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THE AGRICULTURAL OUTLOOK FOR 1932

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Assisted by Representatives of the Agricultural Colleges and Extension Services and the Federal Farm Board

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SCOPE OF THIS REPORT

This is the tenth annual agricultural outlook report prepared as an aid to farmers in making plans for the next season's operations. Facts that are not readily available to farmers on world-wide and nation-wide supply, demand, and prices have been assembled and interpreted to show as nearly as possible the probable trend of conditions until the time when the products of next season's operations will be marketed. This report is prepared from the national viewpoint and its statements may have to be modified in view of unforeseen changes or peculiar local conditions.

The agricultural colleges and extension forces of the various States are preparing reports which interpret the facts of this report in terms of the needs of farmers of these respective States. Through thousands of meetings, county agents, and others will discuss this information in detail with farmers.

DOMESTIC DEMAND

The domestic demand for farm products has fallen to unusually low levels as a result of the further decline in business activity during 1931. The low level of industrial activity and consumer incomes in 1931 will continue to influence domestic demand for farm products into 1932. Improvement in demand, of course, depends on improvement in business activity which in turn is largely influenced by improvement in credit conditions and the restoration of business confidence. The trends of industrial production and pay rolls through

the spring and summer months should furnish a guide to farmers for the probable demand for their products in the latter part of 1932.

Domestic demand for farm products, after showing some improvement during the first few months of 1931 declined throughout the remainder of the year. Unfavorable financial developments abroad, the development of further liquidation in the security markets, and a high rate of bank suspension in this country were the chief factors in counteracting the favorable developments that were laying the groundwork for eventual business recovery.

The net result of these interrelated developments, manifesting themselves in a further recession in industrial activity, in decreased money incomes of consumers, in falling prices, and restricted credit conditions, was to reduce the gross farm income from the 1931 farm production to $6,900,000,000 from $9,300,000,000 in 1930 and $11,900,000,000 in 1929. This reduction in gross income of about $5,000,000,000, or more than 40 per cent in two years, reflects chiefly the price decline during the last two seasons. Prices of farm products at the farms fell from 135 per cent of the 1910-1914 average in December, 1929, to 97 in 1930, and 66 in December, 1931, a decline in two years of over 50 per cent. The aggregate volume of farm production which in 1930 was about 2 per cent below the average for 1924-1929, was 2 per cent above that average in 1931 as a result of improved growing conditions. Although the volume of consumption of farm products particularly of foods, remained relatively stable, farmers received lower incomes because consumers, with money earnings greatly reduced, could maintain their consumption only at reduced prices.

The continued decline in farm prices was due to a number of interrelated factors: The demand for industrial consumption of certain farm products (particularly cotton) was greatly reduced during 1931 as the volume of industrial activity, after improving from a level in December, 1930, of 82 per cent of the 1923–1925 average to 90 per cent in April, declined to 71 per cent in December, 1931. The demand on the part of urban consumers of food and clothing was also greatly reduced as the falling off in industrial activity was accompanied by increased unemployment in factories, in the railroads, and in construction. Compared with pay-roll conditions in the prosperous summer months of 1929, factory pay rolls by the end of 1931 were reduced about half, railroad pay rolls about 40 per cent, and pay rolls in construction work more than 60 per cent. Thus the amount of money currently paid out to these large groups of consumers and their dependents has been reduced since 1929 by more than half.

Other factors that have made for curtailment in domestic demand and lower prices are an outgrowth of unfavorable credit and financial developments. Among the major credit changes affecting business activity during 1931 were: Another record number of bank failures totaling 2,290, which tied up over $1,750,000,000 of deposits; a reduction in deposits of all Federal reserve member banks from $32,300,000,000 in December, 1930, to less than $28,000,000,000 in December, 1931; a withdrawal of about $870,000,000 of bank deposits in the form of currency, and, during the last quarter of the year, a net withdrawal of about $500,000,000 of gold, these withdrawals having the effect of reducing bank reserves and the ability of banks to extend credit; a severe break in the bond market, during the last half of the year; a further decline in the stock market from March to December; and depreciation of foreign currencies, restrictions on foreign exchange dealings, and defaults in foreign obligations.

The substantial break in the bond market in the last quarter of 1931 resulted in a drop in bond prices of about 22 per cent between August and the end of December. This depreciation in bond prices further restricted the flotation of new securities. As a consequence, the volume of new bond financing during the last quarter of 1931 was particularly low. Security offerings during 1931 totaled $2,900,000,000, most of it in the first half of the year, compared with nearly $7,000,000,000 in 1930 and about $10,000,000,000 in 1929. The volume of foreign financing was about one-fourth of that in the previous year, and offerings of municipal and public-utility securities which have been maintained at fair levels in the past were materially curtailed during the last quarter of the year. Although bond prices have made some recovery since the middle of December, the advance has not yet been sufficient to induce any substantial volume of new financing. The low volume of security financing during the last half of 1931 will tend to keep the volume of construction at an unusually low level during the first half of 1932.

Most of the decline in agricultural prices between December, 1930, and December, 1931, may be attributed to the industrial and financial condition

here and abroad, but increased output of certain commodities also contributed to the decline and these increases in volume were chiefly due to improved growing conditions for cotton, winter wheat, corn, fruits, and vegetables. Larger volumes of dairy products and hogs also contributed to the lower level of farm prices during the last quarter of 1931.

The 1931 decline in business activity was accompanied by a further recession in the general commodity price level. Wholesale prices of all commodities in December, 1931, were 15 per cent lower than a year earlier, most of the decline coming during the first half of the year. Prices of nonagricultural products other than farm and food products declined 10 per cent, while prices of farm products, since they are largely in the nature of raw materials which in depressions fall more rapidly than others, declined 22 per cent at the wholesale markets and 30 per cent at the farms. Partly offsetting the decline in farm prices, there has been some lowering of prices of goods farmers usually buy and a noticeable reduction in farm wages.

The unemployment situation and reduced consumer money incomes which are responsible for the present low level of domestic demand for farm products center largely around those few basic industries which are the largest elements in the general business situation. Farmers should therefore watch the progress of the automobile, iron and steel, and construction industries for evidence of general improvement. It was to a very large extent the construction industries, together with the automobile and textile industries, which rose out of the post-war depression in 1921 to supply employment and buying power to large numbers of consumers and to create a demand for the products and services of allied industries such as the iron and steel and the railroads. It is also in those industries that the recession from the high levels of 1928 and 1929 have been the severest. Thus activity in such capital industries as iron and steel, automobiles, building materials, nonferrous metals, etc., declined from about 135 per cent of the 1923–1925 average in 1929 to about 60 per cent in December, 1931, while those industries that produce more nearly consumers' goods or depend upon the relatively stable flow of food products from farms to consuming centers showed a much smaller decline during this depression. It is therefore in these basic industries consuming largely nonagricultural goods where substantial improvement or very definite prospects for improvement would have to appear before farmers would be warranted in counting on a return in the near future to prosperous domestic demand conditions.

Among these industries, all operating at present at unusually reduced schedules, the automobile industry, is apparently in a better position than the other heavy industries to contribute some stimulus to general activity. Its inventories are low, costs have been cut, efficiency has been increased, and a number of engineering improvements have been adopted. The contribution of the building and construction industries to industrial activity in general is being retarded by the existence of surplus industrial and commercial capacity, by numerous mortgage foreclosures and relatively high building costs in many localities, and by unsatisfactory financing conditions. The contribution of the railroads to industrial activity through their purchases has been restricted as a result of the falling off in freight traffic and earnings.

The unusually low level to which the purchasing power of consumers has fallen is likely to continue to affect the demand for farm products into 1932. Even if some improvement in employment and in the volume of industrial activity should occur during the earlier part of 1932, it is not certain that pay rolls also would increase, for the present tendency is still to reduce wage rates. Insofar as farmers' purchases contribute to industrial activity, very little if any stimulating influence is to be expected, at least during the first half of 1932, in view of the last two unprofitable years in farming and in view of the very low current money receipts of farmers. Bank failures, which restrict credit, continued during January at a relatively high rate. The foreign market for the products of American industries had declined greatly. Industrial activity in most of the countries purchasing our industrial products continued at a low level and there is likelihood that the widespread efforts on the part of other countries to improve their own trade and financial positions by limiting or restricting their purchases of American goods will continue.

The domestic demand conditions in the remainder of 1932 will undoubtedly depend a great deal on the stabilization of credit conditions to aid materially in restoring confidence, and to relieve the difficulties of banks and other lending institutions so that credit will be more readily available to industries that are largely dependent on borrowed capital, such as the railroads and construction

industries. Such stabilization could reasonably be expected to check further recession in business. The Reconstruction Finance Corporation and recently proposed legislation are expected to be important factors in restoring confidence and bringing about more nearly normal credit conditions. These measures are a new element in the present situation. Although it is not possible at this time to foresee their full effect, it is the result of such efforts and of the normal recuperative powers of industry and trade that have brought recovery from previous depressions, and that must be looked to for fundamental improvement in conditions affecting the domestic demand for farm products. On the other hand, improvement in demand for farm products also depends on political and economic developments in Europe which are discussed in the next section of this report.

FOREIGN COMPETITION AND DEMAND

The foreign demand for the agricultural products of the United States has fallen to a low level, and at the present moment there is very little definite evidence of significant improvements in the near future. Although some improvement appears to be developing in some countries, all danger of further recessions in business and curtailment in credit in these countries has not disappeared. A world-wide business revival would have a tendency to increase the foreign demand for agricultural products, particularly cotton, but the numerous restrictions imposed upon international trade and increased production in many foreign countries would tend to restrict the exports of many agricultural products from this country even if some improvement in foreign business should occur.

Both the volume and the value of agricultural exports have been considerably reduced during the last two fiscal years ended June 30, 1931. Comparing the 1930–31 season with that of 1928–29, the value of agricultural exports has been reduced 44 per cent and the volume about 22 per cent. In the five months, July–November, 1931, the value of exports was only 54 per cent of the value in the corresponding months in 1929. The reduced demand for the products of the United States in foreign countries has curtailed the volume of exports in relation to domestic production. Exports in the fiscal years 1923 to 1927 amounted to about 13.4 per cent of total production, whereas in the 1930–31 fiscal year less than 10 per cent has been exported. This decline in exports has been due to the reduced foreign demand and to unwillingness to export freely at prevailing low prices.

Many factors have contributed to the decline in foreign demand for the farm products of the United States. Of outstanding importance has been the world-wide business depression, accompanied by a sharp curtailment in international credit. The depression had begun in some foreign countries before it became clearly evident in this country. The reduction in industrial activity since the summer of 1929 in different foreign countries for which data are available has varied from about 20 to 30 per cent. Industrial depression was accompanied by and caused in part by a general decline in prices of raw materials and manufactured products. The wholesale prices of products in countries to which most of the agricultural exports of the United States go, have fallen as much as the wholesale prices in the United States. During recent months prices have risen in some countries in terms of depreciated currencies but have continued downward in terms of gold.

Industrial depression, declining prices, increasing trade barriers, political unrest, and uncertain financial and credit conditions in several different countries all naturally contributed to a curtailment in international credit. Following the World War, some European countries became largely dependent upon credit from the United States and certain other foreign countries for the purchase of raw materials and perhaps, to some extent, foodstuffs. Under such conditions a curtailment in credit greatly lessened the purchasing power of the consumers in those countries and their ability to buy farm products from this country. In some countries the payment of interest and any part of the international debt was necessarily dependent upon a continuation of fairly easy credit for the purchase of raw materials and a market for the manufactured products. The 1-year moratorium to end on July 1, 1932, helped to relieve the situation.

A favorable development on the credit side in relation to our export trade is to be found in the recent passage of the Reconstruction Finance Corporation act which provides for the extension of credit in connection with the exportation

of agricultural products. Furthermore, any improvement in the general credit situation within the country would indirectly work in the same direction.

Foreign demand for the agricultural products of the United States (other than cotton) was depressed further by the many efforts on the part of importing countries to protect their domestic markets against the declining prices. Increased duties have been supplemented by many regulations designed to protect the home agriculture in the importing countries and maintain production and prices in the face of the depression and the general decline in prices. These regulations include milling quotas, import licensing systems, importing monopolies, sanitary restrictions, and other modes of limiting imports. In some instances the import restrictions on agricultural products of the type exported by the United States have remained unchanged during the past year but are nevertheless severe; in others they became still more severe; in still others where no restrictions had previously existed, they were either initiated or were definitely in prospect by the end of the year. In scarcely an instance was there any significant abatement. By and large, the past year was one in which import barriers, already high in most foreign countries, continued to mount.

In the case of wheat a number of importing countries—notably Italy, Austria, Poland, Finland, South Africa, and Egypt—markedly increased their tariffs during 1931, Italy's tariff being increased from 87 cents to $1.07 a bushel; five countries—Italy, Netherlands, Greece, Estonia, and Luxemberg—were added to the previous list of six countries maintaining milling-quota systems compelling the use in domestic mills of definite minimum percentages of home-grown wheat; while in some countries such as Norway, Spain, Switzerland, Portugal, and South Africa the foregoing or other modes of import restriction were associated with a definite program of domestic price fixing. Meanwhile Germany continued to impose a duty of $1.62 a bushel on wheat; France, 85 cents; Spain, 74 cents, and so on; and the first two, together with Sweden, Czechoslovakia, and Latvia, continued to employ milling-quota systems inaugurated at an earlier date.

One development which may prove to be highly significant during the coming year is the British espousal of a new program of protection, and imperial preference. Especially may it prove to be significant in relation to our wheat exports. The domestic wheat quota for British wheat which has already been announced but not definitely fixed (though generally forecast at around 15 per cent of total British requirements) will presumably not greatly affect our exports. But extension of the quota system to the wheat-growing Dominions, which question is to come up at the Imperial economic conference during the summer of 1932, may prove highly significant. Quotas for the Dominions aggregating all the way from 55 to 70 per cent of total British requirements, in contrast to less than 50 per cent which they now furnish, are now being discussed. Acceptance even of the lower ratio may well lead to displacement of considerable American wheat in the British market. Nor is wheat necessarily the only item. For it is possible that preferences in the British market will be extended or increased on other products which we export, especially fresh, dried, and canned fruits. Moreover, inter-Dominion preferences have been increasing and, in line with the whole trend toward closer imperial economic union, will probably continue to increase. Even before the recent turn of events in Great Britain, Canada had adopted increased preferences by its tariff revision of June 2, 1931, tending to encourage the displacement of American fruits and various other products by imports from Empire sources.

Last year likewise saw the first concrete steps toward the conclusion of a widespread system of tariff agreements between the agricultural countries of eastern and southeastern Europe and the industrial countries of central and western Europe whereby cereals from the former countries receive exclusive tariff preferences in the latter countries. Notwithstanding obstacles to such preferential agreements on account of conflicting treaty obligations, several treaties have been concluded and more are in process of negotiation. Their tendency, obviously, is to curtail the demand for imports from countries such as the United States which do not receive the preference and to encourage additional production and exports in the countries which do receive it. If this trend toward a system of exclusive preferences among the continental countries continues, it may well prove to be a considerable impediment to the marketing of American cereals and perhaps other agricultural products on the Continent.

In addition to new import barriers, in effect or in prospect, of the character above described, many countries are now exercising a rigid control of imports

through the medium of rationing and restricting the amount of exchange available for payment for imports.

During recent months the depreciation of exchange in many foreign countries has become an additional factor in international trade. The immediate effect of depreciating exchange in a particular country is to encourage exports and discourage imports of that country. Exchange uncertainties tend to encourage hand-to-mouth buying and to increase the costs of international trade. Trade is also disturbed by the maladjustments in prices among commodities internally and externally. As exchange depreciates, and after it has been stabilized at a lower level, there is a tendency for internal prices to rise sufficiently to offset at least a part of the original adverse effects of depreciation upon imports. For certain commodities, prices in some countries of depreciated exchange have risen to the full extent of the depreciation. But this readjustment has been by no means universal or complete for all commodities and in all depreciated exchange countries, and it is wholly uncertain how soon or how complete the readjustment will be.

