378	41	2,550	156	146	350	2,900
1921.....	815	301	...	212	1,004	98	250	40	2,727	191	129	376	3,103
1922.....	868	400	...	224	815	72	367	40	2,801	196	109	354	3,155
1923.....	797	474	...	260	989	106	372	35	3,051	248	125	427	3,478
1924.....	864	262	...	204	847	85	361	37	2,673	191	165	407	3,080
1925.....	676	395	713	296	1,096	105	331	40	2.951	191	115	359[b]	3,310[b]
1926.....	831	407	810	298	909	90	325	40	2,912	221	161	436[b]	3,348[b]
1927.....	872	440	750	275	988[c]	105	334	38	3,066[c]	239	109	415[b]	3,481[b,c]
Average													
1909–13...	690	197	759[d]	330	1,018	92	352	32	2,724	147	90	280	3,004
1922–26...	808	388	...	257	931	92	351	38	2,877	209	135	397[b]	3,274[b]

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

[a] Hungary, Bulgaria, Roumania, Jugo-Slavia.
[b] Includes our estimate for Peru.
[c] Includes our estimate for Ireland.
[d] Regarded as too low by Soviet officials, whose estimate is 908 million bushels.

It is as yet impossible to judge with certainty of the accuracy of official estimates now standing, yet certain possibilities deserve mention. Observers agree that the Australian and Argentine official estimates are certainly not too high; indeed, some regard the Argentine as too low. Conclusive checks on the Argentine estimates remain impossible in the absence of direct estimates of stocks; the exceptionally heavy exportation of January–March may reflect merely the fulfilment of sales made in October–December rather than a conviction among Argentine traders that wheat is more plentiful than the official estimate suggests. The Canadian crop is perhaps larger than 440 million bushels, if data on stocks and exports are trustworthy.[1] No substantial reasons appear at present for questioning the accuracy of crop estimates for the United States or the major producers of Europe, though the French official crop estimate, of which a revision will not appear until May or June, is lower than the private estimates.[2]

per measured bushel. The American crop has proved to be somewhat above average in weight per bushel and the percentage grading No. 2 or better has not been low;[3] but the prevailing high premiums bear evidence of low protein content.[4] The proportion of damp wheat unfit for milling is known to be large in northwestern Europe, especially England, Belgium, Holland, Germany, and France; but whether or not the proportion is larger than seemed likely earlier in the season is not clear. Canadian wheat has continued to grade low; of all wheat inspected in the western division during September–March, less than 10 per cent

[1] See below, pp. 250–51.

[2] See WHEAT STUDIES, IV, 108n.

[3] According to official estimates published in March, the percentages of the winter- and spring-wheat crops grading Nos. 1 and 2 have been as follows for the past six years:

Crops of	Winter wheat	Spring wheat	Crops of	Winter wheat	Spring wheat
1922.....	51.3	78.5	1925.....	73.4	65.5
1923.....	63.6	45.2	1926.....	83.2	64.8
1924.....	73.1	84.4	1927.....	73.1	71.0

[4] See below, pp. 254–55.

has graded No. 1 and No. 2, while the quantities grading No. 3, Nos. 4–6, and "no grade" have run exceptionally high. The figures are shown in Table 2. No. 3 Northern has proved more difficult than usual to mill because the bran does not separate easily from the endosperm; and, with the wide spread between the prices of No. 3 and No. 4 Northern, some millers have found it possible to produce comparable flours more cheaply from the lower grade. The official April estimate of percentage of the crop not merchantable was 6 per cent this year, as against 5 per cent in 1926–27, and 3 per cent in 1925–26.

With respect to rye and the feed grains, developments during December–March suggest a somewhat tighter situation in Europe and North America than was envisaged earlier in the year. Data on European grain and potato crops are summarized in Table 3. Official estimates of German and Polish rye production were reduced by nearly 30 million bushels in January, and quality in several countries of western Europe now appears poorer than had been supposed.

TABLE 2.—PERCENTAGES OF VARIOUS GRADES OF CANADIAN HARD RED SPRING WHEAT TO TOTAL WHEAT INSPECTED IN THE WESTERN DIVISION, SEPTEMBER–MARCH 1923–28*

	1923-24	1924-25	1925-26	1926-27	1927-28
No. 1 Northern...	38.3	19.6	23.2	10.3	1.0
No. 2 Northern...	25.2	18.3	27.0	18.5	8.1
No. 3 Northern...	22.3	18.5	13.5	8.1	21.9
Nos. 4, 5, 6 Northern.....	9.3	28.4	4.2	5.5	18.3
Feed, etc.[a].....	3.1	1.8	1.3	2.6	1.2
No grade[b].....	1.0	11.1	28.2	48.2	44.9
Total above.....	99.2	97.7	97.4	93.2	95.4
Total inspections.	100.0	100.0	100.0	100.0	100.0

* Data from *Canadian Grain Statistics.*

[a] Includes also rejected, condemned, and no established grade.

[b] Wheat containing a higher proportion of moisture than wheat of numbered grades. Aside from higher moisture content, it may be of as good quality as the numbered grades, and is always better than feed, rejected, or condemned wheat.

Estimates of potato production were raised by about 95 million bushels; but again the quality is reported to be poor. European crops of rye, potatoes, barley, and oats still appear well above average, though the corn crop is small. By comparison with 1926, Europe has larger crops of wheat, rye, and potatoes, but smaller crops of corn, barley, and oats. Poor quality of rye, marked shortage of corn, a smaller crop of oats, and

TABLE 3.—EUROPEAN (EX-RUSSIAN) GRAIN AND POTATO CROPS, 1920–27*

(Million bushels)

Year	Wheat	Rye	Potatoes	Corn	Barley	Oats
1920.....	947	532	3,351	520	551	1,478
1921.....	1,216	758	3,078	393	566	1,509
1922.....	1,039	713	4,803	426	602	1,542
1923.....	1,249	824	3,864	475	668	1,814
1924.....	1,051	651	4,216	591	577	1,622
1925.....	1,392	938	4,756	627	694	1,794
1926.....	1,207	746	3,837	663	691	1,913
1927.....	1,263	796	4,614	485	680	1,848
Average 1909–13...	1,348	976	4,163	528	701	1,931
1922–26...	1,188	774	4,295	556	646	1,737

* Summarized from most recent official data for individual countries, as reported by the U.S. Department of Agriculture. Excludes a few minor European producers. Pre-war averages are estimates for territory within present boundaries, and include 2-year or 4-year averages for a few countries. Figures for 1927 partially estimated.

a larger live-stock population have resulted in higher prices both of rye and of feed grains this year than last,[1] while wheat prices have been lower. This situation may well have tended to encourage the use of wheat both for food and feed, and hence to support wheat prices.[2] In the United States and Canada also rye and the feed grains have sold at higher prices relative to wheat this year than last. The extent to which substitution is practiced in Europe is not well understood, and the effect of a shortage of rye and feed grains upon the demand for wheat is perhaps more easy to overestimate than to underestimate.

PROBABLE NET IMPORTS

In the absence of statistics of net imports later than February, and because the tak-

[1] Millfeed, both in Europe and the United States, has also commanded high prices. The situation has apparently been fortunate for the Canadian Pool. Sales of the immense quantities of low-grade Canadian wheat have been facilitated by the fact that English millers could employ it profitably in spite of low yield of flour, since high yield and prices of offals proved remunerative.

[2] See U. S. Department of Agriculture, *Foreign News on Wheat,* February 23, 1928; *Foreign Crops and Markets,* March 19, 1928, XVI, 360–69.

ings of several important European countries in the later months of the crop year depend upon prospects for an early or late harvest of domestic wheat, we consider a revision of our December estimates of European net imports[1] premature at this time. At best, estimates of net imports are significant not in their relation to net exports (since totals cannot be expected to balance), but because they provide a rough guide to the extent of demand in various countries.

So far as can be judged by available statistics of net imports,[2] it seems probable that complete data for the year will show our December estimates too high for the British Isles and Italy, and slightly too low for the other major importing countries of western Europe. In the first half of the year at least, it has become increasingly apparent that poor quality of wheat and the feed grain situation in central and western Europe have tended to increase human and/or animal consumption of wheat; and less obvious influences, not yet clear, have probably had their effect. Nevertheless, again for reasons not yet clear, demand for wheat has proved weaker than was earlier expected in some countries; and on the whole the quantitative demand for wheat in Europe has shown only imperceptible change. Broomhall has made no changes since November 29 in his detailed estimates of shipments to European countries, though on January 10 he increased his estimate of total shipments to Europe by 12 million bushels, and decreased his estimate of shipments to ex-Europe by a similar amount. Between November 21 and April 18, the United States Department of Agriculture estimates of net imports of European countries (July–June) were increased but slightly, from a range of 600–685 million to a range of 608–683 million.

Probable Net Exports

In the light of accumulated data on crops, trade, and stocks, revisions of our December estimates of probable net exports for the crop year may be undertaken. These are shown in Table 4, in comparison with estimates of Broomhall and of the United States Department of Agriculture. Comparisons are somewhat misleading in that Broomhall's estimates are apparently for overseas shipments, which are always lower than net exports, while the Department of Agriculture estimates apply to a crop year July–June.

Table 4.—Forecasts of Probable Net Exports by Exporting Countries in 1927–28*

(Million bushels)

Exporting area	Broomhall	U.S.D.A.		F.R.I.	
	Dec. 20	Nov. 21	Apr. 18	Dec. 20	Apr. 20
United States..	216	220-245	210-230	225	205
Canada.....	272	300-330	310-340	317	343
Argentina.....	160	120-170	140-170	151	156
Australia.....	60	55- 80	55- 80	74	65
Russia.....	8	5- 30	7- 15	20	10
Danube basin[a].	36	22- 41	22- 44	30	35
India.....	12	5- 10	8- 10	8	10
Others.....	8[b]	3- 16[c]	3- 16[c]	...	5[d]
Total.....	772	730-922	755-905	825	829

* For crop year August–July, except U.S.D.A. estimates and F.R.I. estimates of United States exports, which are for the year July–June. Broomhall's figures are for probable shipments. Dots (....) indicate items for which no estimate was made.

[a] Roumania, Bulgaria, Hungary, and Jugo-Slavia.
[b] North Africa and Chile.
[c] Algeria and Chile.
[d] North Africa, Chile, and Uruguay.

Our December estimates now appear too high for the United States, Russia, and Australia; and too low for Canada, Argentina, the Danube countries, and India. It further seems probable that net exports from other countries—Chile, Uruguay, and North Africa—will reach at least 5 million bushels. Increases and decreases in their aggregates are of about the same size; and total net exports of 829 million bushels seem likely to exceed our December estimate by only 4 million. The volume of trade for the crop year 1927–28 still bids fair to be exceeded only by that of 1926–27, some 848 million bushels; but there is now little reason to suppose that last year's figure will be equaled or surpassed. Precise forecasts are of course not yet feasible; our present revisions for each country and the total must be regarded as approximations to the middle of a range, though the range is narrower than was true in December.

[1] See Wheat Studies, IV, 124 f.
[2] See Appendix Table II, and below, pp. 244–45.

Russian net exports for the crop year now promise to fall below our December estimate of 20 million bushels. During August–March Broomhall recorded shipments of 4.8 million, with no movement in March. Shipments through the Bosporus, August–February, were 5.1 million; official net exports, August–November, were 5.2 million.[1] In spite of larger collections of grain during January–March than were obtained earlier in the year, it seems unlikely that exports in April–July will prove heavy enough to bring total net exports for the year above 10 million bushels; and a smaller figure is more probable than a larger one.

Our December estimate of net exports from the Danube countries — Hungary, Jugo-Slavia, Roumania, and Bulgaria—was 30 million bushels; but a slightly larger total now seems probable. Hungarian net exports in August–February, Roumanian in August–January, and Jugo-Slavian in August–December, were 23.2 million bushels. Confirmatory data are lacking, but a few million bushels must have been exported from Bulgaria in view of the record of recent years and the fact that the crop of 1927 was the largest since the war. Some exportation usually occurs from Hungary and Roumania in March–July, and no reason appears for supposing that there will be none this year, though Roumanian and Jugo-Slavian exports will presumably prove small. It has recently been reported that a greater relaxation of import prohibition in Poland than has prevailed in earlier months must occur in the spring;[2] under existing commercial treaties, this would tend to widen the market for Hungarian wheat. In view of these developments, we raise our estimate of net exports from Danube countries in 1927–28 to 35 million bushels.

The prospects for Indian net exports are not clear. Broomhall has recorded shipments from India in August–March of 3.6 million bushels, and shipments to India of 1.5 million. Exports, gross for all months but October, were officially reported at 4.5 million bushels in August–January.[3] If the crop now being harvested proves as large as present indications suggest, exports of more than 5 million bushels may reasonably be expected in May–July, especially in view of considerable activity in chartering reported in Karachi. We are tentatively disposed to raise our December estimate from 8 to 10 million bushels.

In view of official estimates of large crops in Chile and Uruguay, it now seems possible that about 5 million bushels—rather more than less—may be exported net during the year from these countries and North Africa. Crop statistics available in December did not justify an estimate at that time.

Considerable variations in the seasonal movement of Australian net exports in recent years of small crops like that of 1927, and the absence of direct estimates of carryovers, combine to render difficult any reliable estimate of probable net exports during April–July this year. In four of the past six years when crops have ranged from 110 to 129 million bushels, net exports during April–July have averaged 25 million. The crop estimate for 1927 has been revised downward from 115 to 109 million bushels; consequently there is a reduction in the quantity of wheat available for export. No good reason appears for supposing that stocks on August 1 will be abnormally large or small; favorable seeding conditions, low freight rates, and the recent advance in import prices, favor exportation rather than accumulation of stocks. We therefore anticipate a larger export in April–July 1928 than occurred in the last third of 1922–23 or 1925–26[4] (18 and 22.7 million bushels respectively), and tentatively place the figure at 25 million. On this calculation, since exports during August–March were about 40 million bushels, exports for the crop year would reach 65 million bushels, or 9 million below our December estimate.

For Argentina also variations in the April–July export movement have been rather large in recent years, and no direct estimates of stocks are made. Net exports of about 113 million bushels were made in August–March from a crop and carryover of about 300 million. Our estimates for seed,

[1] See *Foreign Crops and Markets*, March 26, 1928, XVI, 413.

[2] *Corn Trade News*, March 27, 1928.

[3] A net import of slightly over half a million bushels was reported in February.

[4] These are the post-war years with crops most nearly comparable in size to that of 1927. See Appendix Table I. The April–July exports in 1923 and 1926 were, moreover, abnormally small; in 1923 because the two preceding crops had been small, in 1926 because the export movement in January and February had been abnormally heavy, size of crop considered.

food, and feed, which seem reasonably accurate, total 85 million bushels; hence it appears probable that about 102 million bushels were available on April 1 for export during April–July and carryover on August 1. So far as can be ascertained, year-end stocks in Argentina vary but little, and approximate 60 million bushels. If stocks reach this figure, it seems probable that only about 42 million bushels will be exported in April–July. The quantity is small by comparison with net exports for these months of 1924 and 1927, which were 76 and 66 million bushels respectively; but it appears not unreasonable in view of the extraordinarily heavy exports in January–March. The principal uncertainties lie in possible errors in estimates of crop and carryovers, which cannot at present be anticipated; but understatements seem more probable than overstatements, and exports will presumably exceed rather than fall below our figures.

