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THE DISPENSABILITY OF A WHEAT SURPLUS IN THE UNITED STATES

I. ELEMENTS OF THE PROBLEM

The extractive stage in American agriculture may be said to have reached its zenith at the close of the last century. Since then each year has been characterized by expanding industrialization and rapid increase in urban population. Agriculture has been passing from exploitation of virgin fields and the open range into mixed farming, diversified agriculture. This transition had led, before the war, to a moderate decline in wheat acreage, more than sufficient to offset some improvement in yields per acre; and with increased population, per capita wheat acreage also declined. Because of reduction in crops and expansion of the home market, therefore, wheat exports before the war were rapidly declining in absolute amount and still more per capita of our population.

These tendencies are clearly indicated in Chart 1 (p. 122), which shows harvested acreages from 1900 to 1913, net exports of wheat from 1900–01 to 1913–14, and the same items expressed per head of population. The declining trends in per capita figures are sufficiently indicated by straight lines fitted to the annual data, though there is reason to believe that the tendency would be more accurately expressed by curves descending at a gradually decreasing rate.

Competent agricultural opinion at the outbreak of the European war interpreted these trends as presaging the early disappearance of the wheat export surplus of the United States. A careful appraisal of the circumstances at that time may be held to justify the statement that had the war not occurred, the United States would by 1925 or 1930 have ceased to be a net exporter of wheat except in an "incidental" manner or in exceptionally good crop years. The relative decline in wheat-culture was explained by the fact that wheat-growing, with continued exhaustion of the soil from one-crop farming and with inclusion of marginal acres, was in most parts of the country becoming relatively less remunerative and diversified agriculture relatively more remunerative; and the further fact that while there were areas in which wheat-growing was still expanding, these were balanced by areas in which wheat-growing was being contracted. The state of Minnesota has provided an illustration of these tendencies.

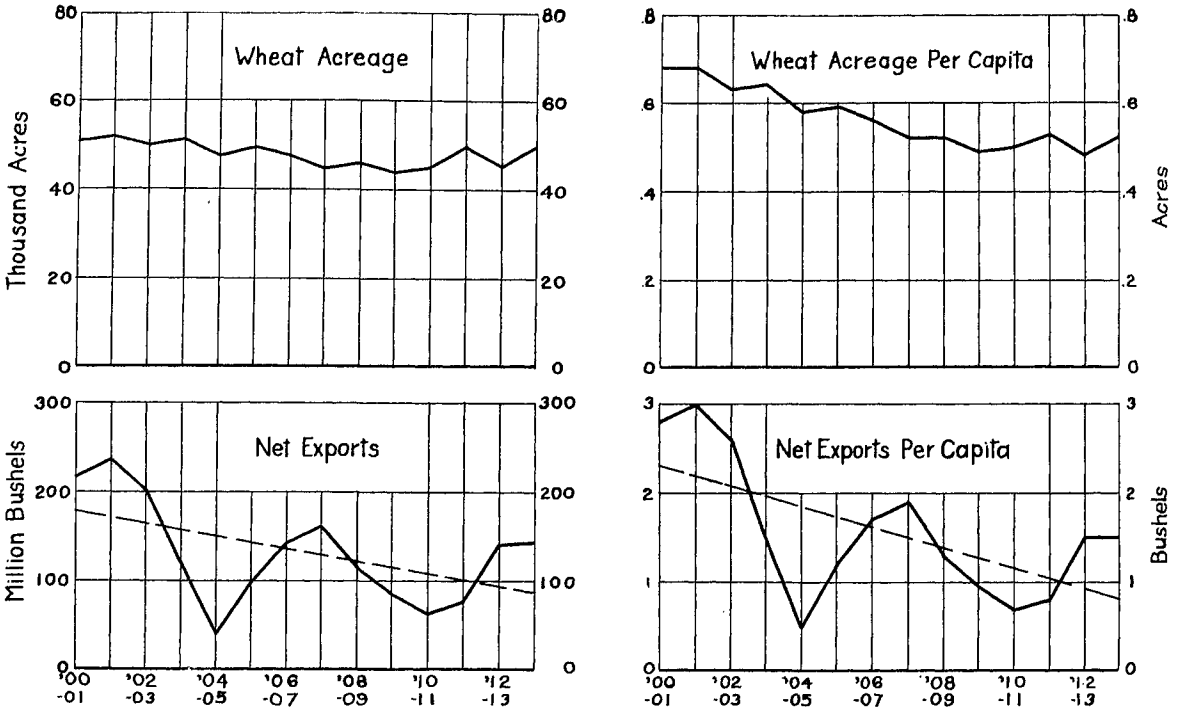
The war caused an abnormal expansion of wheat-growing—both abnormal from the standpoint of historical trends and abnormal with respect to internal agricultural practices, since established crop rotations

were thereby disrupted. At the same time, the war and post-war periods have intensified the normal expansion of wheat-growing in Argentina, Australia, and Canada.

The results of these expansions of wheat-growing, despite the lapse of wheat export from Russia, during the years 1921–24, are well known. With fairly normal average yields, in the face of reduced purchasing-power in Europe, the production of wheat in the exporting countries was so large that, except at low prices, the surpluses could not be effectively absorbed by the importing countries. The result was a buyer's market for wheat in the world during this period. In the United States, despite continuous contraction in wheat acreage each year after 1919, the surplus of wheat during 1921–24 was marketed at a loss to the growers as a whole; and the situation culminated last year in the appeal by the United States Department of Agriculture to have wheat fed to animals in order to get rid of it. America's wheat surplus contributed to a world supply that made for low world prices, and these were reflected back, in considerable measure, to most American wheat-growers, whether their product was sold at home or abroad.

At this time appeared what may be termed the double-standard theory of marketing, embodied in the McNary-Haugen Bill. According to this theory, the home price of wheat in the United States could be released from the depressing influence of the world price by removing the trading operations of the export surplus from the cash and futures markets. It was urged that flour millers, bidding against each other behind a tariff wall, would drive up the price of wheat, presumably to the general price level, provided that all wheat in excess of domestic needs were removed from the home markets. An Export Corporation would effectually fix the American price by offering to purchase wheat at a figure set with relation to the general price level, in effect buying at this price the exportable surplus, while millers competed in purchasing supplies for their mills. The sur-

CHART 1.—UNITED STATES HARVESTED WHEAT ACREAGE AND NET EXPORTS, TOTAL AND PER CAPITA, CROP YEARS, 1900–14



plus of wheat thus removed from the American cash and futures markets was to be disposed of on the world market for whatever it would bring, and the loss prorated back to the wheat-growers.

According to this double-standard theory of marketing, the gain per bushel on the larger fraction of the crop consumed at home would outweigh the prorated loss per bushel on the smaller proportion of the crop sold abroad at a lower price, far enough to make the net weighted return remunerative to the large majority of wheat-growers in the United States. This was denominated the "equalization of agriculture with industry." Labor, it was urged, has a high-priced home market due to restriction of immigration; manufacturers have a high-priced home market due to the tariff; agriculture would, under the McNary-Haugen Bill, have a high-priced home market through the sale of the domestic and export fractions of a crop on two different price levels. It was recognized, though not emphasized, that the proposal called for improving the status of wheat-growers at the expense of domestic wheat-purchasers.

The proponents of the McNary-Haugen Bill consisted of three groups. Some regarded the situation as an emergency and the measure as justified by the peculiar exigencies of the situation, especially the fixed war-price of wheat, as a relief designed to stave off insolvencies among wheat-growers and keep them on the land until they could retrace their steps, return in part to mixed farming, and restore the more balanced state of agriculture that existed before the war. Others regarded the measure as an undertaking to equalize agriculture with manufacturing during a period of transition, until the growth of population should absorb the exportable surplus and place the country on a domestic basis, the wheat acreage being regarded as fixed during this interval. The third group regarded the surplus of wheat not as an emergency misfortune, nor yet as a feature of an unavoidable but temporary situation, but rather as normal and advantageous, supported by reasons of national policy at home and abroad.

The position of the last group of proponents of the McNary-Haugen Bill is well illustrated by the language of the act and by statements made at Congressional hearings upon it.