The stabilization of exchange at a lower level or the revaluation of the currency of a country at a lower level may make more or less permanent, significant changes in the position of that country in its trade with other countries that have not made comparable readjustments in currency or exchange. For example, the depreciation of the exchange of a country may more or less permanently affect the relation of the wage level, or other factors in production, to the same factors in the production of other countries. Any improvement in competitive position thereby may strengthen the demand of that country for raw materials but may at the same time reduce the demand of that country for other import commodities, if the improvement in competitive position is not accompanied by an equivalent improvement in the real purchasing power of the masses of the people within the country. The recent abandonment of the gold standard by Great Britain was doubly significant in that it not only depreciated the exchange value of the currency of a most important world market for our farm products but also in the fact that many other countries were either obliged to take similar measures or considered it advisable to do so. At the present time only a few countries in the world remain entirely upon a gold basis.

Less than one-fifth of our agricultural exports normally go to countries that are still definitely on a gold basis. The most important of these are France, Netherlands, Belgium, and Switzerland. Italy should perhaps be included in this group. The remainder of our markets may be roughly classified into two groups. The first and most important would include countries such as Great Britain, Japan, and the Scandinavian countries which have departed from the gold standard and the currencies of which have depreciated in the neighborhood of 30 per cent in terms of gold. For the time being at least, this depreciation has definitely reduced the purchasing power of these countries for goods from gold countries such as the United States. The second group of markets includes countries such as Germany, Austria, and Czechoslovakia, where exchange rates are being maintained at par only by drastic regulations and control of foreign exchange. The amount of exchange available to purchase foreign goods is thus limited, either directly or indirectly, and the flow of goods into these countries is necessarily restricted.

Not only has the purchasing power of our best foreign markets been reduced by exchange depreciation or control, but competition has been increased. Under conditions of widespread currency depreciation such as prevail at present, there is some tendency for the trade between the depreciated-currency countries to increase. The United States is the only major agricultural export country fully on the gold basis. The importance of this increased competition varies considerably with the different products entering into our export trade. It is probably most severe in the case of wheat. Canada, Argentina, and Australia, with their depreciated currencies, have an advantage over the United States in selling in foreign markets. In the case of wheat, the decrease in our exports is due not only to currency depreciation in other countries but also to our domestic policies tending to maintain prices of wheat in this country somewhat above their normal relation to world prices. Competition of Scandinavian pork products in European markets has been similarly intensified. Scandinavian exports have been especially increased in the case of bacon; in the case of lard, in the sale of which the United States has normally the most advantage, the American product has not been so much displaced.

Exchange depreciation has given the fruit of Canada, Australia, and Brazil some advantage over American fruit in European markets.

So far as the volume of exports is concerned, cotton and some types of tobacco have been affected less than other export products. This fact is due to the extremely low prices at which these less affected products are selling in the United States and to the natural advantage this country has in the production and sale of these products. Furthermore, in the case of cotton (an indispensable raw material for an industry dependent to a large extent upon the export trade as is the case in Great Britain and Japan) it is to be expected that the effect of depreciated exchange would be less than for products imported directly for home consumption. This is true because the reduction in costs, particularly in labor, in the textile industry as a result of the depreciated exchange puts these industries in a stronger competitive position in foreign markets and thus enables them to increase their activity. This may not, however, greatly increase the aggregate foreign consumption of American cotton since textiles made of American cotton in depreciated-exchange countries will be, to some extent, replacing similar goods from the gold countries.

In the United Kingdom, the most important foreign market for the agricultural products of the United States, business activity has fallen to a very low level and unemployment is very extensive, but there seems to have been some improvement during recent months. The apparent effect of deflating the British currency was to place British industries manufacturing for export in a somewhat better position to compete with the rest of the world. In the cotton-textile industry, for example, production activity promptly increased. The number of the unemployed has been reduced moderately since September. But low purchasing power in many other countries and import restrictions, tend to hold in check industrial improvement in Great Britain.

Conditions in continental Europe are about as unfavorable for marketing agricultural products as are the conditions in Great Britain. The outlook in Germany is dependent upon political and general economic developments which now seem quite uncertain. German purchases are held to a low level not only by credit restrictions but also by various measures adopted for the protection of German agriculture. Germany will continue to take American cotton. An effort is being made to maintain production of wheat, rye, and pork on a high level and thus minimize imports. There is some prospect, however, of a smaller production of hogs in the latter half of 1932, and there is always a possibility of lower crop yields following good seasons, which might require Germany to increase to some extent her imports of foodstuffs.

For a long time France seemed to be almost immune from the depression, but at last that country is suffering materially. Unemployment has increased sharply and many measures are being undertaken to protect not only French farmers but industrial workers from the sale of imported goods.

Conditions in Italy seem more favorable than in some other European countries. The purchasing power of Italian consumers has declined to a low level but some evidence of readjustment and the possibility of improvement in business activitiy is beginning to appear. This may improve to some extent the market for cotton. The demand for foodstuffs, on the other hand, may be held to a low level by maintaining production within the country.

The economic situation in other European countries varies greatly but on the whole is similar to that in the countries already mentioned. Efforts are being made to maintain domestic production and to curtail the imports of the products of the country.

Depression is more or less general in Japan, but to date the cotton and wheat-flour industries have been less affected than most other industries. Cotton yarn production continues at a high level. By going off the gold standard, Japan is placed in much the same competitive position respecting the export trade with China in cotton goods that she held before the British currency was depreciated. Although Chinese boycotts in the past have not seriously reduced Japanese trade, the current boycott may materially restrict exports of textiles to China. The low prices of American cotton both actually and relative to the prices of Indian cotton have already stimulated record purchases of American cotton. The relatively high price of American wheat as compared with Australian has, however, given the latter a decided advantage in the oriental market.

In China, political and miltary disturbances in the past have not seriously affected the market for American cotton, tobacco, wheat and flour, and miscellaneous agricultural items. Trade and business carries on to a surprising

degree in the face of handicaps incident to transportation difficulties and other disturbances. Despite low silver exchange, declines in late 1931 in the price of American cotton, tobacco, and wheat have been fully as great as the depreciation of silver; and prices at this time of these American items in China are not high in comparison with prices of competing Chinese commodites. The short crop of Chinese cotton and comparatively high prices for native and Indian cotton have created an exceptionally large outlet for the American growth. Low prices of American flue-cured tobacco enable American leaf to compete with Chinese leaf more favorably than last season in the expanding Chinese cigarette industry. Record quantities of Australian wheat are being used in the flour industry of Shanghai, however, and, in turn, is resulting in a considerable displacement of American flour by Shanghai flour in the flour markets of North China.

Foreign agricultural production continues at a high level. The competition now confronting American agricultural products in world markets is being augmented by currency depreciation in all major agricultural export countries outside the United States. Competition also has been increased by the adoption of export bounties or other aids by a number of countries, especially in connection with wheat, which tend to maintain production in spite of the low prices. The Danubian countries, for example, all have some form of government aid to the cereal growers, and direct bounties are paid to the wheat growers in Canada and Australia. In the deficit countries of Europe agricultural production is being maintained, and in some cases increased, behind tariff walls and other forms of import restrictions.

In surplus-producing countries, such as Canada, Australia, and Argentina, low prices have apparently checked the marked upward trend in crop acreage. Acreage is, however, at a high level following more than a quarter of a century of expansion, and no marked curtailment is in prospect. Canadian wheat acreage showed little change in 1931 compared with 1930, but there was some reduction in wheat acreage in Australia and Argentina from the high levels of that year. The decline in Australia was from an abnormally high acreage considerably above that of any former year. Flaxseed acreage in Argentina has been increased; corn acreage has shown practically no change. Southern hemisphere production and exports of animal products, such as wool, dairy products, and beef, continue heavy. World wool production in 1931 was above that of 1930. There has been some shift from wheat to wool in Australia, and in South Africa sheep numbers showed an increase in 1931 over the preceding year. New Zealand butter and cheese are moving to European markets in record quantities. There has apparently been some decline in the slaughter and exports of beef in Argentina, but Australian beef exports continue to increase. It is clear that shifts and readjustments are taking place in southern-hemisphere agriculture as in other parts of the world. But the southern hemisphere has doubtless not yet reached its potential peak as a source of supply for cereals, fruit, and animal products. These countries will respond promptly to any increase in the effective demand for these products.

Russia, with its large wheat acreage and improved methods of production, has again assumed a position of importance in world wheat markets. Although difficulties of organization and production technic are being encountered, it seems likely that such a position will be maintained, with Russian exports varying greatly from season to season as weather conditions are more or less favorable to the wheat crop. It is significant that, while winter-wheat acreage appears to be increasing, Russian wheat production is still dependent to a large extent on the outturn of the spring-wheat crop, which is grown mostly in dry regions with highly unstable yields. But whatever happens with respect to wheat acreage and production, Russian wheat exports will be greatly influenced by policies of the Soviet Government, which not only controls exports through its monopoly on foreign trade but also apparently has the power to restrict domestic consumption and thus increase the exportable surplus. In the absence of such restrictive measures it is likely that increased consumption by the rapidly growing Russian population would reduce the surplus available for export or require still further expansion of production.

Russia may also become a factor of some importance in the European market for other agricultural products. Particular attention has been paid to cotton and a limited quantity of Russian cotton has been sold outside of the country. Although production has expanded rapidly during recent years, it is not greatly in excess of the pre-war peak. There appears to be considerable additional land

upon which cotton could be grown. Most of this, however, is either in central Asia or Transcaucasia where extensive and costly new irrigation projects would be required, or in certain nonirrigated areas of European Russia where cotton has not been grown on a commercial scale long enough to determine conclusively their suitability for cotton production. Although production has been increasing domestic consumption of cotton in Russia has been restricted and small exports have thus been possible. Any significant rise in the standard of living of its rapidly increasing population would tend to absorb all the cotton Russia now produces and might easily cause a reversion to an import basis for this staple.

Cotton is a notable exception to the general tendency to maintain production in foreign countries. Except for Russia, there appears to be a world-wide tendency toward acreage reduction. This is especially true in the new cotton-growing regions of Africa, such as the Anglo-Egyptian Sudan. In Egypt the Government is restricting cotton acreage. In India the cottton acreage in 1931–32 was the smallest since 1922–23.

Production of vegetable-oil materials has shown a marked upward trend during recent years. This expansion is illustrated by soybeans in Manchuria; peanuts in China, India, and Nigeria; palm kernels in Sumatra, Nigeria, and the Belgian Congo; and copra in the Philippines, the Dutch East Indies, and the Straits Settlements. In practically all of these cases production or exports are at least double pre-war quantities, and in most cases the increase is much greater than this. To this large supply of vegetable oil must be added whale oil, the supply of which has increased tremendously within recent years. This increased supply of vegetable and whale oil competes directly or indirectly with American vegetable oils, lard, and dairy products, in both the domestic and the foreign market.

CREDIT

The supply of farm credit available from strictly local sources has been considerably less than in any recent year. Banks, merchants, and dealers, in agricultural areas are in a very restricted position. By reason of the extremely low agricultural prices, the capital and credit resources flowing into such areas, particularly during the marketing season of 1931, were abnormally small. The more centralized agencies that supply most of the farm-mortgage credit, have been affected by the world-wide business depression and an adverse market for securities. Hence these agencies too have sharply curtailed their lending activities.

It is difficult to determine the net change that has occurred in the need for credit. Lower costs of supplies that farmers must purchase have served to reduce the need for credit, as have unusually large supplies of home-grown feed and food in some sections of the country, particularly the South. Similarly, livestock men in the range country have reduced their operating costs, and with the low livestock prices, feeders require a smaller volume of credit than usual. On the other hand, low farm income has so reduced the ability of farmers to meet fixed charges and current expense that in many cases greater reliance than usual must be placed on borrowed funds. It perhaps is safe to say that generally less credit is required to carry on farm operations at the lowest practicable level, but that in many individual cases farmers need more credit than usual if they are to meet current fixed charges and conduct their operations with reasonable efficiency.

Deposits of country banks have decreased substantially during recent years. From December, 1928, to November, 1931, total time and demand deposits of members of the Federal reserve system located in places of less than 15,000 population, declined 23 per cent in the 20 leading agricultural States, excluding California. Such declines for the period indicated were 27 per cent in the Corn Belt States, 41 per cent in the cotton States, and 30 per cent in the Mountain States. These declines in deposits, together with fear of further withdrawals, caused banks to make even a more-than-proportionate liquidation of their loans and discounts. In all regions, the decline in demand deposits was greater than in time deposits. In as much as most country banks carry a certain portion of their assets in loans or securities which are not liquidated seasonally, it is probable that the supply of credit available for new production loans has been reduced more than proportionately to the decline in total deposits.

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The primary cause of the decline in these deposits has been the low prices for agricultural products, although bank suspensions, withdrawal of currency from circulation and, in some areas, drought, have been important factors. The low income of agricultural communities has made new deposits smaller than usual, but requirements for current supplies and particularly for fixed charges, have not been reduced proportionately. Bank suspensions during 1931 were more than twice as numerous as in any full year since 1920 except 1930, and a half more numerous than in 1930. These factors have adversely affected the lending power of banks and the ability of farmers to finance themselves.

A considerable part of the production credit used especially by southern farmers is extended by merchants and dealers through sales on a time basis. These distributors necessarily rely, in turn, upon advances from local banks and book credit extended by supply houses. At present these merchants are handicapped by a large volume of delinquent accounts.

Agricultural credit corporations increased substantially in number and resources in 1931, particularly in the areas that suffered most from bank suspensions and shortage of feed crops. Fifty agricultural credit corporations and livestock loan companies were supplied with part of their capital from loans to individuals from the Federal fund made available by an act of Congress in February 1931, and administered by the Secretary of Agriculture. Even more were established in Arkansas partly by means of funds supplied by the State. Several cooperative marketing associations have received substantial advances from the Federal Farm Board for the capitalizing of agricultural-credit corporations. The State of Mississippi has recently made legislative provision for assistance to persons organizing agricultural credit corporations, livestock-loan companies, and similar organizations, through an act that closely resembles the earlier measure in the State of Arkansas.

Many credit corporations and livestock-loan companies that made loans during 1931 reported a large volume of renewal loans at the end of the year. Such renewals restrict the ability of these organizations to make new advances, except as additions are made to their capital stock or more direct financial assistance is obtained. The Reconstruction Finance Corporation is authorized to make direct loans to agricultural credit corporations and livestock loan companies.

Interest rates charged by country banks and time charges by local merchants and dealers are determined largely by custom and past experience, with the result that they are not adjusted closely to conditions which affect the central money markets. Only the rates charged by credit corporations and livestock-loan companies are tied directly to central money market rates. Under existing regulations, in order to have their paper eligible for rediscount by the Federal intermediate credit banks, credit corporations, and other loan agencies may not charge farmers a rate exceeding by more than 3 per cent the discount rate of these banks. The latter rate in turn may not exceed by more than 1 per cent the rate borne by the last issue of Federal intermediate credit bank debentures.

The market for these debentures has recently been weak in common with that for other securities. The latest issue, offered on January 15, 1932, bears a rate of 5 per cent. Measures for strengthening the market for these debentures are under consideration in Congress.