In the United States the situation is somewhat more clear, partly because data are available for 9 months of a July–June crop year. In the past six years April–June net exports have varied between 21 and 40 million bushels. The years of smallest exports were 1924, when prices were very low in March–April, and 1926, when little representative wheat was available for export throughout the year. With prices advancing at least to April 24 more rapidly in the United States than in import markets on account of unfavorable crop prospects, an active milling demand induced by the necessity of a high seasonal output, and little or no red winter or hard spring wheat available for export, April–June exports equal to those of 1927 (40 million bushels) seem improbable. On the other hand, fair quantities of Pacific and durum wheats and flour are apparently available; stocks (not held by city mills) on March 1 were larger by 60 million bushels than in 1926; and prices are presumably more conducive to movement from farms than was the case in 1924. In these two years April–June net exports were 27 and 21 million bushels respectively; exports as small as these seem improbable. During January–March, net exports of wheat as wheat were only 6.8 million bushels. In our judgment April–June net exports this year will not exceed 35 million bushels, and may prove smaller. This figure implies net exports for the year of 205 million bushels, 20 million below our December estimate. Unless the harvest is early in the United States or late in Europe, net exports for the year August–July will probably differ little from those of July–June.

Net exports from Canada for 1927–28 promise to exceed our earlier estimate of 317 million bushels by 26 million bushels. As of March 31, stocks in all positions in Canada were estimated as 220 million bushels.[1] By subtracting from total March 31 stocks the quantity of wheat required for seed, and one-third of the annual requirement for food (items which may be estimated within a small margin of error), one can reach a fairly accurate estimate of the amount of wheat available for export during April–July and carryover on July 31, though, on the basis of past experience, the amount so calculated is likely to prove too low. The calculation is as follows for the past six years, in million bushels:[2]

Crop year August–July	Stocks March 31	Seed and food	Available for export and carryover	Actual export and carryover	Discrepancy[a]
1922–23 ...	140	54	86	95	− 9
1923–24 ...	202	53	149	144	+ 5
1924–25 ...	121	53	68	80	−12
1925–26 ...	161	54	107	119	−12
1926–27 ...	176	53	123	131	−10
1927–28 ...	220	56	164	...	...

[a] Amount by which estimated supplies available on March 31 for export and carryover proved too high (+) or too low (−).

On this calculation, about 164 million bushels were available for export and carryover, probably somewhat more.

[1] See Appendix Table VIII.

[2] Data on March 31 stocks shown in Appendix Table VIII; on seed, food, and carryovers in Appendix Table XII and WHEAT STUDIES, IV, 61. The stocks reported on March 31 apparently ought to include wheat which is used for other purposes than seed, human food, export, and carryover in April–July—that is, wheat lost in cleaning and merchantable wheat fed on farms, and perhaps also unmerchantable wheat. But these items are difficult to estimate; and any allowance for such disposition increases considerably the amount by which supplies available for export and carryover calculated on March 31 stocks have proved too low (except in 1923–24).

Precisely how much of this quantity will be exported, how much carried over, of course cannot be said. Presumably the Pool has not at present an incentive to increase the carryover above that of August 1, 1927, which reached the record figure of 48 million bushels and was accumulated largely because crop prospects were unfavorable. Nevertheless some increase is probable, partly because carryovers in Canada would tend to increase (size of crops remaining constant) with growth of storage space and population; partly because the Pool policy of equalizing the flow of wheat throughout the year implies larger carryovers on July 31. Furthermore, lake navigation is opening later than usual. The carryover at the end of 1927–28 may perhaps approximate 55 million bushels; if so, exports of over 115 million bushels may be made in April–July—the largest quantity ever exported from Canada in these months. This calculation implies that the official crop estimate is too low.[1]

As appears from Table 4 (p. 239), the principal differences between our revised estimates and the latest available data of Broomhall and the United States Department of Agriculture are our lower figure for the United States and higher figure for Canada. Our estimate of probable net exports exceeds Broomhall's standing estimate of probable shipments by nearly 50 million bushels—a large discrepancy, even though shipments as recorded by Broomhall are never so large as officially reported net exports. In our judgment Broomhall's figure for shipments will prove too low, but not, of course, by so large an amount as the quantity indicated by the difference between standing estimates of shipments and of net exports.

II. INTERNATIONAL TRADE, DECEMBER–MARCH

Developments in international trade during the past four months have been such as to strengthen our belief that trade for the crop year 1927–28 will prove less heavy than in 1926–27. Under a more normal level of ocean freight rates than prevailed last year, the August–November movement proved larger than in 1926–27, the December–March movement smaller. A record proportion of the total trade for the season was shipped from North America and Argentina. Australian shipments were relatively small because of the small crop, and Russian exports were almost negligible. Noteworthy features of the period were the heavy exportation from the Pacific coast of North America, and the practical cessation of exports of wheat as wheat from Atlantic and gulf ports of the United States during the months of January–March. Among the importing countries, Italy and France imported much less wheat this year than last, while the countries of central Europe, and Brazil, and the Orient imported considerably more.

Volume and Course of Trade

The volume of international trade in wheat and flour, as measured by Broomhall's shipments data summarized in Table 5, reached 273 million bushels in December–March. Higher figures were recorded only in 1926–27, when the record total of 299 million bushels was shipped; but in 1923–24 and 1924–25 shipments were of practically the same size. This year's shipments are low by contrast with those of 1926–27 principally because exceptionally heavy shipments were necessitated in December–March last year in order to make up defi-

Table 5.—International Wheat and Flour Shipments (Broomhall) by Destinations*

(Million bushels)

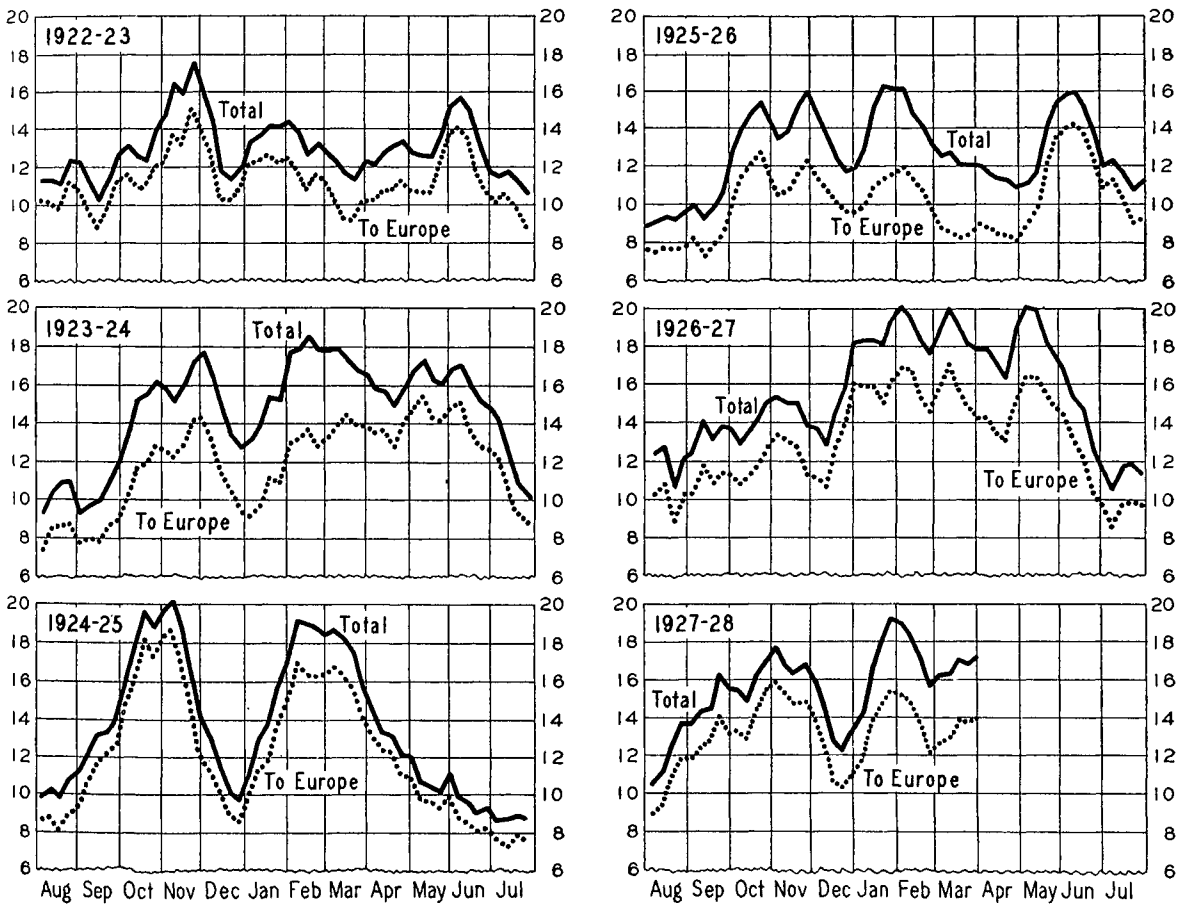
Year	December–March (17 weeks)			August–March (34 weeks)		
	Total	To Europe	To ex-Europe	Total	To Europe	To ex-Europe
1920-21..	181.4	164.9	16.5	355.6	326.9	28.7
1921-22..	223.6	180.8	42.8	441.0	365.4	75.6
1922-23..	225.9	196.0	29.9	444.7	385.2	59.5
1923-24..	270.1	203.0	67.1	492.0	380.5	111.5
1924-25..	272.0	242.1	29.9	527.0	470.5	56.5
1925-26..	234.7	175.6	59.1	442.2	342.3	99.9
1926-27..	299.1	252.8	46.3	531.9	449.1	82.8
1927-28..	272.7	222.9	49.8	524.6	443.8	80.8
Average 1909-14..	189.9	161.9	28.0	406.5	353.0	53.5
1922-27..	260.3	213.9	46.4	487.6	405.5	82.1

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

[1] See below, pp. 250–51.

cient shipments in August–November, when high ocean freight rates curtailed the export movement. Shipments during August–March have totaled 525 million bushels, only 7.2 million less than in 1926–27 and larger than in any other post-war year except 1924–25. Thus far in the crop year 1927–28 international trade has been of the volume that might have been expected in view of the size and distribution of wheat crops. Broomhall's shipments data understate net exports, especially from the Danube countries. But the understatement is presumably less important this year than last, since less wheat appears to have moved from Russia by rail and river.

CHART 1.—INTERNATIONAL SHIPMENTS OF WHEAT AND FLOUR, WEEKLY FROM AUGUST 1922*
(Million bushels: 3-week moving average)



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

The course of trade (shown in Chart 1 with comparisons for the past five years) has shown no striking features. The normal seasonal decline occurred in December with the closing of navigation on the Great Lakes. The subsequent recovery in January, as the new Argentine and Australian crops began to be shipped, was timed about as usual. It occurred later than last year, when as a result of a shortage of wheat in near positions in Europe, coupled with sharply declining freight rates, importers purchased abnormally large quantities of North American wheat; and hence North American shipments in late December and early January were large. An early harvest of Australian and Argentine crops also contributed to the earlier mid-winter increase of trade in 1926–27.

Shipments showed their normal decline in February, somewhat more marked than usual. In late February and March the move-

ment had become much smaller than that of last year. This was to be expected from the manner in which abnormally high ocean freight rates in September–November 1926 restricted exports in the first half of the crop year 1926–27 and gave rise to exceptionally heavy exports in the second half. This year ocean freight rates have remained at or below normal levels; exports were not restricted in the first half of the year, and were naturally smaller in the first part of the second half. Observers who forecast total shipments for the current crop year chiefly by reference to comparisons of shipments only in the present and preceding year have been misled by the abnormal movement of 1926–27. Not until the week ending March 3, 1928, did Broomhall's cumulative total of shipments for 1927–28 fall below that of 1926–27, the year in which trade was of record volume.

Distribution of Imports

During December–March, as appears from Table 5 (p. 242), Broomhall recorded shipments of 223 million bushels of wheat and flour as wheat to European destinations, the largest quantity in any post-war year except 1924–25 and 1926–27. August–March shipments were also larger in these two years, as might be expected in view of smaller wheat crops in Europe. In further detail, the distribution by destinations of December–March and August–March shipments to Europe in 1926–27 and 1927–28 was as follows, in million bushels:

Destination	December–March (17 weeks)		August–March (34 weeks)	
	1926–27	1927–28	1926–27	1927–28
Orders	65.5	60.6	90.4	91.3
United Kingdom	57.1	49.6	111.3	109.7
France	19.0	7.5	37.6	19.5
Belgium	17.4	18.3	34.4	43.0
Holland	21.1	23.1	44.3	53.5
Central Europe[a]	22.3	27.1	49.4	56.6
Italy	36.1	24.6	54.3	44.9
Greece and Turkey	6.3	4.8	11.6	9.8
Scandinavia	6.2	6.6	13.0	13.8
Others[b]	1.9	.6	2.8	1.7

[a] Germany, Poland, Czecho-Slovakia, Austria, etc.
[b] Spain and colonies, Portugal.

Certain contrasts, somewhat obscured because the precise destinations of "orders" shipments are not known, are of interest. Somewhat less wheat has been exported to the United Kingdom this year than last; net import data confirm the shipments data, and show 124 million bushels imported in August–February as against 128 million in the same months of 1926–27.[1] Shipments to France and Italy, especially France, have run appreciably smaller this year than last. Net import data confirm the apparent reduction in Italian shipments; August–February net imports totaled 35.4 million bushels in 1927–28, and 41.4 million in 1926–27. With the crop of 1927 officially estimated as 25 million bushels smaller than that of 1926, smaller imports this year than last are difficult to explain. A larger carryover into the crop year, better quality, and heavy marketings in the first half of the year presumably curtailed imports; but it remains to be seen if total net imports for the year will exceed those of 1926–27. Italian imports tend to become heavier in the second half of the year.

Net imports of France during August–February were reported larger this year than last, 35 million bushels as against 27 million—a picture quite the reverse of that given by Broomhall's data. But the shipments data reflect the actual movement of wheat to France more accurately. The regulations governing partial refund of duty in effect during portions of 1926–27 permitted importers to delay the reporting of imports until wheat had passed into consumption; this resulted in net import figures too low throughout most of 1926–27, too high during late 1926–27 and early 1927–28. French trade reports are unanimous in describing the volume of import trade actually transpiring as far smaller this year than last, though how much smaller cannot be suggested.

The countries of central and northern Europe, on the other hand, have thus far imported more wheat in 1927–28 than in 1926–27—not because crops or carryovers were smaller, but because quality was poorer, and perhaps also because high prices for rye and feed grains have tended

[1] See Appendix Table II for net imports of European countries by months.

to encourage consumption of wheat. Total net imports into Germany, the Scandinavian countries, Belgium, Holland, Switzerland, and Czecho-Slovakia were 138 million bushels in August–February 1927–28 as against 116 million during the same months of 1926–27. So far as can be judged by incomplete data, increased imports into these countries have not sufficed to offset decreases in others; hence for the first two-thirds of the crop year, net exports as well as Broomhall's shipments to European destinations have presumably been smaller this year than last.