Thus the McNary-Haugen Bill adverted to

> the necessity in part for the existence of such surpluses in order to safeguard the domestic market against uncertainties of yield.[1]

And John H. Hagan, Supervisor of Grades, Weights, and Measures of North Dakota, in the hearing on the Norris-Sinclair Bill before the House Committee on Agriculture, January 8, 1924, made the following statement:

> As a matter of fact, we should have 200,000,000 bushels of wheat for surplus in this country. We should have it all along.[2]

On the contrary, the position of the student of agriculture who regards the exportable wheat surplus of the United States as something akin to misfortune, was stated by Senator Capper in his address before the National Wheat Conference, held in Chicago, June 19–20, 1923:

> If America were a wheat importing nation the economic situation of our greatest cereal would be on a different plane, one on which the producer would be far happier than he is today. He would have the better homes and schools and churches to which he is entitled, and his standard of living probably would be on a very satisfactory basis.[3]

If Senator Capper was right, the interests of American wheat farmers are injured by the continuous production of a surplus of wheat. If certain views urged in support of the McNary-Haugen Bill are correct, public interest demands the annual production of a wheat surplus over domestic requirements; and if this must take place at a loss to producers, it is appropriate to adopt measures to compensate wheat farmers for injuries suffered in producing the surplus for the national good.

The three groups of supporters of the McNary-Haugen Bill naturally have differ-

[1] S. 1682, 68th Congress, Part 2, Sec. 21, Sub-Sec. (4).
[2] Hearings, House Com. on Agric. on H. R. 2659, p. 34.
[3] Published proceedings, p. 47.

ent reactions toward the higher price of the present year. Although the average farm price received for the 1924–25 wheat crop by no means approximates the pre-war ratio to the general price level, it is nevertheless regarded as a remunerative price, at least for the hard spring wheat and hard winter wheat belts. The claim for the double-standard scheme of marketing as an emergency measure is, therefore, generally abandoned. Yet those who regard the position of the wheat-grower as in transition until we have reached the domestic basis, believe the measure should be available whenever again the farm price of wheat falls to an unremunerative figure. Those who believe that the maintenance of a surplus of wheat represents a desirable positive policy continue to regard a double-standard marketing provision as necessary, despite the possession this year of a remunerative price with an open world market, since they deem safeguarding the outlook of the farmer imperative.

It is clear that the experience of the present year affords no guarantee of a continuously remunerative price of wheat to the American farmer. He profited this year from an unusual combination of fortuitous circumstances. In a year of generally low crop yields of poor quality wheat, in a year, moreover, of improvement in Europe's purchasing power, he harvested excellent yields of high-quality wheat; because of world conditions his wheat sold at good prices.[1] True, the world's market did not feel the full effects of this stringency until the American farmer had marketed most of his wheat; hence the weighted average farm price per bushel for the year will probably not be much over $1.20, as compared with an average of about 95 cents for 1923–24 and a farm price in January 1925 of $1.62. To be sure, the price outlook for 1925–26 seems at present favorable to growers, and an early recurrence of the unfavorable combination of circumstances that characterized 1921–24 appears quite improbable. Yet with average yields a farm price even higher than this year's average would be unremunerative to many growers. The circumstances this year were exceptionally favorable to the American producer; he cannot count upon an equally favorable combination in subsequent years.

It is, therefore, pertinent to consider whether or not a wheat surplus in this country is desirable or undesirable, dispensable or indispensable from the standpoint of national interest. It is important to determine whether the pre-war trend toward a domestic basis is continuing in the post-war period, and to observe what are the implications of such a change or of measures designed to alter this trend. The meaning and implications of wheat-production on a domestic basis, from the several standpoints of producers, manufacturers, distributors, and consumers, form the subject of the present exposition.

II. BASIC DEFINITIONS

As a preliminary to discussing the dispensability of an export surplus, it is advantageous, indeed essential, to clarify a few fundamental concepts. In particular, we must at once distinguish two very different meanings of the term "wheat surplus." This term may signify either stocks as of a given date or surplus over a crop year. The former is, so to speak, a balance sheet item; the latter, an item in the operating account.

Further, it is necessary clearly to define and to qualify "farm reserves," "administrative stocks," "carryover,"—all balance sheet items; and "exportable surplus" over a year. These are in part statistical items, arrived at in a specified way; in part they include elements not at present susceptible of statistical measurement.

Farm reserves proper consist of wheat held for the purposes of the grower. Many growers carry over seed wheat. Other growers carry over wheat as insurance against crop failure of other cereals. We have no way of measuring these reserves, though they are probably not large for the

[1] See WHEAT STUDIES, No. 3, February 1925.

United States. The Department of Agriculture makes an estimate of "Wheat on Farms" as of July 1, when the reserves are usually at a minimum. This estimate includes, beyond farm reserves proper, wheat that the grower has been unable or unwilling to sell. The wheat on farms on July 1 during the past five years has averaged 41,040,000 bushels, while in the five years before the war it averaged 32,276,000.

The *administrative stocks* of wheat (including flour) belong to elevators, traders, flour mills, and bakeries. In elevators and warehouses and on rails are wheat stocks that are on the way to the mills and to export ports. To maintain continuity of operations and contractual relations, mills keep a certain amount of wheat on hand; they also have a stock of flour in process of aging, and a stock of flour ready for delivery. The milling stocks of raw wheat, of material in process of manufacture, and of finished flour must be maintained in certain positions if the best financial returns are to be achieved, and these positions vary from season to season. We possess for the first time, through the new monthly milling census of the Department of Commerce, a reasonably accurate estimate of the extent of milling stocks on July 1, 1924. Flour stocks are also carried by factors, brokers, wholesalers, and retailers. We have no reliable estimate of bakery stocks, and only imperfect estimates of other flour stocks outside the mills. Large bakeries usually carry several weeks' supply, on hand, in warehouse, and in transit. Small bakeshops buy from week to week.

The administrative stocks vary from time to time. If there is abundance of wheat of all varieties and in good qualities, the administrative stocks may be different in amount and in position from those required if there is a scarcity of wheats of one or all kinds or if the qualities are poor. The existence of separate harvest seasons for hard winter and hard spring wheats is an advantage in position. One way to estimate administrative milling stocks for the large mills is to secure an estimate of outstanding hedges on a particular date. At present it is not possible to do so. Possibly forthcoming data of the Grain Futures Administration may shed some light on this subject, if they enable us to know what proportion of the visible wheat is hedged and how much of the volume of hedged wheat is included in the visible supply. The visible supply (which is contained in the administrative stocks) at present is to a considerable extent related to the export of wheat. If we were reduced to a domestic basis, it seems probable that regular figures for wheat hedged and visible supply might be used both to illustrate the volume of administrative stocks of wheat needed at the different seasons of the year and to indicate the position at a particular moment. If there were no fobbers[1] and exporters, the stocks of wheat and flour necessary for millers, jobbers, wholesalers, and bakers to carry on their daily operations and cover their commitments, would be smaller than they are at present.

All in all, it may be questioned whether, if we were on a domestic basis, as much as 50 million bushels of wheat carried over from the old crop, as of July 1, would be necessary, year in and year out, in order to provide ample administrative stocks for the trade. Such stocks, as ascertained by the United States Grain Corporation, were at the beginning of the years 1917–18, 1918–19, and 1919–20, respectively, 45.9, 18.5, and 43.6 million bushels.

By *exportable surplus* we understand the volume of wheat which could be exported during a particular crop year without disturbing the normal relations of manufacture, transportation, and consumption of wheaten products in the country and without trenching upon necessary farm reserves and administrative stocks, and from which the balance not exported or otherwise disposed of would figure in the carryover into the new crop year. If the world wheat price is low, the exportable surplus will be smaller than if the world price is high.[2]

[1] Merchants who make a practice of selling wheat f. o. b. to exporters.

[2] Variations of exportable surplus with price hold especially for the Balkan States and India. The exportable surplus of Canada, Argentina, and Australia is much more easily determined than the exportable surplus of the United States, because the ratio of crop to population is so much smaller here, and variations in the size of crops affect predominantly the export surplus.

If we have a representative crop of wheat, the exportable surplus can be roughly forecast by subtracting from the reported crop the estimated disappearance for seed, tail wheat, wastage, and domestic milling, with due reference to the characteristics of the crop. Such estimation is made more difficult in the United States by reason of the fact that our current specifications for domestic flour call for wheats of better than our average quality. Variations in wheat qualities therefore materially affect the amount of the exportable surplus, as well as its composition, since varying quantities of low-grade wheat cannot bear the marketing costs and are disposed of on the producing farm.

The term "exportable surplus," thus defined, has a meaning different from "total available surplus" as employed by Broomhall and "total exportable surplus" as employed by Sir James Wilson. These apparently mean the maximum amounts that could be exported with a maximum price attraction.