Farm-mortgage credit conditions are less favorable than a year ago. Continued heavy foreclosures and delinquencies and the urgent demands for funds for other purposes have induced restrictive measures on the part of leaders on farm real estate security. The number and size of new loans have been reduced and there have been general efforts to reduce the size of old loans. On the other hand, the business depression has brought increased demand for mortgage loans as the curtailment of incomes and the failure to obtain loans on personal and collateral security have forced many to seek loans on farm real estate. The result has been a general increase in the total number of farms mortgaged, since the new loans made have not been offset by a corresponding number of old loans liquidated. Although the total number of outstanding loans has increased, the total volume of such loans has decreased. This is explained by the lower average size of loans which has more than offset the increase in number. The percentage that the total farm-mortgage debt is of the total value of all farms has nearly doubled since 1920, having increased from about 11.8 per cent to roughly 20 per cent.

The Federal land banks have not altered their interest rates during the last 12 months. Nine of these banks have a rate of 5½ per cent, and three of them, the Baltimore, Columbia, and New Orleans banks, charge 6 per cent. The joint-stock land banks are relatively inactive and for the most part are making no new loans.

The volume of outstanding loans of the land banks, the insurance companies, and member banks has shown a continuous decline for several years. Most of the important lending agencies have acquired substantial amounts of real estate in satisfaction of debt and have thereby had their lending capacity reduced. Insurance companies have also experienced a heavy demand for policy loans. The Federal land banks and joint-stock land banks have recently been unable to sell their long-term securities at rates consistent with the interest-rate limitations imposed upon them by law.

Some communities, particularly those affected by drought, report almost total cessation of mortgage advances. As a result, farmers in many sections face the necessity of operating with a minimum of credit pending the return of improved conditions. The recent Federal act, appropriating $125,000,000 to strengthen the Federal land banks, should assist these banks in continuing their loan activities.

General monetary conditions exert an appreciable influence upon the availability of credit for agricultural purposes. During the last year, an abnormal demand for currency, occasioned by numerous bank failures, was an important factor in reducing deposits and in curtailing the operating reserves of existing banks. Until the final quarter of the year, the net drain upon the commercial banking reserves of the country, however, was offset by imports of gold, and interest rates remained at the lowest levels since before the World War.

Following the abandonment of the gold standard by England on September 21, 1931, a record gold export demand reduced our monetary gold stock $728,000,000 within a period of six weeks. During the same period, the demand for currency increased abnormally so that commercial banks were compelled to meet a drain upon their reserves amounting to $1,121,000,000. This demand was met by an increase of borrowing by member banks of the Federal reserve system totaling $454,000,000 and by reducing their reserve balances by $189,000,000. In addition, the Federal reserve banks supplied funds through open-market purchases amounting to $492,000,000. A net return flow of monetary gold during recent weeks has substantially reduced the above-mentioned loss that began in September. At the present time (January 16) prevailing rates on commercial paper are 3¾–4 per cent, compared with 2¾–3 per cent a year ago. Bankers acceptances are 2⅞–3 per cent as compared with 1⅝ per cent, and call loans 2½ per cent, compared with 1½ per cent a year earlier.

Borrowings of member banks have continued at relatively high levels as a result of the currency demand and the gold withdrawals of last fall. On January 13, 1932, money in circulation, by which is meant coin and currency outside of the Treasury and Federal reserve banks, was $970,000,000 larger than a year ago and our monetary gold stock was $142,000,000 or about 3 per cent smaller. Total increase of Federal reserve bank credit amounted to $723,000,000 of which $575,000,000 represented increased discounting by member banks.

The availability of credit for agricultural purposes in many communities was lessened by the substantial reduction in bond prices which occurred from August to December, 1931. The standard statistics average price of 60 high-grade bonds declined during this period from 98.2 per cent of par to 78.8. Bonds of less favorable rating declined to an even greater extent. Banks which ordinarily would have disposed of investments in order to meet local demands for sound loans, were naturally unwilling to incur the loss involved in selling bonds at such depreciation. During January, bond prices showed some improvement.

The extent to which these adverse factors continue to operate during the coming year will be largely dependent upon the degree to which confidence is restored in the banking situation. The return of currency which has been withdrawn during the last year would assist materially in easing the general credit situation. A decline in the number of bank failures would likewise bring general improvement particularly in the bond market. It may be anticipated that the activities of the Reconstruction Finance Corporation, recently authorized, will be an important factor in bringing about more stable credit conditions, for agriculture as well as for industry in general.

FARM LABOR, EQUIPMENT, AND FERTILIZER

FARM LABOR AND WAGES

During 1932, the supply of labor for farm work is expected to be abundant. Even should industrial employment increase markedly from the present low levels the supply of farm labor will be plentiful.

The continued decline in the prices of farm products during most of 1931 caused a sharp falling off in the demand for farm labor. At the same time the increasing unemployment in industry added greatly to the supply, and on January 1, 1932, the supply of farm labor in per cent of demand was 200, compared with 171 on January 1, 1931, and 115 on January 1, 1930. As a result of these changes in the demand and supply, the index of farm wages fell from 129 on January 1, 1931, to 113 on October 1, 1931, and to 98 on January 1, 1932. (The index is based on the annual average of the pre-war years, 1910–1914.) Even through the summer of 1931 wages continued to decline, whereas ordinarily there is a seasonal advance from January to October that averages about 7.5 per cent.

From October, 1929, to January 1, 1932, the United States average of farm wages per day without board dropped 43 per cent. The drop was relatively less severe in the North Atlantic States, amounting to 35 per cent. In the North Central and South Central States the declines were 48 and 44 per cent respectively. The wage in the North Atlantic States on January 1, 1932, averaged the highest in any part of the country. The lowest regional average was reported from the South Central States.

BUILDING MATERIALS

Total building construction in the United States and especially residential construction, has declined sharply since October, 1929, and in December, 1931, reached the lowest levels in several years. During the same time there has been a marked decline in construction costs, both for materials and labor.

In October, 1929, wholesale prices of building materials averaged 172 per cent of the pre-war period, 1910–1914, but in November, 1931, prices were only 130 per cent of pre-war, a decline during the period of 24 per cent. Prices paid by farmers for building materials did not show any appreciable decline until the summer of 1930 and have since declined much less than wholesale prices. Up to June, 1931, the latest date for which retail figures are available, prices paid by farmers had declined only 12 per cent from the level of building material prices in June, 1929, whereas wholesale prices for the same period had declined almost 20 per cent. One of the principal reasons why the prices paid by farmers declined less than wholesale prices was the lag in the response of retail prices to changes in wholesale prices.

FARM MACHINERY AND EQUIPMENT

From January, 1925, to September, 1929, average wholesale prices of farm machinery remained fairly constant. From September, 1929, to December, 1930, average wholesale prices of machinery dropped about 3 per cent. This decline occurred mostly in the latter part of 1929 and early part of 1930. From December, 1930, to December, 1931, the average wholesale prices again dropped about 3 per cent, making a total decline of 6 per cent since September, 1929. Wholesale prices in June, 1931, were 30 per cent above average annual wholesale prices for the period 1910–1914, and prices paid by farmers were 53 per cent above the average for 1910–1914. From June to December, 1931, wholesale prices declined further and stood at 26 per cent above pre-war prices. Prices paid by farmers since June, 1931, are not now available.

The general price level of horse-drawn equipment has continued somewhat higher than that of all farm machinery. Increased use of mechanical power on farms during the last 14 years, resulting in decreased volume sales of horse-drawn equipment, has been partly responsible for the relatively higher price level of the latter type of equipment.

FERTILIZER

Gross farm income from the important fertilizer-consuming crops affects the purchases of fertilizer for the following year. Gross income in 1931 was unusually small and tag sales in the 13 Southern States for the period August

to December were 22 per cent less than in the corresponding period of 1930. Wholesale prices of fertilizer materials declined 16 per cent during the last year and 22 per cent during the last two years. The decline in prices was most severe in the case of the ammoniates. During the last half of 1931 (July to October) prices of organic ammoniates averaged about 50 per cent less than in the same period of 1930, prices of sulphate of ammonia averaged 27 per cent less, superphosphate 12 per cent less, and potash prices were the same as a year earlier. Wholesale prices of mixed fertilizers at factories during the last half of 1931 averaged about 15 per cent less than during the same period of 1930. Retail prices of fertilizer to farmers on September 15, 1931, were 11 per cent lower than in the fall of 1930.

WHEAT

Events of the last year have given evidence that a readjustment of wheat production is taking place. The acreage of the world, excluding Russia and China, has shown a significant decline for the first time in seven years. Russia, however, expanded its acreage so much that the total wheat area of the world excluding China has shown only a slight decrease. For several years past, world production has increased much more rapidly than has consumption, and there has been a consequent marked increase from year to year in the world carry-over. During most of the current season, from July 1 to date, wheat prices in the United States have been high relative to prices abroad, and exports have been very small. Despite the large stocks now on hand, United States cash prices have been relatively strong as compared with futures, owing partly to the very small production of hard spring and durum wheats, and partly to the large production of current supplies being held by the Grain Stabilization Corporation. Indications of a reduced crop and the possibility of a short crop of winter wheat in 1932 have also tended to maintain prices in the United States and to prevent large exports. Allowing for a "normal" minimum carry-over of 125,000,000 bushels, the calculated exportable surplus of the United States as of January 1 amounted to about 300,000,000 bushels, compared with 230,000,000 as of January 1, 1931. Owing to large Grain Stabilization Corporation holdings the surplus actually available for export in the current season is much smaller.

World wheat prices have declined in the last five years under the influence of a combination of unfavorable factors. Of primary importance has been the rapid expansion in world wheat acreage which has been under way since 1925. This rapid expansion in acreage has resulted in wheat production increasing more rapidly than consumption and in the piling up of large surplus carry-overs. There was a marked decline of wheat prices in 1928 when unusually high yields throughout most of the world on an already expanding acreage resulted in a bumper world crop. Stocks of wheat rose to unprecedented heights and the world carry-over out of the 1928–29 crop year amounted to over 600,000,000 bushels.

Because of low yields in 1929–30, world production (excluding China) was smaller by 534,000,000 bushels, or more than 10 per cent, in spite of some further increase in acreage. During the first part of the 1929–30 season prices were considerably higher than during the previous year. But as the season progressed, it became evident that stocks in the surplus-producing countries would not be reduced as much as the smaller production would indicate. Several factors contributed to the reduction of takings by importing countries. European importing countries were intensifying import restrictions on wheat; the general commodity price level was low and falling, and general business activity continued to decline. As a consequence there was a tendency in Europe to allow stocks to decline and the burden of carrying still larger stocks was imposed on the exporting countries. The result was a decline in prices during the latter part of the 1929–30 season to levels lower than those prevailing in 1928–29.

In 1930–31 yields were higher than in the preceding year, and with acreage still further expanded in many countries, another very large crop was produced. The total production for the world, excluding China, amounted to approximately 4,900,000,000 bushels, or 640,000,000 bushels in excess of the previous year's crop and 100,000,000 in excess of the crop of 1928–29. Total available supplies were therefore at new high levels. In addition to the absolute volume of supplies, moreover, the reentry of Russia into the ranks of the important exporters was a bearish factor of major significance. Russia shipped a total of about 110,000,000 bushels during the season, most of it

during the fall and early winter months. Much of this grain was shipped on consignment, and it piled up unsold in European ports. The abundance of Russian grain, easily available, substantially reduced the bargaining power of other exporters, and despite the fact that United States supplies were largely withheld after September, prices declined to new low levels during the early winter. After January, shipments from the Southern Hemisphere were maintained at a high level in spite of low prices and since European importers showed no disposition to build up stocks, world prices remained at very low levels. In the United States prices from mid-November through June were maintained well above their normal relationship to Liverpool, largely as a result of the purchases of the Grain Stabilization Corporation.

For the current season of 1931–32 world production was considerably smaller than last season, but accounted-for stocks on July 1 totaled about 640,000,000 bushels, being considerably higher than the previous record of 1929. Production for the world, outside Russia and China, was smaller than in 1930–31 by about 80,000,000 bushels or almost precisely the same as the increase of stocks. No definite estimate of the size of the 1931 Russian crop is available, but it is known to be smaller than that of the previous year in spite of the increased area. However, yields were apparently relatively good in the winter-wheat regions which are accessible to the Black Sea ports and heavy shipments were made early in the season, so that exports appear likely to total about three-quarters as much as last season. World prices have averaged a little lower than during the last half of 1930–31. In the United States, prices of winter and soft white wheats have been much lower than last year when prices were maintained by stabilization purchases. The short crops of hard red spring and durum wheats, however, have resulted in prices of these classes being at about the same levels as during the latter part of last season. Prices even of the winter wheats have been considerably above their normal relationship to Liverpool during most of the season owing largely to four factors: The withholding of Grain Stabilization Corporation stocks from the market, the short supplies of spring wheats, small marketings by farmers, and the prospect for a marked reduction in the winter wheat crop of 1932.

To protect their wheat growers from low prices resulting from the world-wide decline in wheat prices, most of the large importing countries have raised their tariffs, or have adopted other measures which restrict the importation of foreign wheat and raise prices of their home-grown wheat above the world level. These restrictions have tended to increase the production and decrease the consumption of wheat within their borders. The reduction in consumption has resulted partly from the higher prices which consumers of these countries must pay, and partly from the deterioration in the quality of wheat, flour, and bread as a result of the restriction on importing, milling, or baking. The uncertainty of tariffs and milling restrictions, together with the unsettled financial situation in Europe, has also tended to reduce the quantity of wheat stocks which dealers in importing countries are willing to carry and has thereby increased the burden of stocks in the exporting countries.

Of especial importance in the expansion of the world's wheat area has been the Russian situation. Russia embarked on a program which called for a great expansion of its wheat production. In 1930–31, as a result partly of increased acreage and partly of high yields, Russia contributed an important share of the world's wheat exports. Acreage was again increased in 1931, but yields were low, and although Russian shipments from July to December amounted to 67,000,000 bushels, total shipments for the season are likely to be less than in 1930–31.

One of the causes of the long-continued decline and the present very low level of wheat prices has been the difficulty of reducing acreage. The reduction of the acreage of a crop like wheat is a slow and difficult process in most areas. In many wheat-growing areas there are not alternative crops to which the farmer can feasibly turn. Under such circumstances, reduction of wheat acreage will mean abandonment of land and may mean abandonment of farming by the wheat grower. But in times of business depression it is very difficult for a farmer to find any other means of making a living. Even in areas in which other crops can be raised on wheat land, it may not pay to turn to these other crops in a time when prices of almost all other farm products are low. Altogether, in times like these, reduction of wheat acreage is likely to take place slowly.

Nevertheless, the world acreage for 1931–32 is estimated to have been slightly smaller than that of 1930–31. The total wheat area of the world, excluding

China, amounted to 336,900,000 acres compared with 340,300,000 for 1930–31. This reduction in the world total is the first to take place since 1922–23 when the total area declined from 261,800,000 acres to 249,100,000. Although the reduction in acreage which has taken place for the world, excluding China, has been small, a consideration of acreage changes by regions indicates that the reduction is of real significance. For the world excluding both Russia and China, the reduction in area is 12,000,000 acres, that is from 256,500,000 in 1930–31 to 244,500,000 in 1931–32.

At the acreage level of 1931–32 the wheat area of the world outside Russia and China, would, with average yields, produce a crop of approximately 3,660,000,000 bushels. As the average disappearance of wheat for the last five years in the world outside Russia and China (including exports to China) has been 3,671,000,000 bushels yearly, the 1931–32 acreage level would be almost sufficient to supply the average consumption of the last five years without any addition to that supply by way of exports from Russia. Hence, if room is made for any considerable amount of exports from Russia during the next few years, it will have to be a result of an increasing consumption or of a decreasing area for the world outside Russia and China. Total wheat consumption for the world outside Russia and China (including exports to China) has shown a marked upward trend in past years, and despite temporary setbacks an upward trend may be expected to continue. The decrease of 12,000,000 acres in the wheat area of the world outside Russia and China, which occurred last year, would be sufficient at an average yield of 15 bushels per acre to account for a decrease of 180,000,000 bushels in production.