Shipments to ex-European destinations, 49.8 million bushels during December–March, were slightly larger than last year's, but 9 million bushels below the shipments for these months of 1925–26, and 17 million below the record post-war shipments of 1923–24. As appears from the following figures, which show in million bushels shipments to the more important importers in December–March and August–March 1927–28 and 1926–27, larger shipments were made to Brazil and the Orient, smaller to Egypt, the East and West Indies and Central America, and Africa.

Destination	December–March (17 weeks)		August–March (34 weeks)	
	1926–27	1927–28	1926–27	1927–28
Brazil	6.6	9.5	14.0	18.0
Egypt	3.4	2.5	6.2	5.4
Orient[a]	9.2	14.6	21.1	21.2
Africa[b]	2.6	2.2	4.3	3.7
Central America[c]	23.3	19.3	35.7	30.4
Others[d]	1.2	1.7	1.4	2.1

[a] China and Japan.
[b] North and South Africa.
[c] Includes West Indies, Venezuela, Dutch East Indies, etc.
[d] Includes Chile, India, Syria, Peru, and New Zealand.

For the August–March period, total shipments have run slightly smaller this year than last, but not so much smaller as seemed probable earlier in the year, when shipments to the Orient, in view of a good wheat crop in Manchuria and large rice crops, promised to fall below those of 1926–27. Apparently Japanese importers have found c.i.f. prices attractive enough to justify some accumulation of wheat stocks, though scanty information renders uncertain any explanation of developments in the Far East.

Sources of Exports

In accord with the good crops harvested in the United States, Canada, and Argentina, and the small crop of Australia, the first three countries provided an exceptionally large proportion—85 per cent—of the world's shipments during December–March. Only in 1922–23, when the Australian crop was as small as in 1927–28, and exports from the Danube basin were even smaller, was the proportion furnished by the two Americas equally high. The data (Broomhall's shipments, with official data for net exports from Canada and the United States) appear in Table 6 (p. 246).

The remaining 15 per cent was provided chiefly by Australia, from which 27.4 million bushels, 10 per cent of the total, were exported—the smallest quantity since 1922–23. India, as usual when the crop is not large, shipped only negligible quantities, and imported a little wheat from Australia. According to Broomhall's data, Russia exported less than a million bushels in December–March as compared with 4.8 million in the same period of 1925–26 and 20.4 million in 1926–27.[1] The causes have apparently been a lack of credit facilities, and a breakdown of the collecting campaign due largely to the unwillingness of peasants to part with wheat while prices of manufactured articles remained disproportionately high, rather than a notably deficient crop or low stocks on farms. Shipments from the Danube countries of 10 million bushels were but slightly smaller than those of 1926–27, despite smaller crops in Roumania and Jugo-Slavia and the absence of any exceptional tendency of importers to seek wheat near at hand to escape high freight rates. The good quality of wheat in the Balkans this year has apparently stimulated exportation, particularly of flour. Roumanian exports may have been stimulated by a reduction of the export tax, effective October 20, 1927, from about 11 to 6 cents per bushel on wheat; the tax on flour was also reduced, and now stands at about 17 cents per barrel.

Shipments from Argentina of 82.3 million bushels were of record size for the second

[1] In these earlier years, some wheat not accounted for by Broomhall was exported overland; but thus far this year the facts, much less the quantities, are not known.

third of the crop year. The previous record was made in 1924–25, when 66.2 million bushels were shipped from a crop nearly 30 million bushels smaller, under the influence of exceptionally high prices. In 1923–24, when the Argentine crop of 248 million bushels was some 9 million larger than the crop of 1927 (as now estimated), low prices and relatively high ocean freight rates served to restrict December–March shipments to 55.9 million bushels. This year the wheat is never exported in volume during the winter on account of closed navigation on the Great Lakes, and since the spread between Chicago and Liverpool futures was almost as far below a shipping difference this year as last, the comparatively small volume of wheat exports from non-Pacific ports this year is to be explained by the higher cash prices of hard red winter and soft red winter wheat. Last year during December–March the average cash prices

TABLE 6.—INTERNATIONAL SHIPMENTS AND NET EXPORTS OF WHEAT AND FLOUR FROM PRINCIPAL EXPORT AREAS, DECEMBER–MARCH 1920–28*

(Million bushels)

Dec.–Mar.	International shipments (Broomhall)							Net exports from	
	Total	North America	Argentina	Australia	Russia, Danube	India	Other[a]	United States	Canada
1920-21	181.4	128.3	16.3	28.2	0.3	8.3	0.0	76.0	75.1
1921-22	223.6	119.5	50.9	44.6	1.4	0.0	7.2	47.3	65.8
1922-23	225.9	139.8	53.0	24.8	1.5	6.6	0.2	49.0	84.3
1923-24	270.1	159.6	55.9	33.3	15.4	0.6	5.3	34.6	117.0
1924-25	272.0	117.0	66.2	60.3	11.4	15.1	2.0	63.4	61.9
1925-26	234.7	128.8	33.1	41.3	7.6	0.0	23.9[b]	21.8	116.4
1926-27	299.1	159.3	61.0	49.3	19.0	0.3	10.2	42.3	100.6
1927-28	272.7	149.3	82.4	27.4	1.7	0.0	11.9	32.1	113.2

* Shipments are for 17 weeks, from Broomhall's *Corn Trade News*. Net exports are official data.

[a] In several years apparently includes some shipments from Russia and the Danube basin. In another table Broomhall gives the following distribution, in million bushels, for 1926–27, Russia 20.4, Danube 10.4, North Africa and Chile 0.4; for 1927–28, Russia 0.8, Danube 10.0, North Africa and Chile 2.0.

[b] Includes shipments from Hungary and Germany.

combination of a large crop harvested under favorable weather conditions, low ocean freight rates, and acceptable prices has caused the largest mid-winter movement in history. Because of its relatively good quality as compared with Canadian, Argentine wheat has been more favored by importers than usual, and forward sales of exceptionally large volume are said to have been made in October–December.

Net exports from the United States in December–March totaled only 32 million bushels as compared with 42 million in 1926–27. The quantity seems small in view of the higher visible supplies and the larger crop this year.[1] Export business in wheat as wheat was practically negligible from the Atlantic and gulf ports of the United States; only 1 million bushels were exported as against 17 million last year. Since spring of No. 2 Red Winter at St. Louis was $1.25 and of No. 2 Hard Winter at Kansas City, $1.36; and parcels prices in the United Kingdom averaged $1.61. This year, with United Kingdom prices averaging only $1.48, No. 2 Red sold for $1.53 and No. 2 Hard for $1.34.[2] Flour, however, was exported in about equal volume in both years. Exports from the Pacific coast in December–March, as the following official data in thousand bushels show, were exceptionally large as a result of the good crop harvested there, though not so large as in 1923–24, when the crop was still larger:

	1923-24	1924-25	1925-26	1926-27	1927-28
Wheat	11,276	2,942	6,139	6,786	10,388
Flour as wheat	13,649	3,765	3,487	3,924	5,852
Total	24,925	6,707	9,626	10,710	16,240

Canadian net exports of 113.2 million bushels were of only slightly smaller vol-

[1] The crop of 1926, however, may perhaps have been underestimated.

[2] See also Charts 3 and 5, pp. 252, 255.

ume than in 1923–24 and 1925–26, but 12.6 million bushels larger than in 1926–27. A somewhat heavier movement both for December–March and for the season as a whole might have been expected in view of the second largest crop in history and a carryover of record size; but the late and wet harvest curtailed exports noticeably in October, and to a lesser extent in November and December as well. Heavy exports in January–March—some 12 million bushels larger than the previous high record for post-war years established in 1925–26—failed to bring the export movement for the season up to the level suggested by the crop and carryover data. The record exportation of January–March, after the closing of lake navigation, was made possible chiefly by the huge crop in Alberta, which made wheat (preferred by European importers over wheat from Saskatchewan and Manitoba because of its better quality) readily available for shipment from Vancouver and Prince Rupert. These ports have shipped 63.0 million bushels of wheat (including flour) in August–March, some 4.3 million more than was shipped in twelve months in 1923–24 and 1925–26, the years in which Pacific coast shipments previously had been the largest. No conclusive evidence appears to demonstrate that the Pool has deliberately restricted the export movement by restricting sales, thus building up stocks to the high level of the last four months.

III. MARKETING AND STOCKS

Except in several countries of western Europe, where wheat prices have been disappointingly low to producers, wheat has apparently moved with normal rapidity from farms to central markets. In Canada, where the early movement was delayed by a late and wet harvest, marketings became exceptionally heavy in December–March. The crop year began with exceptionally high stocks in most positions throughout the world, and this situation has continued. Visible supplies, so far as they are recorded, attained the highest level in history throughout December–March; stocks afloat of only fair size were more than counterbalanced by the exceptionally high figures for the United States and Canada. The large visible supplies of wheat led European millers and bakers, and flour buyers in the United States, to restrict their purchases in the hope of lower prices, until unfavorable crop prospects altered expectations of price declines. Official estimates of Canadian stocks as of March 31 suggest an official underestimate of the Canadian crop. Abnormally low flour stocks in the United States and a relatively low level of milling output during the first two-thirds of the year point to exceptional milling activity in the last third.

European Marketing and Stocks

The movement of wheat from farm to market in 1927–28 appears to have been slow in several European countries, principally because farmers have not been satisfied with current low prices. As a result, country stocks remained somewhat higher than usual, at least where crops were of good size. The situation differs from country to country, however; and at best the available statistical information is scanty.

In England, despite a crop larger than those of the three preceding years, smaller quantities have been marketed. Wheat of poor quality, which constitutes a large proportion of the crop, has not been sought by millers; and prices have been low. From August 1 to the end of March farmers' deliveries of wheat were as follows for the past four years, in thousand bushels:[1]

1924–25....15,162	1926–27....18,320
1925–26....20,121	1927–28....14,262

The movement, however, was more rapid in December–March than in August–November —8,255 thousand bushels as against 6,007 thousand, or 37 per cent larger. Last year, when millers sought wheat near at hand in order to avoid high costs of transportation from overseas sources, December–March deliveries were only 9 per cent larger than in August–November. As of January 1, 1928, farm stocks in England and Wales were estimated (unofficially) as 26.8 million bushels as against 20.9 million last year. Slightly smaller marketing in Jan-

[1] Data from the *Corn Trade News*.

uary–March this year than last imply larger farm stocks at the end of March.

In Germany, as in England, the wheat crop of 1927 was of poor quality and brought low prices, and marketing was slow. Percentages of the winter-wheat crop remaining in farmers' hands and destined for sale were estimated as follows for 1926–27 and 1927–28:[1]

	Nov. 15	Jan. 15	Feb. 15
1926–27	31.3	24.5	16.9
1927–28	45.6	38.3	30.6

The percentages for February 15, applied to the official crop estimates, imply salable farm stocks in mid-February of some 16 million bushels in 1927, and 37 million in 1928.

The collecting campaign in Russia was relatively unsuccessful until about the middle of January; only 126 million bushels of wheat were collected in July–January this year as against 168 million in 1926–27. Various explanations have been advanced, the most significant being the smaller crop; the low prices of wheat and other cereals as compared with animal products, oil seeds, and manufactured products; a general disposition among peasants to build up stocks; a reduction in agricultural taxes, which are payable in money; and ineffective working of the collecting agencies.[2] But for reasons not yet clear collections became very large in subsequent weeks, and were not far below the high figures of 1927 by the end of March. Stocks in the hands of peasants were probably high at the end of March, if the process of accumulation so often noted by observers in the past two years has continued. Whether or not they were as high as in pre-war years is uncertain, especially if pre-war official estimates of wheat production are to be regarded as much too low.

For other countries data on marketing and stocks are even less satisfactory. Danish farmers are reported to have marketed freely from a large crop. In Italy the movement appears to have been rapid until late January, when growers were holding in expectation of higher prices. Except for a brief period in December, French farmers apparently followed the advice of the producers' association—neglected in the first third of the year—and have not pressed their offers; stocks are thought to be above average in size. Dissatisfaction with prices has prevailed in Roumania and Hungary, but since the export movement has been of good volume, there is little reason to suppose that exceptionally large stocks have been accumulated.[3]

Visible Supplies

The unusually large supplies of commercial stocks of wheat have constituted one of the most notable features of the period under review. The principal elements of world visible supplies are shown in Chart 2 (p. 249).

For the past four months the United States visible (Bradstreet's) has run about 20 million bushels larger than in 1926–27, chiefly because of the much larger spring-wheat crop, which is more largely represented in the visible than is the winter-wheat crop.[4] Larger receipts at primary markets[5] and a smaller movement to export in December–March[6] have also contributed to maintain visible supplies at a high level. In March the United States visible reached the highest level since 1919, though for earlier months the level of 1924–25 had been higher than that of 1927–28 on account of heavier marketing in the earlier year. Under the influence of rising prices, marketing during February and March 1928, as indicated by receipts at primary mar-

[1] Unofficial data collected by the Preisberichtstelle beim Deutschen Landwirtschaftrat.

[2] For a more detailed discussion, see *Foreign Crops and Markets*, March 26, 1928, XVI, 399–401.

[3] In Hungary, indeed, the visible supply of wheat and flour has been estimated as 1,972 thousand bushels on January 7, 1928, as compared with the larger figure of 2,032 thousand on January 31, 1927.—*Pesti Naplo*, January 18, 1928. The same source, on March 14, 1928, stated that farmers had little wheat in reserve.

[4] An illustration of the heavy accumulation of spring wheat this year in the visible supply is provided by the following figures which show in thousand bushels as of the end of March for the past six years, wheat visible at Duluth and Minneapolis as compared with the total Chicago Board of Trade visible:

Year	Duluth and Minneapolis	Total United States	Year	Duluth and Minneapolis	Total United States
1923	25,617	45,785	1926	15,852	33,674
1924	20,870	59,549	1927	19,771	48,653
1925	25,669	60,007	1928	41,624	67,364

[5] See Appendix Table V.

[6] See Table 6, p. 246.