By *carryover* is understood the net total of farm reserves, administrative stocks, and unexported exportable surplus of wheat in all positions, as of the end of the crop year. Such a figure can be estimated, but there is no satisfactory statistical measure of it. It includes visible supplies, but much more. Like the crop estimate, the figure of carryover is subject to revision and correction, and the revisions are sometimes notably wide. While the carryover includes essential farm reserves and necessary administrative stocks, its commercial importance, especially to growers and to markets, lies not in these two fractions, but in the fraction that represents unsold wheat otherwise available for merchandising.

A certain carryover from one crop year to the next is *prima facie* indispensable. It is necessary to ensure a steady flow of wheat into use during the period of harvest, which may be late or early, and while the marketing of the new crop proceeds under the varying decisions of a large body of farmers. If the carryover is too small, millers may be seriously embarrassed and the cash prices of wheat and flour may rise temporarily. If it is needlessly large, the cash price of wheat and flour is depressed, for a longer or shorter period, and farmers who are compelled promptly to market their wheat lose thereby. A certain minimum carryover is thus indispensable as a merchandising stock; it is merely the size of carryover desirable which is open to discussion.

These definitions and distinctions must be carefully borne in mind in considering the *pros* and *cons* of the indispensability of a wheat surplus as a matter of national policy. The major point in the problem is clearly whether it is in the national interest that American farmers should produce an exportable surplus of wheat.

III. THE NATURE OF AMERICAN WHEAT EXPORTS

Our wheat exports are not a unit. We have two broad classes of wheat exports, one of which may be termed principal, the other incidental. These two kinds of exports have different commodity meanings and somewhat different bearings on wheat prices.

Considering first the exports of wheat as grain, principal exports consist of representative milling wheats[1] raised in excess of domestic milling requirements and sold on the world markets in competition with representative wheats from other countries. Incidental exports consist of particular kinds of wheat which compete less closely with representative wheats either at home or abroad. This incidental wheat filters into the world market without invoking in the same way or to the same extent the reaction of the world price on the home price which attends the export of representative wheats.

These incidental exports of wheat are of several kinds. Durum wheat is used chiefly in the manufacture of alimentary pastes

[1] Under representative wheats are understood the higher grades of standard varieties of milling wheats —hard spring, hard winter, red winter—which have a regular quotation at home and abroad, like Rosafé, Manitoba, and Karachi.

(macaroni, etc.) largely consumed in Mediterranean countries. The competing producing areas are Russia and Northern Africa. Although durum wheat is used to some extent for bread flour, and bread wheats are used to some extent in the manufacture of alimentary paste, for the most part, as to growing, marketing, and utilization, durum wheat stands apart from ordinary wheat quite as much as rye does. In the Pacific Coast states are raised soft white wheats that fit into particular markets. Some Pacific wheat-growing is as purely an export industry as is the growing of malting barley in California. Some high-grade soft white wheats go to the United Kingdom for particular uses apart from the manufacture of bread. Lower-grade white wheats go to the Orient.

Aside from these, substantial quantities of our wheat exports in ordinary years are lower grades of soft red winter wheat, hard spring wheat, and hard winter wheat, after the American mills have made their selections and taken the best of the crop. These too are essentially incidental exports, in the main. If one contrasts the wheats exported from the crops of 1921, 1922, and 1923 with those utilized in the domestic manufacture of flour, one observes the wide contrast in quality, a difference not fully appreciated unless one includes also the high-grade wheats imported for domestic consumption. Wheats, moreover, are mixed for export so as to have the mixture grade No. 2, deliverable on the Liverpool contract market.[1] Such wheat is a principal export. Below this are odd lots, undesirable varieties, and lower grades, sold on sample, or on arbitration, or at a heavy discount below the futures price. Principal exports shade into incidental exports, but the distinction is nevertheless important for its bearing upon prices.

In a particular year, such as the present, the crop may be large enough and good enough to enable us to export considerable representative wheats; but for the most part we export what does not meet our requirements—wheats grading varyingly low from our standpoint, although good enough for the import trade of many countries.[2] Sixty per cent of wheat exported in the fiscal year 1923–24 was of the discount type. In effect, this is a marketing of the culls. This point must not be lost sight of when we compare exporting wheat with exporting structural steel, typewriters, and finished goods. We market finished goods made to specifications of the foreign purchaser; but we do not regularly market rejected products of our factories after the American requirements have been fulfilled.

The export in the manufactured state, flour, stands on a different basis. The buyer in the European flour market finds import flours from the different exporting countries quoted for a series of overlapping grades—fancy patent, top patent, export patent, bakers' patent, straight, first clear, second clear. These flours from the different exporting countries meet each other and also domestic straight-run flours ground from imported wheats and domestic flours ground from blends of imported and home-grown wheats. To some extent, the overseas export flours meet export flours from other countries of Europe. The picture shifts in each season as a result of variations in quantities and qualities in the different importing and exporting countries. These flours are roughly grouped into trade-mark quality flours at the top, clears at the bottom, and what may be termed standard flours between.

Our exports of domestic flour range from patents to clears. Distinctions must be drawn between the three groups of flour exports. (1) There is an established export trade in high-grade flour, often under trade-mark brands, going to all countries of the world, with keeping qualities which fit it to endure the exigencies of transportation and climate. We export the softest white flours for the manufacture of scones in Scotland and the high-grade hard flours for making bread in temperate and tropical countries. These quality flours meet the quality flours of Australia, Canada, and

[1] T. F. Hammatt, U. S. Dept. of Commerce *Trade Information Bulletin* 183, 1924, pp. 12–14, and *Report of the Royal Grain Inquiry Commission*, Dominion of Canada, 1925, pp. 75–107.

[2] There are numerous comparisons to this effect, between American wheats and those of Canada, Australia, and Argentina in the recent report of the Royal Grain Inquiry Commission of Canada.

Hungary in the markets of the world, where, however, the American millers possess advantages in trade experience, technical facilities, and capital resources. The export trade in quality flour represents an advantageous and profitable outlet for both flour mills and wheat-growers. (2) We export a large volume of clear flours for which there is little demand at home. This is a dumping trade. The price of patent flour at home depends upon the prices that can be secured for mill feed at home and for clear flours at home and abroad. The prices of wheat to the American grower and of bread to the domestic consumer both depend to some extent upon the export trade in low-grade flour. These clear flours meet corresponding flours from other countries on a price footing. (3) The third group of flour exports comprises flours that are not of the highest qualities nor yet clears, but represent instead average flours and proceed chiefly from the desire of large mills to maintain capacity operation. These flours are apt to encounter in foreign markets sharper competition than the special flours or the clears.

The prices of these three types of export flours depend in part upon the weighted domestic price of wheat. To some extent, the prices at which they are sold abroad in competition with other flours reflect back to the American mill the world price of wheat. This price reflection is less in the case of the special flours and clears than in the case of other flours. Many other factors, however, in the total accounting of the American milling industry affect the prices at which these flours may be sold abroad. The statement is warranted that the sale of flour abroad has not reflected back the world price of wheat in the same way or to the same extent as the export of representative wheat. In large measure, therefore, our flour exports in ordinary years resemble incidental rather than principal exports.

The volume of export of flour and of incidental export of wheat is surprisingly large, contrasted with the volume of the principal export. Witness the figures for 1923–24: net export of wheat as grain, 51,543,000 bushels, and net export of flour as wheat, 76,907,000 bushels. Six times since 1902 the exports of flour have exceeded the exports of wheat in volume. The crop year 1904–05 gives an excellent illustration of the persistence of export of flour with practical disappearance of export of wheat. Our crop for the year was 597,000,000 bushels. We exported 4,396,000 bushels, imported 3,103,000 bushels and re-exported 571,000 bushels, leaving a net export of wheat of 1,864,000 bushels. The flour export in terms of wheat was 39,720,000 bushels, the flour import 184,000 bushels, the re-export 17,000 bushels, leaving the net flour export equal to 39,553,000 bushels. In that year, while our exports of flour were large, we were net importers of representative wheats.