Russia appears to be the only one of the important exporting countries that did not reduce acreage for harvest in the 1931–32 season. In the United States, there was a reduction of over 6,000,000 acres. In Canada, although present estimates of area of spring wheat sown actually show an increase, it seems likely that the increase is due to a revision of the 1931 figures to the new census basis and then the acreage estimate of the preceding year is revised, it will be larger than that of 1931–32. In both Argentina and Australia the area is estimated to have been reduced by approximately 4,000,000 acres.

Europe as a whole excluding Russia, has shown some increase in its wheat area, there having been an increase from 83,800,000 acres in 1930–31 to 92,400,000 in 1931–32. This increase apparently is the result of high protective tariffs, milling and import restrictions, and substantial Government aid which has been given to producers by the European exporting countries. A portion of the increase in wheat acreage in Europe, however, has been at the expense of rye.

In Russia, the wheat area has increased from 22,300,000 acres in 1922–23 to 92,400,000 acres in 1931–32. Most of this increase represents a return to pre-war levels, the average for 1909–1913 for present boundaries being 74,000,000 acres. (The pre-war estimate is probably not strictly comparable to post-war figures owing to changes in estimating methods; Soviet statisticians use a figure about 7 to 9 per cent larger for the comparable pre-war level). The Russian area increased much more rapidly during the first four of these years than during the last five, the average yearly increase having been 12,900,000 acres from 1922 to 1926 and only 3,700,000 from 1926 to 1931. In part, the less-rapid increase in recent years has been due to the fact that less good wheat land is readily available for expansion of the area and in part to lack of adequate motive power for cultivation and to administrative difficulties. Earlier increases in the Russian wheat area were mostly in the older agricultural regions, especially the southern and central part of European Russia. The later increases were largely through expansion of the area into newer regions in the southeastern part of European Russia and in Asiatic Russia. The newer regions, being both more remote and less adequately supplied with transportation facilities, are much less accessible both to seaports and to the principal consuming areas of Russia. Low prices appear to have been definitely disappointing and in the long run, despite the absence of free competition and freedom of action on the part of individual producers, there seems to be no doubt that Russia must take account of alternative opportunities in finally working out its program of agricultural production. If the returns which it can obtain for exports of agricultural products are too disappointing, there will be the tendency to reduce exports and to divert some of its productive energies to the making of manufactured products. It appears that the 5-year plan itself intends to make Russia eventually a virtually self-sufficing country, and that large exports of agricultural products are thought of as a temporary expedient by which the industrial

plant can be built up more readily. The population of Russia is rapidly growing, having risen from a level of 140,000,000 in 1913 to 148,000,000 in 1927 and 161,000,000 in 1931. Furthermore, it is to be borne in mind that the Russian diet is very greatly restricted, both as to variety and quantity with the result that there is opportunity for a great deal of future increase in Russian agricultural production to be absorbed by an increase in domestic consumption.

The wheat-market situation for the 1932–33 season, as for any single season, is more dependent upon current supply and demand conditions than upon the level of acreage and of normal wheat consumption. These current supply and demand conditions include the size of the carry-over from the preceding season, the yields of the current year, and conditions affecting the level of demand through the purchasing power of people of the various countries. Of the various factors that are of primary importance in the 1932–33 situation, there is fairly clear evidence as to the size of the carry-over and as to the broad outlines of the world demand situation; but with regard to the production of the world as a whole, little is yet known.

The quantity of wheat available for export and carry-over in the United States, Canada, Argentina, and Australia, is estimated at a total of 970,000,000 bushels as of January 1 compared with 961,000,000 a year earlier. Present indications are that the exporting countries of the Danube Basin and Russia have somewhat less wheat available for export than at this time a year ago, but in any event their contribution to world exports during the period January to July is relatively small. In the importing countries of Europe generally, remaining supplies of domestic wheat and stocks of imported wheat appear to be small, though for the United Kingdom stocks are very large. Hence, total European import requirements for the period January to June, 1932, are not expected to differ very greatly from those of the corresponding period of 1931. With both supplies in the principal exporting countries and requirements of the importing countries about the same as last year, it is clearly evident that stocks of old wheat in countries of the Northern Hemisphere and the remaining exportable surplus of the countries of the Southern Hemisphere as of July 1, 1932, will again be large. There are uncertainties as to crop estimates and import takings, but even in case stocks should differ considerably from the 641,000,000-bushel total accounted for as of July 1 last year, stocks would still be at a high level.

There is some prospect for a slight reduction in world acreage of wheat to be harvested in the 1932–33 season. Russian sowings of all winter cereals in the fall of 1931 are reported to be 3 per cent smaller than in the fall of 1930 but winter wheat sowings have apparently increased somewhat. The 1932 spring wheat sowings in Russia will depend largely upon whether conditions and the availability of motive power in the spring. The reduction in the area of fall-sown grain, together with indications that only a small increase in wheat area is planned for 1932, makes it unlikely that there will be as much increase in Russian acreage for harvest in 1932 as there was in the previous year. The six European countries that have thus far reported winter-wheat acreage show an increase of a little over 1,000,000 acres or approximately 2.7 per cent in the area sown. Some of these show increases and some decreases, the only large increase being in France where 1,600,000 more acres were sown in the fall of 1931 than in the fall of 1930. Last year's sown area in France, however, was considerably smaller than usual. Hence, reported sowings in Europe to date suggest a small increase in the area compared with that of last season.

In the United States there is a fairly definite prospect of a much smaller production of winter wheat in 1932 than in 1931. The area sown to winter wheat in the fall of 1931 amounted to 38,682,000 acres. This is 10.4 per cent less than the acreage planted the previous fall. The condition of the crop on December 1 was the lowest, with the exception of two years, in the last two decades. The average abandonment for the last 10 years has been 12.6 per cent. The abandonment during last winter was only 5 per cent. If abandonment this year should be average, this alone would result in a net decline of nearly 8 per cent in acreage to be harvested. This, coupled with the reduction of 10.4 per cent in acreage sown, would amount to a total reduction of nearly 18 per cent in the area of winter wheat actually to be harvested in 1932, compared with that harvested in 1931.

If both abandonment and yield this year should be average, the acreage of winter wheat sown is sufficient to produce a crop of about 500,000,000 bushels compared with an average of 620,000,000 bushels in the last five years. Of this

quantity, approximately 320,000,000 bushels would be hard red winter and 140,000,000 soft red winter. In recent years the average domestic utilization of hard red winter wheat has been in the vicinity of 225,000,000 bushels annually, and of soft red winter wheat about 150,000,000 bushels. It is possible, of course, to substitute the softer and lower protein wheat of the hard red winter class for soft red winter wheats. Hence, no hard-and-fast line can be drawn as to domestic requirements. Nevertheless, crops of about the size which would be produced this year if yield and abandonment turn out to be average, have resulted in recent years in substantial premiums for soft as compared with hard red winter wheats.

The acreage of spring wheat including durum harvested in 1931 amounted to 13,940,000 acres and was the smallest since 1896 owing to heavy abandonment in the Dakotas and Montana. The yield of 7.5 bushels per acre was the lowest on record. More normal weather conditions would have resulted in larger yields and a larger harvested area of both spring and durum wheats.

It is, of course, too early to say definitely what will be even the approximate production of spring wheat this year. In view of the depleted finances of farmers in the spring wheat belt and the difficult credit conditions confronting them, it is not possible to say even approximately how large an acreage will be seeded to spring wheat. However, in view of the extremely unfavorable growing season last year, total production of spring wheat this year may be larger than last year.

If acreage and yield this year should be such as to produce a spring-wheat crop about as large as that of 1930 (when yields were about average), the spring wheat crop would be about 250,000,000 bushels. If a spring-wheat crop of this size should materialize and if the production of winter wheat should be about 500,000,000 bushels, the possibility of which was indicated above, the total wheat crop would be about 750,000,000 bushels. This would not be very much in excess of the total domestic consumption of wheat in the 1930–31 season, which amounted to 728,000,000 bushels.

Feeding of wheat in 1930–31, however, was very heavy owing to the low prices of wheat relative to other grains, a more usual domestic consumption being about 100,000,000 bushels less. If there should be a crop of 250,000,000 bushels of spring wheat it would not result in an acute shortage of hard red spring and durum wheats, which shortage this year has caused these wheats to command very high premiums. The carry-over of hard red spring and durum wheats from the current season, however, is expected to be small. During the last few years average yields have usually resulted in the crops of hard red spring wheat east of the Rockies being about equal to domestic consumption, and in durum wheat crops which provide a considerable surplus for export.

The estimated total supply of wheat available in the United States for the 1931–32 season, including carry-over from the preceding year and the new crop, amounted to 1,211,000,000 bushels. Allowing for a consumption of 635,000,000 bushels for food, feed, and waste (compared with 651,000,000 bushels disappearance for these purposes last year) and for 73,000,000 bushels to be used as seed, would leave 503,000,000 bushels available for export during the 1931–32 season, and for carry-over into the following year. Net exports of wheat including flour from July 1 to December 31 were approximately 74,000,000 bushels, leaving a total of 429,000,000 bushels available in the United States as of January 1 for export and carry-over. Deducting an allowance of 125,000,000 bushels as a "normal" minimum carry-over on farms and in the hands of the trade and millers, would leave 304,000,000 bushels nominally available for export during the remainder of the season compared with 230,000,000 bushels a year earlier. Included in the figure of 304,000,000 bushels nominally available for export are the stabilization corporation stocks. The corporation's holdings are reported to have been about 187,000,000 bushels as of December 31, including 29,000,000 bushels in futures contracts, but not including wheat already sold abroad, but not yet shipped. Since the Grain Stabilization Corporation is committed to withholding most of its stocks from the market, such quantities as may be held July 1 should not be included in the surplus actually available for export during the current season.

FLAX

The 1931 United States flaxseed crop of 11,018,000 bushels which was reduced by unusually low yields and heavy abandonment, is materially below

1931–32 domestic requirements. However, average yields of flaxseed on an acreage as large as the 3,600,000 acres seeded in 1931 would produce a crop nearly equal to the prospective small domestic requirements for 1932–33. Any material increase in acreage or better-than-average yields would tend to reduce the advantage afforded by the present tariff of 65 cents per bushel and reduce the margin between domestic prices and those in important surplus areas. Abnormally high temperatures and extreme drought during the summer and fall of 1931 materially reduced the quality of the United States crop and considerable flaxseed is not fit for seed purposes. The small supply of good-quality flaxseed for seeding the domestic 1932 crop and shortage of funds for purchase of seed may be factors in limiting the 1932 acreage.

The downward trend in flax and flax-product prices during the 1930–31 crop year and the first half of the 1931–32 season was due primarily to a decreased demand, burdensome world supplies, and a declining tendency in the general commodity price level in the United States and in foreign countries. On the basis of official crop statistics, the 1930–31 world crop, including Russia, closely approached the previous record crop of 1927–28 of 158,194,000 bushels. However, if the Argentine crop figure is revised on the basis of exports during 1931, world production for 1930–31 was of record proportions. Present indications are that the world crop of flaxseed in the 1931–32 season will be less than the crop of last year when 153,788,000 bushels was harvested, according to official estimates. The 1931–32 crop in 14 countries reported to the close of December totaled 128,220,000 bushels compared with 138,900,000 bushels last year. Every large flax-producing country of this group showed a decrease in production, with the exception of Argentina and Uruguay. Weather conditions favored a high yield on a record acreage in Argentina and a crop of 82,672,000 bushels was produced. This is materially above average. In contrast, the United States and Canadian crops were sharply reduced by drought. Production in the United States was only 11,018,000 bushels compared with last year's final estimate of 21,240,000 bushels, and 15,910,000 harvested in 1929. The Canadian flaxseed crop was reduced by drought to 2,847,000 bushels compared with 4,399,000 bushels in the previous year, despite the increase of 8 per cent in acreage. The Indian crop last year was about the same as in the previous season and was estimated at 15,120,000 bushels. Some increase in the 1932 Indian acreage is indicated by the first estimate, which placed the acreage at 2,377,000 acres compared with the revised initial estimate of 2,177,000 acres last year. The final figure last season was 3,020,000 acres.

In 1931 about 3,600,000 acres were seeded but on account of unfavorable conditions only 2,313,000 acres were harvested. Abandonment in the Dakotas and Montana was about one-half of the planted area. For the country as a whole the yield per harvested acre was 4.8 bushels in 1931, 5.7 bushels in 1930, and 5.2 bushels in 1929.

Since domestic requirements are larger than available supplies, it will be necessary to import a considerable quantity of foreign seed into the United States during 1932. Disappearance of linseed oil into domestic and export channels during last season was about 498,000,000 pounds compared with 592,000,000 pounds in the previous season and 812,000,000 pounds in the 1928–29 season. Assuming an outturn of 18 pounds of oil per bushel of flaxseed crushed, and oil requirements for the 1931–32 season about the same as for the 1930–31 season, about 27,700,000 bushels would be required to meet demand for seed for crushing. In five seasons, 1924–25 through 1928–29 when demand for oil was active, annual crushings averaged about 41,000,000 bushels. On account of the low oil content of the new domestic crop, it may be necessary to crush a relatively larger quantity.

Flaxseed is processed for the oil in the United States, whereas in Europe, the primary interest is in the meal. Demand for linseed oil and linseed meal in the United States and Europe in 1930–31 and in the first half of 1931–32 was small. Domestic demand for linseed oil in the United States was closely related to the volume and extent of building activity which at the close of 1931 was at the lowest levels during the present depression. The small available supplies of linseed meal have been a strengthening factor in the market for that concentrate, but supplies of other concentrates which may be substituted for it, including cottonseed cake and meal, gluten feed and meal, and soybean meal, are large. Since the main product from flax in Europe is linseed meal, demand for it is affected by the feed-grain supplies. Increased corn and oats crops were reported in Europe, but the barley crop was smaller. The European potato drop was above average but was smaller than that of 1930. The total tonnage

of feed grains in the countries reporting to the close of December was 59,400,000 compared with 58,000,000 tons last season and 67,500,000 tons in 1929–30. Stocks are larger than a year ago, with the possible exception of feed potatoes. Sustained shipments of corn from the Argentine also suggest liberal supplies in that country to supplement European harvests.

During recent years, large supplies of other drying oils available at relatively low prices have been a factor in the reduced use of linseed oil. Generally speaking, consumption of linseed oil as compared with such substitute oils as tung, soybean, perilla, and menhaden oils decreases when the price of linseed oil is relatively greater than that for substitute oils. Consumption of linseed oil compared with that for the substitute drying oils has declined sharply since 1928–29, reflecting the large supplies of low-priced substitute drying oils.

Flaxseed prices in the United States at the close of 1931 were at the lowest level since 1914, despite the unusually small 1931 domestic crop. No. 1 flaxseed averaged $1.43 per bushel at Minneapolis during December, 1931, the lowest price for that month since 1912 when the second largest United States crop on record was produced. No. 1 flaxseed averaged $1.25 per bushel in December, 1912. Prices received for flax by United States farmers are governed largely by production of flaxseed in Argentina, Canada, and the United States, and the status of domestic and foreign demand. Production has beeen large during late years in the above-mentioned countries owing to large harvests in Argentina. In contrast, demand for flaxseed has been small. When Argentine production is very large, supply changes in the United States do not materially alter the return per bushel received by domestic flaxseed farmers when changes in the price level are considered, unless a United States crop larger than domestic needs is produced. A harvest larger than prospective 1932–33 domestic requirements would reduce the effectiveness of the tariff and make for a narrow spread between domestic and world market prices.

The 1931 United States flaxseed crop was of poor quality, as it was light and had a lower oil content than usual. In many localities the crop was a total failure or the seed was so shrunken as to be unfit for seed purposes. It is probable, therefore, that an unusual demand may appear in some sections in the spring of 1932 for seed of good quality for seeding. The small available supply of seed flax may be a factor in limiting the acreage seeded in 1932. Shortage of funds for seed purchases may also be a factor.