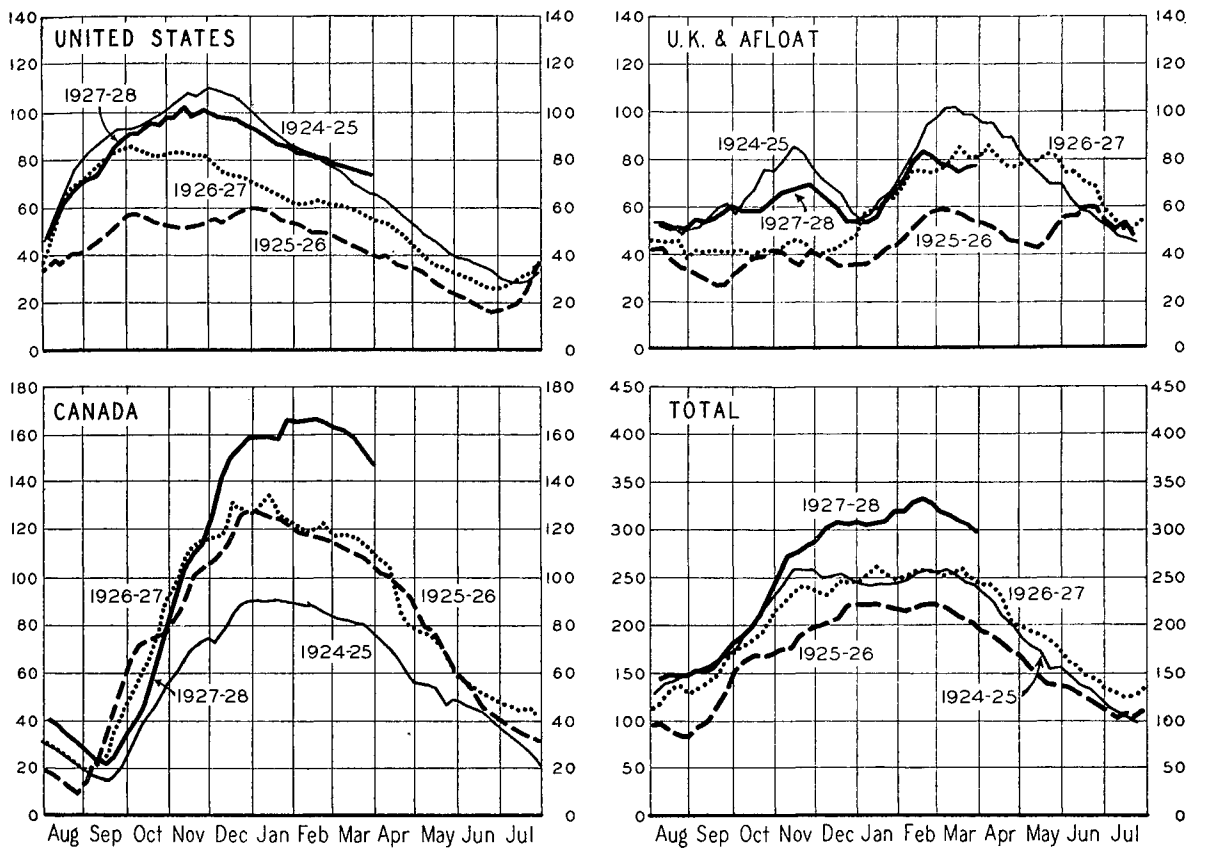
kets, has been the largest in the past five years.

Stocks on farms and in country mills and elevators, officially estimated as 130 and 74.1 million bushels respectively as of March 1, were not so large by contrast with earlier years as was the visible.[1] Stocks on farms were larger in every post-war year except 1919, 1925, and 1926; and stocks in country mills and elevators were slightly smaller than in any other post-war year except 1925. As compared with 1927, stocks both on farms and in country mills and elevators were lower in all regions except the spring-wheat belt and the Pacific northwest.

Canadian visible supplies reached the highest point in history in December, and were maintained above 160 million bushels for seven weeks in January, February, and March. The previous high record was established in January 1924, when visible supplies in Canada were maintained at a level of about 140 million bushels throughout the month.[2] Higher figures in 1927–28 than in the two preceding years were to be expected in view of the larger crop; but the crop of 1923, according to the official estimates, was 34 million bushels larger than the crop of 1927. The abnormally large visible supplies this year as compared with 1923–24 are attributable principally to the delay in harvesting and the retarded movement from farms to terminal markets. Up to December 1, 1927, combined receipts at Fort William, Port Arthur, Vancouver, and Prince

CHART 2.—VISIBLE WHEAT SUPPLIES IN THE UNITED STATES, CANADA, AND UNITED KINGDOM PORTS AND AFLOAT TO EUROPE, WEEKLY FROM AUGUST 1924*

(Million bushels)



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

[1] See Appendix Table VIII.

[2] See Chart in WHEAT STUDIES, III, 106.

Rupert were only 151 million bushels as compared with 176 million in 1923. By April 1 the position had been altered, and receipts totaled 278 million bushels as against 277 million in 1923–24; December–March receipts of 127 million bushels were 27 million larger than in 1923–24. The delay in marketing earlier in the season prevented as large a movement to export before the close of navigation as would otherwise have occurred, and exceptionally heavy exportation through Pacific coast ports in January–March did not suffice to reduce visible supplies to a level comparable with that of 1923–24, though such a level or a lower one might have been expected from comparison of the size of crops alone. There is small reason to suppose that the Canadian Pool has this year deliberately restricted sales, at least to any appreciable degree. How much wheat the Pool sold on the futures market during the period of rising prices in February–March, or how much for shipment at the opening of navigation, is unknown; but the trade supposes transactions to have been large. Whether or not the large visibles will eventually prove embarrassing to the Pool depends upon new-crop prospects in the Northern Hemisphere and upon the course of prices during ensuing months. It is possible on the one hand that sales for shipment after the opening of navigation have been and will be so large that a record export will occur in April–July and the carryover out will not prove embarrassing; and on the other hand, if sales have not been exceptionally large and good crop prospects lead European importers to curtail their purchases, exports may be only of average size and the carryover many million bushels larger even than in 1927. In our judgment the former alternative is the more probable.[1]

Stocks afloat for Europe and in ports of the United Kingdom have run only moderately high. These stocks are in large part determined by the volume of shipments from the distant exporting countries, especially Australia and India. In 1924–25 and 1926–27, when stocks afloat for Europe and in ports of the United Kingdom were higher than this year, shipments in December–March from these countries were 75.4 and 49.6 million bushels, respectively, as compared with 27.4 million in 1927–28. Stocks in ports of the United Kingdom,[2] which were reduced to fairly low levels during January and February before arrivals from the Southern Hemisphere became heavy, were increased during March; on April 1 they stood at 7.7 million bushels, about an average figure and well above those of 1927. Although precise information is lacking, roughly the same situation has apparently prevailed in continental ports.

Principally on account of the huge visible supply in Canada, the combined total of visibles in North America, afloat for Europe, and in United Kingdom ports has run over 50 million bushels higher than in any of the past three years and 25–50 million bushels higher than in 1923–24. A different statement, including visible supplies in Argentina and Australia together with some flour stocks in the United States, yields a less marked contrast.[3] As of April 1, world visible supplies aggregated 382 million bushels, the largest in post-war years, but only 38 million larger than in 1927, and 23 million larger than in 1924 and 1925. Relatively small visibles in Australia, the result of a small crop, have in some degree offset the larger visibles in North America. On April 1, 1927, Australian visibles were 53 million bushels, but only 36 million in 1928.

Canadian Stocks and the Crop Estimate

The official estimates of Canadian stocks in all positions as of March 31 showed the largest total in post-war years, 220 million bushels.[4] Last year the figure was 176 million, and 202 million in 1924, when stocks had previously been highest. The data are of interest for their bearing on the accuracy of the official crop estimate of 440 million bushels.

From an apparent total supply of wheat of 488 million bushels (a crop of 440 million plus a carryover of 48 million), 226 million bushels of wheat had left Canada as net exports of wheat and flour between August 1 and March 31. Thus 262 million bushels apparently were available to cover stocks

[1] See above, p. 242.
[2] See Appendix Tables VI and VII.
[3] See Appendix Table VII.
[4] See Appendix Table VIII.

in all positions on March 31, and also to provide for wheat used for food and feed in the eight months ending March 31. Since stocks on March 31 were actually reported as 220 million bushels, a supply of only 42 million bushels was apparently available for use as food and feed during these eight months. Wheat milled for domestic consumption may be estimated at 45 million bushels for the crop year; two-thirds of this quantity, or about 30 million bushels, had presumably been consumed in August–March. Hence only 12 million bushels would remain to cover unmerchantable grain, grain lost in cleaning, and merchantable grain fed on farms. Unmerchantable grain has been officially estimated as 6 per cent of the crop, or 26.4 million bushels, and grain lost in cleaning as 3 per cent of the crop, or 13.2 million. If, as seems reasonable, two-thirds of each of these quantities, a total of 26.4, had been consumed by March 31, and only 12 million bushels were apparently available to cover not only these items of disposition, but also the quantity of merchantable wheat fed on farms, the evidence suggests that the standing crop estimate is somewhat too low.

United States Flour Stocks and Their Significance

Stocks of flour in the United States appear to have been extremely low on March 1. Stocks in distributive channels March 1, at 6,970 thousand barrels (Russell's estimate), were at about the usual level for the season, but stocks elsewhere appear to have been below the low point of last July.[1] Mill output during the eight months of July–February was about 80.2 million barrels, while net exports (calculated to include shipments to possessions) were 9.7 million barrels. The balance remaining for domestic consumption falls about one million barrels short of our estimate (71.7 million barrels) of the actual consumption for the period. On this calculation, total flour stocks in the country March 1 appear to have been about one million barrels lower than on the previous July 1.

This situation contrasts sharply with that of the previous four years, as shown in the accompanying tabulation, in million barrels:

July–February	1923–24	1924–25	1925–26	1926–27	1927–28
Output	83.6	85.3	81.2	83.1	80.2
Net exports[a]	12.9	10.4	7.1	9.9	9.7
Domestic disappearance	70.7	74.9	74.1	73.2	70.5
Consumption	67.7	68.4	69.4	70.4	71.7
Remainder (apparent increase in stocks)	+3.0	+6.5	+4.7	+2.8	−1.2

[a] Includes shipments to possessions.

With full allowance for possible error in the estimates of flour output and of consumption, there still appears to be no ground for supposing that total flour stocks in the United States on March 1 were materially above the low level usually reached only in midsummer. There is therefore little possibility of further reduction in flour stocks; and mill output during March–June must provide for nearly the full amount of domestic consumption and net exports, probably in the neighborhood of 40 million barrels. This would require in the neighborhood of 187 million bushels of wheat, some 19 million bushels more than were milled in the same four-month period of last year.

IV. WHEAT PRICE MOVEMENTS

The Level of Wheat Prices

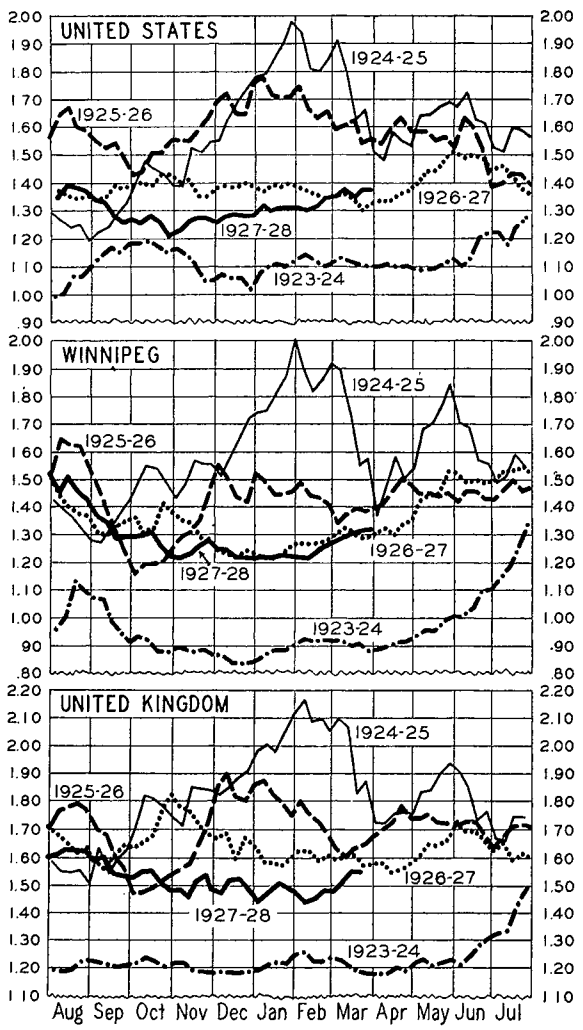
Levels of cash wheat prices in December–March 1927–28, by comparison with the levels of earlier years, have shown strikingly different relationships between different countries and for different types and grades of wheat. Chart 3 shows weekly comparisons of parcels prices in the United Kingdom, of weighted average prices in United States markets, and of the prices of No. 3 Manitoba Northern at Winnipeg for the past five years. English (and presumably continental) importers have been able to obtain wheat at an average price lower than in any of the past five years except 1923–24, some 13 cents per bushel lower than in 1926–27. Monday quotations of

[1] See Appendix Table IX.

standard straight-run flour in London during December–March averaged $7.09 per barrel, as against $6.66 in 1922–23, $5.76 in 1923–24, $9.08 in 1924–25, $8.19 in 1925–26, and $7.65 in 1926–27. This flour is made from wheats of various types and grades, so blended as to result in a flour of uniform quality produced at the lowest possible cost; its price constitutes in a sense an accurately weighted wheat price. Lower wheat and flour prices in the United Kingdom this year than last bear witness to a slightly easier international statistical position—a position distinctly easier than in 1924–25 or 1925–26, but not so easy as in 1923–24.

CHART 3.—WEEKLY AVERAGE CASH PRICES OF ALL CLASSES AND GRADES OF WHEAT IN FIVE PRINCIPAL UNITED STATES MARKETS, OF NO. 3 MANITOBA NORTHERN IN WINNIPEG, AND OF SALES OF PARCELS OF ALL CLASSES OF WHEAT IN THE UNITED KINGDOM, FROM AUGUST 1923*

(U. S. dollars per bushel)



* Data from *Crops and Markets, Canadian Grain Statistics,* and *London Grain, Seed and Oil Reporter.* United States prices are weekly weighted averages from six markets since the first week in January 1927.

Nevertheless, available data suggest that wheat prices in exporting countries have not been so far below last year's as was true in the United Kingdom. No. 3 Manitoba Northern at Winnipeg has sold at almost the same prices this year as last. No. 1 Manitoba brought even higher prices, and has been so scarce that spot prices at Liverpool have not been quoted for many weeks of the period. Barletta wheat at Buenos Aires was only 2–4 cents cheaper in 1927–28 than in 1926–27. In the United States, No. 2 Hard Winter brought, on the basis of monthly averages of weighted weekly prices, only 2–6 cents less per bushel in December–February this year than last, and sold for higher prices in March. No. 2 Red Winter at St. Louis has been appreciably dearer. No. 1 Dark Northern at Minneapolis was cheaper by 4–11 cents this year than last until March; but this grade, like No. 2 Amber Durum, which has been over 30 cents per bushel cheaper this year, is exported to the United Kingdom in quantities too small to affect the price of parcels there. Australian wheat prices were apparently quite as high this year as last in view of the smaller crop.[1] So far as can be ascertained, cash wheat prices in exporting countries, with the possible exception of spring and Pacific wheats in the United States, seem to have been relatively higher by comparison with cash prices last year than has been true in the United Kingdom.[2]

This circumstance seems explicable only by reference to lower ocean freight rates during December–March 1927–28 than in the corresponding period of 1926–27, when the effects of the British coal strike were still in evidence. For this period of 1926–27 and December–February 1927–28, averages

[1] Based on prices of bagged wheat per bushel at country points, as given in *The Land.* In January–February 1927, prices ranged from 4*s.* 5*d.* to 4*s.* 9½*d.*; in the same months of 1928, from 4*s.* 5*d.* to 4*s.* 9*d.*

[2] For the price comparisons upon which the above paragraph is based, see Chart 5 (p. 255), and Appendix Table X (cf. Appendix Table XI in WHEAT STUDIES, III, 298).

of Friday rates on four important export routes were as follows, in cents per bushel.[1]

	1926–27	1927–28
Northern Range to U. K....	10.0	7.0
Northern Pacific to U. K...	25.1	20.0
La Plata down river to U. K.	20.8	13.9
Australia to U. K.....	31.8	22.5

Lower ocean freight rates this year than last have apparently reduced the spread between export and import prices of wheat; but to whose advantage, it is impossible to say. Had ocean freight rates remained at last year's level, cash wheat prices in the United Kingdom might have ruled above the level that has actually prevailed, while cash wheat prices in exporting countries remained the same; or export prices might have proved lower, and import prices the same. The truth perhaps lies somewhere between the two extremes.