CHART 2.—UNITED STATES WHEAT PRODUCTION AND EXPORTS OF WHEAT AND FLOUR AS WHEAT, CROP YEARS, 1900–24

(Million bushels)

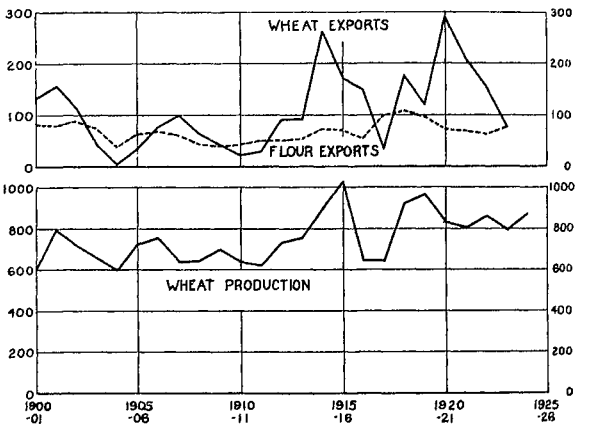


Chart 2 gives the exports of wheat and flour, respectively, and the crop of wheat for each year during the period 1900–01 to the present. Unfortunately we do not possess even approximate data on wheat ground into flour over the entire period. But the relations indicate broadly, what is evident from a scrutiny of the commodity aspects of the subject, that export of wheat tends to vary with the crop, while export of flour varies rather with the volume of milling. The milling industry does not merely meet a demand. To a considerable extent it seeks one; a certain outturn is the expression of efficient operations, and a market is actively sought for the excess product which results.

In the light of these distinctions it is possible to define being "on an export basis" or a "domestic basis" in terms of the marketing position. From a commodity standpoint, being in the export position may be defined as being engaged in the export of representative wheats. From the standpoint of market procedure, being a wheat export country means parity in wheat prices, both cash and futures, on the American and British grain exchanges, with allowance for shipping and other charges. Under such circumstances, an American exporter can buy wheat on the cash market, hedge the transaction, and be in position to complete the sale to a European importer; the European importer is in position to accept a cash offer from an American merchant for a specified delivery, hedge the transaction in Liverpool, and then effect a cash sale to the British miller. In every normal market, of course, there are days when this cannot be done, when the domestic price rises so far above the Liverpool parity price as temporarily to check export trading. Except in a period of unusually small fluctuations in prices, wheat is bought for export on the breaks of the market when, because of a slight transient rise in Liverpool or a slight transient decline here, the transaction offers an "edge" to the trader. Being an export country in wheat means being on a price parity with Liverpool for both the cash and the futures markets, adjusted for grades and discounts and with established premiums, within the normal range of trading fluctuations. Selling odd lots of wheat, perhaps on arbitration, does not reasonably fall under this category.

Being on a domestic basis means that parity does not exist between cash and futures prices for wheat in our markets and in Liverpool. Under such circumstances, an exporter cannot purchase cash wheat and hedge the transaction with any reasonable hope of finding a European purchaser; European importers would not buy cash wheat in the United States against a hedge in Liverpool when the American price is notably above the Liverpool price. From September 1923 to July 1924 we were on the domestic basis in hard spring wheat. The Minneapolis cash and future prices were so far above the Liverpool prices for the same kind of wheat obtainable from Canada as to check export of hard spring wheat from the United States. During part of the season we were on the export basis for hard winter wheat; and during part of the autumn the cash and future prices for No. 2 red winter wheat made export possible. During the present season we are on the export basis for both hard spring and winter wheats, but have not been on the export basis for good soft red winter or good soft white wheats except at intervals. In times of unusual price fluctuations, an exporting country may be on and off the export basis with almost bewildering oscillation, a phenomenon of which the transactions between Europe and Canada, the United States, and Argentina during this season furnish striking illustrations.

The export of flour and the incidental export of wheat continue after principal export is made impossible by domestic price being above world parity. During the year 1923–24, when we were on a domestic basis in hard spring wheat, export of hard spring wheat flours continued. During the same time durum wheat, grown side by side with Marquis wheat in the Dakotas, was exported in response to the demand for its peculiar qualities. Similarly, we are not on the cattle-export basis, but we export many cattle products; we are a heavy net-importer of wool, yet we have a considerable incidental export of woolen goods.

It would lead us too far afield to determine in detail why American millers can sell abroad flour ground from wheat whose price is too high to permit it to pass into export as principal export. Questions of volume of production, turnover, relation of export fraction to domestic fraction, blendings, established value of trade-mark brands, costs of milling, and other operative factors enter in. We may be sure that incidental export of wheat and regular export of flour would continue even though all of our representative wheats through a season should be above world price parity.

Though it lies outside the scope of the present discussion to undertake a comparison of flour manufacture in the different

exporting countries, or an evaluation of the trade positions of different foreign flours in the importing countries, it is appropriate to make a few observations bearing on the competition between American and Canadian export flours. Including the new Spillers Mill in Calgary, the Canadian flour capacity is about 150,000 barrels for the twenty-four hour day.[1] The outturn of Canadian flour is far below the capacity of the mills and the supply of wheat. Since the war Canadian flour exports have been expanding rapidly, while those of the United States have shown no consistent trend, as shown in the following rounded figures in million barrels taken from official sources:

	1920–21	1921–22	1922–23	1923–24
United States	16.2	15.8	14.9	17.3
Canada	6.9	7.9	11.1	12.0

Canadian flour has been replacing American flour, especially in northwestern Europe. Our flour exports to the United Kingdom have declined heavily, largely, according to the trade, as the expression of higher and more uniform gluten content of Canadian wheat. Most of this wheat is milled in England, but imports of Canadian flour continue to be heavy. The trend is shown in the following rounded figures of British flour imports for calendar years (million barrels) taken from official sources:

	United States	Canada
1921	4.5	3.3
1922	2.6	3.7
1923	2.2	3.1
1924	2.1	3.0

According to the report of the United States Tariff Commission, the average "cost of milling, selling, and administration of hard spring wheat flour" was 7.8 cents per hundred pounds higher in the United States than in Canada; and the average cost of milling, selling, and administration of hard spring wheat feed was 0.3 cents per hundred pounds higher in the United States than in Canada. According to this study, which applied to only one season, the charges for labor and containers were lower in the United States than in Canada, but these were offset by higher expenses for manufacturing, advertising, and selling. On paper, Canadian and American flours have about the same freight rate from mill to Europe; in fact, however, Canadian shipments frequently enjoy a lower rate. The figures given are averages, and the manufacturing and selling costs of some American mills are lower than the Canadian average. American mills compete effectively against Canadian mills in the world market. The difference in costs may be set against either the domestic or the export fraction, but this is done much more easily in the case of American flour than in the case of Canadian flour. The export flour of the United States is less than 20 per cent of the nation's total flour production, while the export flour in Canada is practically 60 per cent of her production. The domestic market is the primary market in the United States, the export market the primary market in Canada. Thus the American miller can shade the export price in a manner that is not possible for the Canadian miller. There is less dumping of clear flours from Canadian mills as compared with that from American mills. Furthermore, American mills enjoy a much wider market for mill feed than is the case in Canada, a feature which indirectly facilitates export of American flour.

Canada enjoys preferential trade relations with various parts of the British Empire, also favorable trade treaties with Italy and Spain, which naturally find expression in increased exports to many countries which have always been good markets for American flour.

The present ability of American mills effectively to compete in the flour markets of the world receives a particular illustration in the fact that our mills are regularly able to import wheat from Canada and export the flour in competition with Canadian flour. Every year a variable amount of Canadian wheat is imported, in transit or under drawback, to be ground and reexported in the state of flour, this volume to join the larger stream of domestic flour going abroad. This represents, in general terms, the manufacturing efficiency and trading ability of our large milling organizations above those of the smaller con-

[1] John J. Conklin, "Canadian Trade Development," *Modern Miller*, Feb. 10, 1925, p. 109.

cerns in Canada. Apparently, Canadian opinion itself holds the view that for the immediate future at least, American flour mills possess distinct advantages over the Canadian mills, since in the report of the Royal Grain Inquiry Commission the proposal is made that an export duty of 42 cents a bushel be placed on wheat entering the United States for grinding for re-export. But Canadians are equally convinced that higher wheat prices in the United States are certain to redound to their advantage.[1]

With this country on the domestic basis, one would expect to see a relatively lower price in Canada for wheat with higher and more uniform gluten content. This advantage American millers would have to overcome through superiority in milling efficiency and merchandising ability. When the Canadian milling industry overtakes that of the United States in the processes in which we are now their superiors, our exports may decline and American milling organizations may be expected to establish mills in Canada. The extent and rapidity of development of these trends are for the future to determine. Our going over to the domestic basis would probably accelerate the trend in favor of export Canadian flour, which is already evident with the country on the export basis. How far this would proceed, cannot now be estimated.