OATS

The area of oats for the United States as a whole was practically the same in 1931 as in 1930. Lower yields, however, resulted in a crop considerably smaller than that of 1930 and a trifle smaller than the 1929 crop. A low level of feeding demand, together with supplies of other feed grains more plentiful than last year, has resulted in prices during the first five months of the crop year being still lower than those of last year. The decline in numbers of workstock during the last 15 years has greatly restricted the demand for oats as a feed for horses and mules, and has brought oats into more direct competition with other foodstuffs.

The 1931 crop of 1,112,000,000 bushels was one of the smallest in recent years and was the result of low average yields on a harvested area of 39,722,000 acres. Although the total area for the United States was almost identical with that of 1930, there were significant changes in the acreage of various States. There was a marked increase in the oats area of Oklahoma and Texas, whereas that of Illinois, Iowa, and Ohio decreased somewhat from the rather high levels of 1930. In North Dakota, South Dakota, and Montana there were notable decreases which were due principally to abandonment on account of drought. The crop was materially reduced in the drought area of the North Central States and in the chief producing area of the Western States with the exception of Washington. In the South, which had been subjected to the drought of 1930, the acreage was increased to provide an early feed crop which, together with good yields, resulted in a production far greater than average.

Total supplies of oats in the United States as of August 1, 1931, are estimated at 1,192,000,000 bushels, which was 157,000,000 bushels less than for last season. The quantity available this season is not much below that available for 1929–30, which was estimated at 1,213,000,000 bushels. In that season domestic utilization was the lowest in recent years, amounting to 1,134,000,000 bushels, and although oat prices were high relative to other grains, a moderate carry-over of 72,000,000 bushels remained on July 31, 1930.

The estimated world production of oats in 1931 was nearly 7 per cent below that of 1930. In Europe, however, the production was more than 1 per cent larger than the short crop of the preceding year, and in Argentina it was about 24 per cent larger than the unusually small crop of 1930–31. The principal decreases in production were in the United States and Canada where low yields resulted from the drought. In Canada, although the crop was about 100,000,000 bushels below that of 1930, it was larger than the short crop of 1929

Exports of oats from the principal exporting countries since July 1 have been about 18 per cent above those of the preceding season. Shipments from Argentina and Danubian countries have fallen below those of the latter part of 1930, but in spite of a smaller crop than that of the year before, United States exports have been about twice as large, amounting to 3,200,000 bushels compared with 1,600,000 bushels in 1930, and Canada has shipped 8,900,000 bushels compared with 3,900,000 bushels the preceding season. United States exports of oats are very small relative to production, but the export market is of some significance, as net exports are fairly large relative to commercial supplies, net exports of the last 10 years having averaged 15,304,000 bushels or 8.5 per cent of receipts at 10 primary markets during the same period.

Prices of oats thus far during the current season have been the lowest in 30 years, despite the small supplies. The increased utilization of motor power in place of horses and mules during the last 15 years and the consequent reduction in the number of work stock have resulted in a decline in the demand of oats for feeding work stock. A larger proportion of the crop is now being fed to dairy cattle and meat animals. As a result, oat prices appear to be more dependent than formerly on the production of other feed grains and upon the market for dairy products and meat animals. Total supplies of feed grains, although about 3 per cent below the average of the last five years, are about 10 per cent above last year, and prices for both dairy products and meat animals are low. Feeding this year has been restricted by the open winter. Nevertheless oat stocks on farms as of January 1 were smaller than on the corresponding date of any year since 1927, being about 100,000,000 bushels less than a year ago.

Prices of oats this season as in other seasons have been affected by the geographical differences in production. Thus in Texas and Oklahoma, where acreages have been increased in the last two years good yields in 1931 resulted in a large crop and prices have been lower than usual compared with those in other States. Ordinarily farm prices of oats in both Texas and Oklahoma are well above the United States average and still further above prices in Indiana and Illinois. This year, however, they are below the United States average and about the same as prices in Indiana and Illinois. Prices in North Dakota and South Dakota, where the crop was greatly reduced by drought, are this year about the same as in Illinois and Indiana, whereas they are usually considerably lower.

A year of more normal weather conditions would result in a larger production of oats for the United States as a whole, as well as a larger production of other feed grains if the acreage of these crops is maintained at about present levels. Feed-grain consumption, however, is dependent upon livestock numbers as well as upon prices. Hog numbers have been increasing during the last year and are expected to remain at a higher level than that of the last two years for at least another year. Meanwhile dairy cattle and beef cattle numbers have been increasing.

Oats continue to be grown on a large proportion of the crop area, especially in the areas favorable for corn production. This is because of the satisfactory nature of the crop as a feed for productive livestock as well as work stock and because of its supplementary character in the cropping system. Oats fit well into a scheme of cropping built largely around corn. The two crops, together with forages, usually offer a desirable combination and despite apparent unsatisfactory market conditions, oats remain one of the major crops.

BARLEY

The present relatively strong market for barley in comparison with other feed grains results from an unusual distribution of the barley crop in 1931. In view of the relatively small supplies of barley compared with livestock numbers in the present deficit barley area centering about the Dakotas, it seems probable that this relatively favorable marketing situation for barley may continue at least until new-crop barley is available for feeding in the

northern portions of the barley-growing areas. After that time, the demand for barley will probably return to its normal relationship to other feed grains, unless there should be another short crop of barley or some unusual distribution in the production of feed grains in 1932. Exports of barley have been unusually small except for California malting types, and because of import restrictions in most European countries, will probably continue unimportant.

The 1931 barley crop of 198,965,000 bushels was only about two-thirds as large as the production in each of the two preceding years. The small crop resulted largely from low yields and abandonment of acreage in the Dakotas and Montana. Average yield per acre for the United States was only 17.3 bushels compared with 24.1 bushels in 1930 and 20.7 bushels in 1929. Acreage harvested was 11,471,000 acres, about 10 per cent less than in 1930 and 15 per cent less than in 1929, notwithstanding that the acreage seeded was about the same as in 1930. Adding the August 1 carry-over of old barley to the current production, the total supply of barley for the 1931–32 season was only 220,000,000 bushels, compared with 324,000,000 bushels in 1930–31, and 306,000,000 bushels in 1929–30.

The production of barley in the West North Central States in 1931 was only 109,557,000 bushels, as compared with 186,339,000 bushels in 1930, and 173,538,000 bushels in 1929. In the remainder of the country, production in 1931 was 89,408,000 bushels, compared with 118,262,000 bushels in 1930 and 106,704,000 bushels in 1929.

Total world barley production in the countries reported was about 15 per cent below that of 1930. The North American countries, which decreased their acreage considerably, had a production more than 173,000,000 bushels below that of the preceding year. The 1931 barley crop in Europe, although sown on a slightly larger area, was 8 per cent below the 1930 production in the same countries, and the smallest harvest since 1927. The outturn, exclusive of Russia, was 60,200,000 bushels below that of 1930. Production in Asia was 2,500,000 bushels below that of the previous year. The North African countries showed an increase of 9,000,000 bushels, and Argentina an increase of 4,800,000 bushels.

Barley stocks at the beginning of the present season were unusually heavy. United States stocks on August 1 of 21,342,000 bushels were the largest in recent years with the exception of the stocks of 25,874,000 bushels in 1929, and Canadian stocks on that date were nearly 29,500,000 bushels, compared with less than 23,000,000 bushels in 1930 and 11,000,000 bushels in 1929. On account of the heavy exports, however, Canadian stocks on January 1, 1932, were less than on January 1, 1931. In Germany, spring barley stocks on December 15 amounted to about 62,000,000 bushels, compared with 53,000,000 bushels a year earlier.

Since July 1, exports of barley from the principal exporting countries have fallen 38 per cent below the exports during the same period of 1930–1931. Shipments from the Danubian countries have been less than half as large, from the United States they have fallen off 45 per cent, and from Argentina, 27 per cent. Canada alone increased her barley exports during the six months ending December 31 from about 2,500,000 bushels in 1930 to 10,300,000 bushels in 1931.

During recent years the production of barley has expanded greatly coincidently with the expansion of hog production west and north of the Corn Belt proper. In this area barley is a more certain crop than corn, but because of drought in 1931, the usual surplus for shipment has been replaced in many localities by a deficit. The demand for feed barley in contiguous markets has been sufficient to hold barley prices steady in the West North Central States, while prices of oats are lower by 20 per cent and corn prices are lower by 40 per cent compared with a year ago in the same States.

At the middle of January, 1932, feed grades of barley were selling at Minneapolis at 40 to 45 cents per bushel, compared with 35 to 40 cents a year ago, while malting quality was bringing 53 to 55 cents or practically the same prices as at the corresponding time last season. No. 3 barley was quoted at Milwaukee at the middle of January this season at 50 to 58 cents, compared with 42 to 60 cents a year ago, while the same grade was selling at Kansas City at 34 to 35 cents as against 44 to 45 cents in the middle of January, 1931. In California where the barley crop was unusually small, No. 1 feed barley was quoted delivered San Francisco at 55 cents per bushel, compared with 49 cents a year ago, and choice malting barley at 70 to 82 cents as against 60 to 65 cents last year.

At the beginning of 1932, all livestock on farms, except work stock, showed substantial increases over the number on hand January 1, 1931. These increases amounted to 2.4 per cent for cattle, 2.2 per cent for sheep and lambs, and 9.4 per cent for hogs. The December pig survey indicated that the fall pig crop was nearly one-fifth larger than that of a year earlier. Numbers of sheep and lambs on feed in the Corn Belt were estimated to be 24.1 per cent larger than those of a year earlier. Most of the increase in cattle and hog numbers in recent years has taken place in the West North Central States. Barley has become increasingly important as a feed grain in the Northwestern States of this group. Numbers of all livestock in the leading barley-producing States of the Middle West increased materially during 1931 despite the drought. The numbers of livestock were augmented in eastern Dakotas by inshipments of large numbers of sheep and lambs from drought areas of Montana and the Pacific Northwest. All crops were curtailed somewhat in the principal barley-producing States, consequently the supplies of feed grains in these States are relatively small with barley supplies shortest of all in relation to normal needs for local feeding.

The unusual demand from the drought States, which normally ship considerable quantities of this crop continues to draw heavily upon the small supplies, and the carry-over of this crop on August 1, 1932, seems likely to be much smaller than for many years. Until the 1932 crop is available for feeding and shipment in the Dakotas and Minnesota, the present relatively good demand for barley may be expected to continue. Should average yields of barley be secured in 1932, in this area of present deficit, the unusual situation would disappear, and barley demand again be in a more normal relation to corn and oats.

Based on average yields and average farm prices, barley appears to be a more profitable crop than oats; however, throughout much of the area in which the two crops are grown, barley may not be interchangeable with oats in the cropping system because of greater susceptibility to disease or damage from poor drainage. During the period from 1924 to 1927 the average farm price of barley was relatively high as compared with oats. During this period there was a modest increase in the proportion of barley acreage to the oat acreage, even in those States in which the concentration of oats is high. But during the period from 1928 until 1930 the price advantage of barley declined and the expansion was continued only in those sections north and west of the principal corn and oats area and where conditions are favorable to barley production. The present advantage of price held by barley may again encourage barley production. However, the present price relations between wheat, barley, and flax are less favorable to barley as a cash crop for replacing wheat or flax. But where there is a shortage of grain feed, barley will furnish an earlier supply of feed than do other grain crops.

CORN

A moderate increase in corn acreage is to be expected in 1932 if favorable planting conditions prevail, especially in those areas in which prices for competing crops have been unusually low. If this increase occurs it will be the third successive increase in acreage. The prospective acreage is likely to be large enough so that if only average yields are obtained, corn production in 1932 would be larger than any year since 1923, and near to a record crop. This prospective larger supply may be offset to some extent by an increased demand for corn. The numbers of livestock on farms during the 1932–33 season will probably be somewhat larger than during the present season, as cattle numbers are on the increase and the spring pig crop is likely to be about the same as in 1931. If business conditions improve, some increase is also to be expected in the commercial consumption of the 1932 corn crop in the United States. Foreign demand is not expected to be an important factor in the corn situation during the 1932–33 season, unless production of feed crops in Europe in 1932 is materially less than average, as Argentine conditions for the 1931–32 crop are above average.

The domestic demand for corn so far in the 1931–32 season has been restricted by the large supplies in normally deficit-producing areas, the small quantity of corn used in manufacture, the low price of wheat, and the low purchasing power of farmers in those areas in which supplies are shortest. Up to January 1, 1932, only 30 per cent of the 1931 crop harvested for grain had been disposed

of compared with 36 per cent on January 1, 1931, and a 4-year average of 35 per cent.

The total supply of corn available at the beginning of the 1931–32 season (November 1) including carry-over, was estimated to be larger by about 520,000,000 bushels or 24 per cent than last year's short supplies, and about 1.5 per cent larger than in 1929, but was about 200,000,000 bushels below the 1925–1929 average supplies. The larger supplies of corn this year are offset to some extent by the smaller supplies of most other feed crops. The supply of oats at the beginning of the season (August 1) was 12 per cent smaller than last year and barley supplies were only two-thirds of a year ago. The crop of grain sorghums, however, was 21 per cent larger than last year and the largest since 1928. The total wheat crop was the largest since 1928 and the winter-wheat crop was the highest on record. Although the combined tonnage of corn, oats, barley, and grain sorghums is about 11 per cent larger than last year's supply it is only 93 per cent of the average supplies for 1925–1929. The large supply of winter wheat together with low prices and the shortage of corn early in the season has resulted in the continuation of heavy wheat feeding into the 1931–32 season in many areas. Supplies of hay for the 1931–32 season are slightly smaller than a year ago and materially below average. The principal shortage of hay is in the same areas in which other feed crops are short. The mild weather so far this winter has been even more favorable than a year ago for conserving feed crops as fall rains and mild weather kept pastures in good condition until late in November in many of the principal feeding areas, and temperatures in nearly all parts of the United States east of the Rocky Mountains, were materially above normal in December and the first half of January. Late fall rains in the far Western States and in the Cotton Belt have also benefited winter pasture conditions in these areas.

Although the supplies of corn at the beginning of the 1931–32 season were nearly one-fourth larger than for the 1930–31 season, supplies in the West North Central States and far Western States were smaller than a year ago. In the Corn Belt, as a whole, corn production in 1931 was 14 per cent greater than the unusually small crop of 1930. The drought in the western part of the Corn Belt reduced yields materially and production in the West North Central States was only 98 per cent of last year and 82 per cent of 1929. Production in the East North Central States in 1931 were drought reduced the crop in 1930, was 45 per cent greater than in 1930 and 18 per cent greater than in 1929. In the South Central States production was unusually large in 1931, being 79 per cent larger than in 1930 and 22 per cent larger than in 1929. The Eastern States also had larger than an average crop in 1931, production in the Northeastern States being 73 per cent larger than in 1930 and 30 per cent larger than in 1929, and in the South Atlantic States, 44 per cent larger than a year ago and 13 per cent larger than 1929. The greatest relative decline in production was in the far Western States where the 1931 crop was only 66 per cent of that of 1930 and 97 per cent of 1929.