In the major importing countries of Europe, prices of domestic wheat, as compared with the prices prevailing in the second third of 1926–27, have been extraordinarily low.[2] December–February prices this year and last averaged as follows, in terms of gold dollars:

	1926–27	1927–28
Great Britain.....	$1.55	$1.28
France	1.82	1.57
Italy	2.18	1.92
Germany	1.73	1.51

These reductions, 20 cents per bushel or more in each country, cannot be explained simply by reference to lower prices of import wheats, which (in Great Britain at least) have averaged only about 10–13 cents lower than in 1926–27. There have been no reduction of tariff duties; in France, indeed, the duty has been higher this year than last. In France, Germany, and England larger crops of wheat containing higher proportions of poor-quality grain apparently explain the situation. Domestic wheat has been not only more plentiful but also less satisfactory for milling. In Italy, however, where the crop was estimated some 25 million bushels smaller in 1927 than in 1926, and quality was better, this explanation fails. There was a large carryover into the crop year; marketings (partly from the carryover) appear to have been exceptionally heavy in the first half of the year; and millers have not been forced to bid up prices in order to obtain ample supplies.

These relationships aptly illustrate the need for qualification of statements respecting the level of "world" wheat prices in different years. Thus far in 1927–28 wheat prices in general have ruled unmistakably lower than in 1926–27. But relative cheapness is most obvious with respect to domestic wheats in western Europe; it is unmistakable but less marked with respect to import wheats in the United Kingdom; it is fairly clear in the United States, though not for all varieties and grades; and it is scarcely perceptible in Canada, Argentina, and Australia.

The Course of Prices

Chart 4 shows the course of futures prices in the world's leading markets. As we anticipated in our December survey, fluctuations were small until prospects for new crops began to exert an influence—this year, as it happened, as early as mid-February. Throughout December and January, prices of the May future fluctuated within a 7-cent limit in Chicago, and within a narrower limit still in Liverpool and Winnipeg. Feeling themselves secure in the face of the largest visible supplies in history, European importers pursued a policy of leisurely though by no means niggardly purchasing. Speculative activity in the United States, as evidenced by the volume of futures trading, was at the lowest level since 1923–24, and practically as low as in that year until a revival occurred in March.[3] In late January and early February futures prices declined about 6 cents per bushel in Liverpool as purchasing continued inactive and large shipments were made from Argentina; but this decline was not followed to its full extent in other markets.

After the first week in February, prices

[1] Computed from Friday rates published in *International Crop Report and Agricultural Statistics*. The 1927–28 average does not include the last two weeks in February.

[2] See Appendix Table XI.

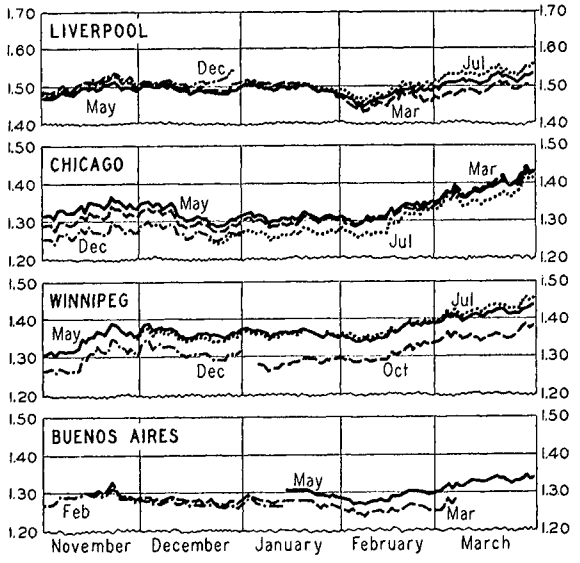
[3] The average daily volume of trading in wheat futures in all United States markets from December to March 1923–24 to 1927–28 has been as follows in million bushels:

	December	January	February	March
1923–24.....	21.1	14.3	18.1	22.8
1924–25.....	58.8	73.4	81.0	87.4
1925–26.....	90.3	60.6	58.3	69.0
1926–27.....	37.4	28.2	26.4	34.1
1927–28.....	20.9	15.4	22.1	34.2

in all markets tended definitely upward. The February–March advance was most extreme in Chicago, where the May future advanced 15 cents from February 4 to March 31. In Winnipeg the advance amounted to 10 cents; in Liverpool, to 9 cents; in Buenos Aires, to 7 cents. The principal cause of the advance was the increasingly unfavorable outlook for winter-wheat crops, chiefly in the United States east of the Mississippi, but also in western Europe.

CHART 4.—DAILY CLOSING PRICES OF PRINCIPAL WHEAT FUTURES IN FOUR LEADING MARKETS, NOVEMBER–MARCH 1927–28*

(U. S. dollars per bushel)



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

Partly because of the new-crop outlook, but also because stocks of import wheat were being depleted, European purchasing became active in early February. Rumors—officially denied the next day—that Russia was upon an import basis were circulated on February 16, and tended to strengthen prices. In the United States milling demand for cash wheat strengthened perceptibly as milling activity increased from the abnormally low seasonal levels of the winter months.[1] Throughout March the evidence of excessive winterkilling and low condition of the soft red winter-wheat crop in the United States became increasingly convincing, and dominated world price movements. Speculative buying increased in volume.

The upward movement of prices was continued and indeed accelerated in April. Private reports on condition issued around the first of the month were regarded as bullish; the official report issued April 10 even more so. By April 27 the May future at Chicago sold for $1.64, fully 39 cents above the low point reached on December 24; and the July option was only a trifle lower. Apparently this considerable increase occurred almost entirely on the strength of unfavorable reports of winter-wheat prospects in the United States alone. Futures prices in Winnipeg and Liverpool failed to follow the advance in Chicago to its full extent, despite an adverse spring in Europe.

UNITED STATES CASH PRICES

Cash prices of representative wheats in the United States during December–March, as shown in weekly averages in Chart 5, have fluctuated more widely than futures prices, or than cash prices in 1926–27. No. 2 Amber Durum, chiefly on account of the larger crop, has continued to sell at prices much below those of last year, and (except for a period in December and early January) below the prices of other grades shown in the chart. The relative positions established in September prevailed in subsequent months. No. 2 Red Winter has maintained and increased its premium over No. 1 Dark Northern; and the latter has sold at higher prices than No. 2 Hard Winter. In March No. 2 Red Winter rose to the highest premium over No. 1 Dark Northern recorded in the past three years; in the last week of March the spread was 29 cents per bushel, as compared with 17 cents in the last week of January 1926, when the spread was previously widest. Like futures prices, cash prices of all four grades advanced rather sharply after mid-February. The relatively sharper increase of prices of No. 2 Red Winter reflects the fact that the soft red winter-wheat region suffered more than other regions from unfavorable winter weather.

A significant feature of cash prices during the period has been the emergence of abnormally high premiums for protein content. This may be illustrated by reference

[1] See above, p. 251.

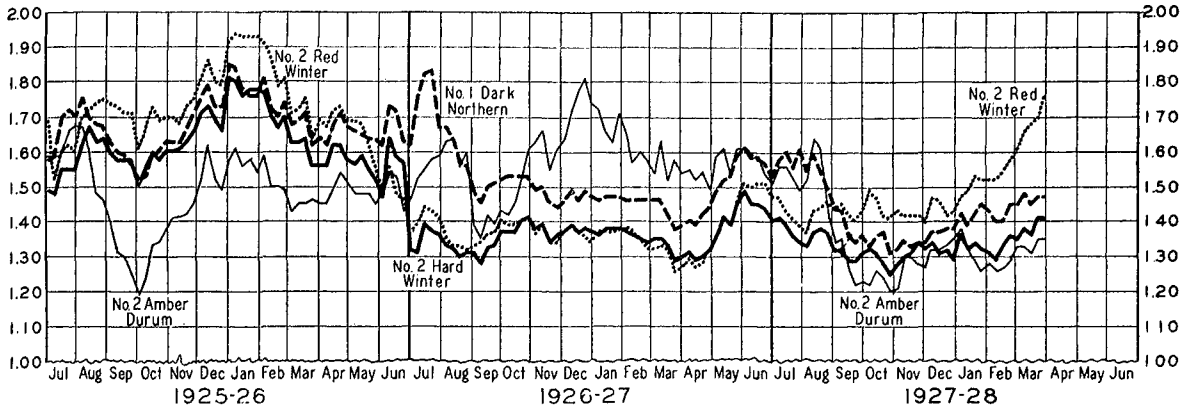
to the average daily range of cash sales prices of No. 1 Dark Northern spring wheat at Minneapolis for a single week in February in each of the past six years, in cents per bushel:[1]

Week ending	High	Low	Range
February 17, 1923...	142.5	123.5	19.0
February 16, 1924...	130.3	118.2	12.1
February 14, 1925...	185.2	181.6	3.6
February 13, 1926...	182.3	164.2	18.1
February 12, 1927...	150.6	142.5	8.1
February 11, 1928...	172.4	126.2	46.2

Figures for a single week may be regarded as reasonably representative; it is clear that protein premiums have run over 100 per cent higher than in any of the past five years. Approximately similar conditions have prevailed with respect to hard red and soft red winter wheats. The exceptionally wide range of prices within a grade suggests that fluctuations in weekly average prices may have been rendered unusually wide by variation in the quality of wheat sold in different weeks. Millers, measuring from 11 per cent protein content as a base, have paid as much as 10 cents per bushel premium for each additional per cent. So fine a price adjustment for protein content seems over-precise in view of the probable margin of error involved in the methods of sampling and of chemical analysis.

CHART 5.—WEEKLY AVERAGE CASH PRICES OF TYPICAL WHEATS IN UNITED STATES MARKETS, FROM JULY 1925*

(U. S. dollars per bushel)



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

V. PROSPECTS FOR 1928 CROPS

Prospects for world wheat supplies in the coming crop year 1928–29 are of course uncertain so early in the season, with nothing definite known of next winter's crop in the Southern Hemisphere, where seeding has not yet begun. The seeding of spring wheat in the Northern Hemisphere is not yet complete; and harvest of winter wheat is still from one to four months distant in Northern Hemisphere countries except India. India and North Africa, however, bid fair to secure slightly larger crops in 1928 than in 1927. Despite an unfavorable winter, Europe may harvest a crop of millable wheat as large this year as last, in view of a larger area sown and the abnormally unfavorable harvesting weather in 1927. In the United States early prospects for winter wheat are less favorable than last year, and the crop now promises to be smaller. If spring-wheat crops equal to the average for the past six years are harvested in the United States and Canada (at present a fairly reasonable expectation), the Northern Hemisphere crop of 1928, exclusive of Russia, China, and Asia Minor, will probably prove smaller than that of 1927. But since a crop of average size is seldom har-

[1] Data from *Daily Market Record*. "High" and "low" figures represent averages of high and low cash sales reported daily, not the highest and lowest single sales reported in the course of each week.

vested in a particular year, even so much cannot be said with assurance.

India and North Africa

The first to be harvested of the wheat crops of the Northern Hemisphere, those of India and North Africa, promise to be above average in size. In India the second official estimate of area sown, 31,332 thousand acres, was a few thousand larger than the final estimate of acreage in 1927. The winter rainfall, though somewhat late, appears to have been ample; and by mid-March crop condition was reported above average on irrigated areas and average on unirrigated areas. Damage by rust and pests seems not to have become serious, though considerable damage is reported from the United Provinces. A crop equal to or larger than the moderate yields of 1926 and 1927 is in prospect. Exports, moderate in volume unless the crop proves distinctly large, may be anticipated in June and July.

Torrential rains in many parts of the French dependencies in North Africa occurred in December and to a lesser extent in the following months, and growing plants were somewhat damaged. Sowings were for a time retarded by flood conditions in Morocco and Algeria, for which official February estimates of acreage sown were slightly lower than in the past four years, though in Tunis the acreage was reported well above average. For the three countries combined, a net increase over 1927 of half a million acres is reported, and late sowings may have augmented the increase. The ample subsoil moisture already provided by the heavy winter rains may, under normal growing conditions, result in a crop above average in size, and perhaps larger than the crop of 1927.

Europe, Including Russia

In the absence of reasonably complete information on the sowing of spring wheat and the extent of abandonment of winter wheat in European countries, little can be said regarding the probable acreage remaining for harvest in 1928. The United States Department of Agriculture reports the area sown to winter wheat in nine European countries, including France, Spain, Italy, Roumania, and Bulgaria, as 49,886 thousand acres as compared with 49,128 thousand in 1927; the figure differs but slightly from the acreages of 1925 and 1926. Increases have probably occurred in most countries of western Europe except England and Germany, where wet weather delayed seeding. For Russia,[1] despite fears of greatly reduced acreage in earlier months on account of drought in some regions during the seeding season, a preliminary official inquiry made in February indicated an increase over 1927 of 8.7 per cent in the Ukraine and a decrease of 5.3 per cent in North Caucasia, districts which include about 75 per cent of the Russian winter-wheat acreage. An official estimate issued in March placed the area sown in all Russia at 27,794 thousand acres, an increase of 737 thousand over the area sown for the crop of 1927. Wheat sowings are reported to have been increased at the expense of rye and barley.

A heavier abandonment than in 1926–27 seems probable for Europe ex-Russia as a whole, perhaps sufficient to offset the apparent increase in acreage. Last year the winter was exceptionally mild and damp. This year an extreme cold wave toward the end of December in central and western Europe injured the growing crop especially in France, where snow cover was deficient, and to lesser extent in Austria and Germany. In early March a second cold wave, in the absence of snow cover in many localities, was injurious throughout central Europe and the Danube countries. Thus far it seems probable that abandonment has been heaviest in France, lightest in Italy. In several countries condition is lower than in 1927 and spring is late. Yet weather in the later growing season and at harvest is important for European crops, as appears from the course of developments last year. In view of the large acreage sown, there is reason to anticipate for 1928 a harvest within the range of 1,200–1,275 million bushels, like those of 1921, 1923, 1926, and 1927, rather than a poor crop of 1,000–1,050 million like those of 1922 and 1924, or a bumper crop of 1,392 million as in 1925.