It is, therefore, erroneous to assume, as many do, that if we are to export any wheat and flour the American price of wheat must be closely tied to the world price. We may have a considerable volume of export of flour and of incidental exports of wheat while our prices of representative milling wheats are above the level of world prices. For practical purposes, we may be on a domestic basis for wheat in general while continuing the export of flour and the incidental export of wheat. We must distinguish sharply these two different components of our export surplus if we are to reason correctly about its dispensability or about what to do with it if its disposition becomes a problem. Broadly stated, we may expect to continue the export of the manufactured product, flour, after the export of the raw material, wheat, ceases. We export flour to practically every flour-importing country. The European takings were only 43 per cent of the total in 1923 and but 49 per cent in 1924; whereas, of our wheat, 80 per cent in 1923 and 87 per cent in 1924 went to Europe. In this wide distribution of our flour exports we find added ground for expectation of continuance, and also additional illustration of the difference between wheat export and flour export.

IV. IS A WHEAT SURPLUS DESIRABLE AS AN INSURANCE OF THE NATIONAL FOOD SUPPLY?

The dispensability or indispensability of an exportable surplus of wheat in the United States can be considered with reference to three principal points—its assumed importance as insurance against food shortage; its implied inevitableness in our post-war agriculture; and its significance for various business interests.[2]

The first point suggested is that the production of a wheat surplus is indispensable as a means of guarding against food shortage. The carryover of wheat has a historical foundation—insurance against famine. The early literatures of India, China, Egypt, and Palestine contain references to stores of grain as a provision against lean years, and the idea is deeply embedded in the traditions of most peoples. Consumption being continuous and production seasonal, in an isolated country or in one surrounded by enemies, in a region subject to frequent and severe crop failure, the carryover was not merely a matter of trade convenience—it represented an indispensable social insurance. Siam not long since had a law prohibiting export of rice unless a three-year supply was in hand. India con-

[1] *Report of the Royal Grain Inquiry Commission*, Dominion of Canada, 1925, p. 215.

[2] It might also be argued that the production of an exportable surplus makes for stability in wheat prices in this country; but the argument is involved and by no means convincing. Certainly stability of wheat prices cannot be attained by the production of an exportable surplus.

trols export of wheat until the rainfall of the new season is reasonably assured.

It is recognized that such insurance could be secured by impounding a national wheat reserve against emergencies, in other words constituting a special addition to the carryover; and that this policy is open to all nations, whether or not they produce wheat for export. It would be admitted that a certain element of insurance is regularly provided in the carryover, of importing and exporting nations alike. But, some believe, we can obtain adequate insurance against food shortage, without impounding national reserves, by normally producing a substantial surplus over domestic needs, so that a large carryover can be easily provided when crop shortage is in prospect. It is only in this sense that the production of an exportable surplus could be regarded as indispensable for insuring the food supply.

Historical famines have rarely been due to lack of supplies, but usually to breakdown of transportation or to lack of purchasing power by particular classes. From this fact is derived the principle on which famine relief in India is administered by the British Government. The last famine in China was due to breakdown in transportation and distribution. The available records of famines in India and China convince one that the natural boundaries of these countries in every case contained sufficient food to carry the population through the season if normal purchasing power and distribution had been maintained.

In Russia in 1921 and 1922 there was scarcity of foodstuffs over certain sections of the country, the result of successive short crops. According to Lincoln Hutchinson, of the American Relief Administration,[1] the available bread grains and other foodstuffs of Russia in 1921 were equal to 2415 calories per capita per diem and in 1922 to 2816, contrasted with the pre-war normal of 3106. The population of the famine areas was some 42 million, out of a total population of some 144 million. Within the famine areas, food relief was extended to some 11 million. Some 900,000 tons of food and seed were shipped in over a period of nearly two years. This was less than 3 per cent of the reported cereal crop of the country in 1921. These data indicate that the total food supply within the boundaries of Russia would have been sufficient to cover the minimal needs of the population had transportation, the currency, and political relations between different parts of the country remained intact. It was the economic breakdown of Russia that converted partial crop failure into serious famine. Last year Russia exported some 66 million bushels of bread grain while hunger stalked in some parts of the country. This year, as the result largely of agrarian disorganization, bread-grain imports are being undertaken for seed and food for certain areas, while other areas have a surplus that cannot be made available. But there is little object in comparing countries like Russia, India, and China with the United States.

Considering the world need and yield of wheat, there is a wide gap between the statistical evidence and the fears of journalists and sociologists. After dire prophecies evoked by low crops and high prices in 1897–98, the world production of wheat increased faster than population in the fifteen pre-war years. During the war, when Russia ceased to contribute to the world market and European production had gravely shrunk, there was an astonishing expansion in Canada, the United States, and elsewhere, so that overproduction rather than shortage in relation to the demand was characteristic of 1921–24. The experience of the last twenty-five years indicates that, so far as concerns the next few years or even decades, the world need not worry about having enough wheat to go around. No country need assume the responsibility of producing an exportable surplus, contrary to its economic interest, under the delusion that such a surplus is essential to the well-being of the rest of the world.

Moreover, the likelihood of widespread catastrophic crop failure is so remote as to be removed from practical discussion. The importance of variations in world supply of wheat is always a relative thing. Despite the fact that bread represents from 25 to 50 per cent of the diet in most countries in-

[1] *American Relief Administration Bulletin*, Series 2, July 1923.

volved in the international trade of wheat, the use of wheat is fairly elastic and there are many substitutes, in both importing and exporting countries. With varying crop yields, these substitutes act as buffers or shock-absorbers. This state of affairs, in the event of continued mobility of intercontinental transportation and international finance, deprives the world surplus of wheat of really noteworthy sociological importance, although its importance for the wheat trade persists.

We have had central market wheat prices in this country for over eighty years. When one scrutinizes the course of wheat prices and wheat crops during this time one becomes convinced of the rarity of a crop failure sufficient to cause serious rise in price. The prominent cause of marked rises in the price of wheat during this time has not been crop failures, but war. The notable exceptions are the year 1898–99 and, most particularly, the present crop year. We have no modern records of crop failure in the United States which placed the population of human beings or domestic animals in jeopardy. When we consider the four large wheat-growing sections of the country in the light of both weather and yield, we realize how distant is the possibility of food hazard from failure of the wheat crop. We have had failures of coarse grain crops, but never sufficient to cause more than a small slaughtering of animals on account of the scarcity of feed, after adaptations and substitutions of other feeds had been made use of. We have so many different areas and climates, and the agricultural capacities are so greatly in excess of the current needs of the population, that wheat crop failure in any direction, serious enough to represent material hardship through inability to effect adaptations and substitutions, would seem to be almost an absolute impossibility.

The modern system of finance, the carrying on of business largely on the basis of credit, the possession of a federal reserve system whereby the credit burdens of any one section are shared by all sections—these important improvements in our economic organization make the distribution of agricultural produce easy and certain in time and in space. A zonal shortage of buying power, sufficient to endanger food supplies in certain sections, seems practically impossible in the United States. Finally, our transportation facilities have been so perfected that breakdown of transportation can hardly threaten serious shortage of supplies. It is in the perfection of financial organization and transport facilities, national and international, that the United States is so greatly superior to China, to India, and to Russia.

If the United States were an agglomeration of individual states with political frontiers, the hazard of crop failure in each state would be considerable. For this reason, the hazard of crop failure in Europe is both different and greater than in the United States. Even there, with modern facilities of transportation and finance, the hazard does not warrant any country in producing a large reserve as insurance of its food supply.

It does not seem reasonable to urge military considerations in support of a large carryover of wheat. A part of the Canadian crop naturally passes into export through the United States. The crops of the Prairie Provinces of Canada would always be available to us in case of need. The idea that we need to raise more wheat than normal circumstances require as a provision for national safety, is so far-fetched as to seem out of the range of possibility.

Looking beyond our national boundaries, a world shortage due to widespread wheat failure would affect first and foremost the countries with low purchasing power, and would bring the buffer effect of substitution crops forcibly into operation. The wheat-producing areas of the world are so numerous and so varied and the possession of substitutes is so general, that catastrophic failure of the world crops on account of unfavorable weather or ravages of pests is a very remote possibility. Adaptations and substitutions would be made, if called for, all along the line, in accordance with resources, but the poorest countries would perforce practice the most extensive adaptations and substitutions. The creditor countries with largest buying powers would have the first call on available supplies for

their import needs; the poorer countries would not be in position to compete effectively. For a rich country like the United States regularly to have a surplus of wheat as a protection against the poor countries of the world, would seem absurd, a precaution out of all proportion to the emergency it might be designed to meet. In particular is this true when a large surplus is regularly produced by our next-door neighbor.

V. IS A WHEAT SURPLUS AGRICULTURALLY UNAVOIDABLE?

Broadly considered, we have four classes of wheat farmers, grouped according to the place of wheat in the farm operations. Naturally, the groups overlap.