The total quantity of corn harvested for grain which remained on farms January 1 was estimated to be larger by about 420,000,000 bushels or 38 per cent than a year ago and was 65,000,000 bushels or 4 per cent more than the average of the four years 1927 to 1930. Up to January 1, 1932, only 30 per cent of the total supply of corn harvested for grain in the 1931–32 season had been consumed or marketed, while on January 1, 1931, 36 per cent of the corn crop had been disposed of and the average for the four years 1927 to 1930 was 35 per cent. The location of supplies on January 1, 1932, was similar to that on January 1, 1927. Supplies in the East North Central States were about 75 per cent larger than a year ago, and the largest for any year since data on stocks were first collected in 1927. Supplies in the West North Central States were about equal to last year, and about the same as on January 1, 1927. In the North Atlantic States supplies were more than twice as large as a year ago, and only slightly below January 1, 1927 and in the South Atlantic States about 50 per cent larger than on January 1, 1931, and 10 per cent larger than on January 1, 1927. Supplies in the South Central States were 107 per cent larger than the small supplies of a year ago, but 10 per cent smaller than on the same date in 1927. In the far Western States, supplies on January 1 were only about 60 per cent of the unusually large supplies on January 1, 1931, but were larger than the average supplies for the years 1927 to 1930.

Corn prices declined sharply as the new crop became available for market and prices are now at about their normal relationship to those of other grains.

The lower prices for corn have resulted in unusually small country marketings. Receipts at the 13 principal markets during November and December of 22,983,000 bushels were only 51 per cent of last season's low receipts and only 42 per cent of the average receipts for November and December from 1925 to 1929. Commercial stocks of corn on January 1 were larger than a year ago, but below average. The large crop in the South and most other normally deficit areas has greatly reduced the shipments of corn into these areas.

Market prospects for corn this season are similar to those for the 1926–27 season except that the price level is materially lower. Both the quantity of corn still on farms on January 1, and the location of supplies are similar to that of January 1, 1927. The numbers of hogs on farms are about 10 per cent larger than in 1927, and cattle numbers are larger than in 1927. However, this is offset, to some extent, by the smaller numbers of horses and mules on farms and the lower level of commercial demand for corn this season. During the 1926–27 season, corn prices remained at approximately the January level until May. Owing to a cold wet spring in 1927, plantings were delayed and crop conditions remained below normal until September. As a result of these unfavorable conditions corn prices advanced sharply from May until August.

Foreign demand for corn so far this season has been negligible. Present prospects for the Argentine crop, which will be available for export about April 1, are much above the average. The acreage of corn in Argentina is reported to be slightly larger than a year ago and weather conditions so far in the growing season have been favorable for corn. With average weather conditions from now until harvest time, a record crop is in prospect.

In the Corn Belt proper, there will probably be some increase in the acreage devoted to feed grains, especially corn, in 1932. The wheat acreage has been reduced in most areas of the Corn Belt where corn and wheat are grown and the low condition of wheat on December 1 indicates that abandonment is likely to be materially larger than a year ago when it was much below average. There will also be a tendency to increase feed grains in the northwestern part of the Corn Belt where supplies are unusually short this year.

The low prices of cash crops in Southern States may mean an increased planting of corn in the Cotton Belt, particularly in those districts in which land is well suited for corn and yields are normally such as to make it more of a competing crop.

Although corn yields are primarily determined by weather during the growing season, the heavier-than-usual rainfall during the fall months of 1931 in the principal drought areas in the northwestern part of the Corn Belt, indicates that the drought has been definitely broken in this area. Corn yields for the United States, as a whole, have been below average for the last three years. This is as long as any period on record when yields have been below average. If more nearly normal weather conditions prevail in 1932, corn yields will be materially higher for the country as a whole than in the past two years. With the prospective larger acreage any increase in yield over the last two years will result in a crop somewhat larger than those of the last three years.

Present indications are that the number of hogs to be fed from the 1932 crop may not be materially different than the number being fed from the 1931 crop. The number of horses and mules on farms January 1, was less than a year ago, but cattle numbers were somewhat larger, and the number of sheep and lambs on farms is larger than last year. The present ratio of feed prices to livestock and livestock product prices is less favorable to feeding than a year ago, owing to a marked decline in prices of livestock and livestock products in the latter part of 1931 and early 1932, but they are still not unfavorable for feeding in most areas. The hog-corn ratio for the Corn Belt, on December 15, of 11, was only slightly below average and compares with 12.4 in December last year. The ratio of dairy-product prices to feed prices during January was less favorable than a year ago, but it is still favorable to normal feeding for dairy production and the ratio of steer prices to feed prices is not unfavorable at present.

Corn acreage in 1930 was nearly 3,000,000 acres larger than in 1929, and in 1931 was over 4,000,000 acres larger than in 1930. Since present prospects are for a still larger corn acreage in 1932, it is apparent that the downward trend in acreage since 1921 has at least temporarily ended. It is not to be expected that corn acreage, as a whole, will continue to increase indefinitely, as low yields during the last three years have tended to restrict corn supplies and resulted in larger acreages the following year. However, it is likely that corn acreage

will continue larger than the average for the last 10 years, at least, until returns from cash crops, such as cotton and wheat, again become high enough to encourage a substitution of these crops for corn in the competing areas.

HOGS

Slaughter supplies of hogs during the remainder of the present marketing year, which ends September 30, 1932, are expected to be considerably larger than the relatively small supplies of the corresponding period of 1931. No material improvement in the demand for hog products appears likely during this period, either at home or abroad. Present indications are that the 1932 spring-pig crop in this country will not be greatly different from that of 1931, but that the European hog production in 1932 for the 1933 market will show some decrease.

Hog production, after declining in 1929 and 1930, increased in 1931. The pig surveys of 1931 showed an increase of 9 per cent in the number of pigs saved in 1931 over 1930 for the whole country. For the North Central States, where the bulk of the commercial supply of hogs is raised, the increase was also 9 per cent. The largest relative increase was in the fall-pig crop, which the survey showed as 20 per cent larger in 1931 than in 1930 for the whole country and 21 per cent larger for the North Central States.

The increase in the number of pigs raised in 1931 was reflected in the number of hogs on farms January 1, 1932. The estimated number this year was 59,511,000 head, compared with 54,374,000 head January 1, 1931, and 55,301,000 head January 1, 1930. For the North Central (Corn Belt) States the number was 42,689,000 head this year, 39,839,000 head in 1931, and 39,992,000 in 1930. Although all divisions of States, and all but six States, had larger numbers this year than last, the largest relative increases were in the South and West. The percentage increases were 3 in the North Atlantic, 6.5 in South Atlantic, 10 in East North Central, 6 in West North Central, 22 in South Central, and 19 in the far Western States.

Federally inspected slaughter during October, November, and December, 1931 (the first three months of the marketing year which ends September 30, 1932), totaled 13,377,000, an increase of 1,200,000 head over the corresponding period in the 1930–31 year. The increase in the number of hogs on farms from January 1, 1931, to January 1, 1932, points to a federally inspected slaughter during the nine months, January to September, 1932 (the remainder of the present marketing year) of about 34,000,000 head, making a total of about 47,500,000 head for the entire year of 1931–32. The inspected slaughter for the marketing year 1930–31 was 43,559,000 head, with 31,396,000 head for the nine months, January to September, and in the year 1929–30 the total was 45,542,000 head, with 32,103,000 head in the nine months.

Other indications point to a slaughter for the 1931–32 marketing year somewhat larger than 47,500,000 head. If the slaughter for the three months, October to December, 1931, is about an average proportion of the total crop-year slaughter, the yearly total would be about 48,000,000 head. With available information showing that the increase in the fall-pig crop of 1931 was relatively much larger than the increase in the spring crop of that year, the indications are that the slaughter during the first three months of the marketing year may be less than the average proportion of the yearly total. In this event, the total would be more than 48,000,000 head. During the last 15 marketing years there have been only two years when the total for the first quarter (October-December) has indicated too large a yearly slaughter; in the other years it either indicated the approximate total or too small a total. The two years when the indicated slaughter proved to be larger than the actual slaughter were years following rather short corn crops and in which the supply of hogs to be fed out was relatively large.

During the last 20 years, the typical hog-production cycle, as indicated by slaughter, has consisted of two years of increased supplies followed by two years of decreased supplies. A similar pattern for the present cycle would indicate that slaughter in the marketing year 1932–33, (pigs raised in 1932) would be larger than that in the present marketing year. The December, 1931, pig survey showed breeding intentions for farrow in the spring of 1932 which, when adjusted for the usual spread between breeding intentions as reported in December and actual farrowings as reported the following June, indicate that the June survey in 1932 will show the number of sows farrowed in the spring of 1932 to be about 2 per cent larger than in the spring of 1931 for the entire

country. For the Corn Belt States, however, a decrease of about 5 per cent is indicated. All of the decrease in the Corn Belt is in the western part of that region and was due to the drought of 1931 in this area which greatly reduced the corn crop. If these States had shown increases in breeding for next spring about in the same proportion as the rest of the country, the indicated increase in the total 1932 spring pig crop would have been one of the largest ever known. The extent to which the very low level of hog prices this winter and the rather unfavorable feeding relation between corn and hogs is causing farmers to depart from their breeding intentions as reported in December is not certain, but it seems probable that they will not carry out their intentions so fully as they usually have. If this should be the case, the spring crop of 1932 may be no larger than that of 1931 and might be smaller, especially if weather during the farrowing season is unfavorable and the average number of pigs saved per litter should fall below the high average of 1931.

Storage stocks of pork products during the spring and early summer of 1931 were relatively large, being above both the 5-year average holdings for that time of year and the relatively small holdings of the same period in 1930. From August to November, there was a relatively heavy movement of pork into consumptive channels, and as a consequence the seasonal reduction in pork stocks was greater than usual. On December 1, 1931, such stocks were about 4 per cent smaller than those on that day a year earlier and 9 per cent smaller than the 5-year December 1 average. With the marked increase in hog slaughter in December, however, storage accumulations were unusually large. On January 1, 1932, total pork stocks, amounting to 559,000,000 pounds, were over 7 per cent larger than those on January 1 of the previous year, but they were not greatly different from the 5-year average for that date.

Lard stocks were maintained at a relatively low level throughout 1931, despite the increase in lard production during the last half of the year, as compared with the corresponding period a year earlier. Storage holdings of lard on January 1, 1932, amounting to 51,000,000 pounds, were not greatly different from the relatively small stocks on January 1, 1931, but they were 21 per cent smaller than the 5-year average January 1 holdings.

The decline in consumer demand for pork products which began early in 1930 continued throughout 1931. During the marketing year which ended September 30, 1931, per capita consumption of pork and lard from Federally inspected slaughter, amounting to 55.8 pounds was 3 per cent smaller than during 1929–30, and retail prices of pork products at New York averaged about 15 per cent lower. During the first three months of the current marketing year, 1931–32, per capita consumption of pork products was about 6 per cent larger than in those months of the previous year but retail prices of these products were 22 per cent lower.

Demand for pork products during the marketing year 1929–30, was considerably weaker than the unusually strong demand which prevailed during 1928–29, but was not greatly different from the 6-year average, 1922–23 to 1927–28. In 1930–31, this demand was further reduced, reaching the lowest level in many years, and there has been little change during the first quarter of the present marketing year. Domestic demand for pork during 1932 will depend in a large measure upon developments in the business situation, but in view of present prospects, no improvement of any consequence in this demand during the year seems probable. The recent increase in hog production in deficit hog producing areas, especially in the Cotton Belt, will probably result in greater local and farm slaughter, which will tend to reduce the demand for pork from commercial slaughter.

Total United States exports of all hog products during the 1930–31 marketing year were the smallest in more than 30 years. This reduction was due largely to a marked increase in hog production in European producing countries and to the reduction in purchasing power of European consumers. Pork exports during the 1930–31 year decreased 140,000,000 pounds, or 44 per cent, from those of a year earlier, and lard exports fell off 199,000,000 pounds, or about 26 per cent. Practically all importing countries took smaller quantities of American cured pork and nearly all countries except Great Britain purchased less American lard. The reduction in exports of pork products during the marketing year was about equal to the reduction in hog slaughter in the United States.

The declines in prices of pork and lard in European markets during 1931 were even greater than the sharp declines in the United States. From December, 1930, to December, 1931, price declines at Liverpool amounted to 61 per cent for American green bellies, 49 per cent for both Danish Wiltshire sides

and American short-cut green hams, and 37 per cent for lard. In New York, the composite wholesale price of pork declined 38 per cent during that period and lard prices declined 33 per cent. Immediately following the departure from the gold standard by Great Britain, prices of pork products in that country advanced, both in sterling and in gold. The advance was only temporary, however, and prices in gold were at new low levels during December. In sterling, lard prices were still somewhat above the low level reached during August, 1931, while prices of other pork products were at or near the lowest levels reached thus far in this depression. The abandonment of the gold standard by Denmark and Great Britain has intensified the competition from Denmark in the British pork trade.

Indications are for a continued low level of foreign demand for American products during the remainder of the hog-marketing year which ends September 30, 1932. Factors pointing in this direction are (1) continued large numbers of hogs in important European countries and the record supplies of pork and lard which are being produced in those countries, and (2) no indication of strengthened European buying power in the near future through improved industrial conditions.

Hog slaughter in both Germany and Denmark, the two principal hog-producing countries of Europe, reached record high levels in 1931 and hog numbers in those countries are still apparently above those of a year ago. On December 1, 1931, there were 23,800,000 hogs in Germany according to the quarterly census returns in that country. This number was slightly larger than the number reported a year earlier. There is some evidence, however, that the recent unfavorable relations between hog prices and feed prices in Germany are being reflected in reduced hog-breeding operations. The December 1 census returns in that country indicated that the number of sows to farrow was 15 per cent smaller than on December 1, 1930. This reduction in breeding operations probably will be reflected in slaughter supplies during the last quarter of 1932, but meanwhile German hog slaughter is expected to continue large.

Hog numbers in Denmark reached record high levels in 1931 but there are indications that breeding operations are being reduced. The reduction is not so marked, however, as it is in Germany. The Denmark census returns as of January 15, 1932, indicated that the number of sows to farrow was 8 per cent smaller than on that date a year earlier. Hog-feed price relationships have been very unfavorable for hog production during recent months, but the close relationship between hog breeding and dairying in Denmark causes feed prices to have less direct influence on hog breeding than elsewhere in Europe. Danish exports of pork to Great Britain, the leading export market for both Danish and American cured pork, were unusually large throughout 1931 and are continuing at record high levels.

A feature of the European cured-pork situation during 1930–31 was the large increase in British market receipts from continental countries other than Denmark. Netherlands, Sweden, Poland, and the Baltic States have been outstanding sources of pork, especially bacon. Most of those countries are not so well organized as is Denmark to maintain production in the face of increasingly unfavorable relationships between hog prices and feed prices, but they have contributed materially toward depressing British market prices during recent months.

The outlook for lard is no brighter than for cured pork, particularly on the Continent. During the 1930–31 year, Great Britian imported unusually large volumes of American lard at low prices, but during the first two months of the 1931–32 year, imports were smaller than those of the corresponding period a year earlier. On the Continent, the outlook is for continued large domestic supplies, both in Germany, the leading importing country, and in those countries taking smaller volumes of American lard. Danish lard has become a serious competitor during recent months, especially in Germany. The German-Danish exchange situation has encouraged this trade. With the maintenance of an attractive price and quality, such competition with American lard can be expected to continue as long as Danish production is at a level high enough to sustain exports. The lard markets also are meeting increasing competition from vegetable and whale oils.

Hog prices during the last two years have been severely affected by the world-wide business depression, the decline in the general price level, and increased European hog production. Despite a reduction in slaughter supplies, hog prices in 1930–31 averaged about 25 per cent lower than those of the previous marketing year. Prices usually reach the low point of the year be-

tween mid-November and mid-December, but in the year 1930–31, prices declined steadily from October, 1930, to February, 1931. After a temporary seasonal rise in March, the decline was resumed and was not checked until early June. The seasonal rise during June and July was small, and in early August, prices began another decline which continued with little interruption until mid-December. After a slight advance during the last half of December, prices declined again and during the week ended January 23, 1932, the average price at Chicago was $3.93 per 100 pounds, which was the lowest weekly average for that market in more than 30 years and about half the average of the corresponding week in 1931.