[1] See *Foreign Crops and Markets*, March 26, 1928, XVI, 391 f. This issue contains a valuable review of the agricultural situation in Russia.

But present expectations will be modified by the weather conditions.

Information on abandonment and crop developments in Russia is scanty; but a late spring, as in other European countries, has not been beneficial. Spring-wheat acreage, which constitutes a larger proportion of the total wheat acreage than in any other European country, has not yet been reported. Soviet officials are reported to have made great efforts to insure a large acreage of spring-wheat sowings.

United States Winter Wheat

The outlook for the winter-wheat crop in the United States at this season is as usual uncertain. The area sown last autumn for the crop of 1928, officially estimated in December as 47.9 million acres, was the largest since 1923, distinctly smaller only than the area sown for 1919, and some 4.4 million acres larger than last year. The increase occurred chiefly in the soft red winter-wheat belt east of the Mississippi. In the six leading states of this region the area sown in the fall of 1927 was over 3.5 million acres larger than in 1926 or 1925. Condition for the United States on December 1 was reported as 86 per cent, as compared with 81.8 in 1926 and a ten-year average of 84 per cent. But estimates of acreage sown are sometimes subject to extensive revision,[1] and condition before the onset of winter has little relation to production in the ensuing summer.

On the whole the winter was not favorable and increasing complaints of damage and unsatisfactory condition constituted the most important single influence on the course of prices. In January insufficient moisture was reported in an area including parts of Kansas, Colorado, Oklahoma, and Texas, but subsequent rainfall, particularly in mid-February and mid-March, was distinctly beneficial. In early April conditions were generally regarded as favorable in these important producing states; but the supply of subsoil moisture is not satisfactory. The Pacific coast area enjoyed ample rainfall and apparently suffered no more than normal winterkill; in April prospects were deemed satisfactory, but not so promising as in the spring of 1927. In the soft red winter-wheat belt, especially Ohio, Illinois, Indiana, and Missouri, all indications point to exceptionally heavy abandonment on account of alternate freezing and thawing weather, without snow cover, practically throughout the winter months. Murray's April estimate of abandonment in states east of the Mississippi was 38 per cent; if such large an abandonment is confirmed by the official inquiry in May, it will nearly equal the record abandonment of 1912.

Private estimates of condition in per cent of normal, abandonment in per cent, and production in million bushels, for the United States were made as follows as of the end of March, with comparable figures for 1927:

	Condition		Abandonment		Production	
	1927	1928	1927	1928	1927	1928
Bryant	96.9	72.2	....	....	584	556
Cromwell	85.2	76.2	....	....	576	529
Murray	87.1	73.7	6.4	19.9	585	543
Snow	85.8	72.8	....	....	584	520

The official report, issued April 10, placed winter-wheat condition for the United States as a whole at only 68.8 per cent, as compared with 84.5 per cent in 1927, 84.1 per cent in 1926, 68.7 per cent in 1925, and the ten-year average of 81.9 per cent. The figure was the lowest since 1879, except for 1917 and 1925.

Estimates both of acreage sown, abandonment, condition, and production, issued so early in the season, must be regarded as imperfect indicators of final production. In 1917, for example, condition on April 1 was only 63.4 per cent and 28.9 per cent of the area was abandoned; but yield per acre was 15.1 bushels. In 1925, on the other hand, April 1 condition, 68.7 per cent, was higher and abandonment of 21.6 per cent was lower; yet yield per acre was only 12.9 bushels. In so far as crop developments in these two years provide a criterion, production (calculated on the doubtful assumption that the official estimate of area sown will remain unchanged and that Murray's estimate of abandonment will be precisely substantiated) might vary from 495 to 580 million

[1] Last year, for example, the first official estimate of winter-wheat sowings, as issued in December 1926, was 41.8 million acres; this was subsequently revised upward to 42.8 million in July, and was finally placed at 43.5 million in December.

bushels. If the area sown for the crop of 1928 proves larger and the abandonment smaller than present indications suggest, and yield per acre proves as favorable as in 1917, the crop might equal or exceed the record post-war crop of 627 million bushels in 1926; if area sown proves somewhat smaller and abandonment larger, the crop may prove smaller than any post-war crop except that of 1925. In the face of these uncertainties little can be said with assurance. Official estimates of area sown seem unlikely to be revised downward; spring condition was at least slightly better than in 1917 or 1925; but the cold weather in April has not promoted growth. A winter-wheat crop about average in size is reasonably in prospect under average weather conditions during May, June, and July; and a crop of large size is possible only if the most favorable weather conditions prevail through harvest. Even with the most unfavorable weather experienced in two decades, a crop as small as that of 1925 is unlikely.

North American Spring Wheat

The outlook for wheat production in the spring-wheat belt of North America is of course even more uncertain than for winter wheat at this season, when seeding operations are not yet complete. Present indications favor the expectation of good crops, but developments during the growing season, now unpredictable, may alter the outlook greatly in either direction.

The supply of subsoil moisture in both the United States and Canada is generally regarded as satisfactory as a result of heavy rains in the autumn and ample snow in the winter. Reports from crop correspondents to the *Price Current-Grain Reporter* on soil conditions, published March 28, were as follows in the important producing states, in percentages:

	Favorable	Too wet	Too dry
Minnesota	100	..	..
Montana	100	..	..
North Dakota	71	15	14
South Dakota	100	..	..

During April, however, reports of unfavorably dry soil conditions were circulated from parts of the Dakotas.

In the United States, however, farmers were officially reported to have expressed, as of March 1, intentions to plant only 98.5 per cent of the acreage sown to spring wheat in 1927. An increase was indicated for durum wheat, a decrease for other spring wheats. The upward course of prices during March suggests that (weather conditions permitting) a decrease in area sown is improbable despite announced intentions. In Canada, under average weather conditions, an area larger than that of 1927 will probably be sown; last year sowings were restricted by unfavorable weather.

Up to the date of writing (April 25), no indication has yet appeared of a seriously delayed sowing season like that of 1927. Seeding was begun in the southern extremities of the spring-wheat belt in the last week of March, though there was some delay from cold weather in mid-April. Thus far little reason appears for anticipating from this particular cause an advance of prices such as occured a year ago in May and early June. The completion of seeding in Canada at a normal date would diminish, though by no means eliminate, the probability of damage by rust and frost which unsettled world markets in June–August 1927.

VI. OUTLOOK FOR TRADE, PRICES, AND CARRYOVERS

Changes in new-crop prospects, which cannot now be foreseen, will as usual exert a profound influence on wheat price movements in the ensuing four months of the crop year. In turn, price movements may be expected to affect the volume and course of trade as well as year-end stocks, though to a lesser degree than crop prospects bid fair to affect prices. Nevertheless certain probabilities and possibilities may be mentioned, especially with respect to the more stable elements of the situation.

International Trade

The volume of international trade, as measured either by Broomhall's shipments or by net exports, promises to be large in April–July, but not so large as in 1927. As compared with last year, considerable reductions are probable in the net exports of

the United States, Australia, and Russia; Argentina and the Danube countries seem likely to export a little less. Chile and India may export a little more; and Canada promises to export much more—probably the largest quantity in history, unless the Pool decides to build up stocks to extreme heights. Canada, the United States, and Argentina will presumably continue to furnish a record proportion of the world's exports, as they have done in the first two thirds of the crop year. A peak of shipments is to be expected in late April or early May after the opening of navigation on the Great Lakes; for several weeks total shipments may equal even the high figures recorded at this season last year. Exports from the United States will probably consist chiefly of flour, durum wheat, and Pacific wheat. Little soft or hard red winter wheat is available, and their prices have been too high in recent months, and promise to continue so, to permit appreciable exports; and hard red spring wheat seldom moves to export except in the autumn.

Outward Carryovers

As we have previously pointed out, any calculation of year-end stocks in the major exporting countries must rest upon assumptions regarding crop estimates, the course of trade, and domestic disappearance; and to a considerable extent stocks must be calculated as residual items of disposition.[1] Appendix Table XII presents reasoned estimates of the disposition of wheat supplies in the four major exporting countries, including our estimate of carryovers, for the current and the four preceding crop years. The total carryover in these four countries and afloat for Europe now bids fair to approximate that of 1927, and clearly to exceed any other outward carryover in the period 1922–27 except that of 1923–24.

Little can be said of European stocks of domestic wheat. Russia, despite smaller exports this year than last, has had less wheat available for stock-building; and consumption, both in the aggregate and per capita, apparently increases annually. Whether or not any further accumulation has been made in the course of the year is uncertain, though accumulation seems more probable than depletion. In the Balkan states and Poland stocks promise to remain at a low level. A smaller crop and smaller imports thus far this year than last suggest that Italian stocks may be reduced to a lower level than in 1927. Throughout most other countries of western Europe the recent advance in prices would tend to encourage marketing from farms of the relatively heavy stocks previously accumulated; but, unless imports prove considerably smaller than other evidence suggests, stocks of domestic wheat in all positions promise to remain at fairly high levels. Stocks of import wheat in Europe and stocks afloat for Europe will perhaps prove somewhat smaller than in 1927, in view of a smaller probable movement from exporting countries in the closing weeks of the year; but, since the export movement depends to a considerable extent on prospects for an early or late harvest in Europe, the outlook is not clear.

Australian and Argentine year-end stocks appear to vary but little from year to year, and in any event must be calculated as residual items of disposition. In the two countries combined we anticipate stocks of about the size of those of 1927. For reasons set forth in preceding pages,[2] a carryover of record size, but not far above that of last year, may be accumulated in Canada.

A satisfactory basis for estimating United States stocks on July 1 is difficult to obtain. In the light of past experience the accuracy of the standing crop estimate is problematical, and not enough is known of the quantities of wheat used for feed and waste to justify a direct estimate of this item in dispositon. A large error might appear if the figure for July 1 stocks is calculated as a residual—crop plus carryover in, minus the sum of estimated consumption for food, net exports, seed, and feed and waste. A more reasonable approach is to find an acceptable method of estimating July 1 stocks from March 1 stocks. On the assumption that average reduction (1920–27) from the March 1 level is to be expected for stocks on farms, in country mills and elevators, and visible (Bradstreet's), the total of these items might be expected to reach 92 million bushels on July 1, 1928. This assumption appears to provide as satisfactory a basis as any for estimating July 1 stocks in coun-

[1] See Wheat Studies, III, 290.

[2] See above, pp. 242, 250.

try mills and elevators and visible, in the absence of more refined procedures.[1]

The other large item in the total carryover is stocks held by city mills. With the extraordinarily high protein premiums now prevailing, and the May option running only slightly above the July and September, little reason appears for mills to carry large stocks into the new crop year. We are tentatively disposed to estimate city mill stocks on June 30 at 50 million bushels, some 16 million lower than in 1927, but higher than in 1925 and 1926. Hence total stocks on July 1 appear likely to approximate 142 million bushels, slightly more than the reported figure for last year, and 13 million below our estimate published in December. We regard the figure merely an approximation to the middle of a range; but it now appears unlikely that the final estimate will prove more than 10 million bushels lower or higher. If the total carryover reaches about 142 million, there is reason to believe that the crop estimate for 1927 now standing is not seriously to be questioned.

The Price Outlook

Evidence that unfavorable prospects for new crops may lead to sharp fluctuations in prices even in the face of relatively large visible supplies and a fairly easy statistical position appears in the course of events both during April–July 1927, and during February–April 1928. Last year delayed seeding in the North American spring-wheat belt was the principal cause of a sharp advance in prices from their mid-winter level; this year the situation in the winter-wheat belt both of Europe and of the United States has led to an even sharper advance. As yet it seems impossible to foresee weather conditions more than a few days in advance. Yet in the United States there appears at least a reasonable probability that condition in the soft red winter-wheat belt may improve rather than deteriorate; for condition has been low largely in the absence of normally warm weather, and the ample supply of subsoil moisture would prove conducive to more satisfactory growth. Much the same may be said of Europe. But in parts of the American southwest the crop apparently requires frequent rains because subsoil moisture is not abundant; and the market may be expected to react sharply to reports from that region of drought and hot winds. The outlook for the North American spring-wheat crop is not at present dark; it may progress favorably, or may be jeopardized by drought, rust, or frost later in the season. In the presence of these uncertainties, price fluctuations promise to prove wide during April–July, and especially so in the United States.

In our judgment, however, a decline from the high level of futures prices (Chicago) reached in the week of April 23–28 is somewhat more probable than a further increase. After a period of dullness in mid-winter, the markets apparently responded eagerly to reports of crop damage rather localized than world-wide. Speculative support has perhaps been afforded which cannot be expected to continue long if growing conditions become normal. It now seems probable that only a continuation or further development of distinctly unfavorable crop prospects will maintain prices at their level of April 23–28, or cause a further increase; normal progress of winter- and spring-wheat crops would presumably result in some decline, distinctly good progress in a considerable decline. In view of favorable supplies of subsoil moisture in almost every country and locality except parts of the American southwest, normal or good growth of wheat not already abandoned is more probable than bad. But the probability is by no means a clear certainty; and, though higher prices now seem improbable, they are by no means impossible.

[1] Different bases for estimating farm stocks indicate that July 1 farm stocks this year might be expected to vary between 25 and 31 million bushels. The difference in the estimate of total stocks involved by using either of these figures is at most 7 million bushels, not a large quantity in a calculation where the margin of error is necessarily wide.