In the first group, wheat is one of the small grains planted in a definite scheme of crop rotation. In many sections wheat is found to be better suited to the scheme of rotation than the other small grains (oats, barley, and rye); it is sometimes valued for spring pasture and for the straw almost as much as for the cash value of the harvested crop. Being part of an established scheme of crop rotation and associated with animal husbandry, the acreage of wheat among this group tends to be relatively independent of all except extraordinary price fluctuations.

The second group of farmers plant wheat for a minor cash crop, in accordance with experience in their localities and with little reference to the other uses to which their lands are put. The acreage recommended in the country-wide county wheat surveys of 1917–18 and 1918–19 included a considerable acreage of this kind, which tends to enlarge with rising price and to contract with falling price.

In the third group wheat is a major cash crop, often alternating with other cereals as major crop in a regular scheme of rotation. Sometimes, in rotation with corn, wheat alternates with oats. This acreage responds readily to change in price, particularly if the change affects wheat more than the coarse grains.

For a fourth group of farmers, chiefly in the subhumid and semiarid areas, wheat is the principal crop, possibly the only cash crop. In some sections cereal rotation is hazardous, wheat is the safest crop, diversification is difficult because soil and rainfall are poorly adapted to demonstrated practices with fodder crops, good animals are hard to secure, and land once broken is difficult to return to natural pasture or to cover with planted grasses.

Wheat production by all these groups expanded in the wheat boom of 1915–19. Unfortunately, we do not possess data enabling one to classify the war and post-war expansions state by state, according to type.

Now, is a regular surplus of wheat the combined expression of irreversible one-crop cultivation in some areas and of advantageous crop rotation in other areas, and is it consequently unavoidable?

Undoubtedly there was a time, in the course of the natural development of our agriculture, when natural expansion in wheat-growing exceeded growth of population, and a wheat surplus was agriculturally unavoidable. This is the present situation in Canada, Argentina, and Australia. There is for countries capable of large wheat production an early state of development when a wheat surplus is unavoidable; also a stage when it lies within the adaptation of agriculture to import or to export wheat; and also, in many countries at least, a stage when wheat import is practically unavoidable—each stage representing in turn the developing relations of population on the one hand to land area on the other.

A reasonable technical interpretation of our present situation is that a wheat surplus in the United States is no longer unavoidable; it now lies within the range of normal agricultural adaptation to continue on a wheat export basis or to retreat to a domestic basis, so far as principal exports are concerned. Had the world experienced no great war and had the trends of expansion of wheat-growing in the different parts of the world developed in accordance with their demonstrated potentialities, we should probably have already ceased to contribute to the world market any considerable quan-

tity of representative wheats, as the result of the natural growth of population and the development of our diversified agriculture.

It is sometimes urged that a large part of the war and post-war increase in wheat acreage is irreversible, that once the new land had been plowed for wheat it could be used for nothing else in the present condition of agriculture, since no feasible method of returning that land to grass is known. The new war and post-war wheat acreage was obtained from meadow and pasture land, from ground in use for other harvested crops, and from new subhumid and semiarid land. The largest fraction came from pasture. It is true that certain new lands in the Rocky Mountain States, in the present stage of agricultural technique and with prevailing prices of agricultural products, can be devoted to no other crop than wheat. But these lands, mostly lands of low yield per acre, have not contributed largely to the dilemma of the exportable surplus, and they do not dominate the situation. The difficulties presented by these lands once fully conceded, the fact remains that the war and post-war wheat expansion was largely in areas of diversified agriculture, where practices of crop rotation had been worked out, where alternative crops could be produced. Kansas presents excellent illustrations of this situation.[1] Indeed, in many places established schemes of crop rotation were disrupted and the expansion of wheat acreage represented an injury to established agriculture. The harvested acreage of 1924 was 28 per cent less than in 1919; the per capita wheat acreage harvested in 1924 was slightly below that of the average of the five years before the war. A large part of the readjustment has been completed.

If one scrutinizes the acreage according to states, the preponderating responsibility of areas of diversified agriculture for expansion in the wheat acreage becomes clear. Appendix Table I shows the expansion in wheat acreage by states, comparing the average acreage planted for the crops of 1912, 1913, and 1914 with the corresponding average for 1918, 1919, and 1920, and the subsequent readjustment in wheat acreage, using the average for the crops of 1923 and 1924.

Most of the wheat expansion that might be held to be irreversible occurred in Montana, Idaho, Wyoming, Colorado, Oklahoma, and Texas, though the new wheat acreage in these states was by no means wholly of this type.[2]

Table 1 compares the planted acreage in this group of states with that of all other states, for a pre-war period, the peak period, and the last two years. For this special group of states, the average planted acreage for the crops of 1912–13–14 was 5,165,000; the average for 1918–19–20 was 11,111,000, an increase of 5,946,000. The average planted acreage of the rest of the country in the first period was 47,759,000 and in the latter period 57,526,000, an increase of

TABLE 1.—ADJUSTMENT AND READJUSTMENT OF WHEAT ACREAGE SINCE 1912, IN SPECIAL GROUP OF STATES COMPARED WITH OTHERS*

(Thousand acres of planted area)

Crop of	Special group *a*	All other states	Total
1912	4,392	48,080	52,472
1913	4,753	46,766	51,519
1914	6,351	48,430	54,781
1918	9,517	56,015	65,532
1919	12,256	62,133	74,389
1920	11,559	54,429	65,988
1923	12,046	54,195	66,241
1924	10,655	47,307	57,962
Averages			
1912–14	5,165	47,759	52,924
1918–20	11,111	57,526	68,637
1923–24	11,351	50,751	62,102
Net change			
1912–14 to 1918–20	+5,946	+9,767	+15,713
1918–20 to 1923–24	+ 240	–6,775	– 6,535
1912–14 to 1923–24	+6,186	+2,992	+ 9,178

* Source: *Agriculture Yearbook 1923.*
a Montana, Idaho, Wyoming, Colorado, Oklahoma, Texas.

[1] According to Professor W. E. Grimes, eastern and central Kansas increased their wheat acreage between 1913–15 and 1921–23 some 1,580,000 acres; western Kansas only 1,380,000 acres. Paper read before the Farm Economic Association, Chicago, December 31, 1924.

[2] The small areas of the same kind of land in Nebraska, western Kansas, and the Dakotas may be regarded as offset by wheat land in the first group of states known to be amenable to diversified agriculture.

9,767,000 acres. Thus the expansion in this special group of states, while relatively large, was only about 38 per cent of the total expansion. If wheat acreage had expanded in the special group but not in the rest of the country, the average acreage for 1918–19–20 would have been 58,870,000 acres instead of 68,637,000. The war expansion in the special group resulted in an increase of the crop (average of the three years) of 52 million bushels over the average of the three pre-war years; the increase elsewhere accounted for 60 million bushels. The wheat surplus of the peak period cannot, therefore, be ascribed predominatingly to the yields on the one-crop subhumid and semiarid lands of the Rocky Mountain States. If the states south and east of Minnesota and the Dakotas face the question of wheat acreage as those states have done, the problem of the Rocky Mountain States will cause no concern.

Table 1 also indicates the measure of readjustment that has taken place. Taking average figures, it appears that the decline in acreage has been confined to the states outside this special group. These other states show a reduction in planted acreage from 1918–19–20 to 1923–24 of 6,775,000 acres, and a net increase since 1912–13–14 of only 2,992,000 acres. In the special group of states, however, there has been no reduction in wheat acreage.

So far as the place of wheat in our diversified agriculture is concerned, there is nothing in the scientific literature of agriculture to convince one that the pre-war wheat acreage was too low and that the post-war wheat acreage has been a more correct expression of the proper place of wheat in the scheme of rotation. Quite the contrary, the post-war wheat expansion was a reaction in response to price and war appeal and led to departures from correct diversification. It is true that the decline in horses and the extension of automotive traction make oats a less desirable crop than was the case before the war. The prohibition of alcoholic beverages has reduced the demand for barley. Must wheat take the place of these? By no means. American farmers do not yet adequately appreciate the use of oats, barley, and rye in the feeding of animals, a use well understood abroad, and repeatedly demonstrated in agricultural experiment stations in different parts of this country. In the case of Nebraska and Kansas moreover, the post-war expansion in wheat acreage was, in considerable part, directly at the expense of corn, legumes, and animal husbandry.

In summary, if one were to go over the situation state by state and catalogue the wheat acreages in accordance with reasonable definitions of diversified agriculture, as demonstrated in practice on the one hand, and of irreversible one-crop cultivation on the other hand, one would secure a figure for acreage whose yield in average years would not furnish an exportable surplus of contract grade milling wheats.