The spread between the prices of lightweight and heavyweight hogs was about normal during the first half of the 1930–31 marketing year, but during the summer of 1931 it became unusually wide, reaching a maximum for the year in late July, when the average price of lightweight hogs was about $1.50 higher than that of heavyweight hogs. This was in marked contrast to the average margin for that time of year of only 50 cents per 100 pounds. Since August, 1931, this price spread has been greatly reduced and it is now about normal for the season.

Notwithstanding the 3 per cent reduction in the total live weight of hogs slaughtered during 1930–31, the average price per 100 pounds paid by packers was only $7.21 as compared with $9.58 a year earlier and $10.03 during the 1928–29 marketing year. This decline in both price and volume resulted in a reduction of $273,000,000 in the gross return to producers for hogs slaughtered under Federal inspection from the returns in the previous marketing year and a reduction of $400,000,000 from the returns during the year 1928–29.

Wholesale and retail prices of pork products also were much lower in 1931 than in 1930. Comparisons of the yearly averages of medium-weight hog prices at Chicago and pork prices at New York in the two years show that hog prices declined from $9.85 to $7.06 which represents a reduction of $2.79 cents per 100 pounds; the wholesale value of the principal products (representing about 60 pounds or 75 per cent of the carcass weight obtained from 100 pounds of live hog) declined from $11.90 to $9.25, a reduction of $2.65; and the retail value of the saleable products obtained from these wholesale cuts (52.64 pounds) dropped from $14.13 to $11.43, a decline of $2.70. If the declines in the values of by-products and minor cuts were included, the reductions in the wholesale and retail values would be greater than the figures shown.

Hog numbers in the United States on January 1, 1931, were 13 per cent smaller than on that date in 1920, but the commercial supply in 1931 was 16 per cent larger than in 1920. This increase in commercial slaughter with a smaller number of hogs on farms January 1, was due, (1) to the marked reduction of hogs in the South from which area only a small proportion of the production goes into commercial slaughter, and (2) to a greater concentration of hogs in the western Corn Belt, which is the most important commercial hog-producing area, and where the ratio of hogs raised to numbers on farms January 1 is very large. The western Corn Belt now has more than half of the total hogs in the country, whereas in 1920 it had only 37 per cent of the total. With the great decline in the prices of such products as cotton and wheat and with farmers in all areas undertaking to get on a self-sustaining basis as regards food, there developed during last year a greater interest in hog production in the South and West and this is reflected in a marked expansion in hog numbers in those regions over the numbers of a year ago.

Although there are yet no definite indications that the total 1932 pig crop for the country as a whole will be larger than that of 1931, unfavorable factors confronting Corn Belt hog producers in the marketing year 1932–33 are (1) an expanded hog production in the South and West, (2) increased numbers of cattle on farms which fact points to a considerable increase in cattle slaughter in 1933, and (3) the prospects for continued large slaughter of sheep and lambs. Favorable factors in the situation are (1) indications of decreased hog production in the Corn Belt and (2) the prospect that European hog production in 1932 will be smaller than in 1931 which will probably result in a better outlet abroad for American hog products in 1933 unless consumer purchasing power in Europe is further reduced. Hog producers should keep in mind, however, that any reduction in European hog production during the next few years will not be sufficient to provide an outlet for American hog products equal to that of the average of the 10 years following the World War. During this 10-year period the average yearly exports of American hog products were

the equivalent of about 9,400,000 hogs, whereas the exports in 1931 were the equivalent of about 4,900,000 hogs.

BEEF CATTLE

Total cattle numbers on January 1, 1932, were larger than those of a year earlier, but the number of cattle on feed for market on that date was smaller. Total cattle slaughter during the first six months of 1932 will probably be about the same as that of the first half of 1931. Supplies of well-finished cattle, however, are expected to be smaller during that period, with most of the reduction probably occurring during the second quarter. The slaughter supply of cattle during the last half of the year will be determined largely by the trend of cattle prices during the first half of the year, and by feed and financial conditions in the important cattle-producing areas next fall. Although the number of cattle has increased steadily for four years with no increase in slaughter, present conditions indicate no large increase in slaughter during the last half of 1932 over that of a year earlier unless forced liquidation occurs or prices rise sufficiently to attract increased marketings of cows and heifers. Consumer demand for beef may improve somewhat before the end of 1932, but for the year as a whole, it probably will average lower than in 1931.

Present price relationships involving cattle, feed crops, and competing agricultural enterprises, and prospective trends in the production of other agricultural products indicate that cattle numbers, which have been increasing since 1928, will continue to increase for a few more years. During this period the expansion in numbers is expected to be reflected in an upward trend in cattle and calf slaughter.

CATTLE SUPPLIES

The number of cattle on farms increased again in 1931 for the fourth consecutive year, and on January 1, 1932, the estimated number was 62,407,000 head, an increase of 1,492,000 head or 2.4 per cent over January 1, 1931, and of 5,706,000 head or about 10 per cent over January 1, 1928, the recent low point in numbers. This increase in the four years from 1928 to 1932 compares with the increase of 11,372,000 head between 1912 and 1916, which was the similar period in the previous cattle cycle.

As was the case in the preceding three years, the largest increase in cattle numbers in 1931 was in cows and heifers 2 years old and over, the largest increases being in milk cows. There was also a large increase in calves, but a decrease in steers and in yearling heifers kept for milk cows.

The number of all cows and heifers 2 years old and over on January 1, 1932, was 34,032,000 head. The increase in numbers of these since 1928 was 3,126,000 head, which is 55 per cent of the increase in numbers of all cattle. On January 1, 1920, there were 32,320,000 head of cows according to the 1920 census report, and this number was about 5 per cent smaller than the estimated number of such cattle on farms on January 1, 1932. The number of all cattle on January 1, 1920, as shown by the census, however, was 66,652,000 head, which was 6.5 per cent larger than the estimated total at the present time. This comparison shows the great change that has taken place in the make-up of the national cattle herd during the last 12 years.

This larger number and proportion of cows means that cattle production in terms of total tonnage of beef and veal can be increased or decreased more rapidly than was possible in earlier years. This greater ability to readjust numbers comes from the fact that the calf crop at present is about as large as was ever produced; with this large number of calves a considerable change in the proportion vealed from year to year will result in a material increase or decrease in the total number of cattle.

Although the number of cattle available for slaughter during 1931 was larger than a year earlier, there was no increase in Federally inspected cattle slaughter. The inspected slaughter in 1931, amounting to 8,108,000 head, was 62,500 head smaller than in 1930, but the decrease was probably offset by an increase in farm and other local slaughter of cattle. Federally inspected calf slaughter of 4,716,000 head was 121,000 head larger than in 1930 and without doubt there was a considerable increase in farm and other local slaughter of calves. The number of cows and heifers slaughtered under Federal inspection was 243,000 head smaller in 1931 than in 1930, whereas the slaughter of steers was 205,000 head larger.

Although the number of cattle available for slaughter in 1932 is larger than the supply of a year ago, any increase in slaughter which occurs this year will will have to be largely of cows and heifers, since the supply of steers is smaller. With the increased number of cows and heifers on farms compared with a year ago, it is expected that the production of calves in 1932 will be larger than that of 1931.

The estimated number of cattle on feed for market as of January 1, 1932, in the Corn Belt States was about 5 per cent smaller than a year earlier. There was an increase of 8 per cent in the five States east of the Mississippi River, which was more than offset by a decrease of 18 per cent in South Dakota, Nebraska, and Kansas. Numbers on feed in Iowa, Missouri, and Minnesota combined, were about equal to those of a year earlier. There was a decrease of 17 per cent in cattle on feed in the western Mountain States, but a considerable increase in feeding in Texas.

The market supply of slaughter cattle during the first half of 1932 will probably be about the same as in 1931. The supply of well-finished steers, however, is likely to be smaller, with most of the reduction probably occurring during the second quarter. The supply of cows during these months will depend largely upon developments in the dairy industry, but it hardly seems likely that it will be greatly different from that of 1931. The supply of slaughter cattle during the last six months of 1932 will be determined largely by the trend of cattle prices during the first half of the year and by feed and financial conditions in the important cattle-producing areas next fall, since these factors will influence both dairy and beef cattle producers in making their plans relative to expanding or contracting production. The number of cattle from which slaughter supplies could be drawn will be larger than in the previous year, but no large increase in slaughter over that of a year earlier now appears likely unless forced liquidation occurs or prices rise sufficiently to attract increased marketings of cows and heifers.

FOREIGN SUPPLIES

Cattle imports into the United States totaled 88,000 head for the first 11 months of 1931, compared with 232,000 during the corresponding period of 1930. Of the 1931 total, 64,000 came from Mexico and 24,000 from Canada. Canadian export records indicate that for the first 11 months of 1931, 53,000 head of cattle and calves were exported, of which 23,000 head went to the United States and 26,000 were sent to the United Kingdom. In the corresponding 1930 period, 61,000 head were exported from Canada, with 54,000 head coming to this country and only 4,000 head going to British markets. Canadian cattle numbers in June, 1930, totaled 8,937,000 head. This was the largest number since 1927, when the total was 9,172,000 head.

Records of the Bureau of Animal Industry show that, from January 1 to November 30, 1931, supplies of canned beef inspected for entry into the United States amounting to 16,272,000 pounds were about 65 per cent smaller than those of the first 11 months of 1930.

Total imports of fresh and frozen beef into the United States during the first 11 months of 1931, amounting to 1,769,000 pounds, were slightly less than one-fifth as large as the 9,266,000 pounds imported during the corresponding period in 1930. In 1928, the 12-month total of such imports, amounting to 58,320,000 pounds, was the largest on record. Of that quantity, 30,367,000 pounds came from New Zealand and 25,255,000 pounds from Canada. Those two countries are still the principal sources of fresh and frozen beef imported into the United States, but the volume of such imports from them in 1931 was less than one-third of that in 1930.

DEMAND

Lower consumer incomes resulted in a reduction in the demand for beef during 1931. Per capita consumption of Federally inspected beef and veal during 1931, amounting to about 39 pounds, was about the same as that of 1930. Prices of cattle and beef, however, were materially lower and purchasing power of these was also lower. Demand for beef during 1932 depends largely upon the trend of business conditions during the year. The prospect of a continued low level of consumer incomes during the first half of 1932, the tendency for changes in the demand for beef to occur somewhat later than changes in business activity, and the prospective increases in supplies of competing meats, all

indicate that any improvement in this demand during the year will be only moderate and that for the year as a whole the demand will average below that of 1931.

Demand for feeder cattle in 1931 was below that of 1930, owing to the lower level of prices for finished steers, unprofitable returns from cattle feeding during the last two years, and credit difficulties encountered by feeders. Inspected shipments of stocker and feeder cattle and calves from public stockyards during the first six months of the year were about 18 per cent smaller than those of the corresponding period in 1930. During the second half of the year they were about 4 per cent smaller and the spread between prices of feeder cattle and the prices of the better grades of slaughter cattle was unusually wide. The stocker and feeder cattle movement from four leading markets, classified by kinds of cattle and weight of steers shipped to the country, indicates that, during the last half of 1931, shipments of calves constituted a larger proportion of the total movement than during the last half of 1930 when they also were large. The proportion of steers weighing under 800 pounds was a little larger, but the proportion of those weighing over 800 pounds and the proportion of cows and heifers were smaller. The geographical distribution of the stocker and feeder movement in the Corn Belt reflected the distribution of feed supplies in that area. In the eastern Corn Belt, where the corn supply is relatively large, feeder shipments were considerably larger than last year; whereas, in the western Corn Belt, where corn production in 1931 was smaller than in 1930, feeder shipments were reduced. The low prices of corn and other feeds and the unusually low prices paid for feeder cattle during recent months are favorable factors in the 1931–32 feeding situation, and the demand for feeder cattle in 1932 is likely to be somewhat stronger than the unusually weak demand during 1931, especially if feed prices continue relatively low.

Although cattle slaughter during 1930 and 1931 was small, the business depression and the decline in the general price level resulted in a sharp decline in cattle prices during both years. A pronounced weakness in cattle prices developed early in 1930 which continued until mid-August of that year. Some recovery occurred in the autumn and early winter, but by mid-January, 1931, another sharp decline got under way. Prices of the better grades of slaughter cattle reached their lowest point during the last week in May, 1931, at which time they were less than half those of the corresponding period in 1929. Following this low point, they advanced sharply during the late summer and fall in response to reduced market supplies of such cattle. The autumn peak in prices of Good grade beef steers was reached in early November, but prices of Choice grade steers continued to advance until early December. Prices of the lower grades of slaughter cattle and of stockers and feeders continued their downward trend throughout 1931, and in mid-December, when the low point of the year was reached, they were at the lowest levels in more than 20 years.

The decline in monthly average prices of beef steers at Chicago from December, 1930, to December, 1931, amounted to $1.95 per 100 pounds for Choice and Prime grades, $2.39 for Good grade, $2.95 for Medium grade, and $3.05 for Common grade. During the same period, stocker and feeder prices declined $2.65. The average price spread between Common and Choice grade steers during December, 1931, was $6.53, compared with $5.43 in December, 1930, and was one of the widest spreads on record. The top price of cattle at Chicago during December of $12.85 was more than twice that of either hogs or lambs. This price relationship is unprecedented in the history of the livestock industry.

The average price of slaughter cattle during 1931 was $6.23 per 100 pounds, compared with $8.54 in 1930 and $10.59 in 1929. The average price of slaughter calves was $7.10 per 100 pounds in 1931, $9.67 in 1930, and $12.59 in 1929. These low prices of cattle in 1931 were reflected in the decreased inventory values of cattle on farms on January 1, 1932. The value per head of all cattle and calves on that date was $26.64 compared with $39.31 a year earlier and $56.69 two years earlier. In spite of an increase in numbers in 1931 of about 1,500,000 head, the total value decreased $730,000,000.

Wholesale and retail beef prices, as well as cattle prices, were considerably lower in 1931 than in 1930. Comparisons of the yearly averages of Good grade steer prices at Chicago and of Good grade beef prices at New York for the two years show that the reduction amounted to $3.02 per 100 pounds in the price of steers, $2.41 in the wholesale value of the beef obtained from each 100 pounds of the live animal (58 pounds), and $4.50 in the retail value of the saleable cuts

obtained therefrom (46.25 pounds). In comparing the declines in cattle prices with those of wholesale beef values consideration should also be given to the material decline in the values of hides and other by-products.

LONG-TIME PRODUCTION TRENDS

Since 1880, cattle production has gone through three complete cycles with rather significant regularity. Those periods of increasing and decreasing numbers were from 1880 to 1896, 1896 to 1912, and 1912 to 1928. Since 1928, an upward trend of another cycle in cattle production has been under way. How long this upward trend will continue and what the future rate of increase in numbers will be, depends (1) upon conditions affecting the potential capacity and present incentives for expansion, and (2) upon conditions outside the industry affecting the demand for beef.

In appraising the potential capacity for expansion in cattle numbers, conditions must be considered on a regional basis. In the western range States there is very little opportunity for further expansion in numbers unless there is a material reduction in the number of sheep. Possibly a reduction in the wheat acreage of the dry-farming areas and of cotton acreage in Texas and Oklahoma will induce farmers in the southwestern areas to produce more feed and forage crops and devote more attention to cattle raising. This, however, is not expected to be a very large factor in the increase of cattle numbers in the near future. It is more likely that sheep numbers will be reduced in some sections of the West and thus afford an opportunity for at least a limited expansion in cattle production. It should be kept in mind, however, that not more than 20 per cent of all the cattle in the United States are in the States in which sheep production is a factor limiting cattle production.