This issue is the work of M. K. Bennett, with the advice of Alonzo E. Taylor and Holbrook Working, and the aid of Margaret Milliken, Janet Murray, and Katharine Merriam

APPENDIX

TABLE I.—WHEAT PRODUCTION IN PRINCIPAL PRODUCING AREAS, 1920–27*

(Million bushels)

Year	United States	Canada	India	Australia	Argentina	Chile	Uruguay	Hungary	Bulgaria	Jugo-Slavia	Roumania	Soviet Russia	Mexico
1920.....	833.0	263.2	377.9	145.9	156.1	23.2	7.8	37.9	30.0	43.0	61.3	.....	15.0
1921.....	814.9	300.9	250.4	129.1	191.0	23.6	10.0	52.7	29.2	51.8	78.6	.....	5.1
1922.....	867.6	399.8	367.0	109.5	195.8	25.9	5.2	54.7	32.6	44.5	92.0	.....	13.6
1923.....	797.4	474.2	372.4	125.0	247.8	28.1	13.3	67.7	29.1	61.1	102.1	.....	13.7
1924.....	864.4	262.1	360.6	164.6	191.1	24.5	9.9	51.6	24.7	57.8	70.4	.....	10.4
1925.....	676.4	395.5	331.0	114.5	191.1	26.7	10.0	71.7	41.4	78.6	104.7	713.0	9.4
1926.....	831.0	407.1	324.7	160.9	220.8	23.3	10.2	74.9	41.1	71.4	110.9	809.6	10.2
1927.....	871.7	440.0	334.1	109.0	239.0	33.5	13.9	75.8	47.4	55.2	96.8	749.6	11.5
Average 1909-13.....	690.1	197.1	351.8	90.5	147.1	20.1	6.5[a]	71.5	37.8	62.0	158.7[a]	758.9[b]	11.5[a]
1922-26.....	807.4	387.7	351.1	134.9	209.4	25.7	9.7	64.1	33.8	62.7	96.0	.....	11.5

Year	Morocco	Algeria	Tunis	Egypt	British Isles	France	Germany	Italy	Belgium	Netherlands	Denmark	Norway	Sweden
1920.....	17.9	16.2	5.2	31.7	56.8	236.9	82.6	141.3	10.3	6.0	7.4	1.00	10.3
1921.....	23.2	28.5	9.0	37.0	73.8	323.5	107.8	194.1	14.5	8.6	11.1	.97	12.3
1922.....	12.9	18.9	3.7	36.6	65.2	243.3	71.9	161.6	10.6	6.2	9.2	.64	9.5
1923.....	20.0	35.8	9.9	40.7	58.4	275.6	106.4	224.8	13.4	6.2	8.9	.59	11.0
1924.....	28.7	17.3	5.2	34.2	53.9	281.2	89.2	170.1	13.0	4.7	5.9	.49	6.8
1925.....	23.9	32.7	11.8	36.2	53.7	330.3	118.2	240.8	14.5	5.6	9.7	.49	13.4
1926.....	16.2	23.6	13.0	37.2	52.2	231.8	95.4	220.6	12.8	5.5	8.8	.59	12.4
1927.....	24.8	27.6	8.3	44.3	55.6[c]	284.4	120.5	195.8	14.4	5.4	9.6	.58	11.3
Average 1909-13.....	17.0	35.2	6.2	33.7	59.6	325.6	131.3	184.4	15.2	5.0	6.3	.31	8.1
1922-26.....	20.3	25.6	8.7	37.0	56.7	272.5	96.2	203.6	12.9	5.6	8.5	.56	10.6

Year	Spain	Portugal	Switzerland	Austria	Czecho-Slovakia	Poland	Finland	Latvia	Esthonia, Lithuania	Greece	Japan, Chosen	South Africa	New Zealand
1920.....	138.6	10.4	3.6	5.4	26.4	22.7	.27	.39	2.58	11.2	41.1	7.6	6.9
1921.....	145.1	9.3	3.8	6.5	38.7	37.4	.58	.78	3.34	10.3	39.8	8.7	10.6
1922.....	125.5	10.0	2.5	7.4	33.6	42.4	.71	.96	4.17	9.0	39.2	6.3	8.4
1923.....	157.1	13.2	3.8	8.9	36.2	49.7	.69	1.64	3.70	8.8	35.2	6.0	4.2
1924.....	121.8	8.6	3.1	8.5	32.2	32.5	.79	1.58	3.86	8.3	37.3	7.1	5.4
1925.....	162.6	11.5	3.5	10.7	39.3	57.8	.93	2.16	6.08	14.2	40.0	7.8	4.6
1926.....	146.6	8.5	4.0	9.4	34.1	47.1	.92	1.86	5.02	11.2	39.9	9.0	8.0
1927.....	144.8	11.3	4.3	10.4	40.4	54.6	.90	2.65	6.35	13.3	38.3	6.6	9.2
Average 1909-13.....	130.4	11.8[d]	3.3	12.8	37.9	63.7	.14	1.48	3.63	16.3[d]	32.0	6.0[d]	6.9
1922-26.....	142.7	10.4	3.4	9.0	35.1	45.9	.81	1.64	4.57	10.3	38.3	7.2	6.1

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

[a] Four-year average.

[b] Regarded as too low by Soviet officials, whose estimate is 908 million bushels.

[c] Excluding Ireland.

[d] One year only.

TABLE II.—INTERNATIONAL TRADE IN WHEAT AND FLOUR, MONTHLY, JULY–MARCH 1927–28*

(Million bushels)

A.—NET EXPORTS

Month	United States	Canada	India	Australia	Argentina	Roumania	Hungary	Jugo-Slavia	Poland	Algeria	Tunis	Egypt
July	11.6	8.6	5.12[a]	8.1	9.9	.56	1.26	.06	(.42)[b]	(.26)[b]	(.10)[b]	(.47)[b]
Aug.	27.5	14.5	1.57[a]	4.1	5.9	1.34	2.99	.23	(.08)[b]	.51	(.09)[b]	(.51)[b]
Sept.	39.0	17.1	.81[a]	4.2	5.4	1.88	3.28	.16	(.10)[b]	.26	(.18)[b]	(.56)[b]
Oct.	34.7	23.4	.74	2.3	5.3	1.14	2.57	.15	(.45)[b]	(.19)[b]	(.27)[b]	(.60)[b]
Nov.	24.8	57.9	.79[a]	1.6	5.0	1.24	2.26	.22	(.58)[b]	.56	(.02)[b]	(.64)[b]
Dec.	10.2	49.1	.35[a]	2.3	8.7	.95	1.71	.18	(.64)[b]	.16	(.03)[b]	(.52)[b]
Jan.	11.1	18.6	.25[a]	9.3	24.0	.29	1.14	...	(.21)[b]	.34	.00[c]	(.57)[b]
Feb.	5.0	21.8	(.60)[b]	6.4	29.6	....	1.46	...	....	.54	....	(.59)[b]
Mar.	5.8	23.7	....	...	....	....	....	...	....	....	....	....

B.—NET IMPORTS

Month	Irish Free St.	United Kingdom	France	Germany	Belgium	Italy	Nether-lands	Scandi-navia	Switzer-land	Czecho-Slovakia	Baltic States[d]	Japan
July	1.70	17.33	10.00	10.19	3.62	7.59	2.02	2.06	1.43	1.56	.63	1.16[a]
Aug.	1.10	20.78	7.74	6.48	3.50	3.92	2.10	1.86	1.45	2.26	.57	.27[a]
Sept.	1.82	19.59	7.20	6.96	3.67	2.96	2.80	2.35	1.30	1.62	.70	.34[a]
Oct.	1.70	15.18	5.14	9.23	4.12	3.04	3.39	2.18	1.67	1.82	.78	.24
Nov.	2.24	19.13	5.33	8.96	3.60	4.86	3.60	2.45	2.05	1.80	.81	.89[a]
Dec.	1.93	15.74	3.93	8.06	3.62	6.19	2.96	2.89	1.80	2.83	.42	.89[a]
Jan.	1.34	6.78	3.02	7.84	3.02	7.45	2.30	1.77	2.28	1.35	1.16	1.90[a]
Feb.	1.55	14.85	2.80	6.11	2.95	6.98	2.02	1.89	1.59	1.30	.59	1.55

* Data from official sources and International Institute of Agriculture.

[a] Gross, not net. [b] Net import. [c] Net export of 3,300 bushels. [d] Finland, Esthonia, Latvia.

TABLE III.—WEEKLY WHEAT AND FLOUR SHIPMENTS BY AREAS OF ORIGIN AND DESTINATION, DECEMBER–MARCH 1927–28*

(Million bushels)

Week ending	North America	Argentina, Uruguay	Australia	Russia	Danube	India	Other countries	Total	To Europe	To ex-Europe
Dec. 3	14.31	.59	.73	.63	.17	...	1.23	17.66	15.65	2.01
10	10.67	1.35	.26	.23	.07	.03	.81	13.42	10.95	2.47
17	9.29	1.19	.68	...	...	...	1.04	12.20	10.50	1.70
24	8.23	2.50	.80	...	.15	...	.88	12.56	10.21	2.35
31	8.80	1.79	.47	...	.12	...	1.08	12.26	10.72	1.54
Jan. 7	9.39	2.70	1.71	.01	...	...	.88	14.69	11.89	2.80
14	9.62	3.97	1.16	...	...	...	.77	15.52	12.98	2.54
21	9.84	5.88	3.41	...	.02	...	.56	19.71	16.32	3.39
28	8.30	6.41	3.17	...	.06	...	.68	18.62	14.60	4.02
Feb. 4	8.94	6.82	2.61	...	.05	...	.57	18.99	15.09	3.90
11	7.98	9.17	1.69	...	...	...	.50	19.34	15.58	3.76
18	8.26	5.86	2.13	...	.03	...	.56	16.84	13.65	3.19
25	7.45	5.59	1.40	.01	.08	...	.50	15.03	11.63	3.40
Mar. 3	5.24	7.18	1.83	...	.02	...	.62	14.89	11.37	3.52
10	8.10	7.62	2.30	...	.01	...	.37	18.40	14.95	3.45
17	7.06	6.78	.98	...	.04	...	.44	15.30	12.47	2.83
24	7.85	6.92	2.06	...	.01	...	.42	17.26	14.34	2.92
31	7.73	7.04	2.20	...	.02	.02	.46	17.47	13.96	3.51

* Here converted from data in Broomhall's *Corn Trade News*. Broomhall's weekly figures do not always check with his cumulative totals, which presumably include later revisions. Shipments from "other countries" apparently include a part of the shipments from the Danube and Russia in most weeks.

TABLE IV.—WEEKLY WHEAT RECEIPTS AT PRIMARY MARKETS IN THE UNITED STATES AND CANADA, DECEMBER–MARCH 1927–28*

(Million bushels)

Month	United States				Fort William and Port Arthur				Vancouver			
	1924–25	1925–26	1926–27	1927–28	1924–25	1925–26	1926–27	1927–28	1924–25	1925–26	1926–27[a]	1927–28[a]
Dec.	14.18	9.74	5.44	8.90	9.50	14.64	10.55	14.95	1.08	1.94	.95	2.57
	9.23	9.66	5.67	6.41	6.26	14.77	7.14	11.05	1.18	1.30	1.02	2.26
	6.74	8.64	4.91	5.81	2.88	14.56	4.99	9.60	1.18	.74	1.52	2.46
	4.79	6.18	3.98	5.11	2.10	8.82	3.87	8.62	.47	2.15	1.86	3.08
Jan.	4.08	3.45	4.21	4.74	1.39	4.98	4.66	5.91	.74	.60	1.76	2.75
	4.10	6.22	4.69	4.56	1.02	4.32	5.21	5.28	1.12	1.86	1.75	3.16
	5.29	5.23	4.76	4.96	.71	2.73	3.71	6.20	.87	1.99	1.76	3.18
	6.30	4.64	4.64	6.18	.93	1.63	2.81	4.95	.72	2.73	1.11	3.45
	6.32	4.39	5.26	5.96	1.09	1.31	1.98	3.55	.96	2.78	1.76	4.98
Feb.	6.77	4.31	6.16	5.67	.93	1.21	1.98	2.69	.59	2.42	1.33	4.49
	5.08	4.06	4.96	5.67	1.64	1.09	2.27	2.97	.57	1.93	1.35	3.68
	4.28	5.05	5.76	5.02	1.65	.83	2.37	2.52	.61	1.88	.74	3.49
	3.78	3.37	4.33	5.08	1.95	.84	1.97	1.64	.58	1.51	.88	1.88
Mar.	4.71	3.79	4.58	5.87	2.06	.69	1.61	1.31	.32	1.69	1.28	1.88
	4.52	3.01	4.91	6.55	2.10	.71	1.54	.95	.19	1.43	1.32	2.38
	3.86	3.50	4.06	6.22	2.08	.80	1.50	.86	.19	1.27	1.47	2.04
	3.20	3.50	3.59	5.07	1.78	.66	1.25	.50	.27	1.40	1.14	2.28

* United States data are unofficial figures compiled from *Price Current-Grain Reporter;* Fort William and Port Arthur data are official figures for net receipts furnished by Canadian Board of Grain Commissioners; Vancouver data are official figures compiled from *Canadian Grain Statistics.* United States and Fort William and Port Arthur figures begin with weeks ending Dec. 6, 1924, Dec. 5, 1925, Dec. 4, 1926, Dec. 3, 1927; Vancouver figures are for weeks ending one day earlier.

[a] Receipts at Prince Rupert included.

TABLE V.—MONTHLY WHEAT RECEIPTS AT PRIMARY MARKETS IN THE UNITED STATES AND CANADA FROM AUGUST 1924*

(Million bushels)

Month	United States primary markets				Fort William and Port Arthur				Vancouver			
	1924–25	1925–26	1926–27	1927–28	1924–25	1925–26	1926–27	1927–28	1924–25	1925–26	1926–27	1927–28
Aug.	93.0	43.3	71.6	81.6	1.3	1.2	1.5	2.4	.21	.55	.12	.09
Sept.	82.1	57.9	48.7	79.7	7.1	45.7	32.8	8.6	.41	.28	.29	.32
Oct.	88.0	36.1	37.1	73.2	40.9	53.2	56.1	51.4	3.98	7.04	6.37	6.17
Nov.	60.5	34.1	29.8	44.8	42.7	51.5	60.5	71.0	5.05	9.79	7.22	10.78
Aug.–Nov.	323.6	171.4	187.2	279.3	92.0	151.6	150.9	133.4	9.65	17.66	14.00	17.36
Dec.	36.3	34.9	22.4	26.5	20.3	53.5	26.3	41.0	4.21	6.14	6.63	11.81
Jan.	24.7	21.6	24.6	23.5	4.1	10.5	14.0	21.1	3.84	10.03	6.83	16.49
Feb.	19.9	16.2	21.0	22.5	6.2	4.0	8.6	9.5	2.08	7.74	4.27	12.54
Mar.	17.3	15.1	16.6	26.3	8.5	3.2	6.3	3.3	.74	6.98	5.94	10.50
Dec.–Mar.	98.2	87.8	84.6	98.8	39.1	71.2	55.2	74.9	10.87	30.89	23.67	51.34
Apr.	10.4	14.0	14.4	....	8.1	1.8	12.6	....	1.02	3.58	3.58	.....
May	17.6	15.7	19.2	....	7.0	17.2	17.3	....	1.54	1.20	1.56	.....
June	21.9	21.0	20.7	....	4.1	13.6	7.3	....	.74	.22	.61	.....
July	41.8	77.0	58.8	....	6.7	6.4	10.7	....	.11	.27	.14	.....
Apr.–July	91.7	127.7	113.1	....	25.9	39.0	47.9	....	3.41	5.27	5.89	.....
Aug.–July	513.5	386.9	384.9	....	157.0	261.8	254.0	....	23.93	53.82	43.56	.....

* United States data are unofficial figures compiled from *Survey of Current Business;* Canadian data are official figures from *Reports on the Grain Trade of Canada* and *Canadian Grain Statistics.* Vancouver figures include receipts at Prince Rupert after October 1, 1926.

TABLE VI.—WEEKLY VISIBLE SUPPLIES OF WHEAT IN NORTH AMERICA, UNITED KINGDOM PORTS, AND AFLOAT TO EUROPE, DECEMBER–MARCH 1927–28*

(Million bushels)

Date	United States	Canada	U.K. ports	Afloat to Europe	Total	Date	United States	Canada	U.K. ports	Afloat to Europe	Total
Dec. 3	100.0	124.0	9.2	57.1	290.3	Feb. 4	83.7	165.8	6.2	65.5	321.4
10	97.7	140.2	9.6	53.8	301.3	11	82.9	166.0	6.4	72.3	327.6
17	96.9	149.5	9.2	50.1	305.7	18	81.6	166.8	5.6	77.3	331.3
24	96.1	154.7	8.0	45.9	304.7	25	80.2	165.4	5.9	74.8	326.3
31	94.3	159.0	8.0	46.1	307.4	Mar. 3	77.9	163.1	7.0	70.7	318.7
Jan. 7	91.9	159.2	7.7	45.1	303.9	10	76.6	161.3	7.7	68.8	314.4
14	89.5	159.2	7.0	48.7	304.4	17	75.7	158.0	8.2	66.6	308.5
21	86.3	159.0	6.4	55.2	306.9	24	74.7	153.1	8.8	67.4	304.0
28	85.2	166.6	6.1	59.3	317.2	31	73.2	147.4	9.2	68.4	298.2

* United States data are *Bradstreet's;* Canadian data from *Canadian Grain Statistics;* United Kingdom and Afloat data from Broomhall's *Corn Trade News.* Canadian figures are for the days preceding the dates indicated in the above table, and include stocks in some elevators for the preceding week, but are adjusted to bring stocks in western country elevators into the correct week.