It is clear, on the contrary, that for the immediate future at least, the production of some exportable surplus of durum wheat, soft white wheat, and cull wheats, may be agriculturally well-nigh unavoidable. In the Dakotas, farmers can turn from durum to Marquis wheat by adopting summer fallow and using clean selected seed. Only in Idaho, the triangle of Montana, eastern Washington, and eastern Oregon is there a serious problem with wheat. Should export become particularly unprofitable, agricultural adaptations to reduce the surplus can be confidently expected. But these incidental exports do not, in large measure, create the problem of the exportable surplus which we are investigating.

If one tries to imagine what the present wheat acreage of the United States would have been if the United States and Canada had been one country, he comes surely to the conviction that the area of the United States would not now be producing an exportable surplus of wheat. Indeed it is quite within the bounds of possibility that shipments from the Canadian area would more than offset, in an average year, the volume of incidental exports from the area of the present United States.

Because of inevitable fluctuations in crops from year to year, a country cannot expect to be on an accurately adjusted domestic basis. In years of shorter crops we would import from Canada. In years of larger crops, some wheat might be ex-

ported, but a more probable disposal would be feeding to animals. Wherever wheat is grown, a recently discovered method for converting straw into compost and the wider industrial utilization of straw hold promise of by-product return per acre. In all that has here been said, consumption has been regarded as constant. It is not to be expected that wheat consumption will expand and contract notably with domestic supplies in this country. There are few reasons for anticipating an increased ingestion of wheat in the near future. Farmers are in position to take up the slack by using the lower grade wheat as feeding stuff. This represents the natural course with the country on the domestic basis. Thus, on a domestic basis, in lean years wheat would be imported from Canada; in long years more of our low-grade wheat would go to feed domestic animals.

VI. IS A WHEAT SURPLUS INDISPENSABLE TO BUSINESS INTERESTS CONCERNED WITH WHEAT?

It is desirable and necessary to consider the position of business interests involved in the customary wheat surplus. If wheat-growing should become contracted to the domestic basis, the lapse of wheat export will have a direct effect on numerous classes which contribute services in connection with the export of wheat. Indeed the marked reduction in wheat exports from 1920 to 1924 had such an effect.

Accepting the view that the wheat crops of 1921, 1922, and 1923 were sold at a loss to the producing class, one who views the export of wheat as grain during those years in the light of the multitudinous business transactions involved, sees clearly that wheat growers during that period were largely engaged in raising business transactions for others, instead of raising a product at a profit to themselves. It is advantageous briefly to review the transactions involved in the marketing of wheat and to appraise the consequences implied in a contraction of wheat-growing to the domestic basis.

The distribution of wheat and wheaten products includes the services of grain buyers, elevators, commission houses, warehouses, grain exchanges, railways, waterways, telephone and telegraph companies, banks, and insurance companies. The toll for these services varies largely with the volume of business. The larger the crops to be handled, the more the opportunity in the business. Hence a decline in the volume of business involves reduction in profits and readjustment in capital accounts.

The grain elevator system is overextended. We have some 20,000 elevators in the country, many of them inefficient and obsolete. There has been uneconomic duplication of elevators, often by farmers themselves. The development of railways and the growth of the freight rate structure have also contributed to the excess of elevators. Growth of population, regional changes in agriculture, and shifting of milling centers have contributed also. Grain-growing, even on an export basis, cannot long carry the overload of the present elevator equipment; a reduction in the inventory is inevitable.

Port and terminal elevators also, unless adaptable to other uses, face a declining business, involving large investments at Chicago, Buffalo, North Atlantic ports, New Orleans, Galveston, and Pacific ports. The North Atlantic ports are also used for the export of Canadian wheat. With the anticipated development of Canadian wheat export, these ports would expect to share in the business unless the Canadian ports are placed in position to handle all the outward flow of wheat.

There can be no doubt that exchange trading in wheat futures would be greatly reduced if the country were on a domestic basis. When the world statistical position is such that exportable surpluses in producing countries and importers' requirements in consuming countries are equated without notable divergence from the pre-existing price level, speculative interest is at a minimum. When, as this year, the equating

of supply and demand is possible only with a notable shift in the price level, speculative interest becomes intense. So long as we are on an export basis, wheat prices here are sensitive to even minor developments all over the world. If, however, the United States were on the domestic basis behind a tariff wall, speculative interest in domestic wheat would become intense only when the equating of domestic demand and domestic supply involved a notable shift in the price. The withdrawal of speculation and hedging now related to the export of wheat, would greatly reduce the volume of exchange trading, and therefore the business and profits of all interests connected with such trading.

The effectiveness of hedging depends on the breadth of the speculative market. When there is little speculation, hedging becomes less effective and yields only precarious insurance. If there were nothing but hedging operations, no speculative trading on the wheat exchanges, hedging would lose most of its value. This has been the case at times and on certain markets during the years 1921–24, the condition being aggravated by high premiums for particular wheats. When the insurance value of hedging is diminished, manufacturing and distributive margins must be increased in order to cover the risk. One must, therefore, envisage the possibility that contraction of wheat-growing to the domestic basis may, for this reason alone, involve indirectly increased charges by miller and merchant, charges to be paid for by the producer or the consumer or both.

With heavy carryovers and export surpluses, flour millers find it easy in normal years to secure the wheats desired in their operations. The practices of sampling, buying, selling, and blending are facilitated, and the costs of operation reduced. The fact that northern millers buy more or less Canadian wheat duty-paid indicates how highly they value their formulas and blends. How important these factors are in the conduct of milling cannot be determined until the mills have made the experiment of running on the domestic basis. Much would depend on where the reduction in acreage occurs and on the character of the crops. If the acreage reduction were to fall largely on the hard wheats, the operations of the mills would be more seriously disturbed than if the acreage reduction fell largely on the soft wheats. In a year of normal yield of good qualities, the mills might experience no embarrassment; with a yield of poor qualities, millers might be forced to import wheat plus the duty, at a relatively high price, in order to avoid the degradation of trade-mark products. Milling on a domestic basis would probably introduce a relationship between patent flour, straight flour, clear flour, and mill feed different from that which obtains in the presence of a wheat surplus. Other things being equal, if the high wheat tariff is maintained, the spread of premiums on choice wheats would tend to be widened and the cost of manufacture of flour somewhat increased. The volume of flour milled would not necessarily be reduced with the country on the domestic wheat basis, since large exports of flour might and probably would continue. The distribution of milling in the different regions of the United States, however, might undergo appreciable alteration, probably with eliminations of mills in some regions.

The flour milling of the country is overextended, the merchant mills being able to grind more than double the present requirements for domestic need and for export. It is true that this overextension of flour milling has a definite historical explanation in the shifting of population and of wheat-growing, influenced by railway development, the growth of the rate structure, and changes as to power employed in milling. And there has also been senseless competitive duplication. Flour milling is a business in which excessive competition does not make for economy. Hence, flour milling under any circumstances faces a revamping, with writing-off of obsolete and redundant mills; and the reorganization of the industry into one more compact and efficient would be accelerated by the change of wheat-growing from an export to a domestic basis.

The significance to railways of the carriage of wheat is well illustrated in the operations of the granger roads in years of

varying wheat crops and of seaboard roads in years of varying exports. It takes many thousand cars hauled many thousand miles to carry 100 to 200 million bushels of wheat from the Central States to seaboard, and unquestionably the business has represented a notable addition to the volume of traffic, even though on a strict accounting basis the rate per bushel might not be regarded as especially remunerative.

In the handling of the export wheat from the farm to the seaboard, credit and insurance also are required, and furnishing these facilities constitutes a source of revenue to banks and insurance companies. The effect of the withdrawal of this business would be felt not only in the wheat-growing areas but also in the money centers, since the credit provisions for crop movements constitute notable transactions for the metropolitan banks.

Adaptations on the part of bakeries and housewives will also be necessary when the country is reduced to a domestic wheat basis. We have in the country five outstanding types of flour, though these overlap and the approximate quantities of each are not known. There is, first, short-patent, strong flour. The second is short-patent, soft flour. Then there is patent flour for the bakery trade, of only moderately short extraction. Fourthly, we have a group of mixed flours that go into the making of self-rising flours. Lastly, there is general-purpose flour, designed to cover the needs of small bakeries and households. In a year of wheat surplus with good qualities in the various kinds of wheat, the makers of these flours enjoy considerable freedom in securing their wheat supplies. In a year of wheat surplus with poor qualities, the facilities of millers are more or less curtailed and the relative prices of certain flours rise.