TABLE VII.—WORLD VISIBLE WHEAT SUPPLIES, APRIL 1, 1920–28, AND MONTHLY, 1927–28*

(Million bushels)

Date	United States	Canada	Argentina	Australia	United Kingdom	Afloat to Europe	North America	Argentina, Australia	U.K. and afloat	Grand total	Total ex-Australia
1920 Apr. 1	94.9	28.2	6.6	60.0	10.9	59.7	123.1	66.6	70.6	260.3	200.3
1921 Apr. 1	51.7	40.6	3.7	73.0	18.4	58.2	92.3	76.7	76.6	245.6	172.6
1922 Apr. 1	69.4	63.3	4.8	50.0	6.5	65.9	132.7	54.8	72.4	259.9	209.9
1923 Apr. 1	102.1	81.8	9.2	56.5	7.8	52.8	183.9	65.7	60.6	310.2	253.7
1924 Apr. 1	111.3	123.3	10.6	40.0	8.5	65.8	234.6	50.6	74.3	359.5	319.5
1925 Apr. 1	108.8	80.0	11.4	63.0	11.7	84.1	188.8	74.4	95.8	359.0	296.0
1926 Apr. 1	82.0	99.0	6.6	30.5	7.7	46.0	181.0	37.1	53.7	271.8	241.3
1927 Apr. 1	88.7	107.3	14.7	53.0	5.0	75.7	196.0	67.7	80.6	344.3	291.3
1927 Aug. 1	65.9	42.7	5.9	12.7	7.8	46.1	108.6	18.6	53.9	181.1	168.3
Sept. 1	108.7	27.4	4.8	9.7	10.4	44.0	136.1	14.5	54.4	205.0	195.3
Oct. 1	143.7	22.2	4.4	6.8	10.0	50.0	165.9	11.2	60.0	237.1	230.3
Nov. 1	156.0	72.0	3.6	3.0	8.6	56.1	228.0	6.6	64.7	299.3	296.3
Dec. 1	154.7	120.9	3.6	.7	9.6	57.1	275.6	4.3	66.7	346.6	345.9
1928 Jan. 1	143.4	157.8	3.7	41.0	8.0	46.1	301.2	44.7	54.1	400.0	359.0
Feb. 1	128.9	162.8	8.0	51.0	6.4	65.5	291.7	59.0	71.9	422.6	371.6
Mar. 1	118.6	156.5	11.8	43.5	5.8	66.9	275.1	55.3	72.7	403.1	359.6
Apr. 1	110.1	146.6	12.8	36.0	7.7	68.4	256.7	48.8	76.1	381.6	345.6
Average, Apr. 1											
1910–14	84.0	37.6	4.3	14.8	12.4	53.2	121.6	19.1	65.6	206.3	191.5
1923–27	98.6	98.3	10.5	48.6	8.1	64.9	196.9	59.1	73.0	329.0	280.4

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

TABLE VIII.—WHEAT STOCKS IN THE UNITED STATES AND CANADA, MARCH 1919–28*

(Thousand bushels)

Year	United States (March 1)				Canada (March 31)				
	Total	On farms	In country mills and elevators	Commercial visible (Bradstreet's)	Total	On farms	In elevators	In transit	In flour mills
1919	362,947	128,703	107,037	127,207	118,543	32,315	69,983	10,855	5,390
1920	351,769	169,904	123,233	58,632	77,306	34,837	30,622	6,272	5,575
1921	336,057	217,037	87,075	31,945	95,477	48,919	35,802	7,120	3,636
1922	256,038	134,253	75,071	46,714	114,986	41,649	58,338	10,999	4,000
1923	313,557	156,087	102,908	54,562	139,788	54,771	69,620	8,397	7,000
1924	308,919	137,721	98,284	72,914	202,493	70,755	111,589	14,149	6,000
1925	256,205	112,095	67,673	76,437	121,084	39,225	68,555	8,304	5,000
1926	224,575	100,137	76,333	48,105	161,376	50,878	95,691	8,307	6,500
1927	277,408	130,230	85,907	61,271	175,978	51,366	103,372	14,740	6,500
1928	284,280	130,007	74,086	80,187	219,546	64,654	130,055	19,037	5,800

* *Bradstreet's* visible, and official data of U.S. Department of Agriculture and Dominion Bureau of Statistics. See especially *Agriculture Yearbooks, Canada Year Books, Price Current-Grain Reporter,* and press releases.

TABLE IX.—CHANGES IN TOTAL FLOUR STOCKS IN THE UNITED STATES (EXPRESSED AS DEVIATIONS FROM A FOUR-YEAR AVERAGE), MONTHLY FROM JULY 1923*

(Thousand barrels)

Crop year	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1
1923-24..	—2,855	—3,285	—1,906	— 519	+1,438	+1,853	+ 697	+ 371	+ 175	— 534	—1,373	—2,180
1924-25..	—3,056	—3,032	—1,710	+ 49	+2,111	+2,308	+1,953	+3,147	+3,467	+1,465	— 492	—2,224
1925-26..	—3,004	—2,834	—2,158	— 438	+1,652	+2,334	+2,392	+2,306	+1,760	+1,193	— 15	—1,576
1926-27..	—2,211	—1,518	— 446	+1,096	+2,301	+2,572	+1,892	+1,063	+ 571	+ 139	— 877	—2,103
1927-28..	—2,797	—3,856	—3,857	—2,941	—2,197	—2,194	—2,849	—3,761	—3,959[a]	.....	.....	.....

* The above estimates for changes in total flour stocks are derived by subtracting estimated consumption from domestic disappearance, and expressing the result in terms of deviations from the four-year average, July 1923–June 1927. For detailed explanation of the method of derivation of these estimates, see WHEAT STUDIES, IV, 74–77.

[a] Preliminary.

TABLE X.—WEEKLY CASH PRICES OF REPRESENTATIVE WHEATS IN LEADING EXPORTING AND IMPORTING MARKETS, NOVEMBER–MARCH 1927–28*

(U. S. dollars per bushel)

Month	United States				Canada		Argentina	Liverpool					
	No. 2 Red Winter (St. Louis)	No. 2 Hard Winter (Kansas City)	No. 1 Dark Northern (Minneapolis)	No. 2 Amber Durum (Minneapolis)	No. 1 Manitoba (Winnipeg)	No. 3 Manitoba (Winnipeg)	Barletta (Buenos Aires)	No. 1 Manitoba	No. 3 Manitoba	Pacific White	No. 2 Winter	Argentine Rosafe	Australian
Nov.	1.43	1.28	1.32	1.21	1.40	1.21	1.38	1.65	1.46	1.45	1.45	1.49	1.55
	1.42	1.30	1.35	1.30	1.42	1.22	1.41	1.71	1.47	1.45	1.46	1.49	1.55
	1.42	1.31	1.33	1.30	1.49	1.26	1.41	1.78	1.48	n.q.	1.51	1.50	1.61
	1.42	1.34	1.34	1.28	1.50	1.28	1.36	1.77	1.51	1.49	1.51	1.52	1.61
Dec.	1.40	1.32	1.34	1.27	1.44	1.25	1.35	n.q.	1.49	1.49	1.51	1.50	1.62
	1.47	1.34	1.37	1.32	1.26	1.25	1.32	n.q.	1.50	1.50	1.52	1.50	1.56
	1.46	1.31	1.37	1.32	1.39	1.23	1.32	n.q.	1.50	1.51	1.49	1.50	1.59
	1.42	1.32	1.38	1.33	1.38	1.22	1.32	n.q.	1.53	1.50	1.51	1.51	1.56
	1.43	1.29	1.38	1.35	1.38	1.22	1.32	n.q.	1.51[a]	1.50	1.51	1.48[a]	1.56
Jan.	1.47	1.36	1.42	1.38	1.41	1.23	1.33	n.q.	1.53	1.50	n.q.	1.51	1.56
	1.49	1.32	1.39	1.32	1.42	1.22	1.32	n.q.	1.52	1.50	1.50	1.49	1.56
	1.53	1.34	1.42	1.29	1.45	1.23	1.32	1.57[b]	1.51	1.50	1.51	1.49	1.56
	1.52	1.32	1.45	1.26	1.44	1.23	1.31	1.58[b]	1.51	1.50	1.51	1.48	1.54
Feb.	1.52	1.31	1.43	1.28	1.41	1.22	1.30	1.57[b]	1.48	1.50	1.50	1.48	1.51
	1.52	1.29	1.40	1.26	1.40	1.22	1.28	n.q.	1.47	1.50	n.q.	1.44	1.50
	1.55	1.33	1.40	1.27	1.42	1.24	....	n.q.	1.47	1.49[b]	n.q.	1.45	1.49[b]
	1.58	1.36	1.45	1.29	1.44	1.26	....	1.61[b]	1.49	1.52[b]	n.q.	1.46	1.52[b]
Mar.	1.61	1.35	1.45	1.33	1.45	1.28	....	1.60[b]	1.51	1.54[b]	n.q.	1.44	1.56[b]
	1.66	1.38	1.48	1.33	1.47	1.29	....	1.63[b]	1.56	n.q.	n.q.	1.46	1.60[b]
	1.68	1.36	1.45	1.31	1.48	1.30	....	1.64[b]	1.56	1.58[b]	n.q.	1.48	1.62[b]
	1.70	1.41	1.47	1.35	1.49	1.32	....	n.q.	1.56	1.61[b]	n.q.	1.51	1.61[b]
	1.76	1.41	1.47	1.35	1.50	1.33	....	n.q.	1.56	1.62[b]	n.q.	1.51	1.61[b]

* United States prices are weekly averages of daily weighted prices for weeks ending Friday, compiled from *Crops and Markets*. Canadian prices are averages for weeks ending Saturday, compiled from *Canadian Grain Statistics*. Liverpool and Argentine prices are Friday prices from *International Crop Report and Agricultural Statistics*, except Rosafé and No. 3 Manitoba at Liverpool which are for Tuesday of the same week and are from Broomhall's *Corn Trade News*. No quotation is signified by "n.q."

[a] Wednesday price. [b] Tuesday price from Broomhall's *Corn Trade News*.

TABLE XI.—MONTHLY PRICES OF DOMESTIC WHEAT IN EUROPE, FROM AUGUST 1925*

(U.S. dollars per bushel)

Month	Great Britain			France (Chartres)			Italy (Milan)			Germany (Berlin)		
	1925–26	1926–27	1927–28	1925–26	1926–27	1927–28	1925–26	1926–27	1927–28	1925–26	1926–27	1927–28
Aug.	1.53	1.76	1.63	1.62	1.61	1.75	1.88	1.85	1.75[a]	1.55	1.75	1.78[b]
Sept.	1.48	1.46	1.43	1.57	1.77	1.57	1.94	2.03	1.73	1.38	1.71	1.68
Oct.	1.34	1.48	1.37	1.48	1.88	1.54	1.94	2.21	1.77	1.37	1.72	1.62
Nov.	1.45	1.62	1.32	1.37	1.96	1.48	1.99	2.20	1.90	1.49	1.78	1.57
Dec.	1.60	1.55	1.29	1.33	1.78	1.58	2.12	2.31	1.88	1.62	1.74	1.53
Jan.	1.60	1.55	1.29	1.39	1.88	1.58	2.17	2.13	1.93	1.61	1.72	1.52
Feb.	1.54	1.54	1.26	1.42	1.81	1.56	2.16	2.11	1.94[c]	1.60	1.72	1.49
Mar.	1.51	1.52	1.27	1.39	1.70	....	2.14	2.11	....	1.66	1.73	....
Apr.	1.57	1.50	....	1.40	1.82	....	2.20	2.02	....	1.87	1.76	....
May	1.75	1.58	....	1.39	1.91	....	2.19	2.16	....	1.92[d]	1.92	....
June	1.77	1.65	....	1.52	1.88	....	2.20	1.99	....	n.q.	1.96[e]	....
July	1.84	1.64	....	1.53	1.81	....	1.98	1.80	....	n.q.	n.q.	....

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

[a] Three-week average. [b] Second half of August. [c] First half of February. [d] First half of May. [e] First half of June.

TABLE XII.—APPROXIMATE DISPOSITION OF WHEAT SUPPLIES IN FOUR LEADING EXPORTING COUNTRIES, 1923–24 TO 1927–28*

(Million bushels)

Item	United States (July–June)					Canada (August–July)				
	1923–24	1924–25	1925–26	1926–27	1927–28	1923–24	1924–25	1925–26	1926–27	1927–28
Initial stocks	151[a]	165[b]	135	111	138	29	41	26	35	48
New crop	797	864	676	831	872	474	262	395	407	440
Total supplies	948	1,029	811	942	1,010	503	303	421	442	488
Net exports	135	258	95	209	205	346	192	324	292	343
Seed requirements	79	84	82	89	96	39	39	40	39	41
Consumed for food	477	479	492	492	502	42	42	42	44	45
Unmerchantable and lost in cleaning	92	73	31	14	65	31	22	18	31	39
Fed on farms						15	5	5	10	10
Apparent error in crop estimate						—11	—23	—43	—22	—45
Stocks at end	165[b]	135	111	138	142	41	26	35	48	55
Total disappearance	948	1,029	811	942	1,010	503	303	421	442	488

Item	Argentina (August–July)					Australia (August–July)				
	1923–24	1924–25	1925–26	1926–27	1927–28	1923–24	1924–25	1925–26	1926–27	1927–28
Initial stocks	56	63	57	67	61	42	38	36	30	41
New crop	248	191	191	221	239	125	165	115	161	109
Total supplies	304	254	248	288	300	167	203	151	191	150
Net exports	172	123	94	143	156	86	124	77	103	65
Seed requirements	21	23	25	24	25	10	11	11	12	12
Consumed for food	45	49	54	55	56	28	29	29	30	30
Feed and waste	3	2	8	5	4	5	3	4	5	5
Stocks at end	63	57	67	61	59	38	36	30	41	38
Total disappearance	304	254	248	288	300	167	203	151	191	150

* Based so far as possible upon official estimates for the various items of supply and disposition. Estimates for 1927–28 are preliminary. For detailed explanation of our method of estimation and adjustment of items in the disposition table, see notes in WHEAT STUDIES, IV, 61 f.

[a] This estimate perhaps too low. See WHEAT STUDIES, February 1928, IV, 169–70, 180.

[b] This estimate perhaps too high. See *loc. cit.*

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