If, now, the country were to go on the domestic wheat basis, it would become difficult in a year of average yields for these various kinds of flours to be manufactured in the customary manner. Higher extraction might become necessary in the manufacture of flour for bakers. The makers of the strongest bread flours and of the softest cake flours would always be able to produce a certain volume of the premier products. The makers of general-purpose flours might have to modify their blends from year to year. The better the crop in quality, the less the unavoidable adaptations; the poorer the crop in quality, and particularly in the direction of hard wheats, the more onerous the necessary adaptations.

Up to the present the baker and the housewife have practically insisted on flours that enabled them to continue their customary practices without change. The miller has had to meet the baker, and this the miller was able to do largely because of the presence of a wheat surplus in the country. With the country on the domestic basis, the situation would probably be reversed. The miller would do the best that he could with the crop, and bakers and housewives would probably have to modify their practices from time to time to meet the varying characteristics of the flour which would result.

For the baker the problem is largely technical. The present practices of American bakeries place heavy emphasis on strong flour. This is due in part to mechanical and other operative factors determining the maximum outturn of loaves of bread per barrel of flour. It is due in part to the failure of bakeries to take advantage of modern advances in physical chemistry. When the country goes on the domestic basis, bakers will be compelled to choose between higher-cost flour made from duty-paid wheat and modifying their practices to adapt them to softer flours. There is fact as well as theory in this matter. Experimental bakings conducted in this country with semi-hard flours, using advanced physico-chemical methods, have demonstrated on a large scale that satisfactory breads can be made from flours containing two or three per cent less protein than is at present currently demanded by bakers. This enlargement of the range of adaptation of baking practices will represent an advance that is in the interest of both producer and consumer. Advanced thinkers in the domain of bread-baking, both financial and technical, are fully aware of the inevitable developments. It is fair to conclude that when the country reaches the domestic basis, bakeries will adapt their

practices to the varying characteristics of flour that may be imposed on the miller by the changing character of his wheat supplies, and this to the entire satisfaction of the consumer.

In short, it is clear that the reduction or elimination of the wheat surplus involves loss of business and capital to interests that are concerned with wheat export, and downward readjustment in investments and organizations now sharing, directly or indirectly, in the export business. The establishment of a domestic basis would increase the problems of millers, perhaps also their costs. It would probably involve more or less extensive adaptations on the part of millers, bakers, and housewives.

These disadvantages must be squarely faced. They do not indicate, however, that the wheat surplus is indispensable. Such readjustments as these are constantly in process in the business world, and take place gradually with far greater ease than might be expected. To a certain extent they have already taken place in connection with wheat. Certainly it cannot be argued that the export surplus should be maintained at an appreciable cost to growers, consumers, or taxpayers, and at the expense of our natural resources, simply in order to avert these consequences to business interests.

VII. CONCLUSIONS

The conclusions from the foregoing discussion may now be summarized:

(1) America's exportable surplus of wheat consists of three components: "principal exports" of representative milling wheats; "incidental exports" of special classes of wheat and of cull wheats of milling types; and high-grade, standard, and low-grade flours that are largely specialties or essentially by-products.

(2) Incidental exports of wheat and exports of flour may be expected to continue to some extent indefinitely, but they have only an indirect bearing upon the wheat price problem created by the surplus of representative wheats.

(3) The war interrupted the declining trend of principal exports, which might already have brought us to a domestic basis so far as representative milling wheats are concerned. The substantial readjustment in acreage since 1919, together with the increase of population, tends in the direction of bringing us to a domestic basis in this important sense, except in a year of unusual yields like the present.

(4) Unless artificial stimulus to wheat planting is provided, these same forces promise to continue progressively, for most areas without anything like as great readjustment as has occurred since 1919, to bring the United States to a domestic basis in representative wheats. America's export surplus of these wheats, far from being agriculturally unavoidable, will disappear as agriculture regains normal equilibrium.

(5) The maintenance of an export surplus of wheat cannot properly be urged on the ground of insurance against famine or even serious food shortage. Such danger is so remote as to be negligible, even with world shortage, considering the food resources of the country, the possibilities of substitution, the transport and credit facilities, and the strong economic position of the country.

(6) The production of an exportable surplus is not essential to the maintenance of adequate administrative stocks. These are maintained by importing countries and self-sufficing countries no less than by exporting countries. A certain amount of wheat will be carried over from year to year regardless of whether we are on an export basis or a domestic basis.

(7) The elimination of the exportable surplus of representative wheats, by reduction in acreage and crops, would reduce the volume of business for railways, elevators, dealers, bankers, and exporters, and the volume of exchange operations. It would thereby reduce the profits of various business interests and cause a certain amount of loss to them. It would call for adaptations and reorganizations by millers and bakers. Such a process, more or less

offset by developments in other lines, is involved in any substantial current readjustment of business operations. It is difficult to argue that the exportable surplus should be maintained, and the natural readjustment of agriculture prevented, in order to provide business for these interests or to minimize their readjustments.

In short, an export surplus of wheat is by no means indispensable to the United States.

If these conclusions are sound, it follows that the advocates of a positive policy of maintaining a surplus of wheat for export have a heavy burden of proof. Such a policy involves a cost of indeterminate extent. If production for export is profitable, it will continue naturally without government intervention or support. If it is unprofitable, the loss entailed must be borne in some manner by the grower, the wheat purchaser, or the taxpayer, or be distributed among them. The McNary-Haugen Bill called for a nominal prorating of losses back to the growers but a real shift of the bulk of the burden to the wheat consumers. Indeed, the bill would have lacked the support of agricultural interests if it had not involved some such shift of the ultimate loss. Such a shift is far greater than is implied in the slogan, "equalize agriculture with industry." No tariff policy has yet been formulated that will protect agricultural or industrial enterprises from the readjustments necessary after a period of overexpansion, or from losses incidental to such readjustments. Conceivably there may be reasons for urging this extraordinary policy in the case of the wheat farmer, even though his peculiar emergency has passed; but they do not lie in the indispensability of the wheat surplus.

APPENDIX

TABLE I.—ACREAGE PLANTED TO WHEAT BY STATES AND GROUPS OF STATES FOR PRE-WAR PERIOD, PERIOD OF PEAK ACREAGE, AND RECENT PERIOD*

(Thousand acres)

States	Crops of		
	1912-14 average	1918-20 average	1923-24 average
A. Soft winter			
Maine	3	16	5
Vermont	1	14	4
New York	355	474	405
New Jersey	83	87	75
Maryland	620	687	528
Pennsylvania	1,322	1,472	1,283
Delaware	116	131	106
Virginia	783	994	816
West Virginia	242	306	226
North Carolina	622	775	539
South Carolina	82	149	174
Georgia	142	199	189
Ohio	2,081	2,683	2,594
Kentucky	777	822	611
Tennessee	724	648	412
Mississippi	4	27	4
Alabama	33	74	20
Indiana	2,367	2,526	2,065
Illinois	2,460	3,583	3,339
Michigan	907	1,020	971
Wisconsin	192	452	114
Iowa	783	1,166	681
Missouri	2,470	3,654	2,600
Arkansas	111	217	68
B. Hard spring			
Minnesota	4,176	3,579	1,754
North Dakota	7,595	8,152	9,168
South Dakota	3,610	3,492	2,602
Wyoming	91	235	159
Montana	887	2,449	3,439
C. Hard winter			
Nebraska	3,600	4,147	3,707
Kansas	7,842	10,809	10,806
Oklahoma	2,080	3,957	3,500
Texas	920	1,968	1,466
Colorado	479	1,440	1,779
New Mexico	71	219	165
D. Pacific			
Utah	277	301	266
Idaho	535	1,061	1,008
Nevada	42	30	20
Washington	2,176	2,588	2,511
Oregon	815	1,108	1,132
California	417	884	752
Arizona	30	41	39
GROUP TOTALS			
A. Soft winter	17,280	22,177	17,830
B. Hard spring	16,360	17,907	17,122
C. Hard winter	14,992	22,540	21,422
D. Pacific	4,292	6,012	5,728
GRAND TOTAL	52,924	68,636	62,102

* Source: U. S. Department of Agriculture data, chiefly from *Yearbook 1923*, subject to minor revisions now in process. The headings are only approximately correct, for there is more or less overlapping of areas.

This issue is the work chiefly of Alonzo E. Taylor, with assistance from Joseph S. Davis and Katharine Snodgrass.

The data employed are the latest available on March 7, 1925.

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