The major proportion of cattle in the country is produced in the Central West, particularly in the Corn Belt. An increased production of pasture and hay in the more hilly areas and a greater use of leguminous crops for soil-building purposes in the better areas, could increase materially the grazing resources in the Corn Belt States and adjacent territory without affecting appreciably the supply of feed grains. There is some evidence that these shifts are now under way. The supply of concentrate feeds for use in beef production also may be increased during the next few years through an expansion of corn acreage, particularly outside the Corn Belt, and a further reduction in work stock.

No material change in cattle numbers is likely to occur in the New England States and the Appalachian region during the next few years. In the New England States, where most of the cattle produced are dairy stock, some reduction may occur in 1932 as a result of the unfavorable relationship between fluid milk prices and feed prices, but such a reduction would probably prove to be both moderate and temporary. Cattle producers in the Appalachian region are confronted with certain local conditions which prevent them from making material shifts in cattle production. The mountainous sections are best suited for grazing, but the grazing resources are not great enough to permit an expansion that would appreciably affect the national cattle supply. Cattle production in other parts of the Appalachian region are closely related to the farming system, which involves the production of certain specialized crops particularly adapted to those sections.

Cattle numbers in the South declined relatively more from the peak of the previous cycle to the last low point than did numbers for the country as a whole, but the increase in that region during the last three years has been relatively greater. Most of the increase in the South, however, has been in milk stock. Although tick eradication in the South has made possible the introduction of beef cattle of higher quality into that region, credit difficulties and limited pasture and forage supplies tend to restrict the production of such cattle. Production of low-grade stock and of dairy cattle, however, is likely to increase moderately during the next few years.

Although cattle prices are far below the 1925–1929 average, the decline in feed prices and in prices of other commodities, the production of which can be substituted for cattle production, has been even greater. Consequently, there is little incentive at present for reducing cattle production, despite the sharp decline in cattle prices.

On the other hand, there appears to be little in the immediate demand situation to stimulate further expansion. Consumer demand for beef is greatly restricted as a result of the severe depression. From the long-time point of

view, this demand will strengthen when the eventual improvement in business increases consumer purchasing power. Some growth in demand will come from the normal increase in population which has been at the rate of about 1,000,000 annually during the last 10 years. Increased demand as a result of population growth, however, will be relatively small and very gradual, and may tend to slow up in the future because the increase in population in the last decade has been at a declining rate. Any material reduction in wholesale and retail distribution costs may be expected to increase the proportion of the consumer's expenditure for beef that goes to the cattle producer.

In view of the present price relationships involving cattle, feed crops, and competing agricultural enterprises and the agricultural readjustments which are apparently under way in the Corn Belt States, the upward trend in cattle numbers will probably continue during the next few years, in spite of the present low level of cattle prices and the present limited demand for beef. With sufficient incentives for expansion, production would probably increase at a more rapid rate than it has during the last four years, since numbers of breeding stock are relatively large, but conditions which would encourage production to this extent are as yet not in evidence.

SHEEP AND WOOL

Sheep numbers in the United States made a further increase in 1931, and the number of lambs on feed at the beginning of 1932 was the largest ever reported as of that date. Reduced consumer purchasing power has resulted in a considerable reduction in the demand for lamb but the decline has not been so great as that for other meats. Improvement in demand will depend largely on improvement in business conditions but it is probable that lamb will meet increased competition from larger supplies of other meats. Indications are beginning to appear that the down swing in the sheep-production cycle may get under way in 1932 and that numbers of breeding stock will show some reduction by 1933.

Continued high world-wool production in the face of reduced consumer demand and falling general commodity price levels resulted in an almost continuous decline in wool prices from 1928 to the beginning of 1932. Recoveries in prices and trade abroad have been short lived. Toward the end of 1931, activity in the wool-textile industries increased in a few foreign countries, but prices were barely steady and indications were that sales of goods were generally low. In the United States, wool consumption rose to a high level in the spring and summer of 1931, but failed to maintain the improvement after September. The prospective demand for wool both in this country and abroad depends principally upon the trends of industrial employment and consumer incomes.

World-wool production has continued at the peak of the cycle for an unusually long period. Exceptionally favorable weather and feed conditions and the limited alternatives open to sheep and wool growers undoubtedly contributed to the maintenance of high production despite falling prices. Depreciated currencies, especially in Argentina and Australia, may have alleviated to some extent the influence of low prices. Nevertheless the low incomes from sheep and wool can be expected to favor liquidation and to check expenditures. In the important wool-producing countries of the Southern Hemisphere, the decrease in wool production from these factors alone may be slow unless unfavorable climatic or feed conditions develop. In the United States, a reduction in sheep numbers is more likely, because of the unfavorable weather and feed conditions in some of the range States. Import requirements of the United States are now small. Therefore a material further increase in domestic wool production unless accompanied by high rates of consumption would so reduce import requirements as to limit the effectiveness of the tariff. But a moderate decrease in domestic production would tend to maintain the margin of domestic over foreign prices.

SHEEP AND LAMBS

Sheep numbers increased again in 1931 and on January 1, 1932, the total number of sheep and lambs on farms and ranges and in feed lots was 53,912,000 head. This was an increase of about 1,200,000 head or 2 per cent over January 1, 1931, and of 17,217,000 head or 47 per cent over January 1, 1923, which was the low point from which numbers have risen without intermission until they now are the largest on record in this country.

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Both stock sheep, and sheep and lambs on feed for market, were in larger numbers on January 1 this year than last. The increase in stock sheep was mostly in ewes 1 year old and over and the proportion of old ewes—over 6 years of age—was relatively large. In the Western States, reports from owners of 4,000,000 head of stock sheep, which is equal to 11 per cent of such sheep in those States, showed that old ewes made up 15.6 per cent of the total ewes 1 year old and over on January 1, 1932, and similar reports for two preceding years showed 13.9 for January 1, 1931, and 10.9 January 1, 1930. Comparison of reports from the same outfits made as of January 1, 1932, and January 1, 1931, showed that there was an increase of 8 per cent in old ewes, an increase of 5 per cent in ewes 2 to 5 years old, a decrease of 6 per cent in yearling ewes, and a decrease of 20 per cent in ewe lambs being kept for breeding ewes. It is thought that the changes as shown by these reports are fairly typical of the sheep industry in the Western States.

The lamb crop of 1931 was estimated by the Department of Agriculture in July as 31,684,000 head, an increase of 8 per cent over the 1930 crop and the largest lamb crop ever saved in this country. Inspected slaughter of sheep and lambs for the first eight months, May to December, of the present lamb-marketing year was 12,606,000 head, or 9 per cent larger than for the corresponding period in 1930. The increase this year was all in lambs (including yearlings) since the slaughter of sheep was actually smaller this year than the small slaughter of last year. This relatively small slaughter of sheep was due to the very low prices prevailing for slaughter ewes. During most of this period the price was so low that returns to the shippers were little more than expenses of shipment from sections where the distance from market made these expenses relatively large.

Slaughter supplies during the last four months of the present lamb-marketing year, January to April, are indicated to be larger than a year ago. The estimated number of sheep and lambs on feed for market in the Corn Belt and Western States was 6,186,000 head, compared with 5,428,000 head January 1, 1931, and 5,886,000 head January 1, 1930. This number establishes a new record for lamb-feeding operations in this country. Numbers on feed this year were larger in both the 11 Corn-Belt States and in the Western States. In the Corn-Belt States there were increases over last year in every State but one. In the Western States there were rather large increases in North Dakota, Texas, New Mexico, and Oregon, with small increases in Colorado and Washington, and decreases in all the other States, the decrease in Utah being the most marked.

Feed conditions and feed prospects in the main sheep area of Texas are very good. This points to a large movement of grass-fat yearlings and wethers out of this State similar to that in 1931. In addition, there was a considerable increase in the number of lambs dropped in Texas during November and December of 1931, which may be reflected in a heavy movement of early lambs from that State in March and April.

Weather conditions in the early lambing sections of California in November and December, 1931, were rather unfavorable and old feed was short and new grass was late in starting; breeding ewes were below average in condition and losses of old ewes were rather large. As a result of the heavy precipitation in December and early January, prospects for green feed are much better than at this time during the last several years; with seasonal warm weather, abundant feed will result. The early lamb crop is probably somewhat smaller than last year but if feed conditions are better than last year, as now seems likely, much improvement in the finish of the lambs over last year is to be expected.

Lamb supplies during the marketing year of 1932–33 beginning May 1, will depend largely upon weather conditions during this winter and the early spring. With favorable feed conditions general in most areas east of the Missouri River, there is no reason to expect that the native lamb crop of 1932 will be smaller than that of 1931. In the Western States, however, conditions are not favorable for a larger lamb crop. The condition of sheep at the beginning of the winter was the poorest in years; because of last year's drought, winter range condition was low and supplies of locally produced hay and other feeds were inadequate for an average winter and very short for a hard winter. In general, the winter to date has been rather severe in the area west of the Continental Divide, but east of the divide and in Texas it has been relatively mild.

Breeding ewes, except in Texas, New Mexico, and Arizona, will probably be in rather poor shape at lambing time and winter losses will be above average and may be very heavy. Under present financial conditions in the industry, the tendency will be to restrict expenditures for feed and care at lambing. These conditions point to a ratio of lambs marked per 100 ewes below that of last year, and this reduction in percentage, together with heavier death losses of ewes, may result in a lamb crop no larger and perhaps even smaller than in 1931.

With consumer incomes during 1931 much smaller than during 1930, the demand for lamb and mutton was reduced, and the increased market supplies were moved into consumption only at greatly reduced prices. Per capita consumption of federally inspected lamb and mutton during 1931, amounting to 5.6 pounds, was 5 per cent larger than in 1930, but retail prices of lamb at New York declined 16 per cent. This reduction in demand was not so marked, however, as the reduction in demand for beef and pork. Per capita consumption of both beef and pork in 1931 was practically unchanged from that of 1930, but retail prices of beef decreased 15 per cent and those of pork 21 per cent. Improvement in consumer demand will depend largely on improvement in business conditions, but it is probable that lamb will meet increased competition from larger supplies of other meats during 1932.

Sheep and lamb prices were maintained at a relatively high level during the five years from 1924 to 1928, although market supplies were gradually increasing. In April, 1929, however, a sharp downward trend got under way which was not checked until October, 1930. Prices were fairly stable during the last three months of 1930 and advanced moderately during the first four months of 1931, but after the middle of May the trend of prices was downward until early December. The average price of lambs at Chicago in December, 1931, of $5.64 per 100 pounds was the lowest monthly average since November, 1911. The average price of sheep and lamb slaughtered during the fed-lamb marketing season, December, 1930, to April, 1931, was $8.05 per 100 pounds as compared with $10.56 paid in the same months a year earlier. The average price paid for sheep and lambs slaughtered during the marketing season for the 1931 crop of grass lambs, May to November, 1931, was $6.63 per 100 pounds compared with $8.43 in the corresponding period of 1930. The price of Good and Choice feeder lambs at Chicago averaged $5.12 during the last half of 1931, and $7.07 during the last half of 1930. The estimated average value per head of sheep and lambs on farms on January 1, 1932, was only $3.40 compared with $5.35 a year earlier and $8.92 on January 1, 1930. It was the lowest average value since 1905. In spite of an increase in numbers during 1931, the total estimated value of all sheep and lambs on farms on January 1, 1932, was $99,100,000 less than the total value a year earlier.

Wholesale and retail prices of dressed lamb were also much lower in 1931 than in 1930. Comparisons of the yearly averages of good grade live lamb prices at Chicago and wholesale and retail prices of good grade lamb at New York for the two years, show that the reductions amounted to $2.15 per 100 pounds in the price of live lambs, $1.86 in the wholesale value of the dressed lamb obtained from each 100 pounds of the live animal (48 pounds), and $2.43 in the retail value of the salable cuts obtained therefrom (46.8 pounds). In comparing the declines in live lamb prices with those of wholesale dressed lamb values, consideration should also be given to the decline in values of lamb by-products (pelts, fats, casings, etc.).

WOOL

World wool production, exclusive of Russia and China, which was estimated to be 3,210,000,000 pounds in 1928 and 3,186,000,000 pounds in 1929, reached a total of 3,212,000,000 pounds in 1930. A high figure is also indicated for 1931, as there has been an estimated increase of 4 per cent in the combined clips of 10 countries, Australia, New Zealand, Argentina, Uruguay, Union of South Africa, United States, United Kingdom, Germany, Hungary, and Rumania, which usually produce about four-fifths of the world's total. The larger clips in the United States, Australia, and the Union of South Africa have contributed most of the increase. Reduced clips have been reported for Argentina, Uruguay, and New Zealand.

The increases in 1931 production appear to result more from a heavy carryover of old sheep than to a deliberate effort to increase wool production.

Low mutton prices in some countries made it unprofitable in many cases to send the old sheep to slaughter. In the United States many old sheep which might not have withstood rigorous or even normal weather conditions survived as a result of the very mild winter of 1930–31. In countries of the Southern Hemisphere conditions lately have been favorable, no severe droughts prevailing since the latter part of 1929 and early 1930. Although slaughter, especially of lambs, has been fairly heavy in some Southern Hemisphere countries, it has not been great enough to offset the large lamb crops and the increased carry-over of old sheep.

World total sheep numbers have been at a high level for several years, averaging 748,000,000 for the years 1926–1930, compared with 648,000,000 for the years 1921–1925, and 693,000,000 in 1909–1913. Numbers in 13 important countries show an increase of 2 per cent in 1931 compared with 1930. However, the increase between 1930 and 1931 was less than the increase between the years 1929 and 1930. In Australia, sheep numbers on January 1, 1931, were the largest on record and the 1931 lamb crop was reported to have been large. Sheep numbers increased in 1930 and 1931 in the United States, Union of South Africa, and the United Kingdom, but in New Zealand a decrease is reported for 1931.

Wool production in the United States has been increasing since 1922, and in 1930 amounted to 343,000,000 pounds of shorn wool and 63,000,000 pounds of pulled wool. Production in 1931 amounted to 369,000,000 pounds of shorn wool, and 66,000,000 pounds of pulled wool.

The Australian clip, after declining from 968,000,000 pounds in 1928 to 880,000,000 pounds in 1930 as a result of a drought in New South Wales, increased 8 per cent, or to approximately 950,000,000 pounds in 1931, following a period of unusually favorable weather and feed conditions. The New Zealand clip, however, showed a decrease in 1931 of approximately 4 per cent, the first decrease recorded there for several years.

The 1931–32 clip in the Union of South Africa is large, being estimated at 335,000,000 pounds, an increase of 9 per cent over 1930–31. The clip of that country has increased steadily from 176,000,000 pounds reported for 1924–25 to 307,000,000 pounds in 1929–30. Last season the anticipated increase in the clip was prevented by a policy of refraining from shearing six-months wool. This, together with an expansion in sheep numbers, has resulted in the increased clip for the 1931–32 season.

The Argentine clip is now estimated to be 333,000,000 pounds for 1931–32, a decrease of 5 per cent compared with 1930–31. In 1929–30 it was only 320,000,000 pounds, owing to drought, whereas the average for the three preceding years was 353,000,000 pounds. The Uruguayan clip, it is reported, will show a reduction, from last season's large production of 154,000,000 pounds because of the mortality among last season's lambs.

A comparison of statistics on production, imports, and reported consumption indicates that the supply of combing and clothing wool in the United States on January 1, 1932, was smaller than on the same date last year. Production of shorn wool in the United States in 1931 was estimated to be 18,000,000 pounds larger than in 1930 and pulled-wool production was 4,000,000 pounds larger. In the nine months, April to December 1931, however, imports of combing and clothing wool were 17,000,000 pounds less than in the corresponding period of 1930, whereas consumption of combing and clothing wool by manufactures reporting to the Bureau of the Census was about 70,000,000 pounds (grease equivalent) greater.

Stocks of wool in countries of the Southern Hemisphere were fairly heavy at the beginning of the 1931-32 selling season, and have continued to accumulate during the last few months.

Stocks of wool in the United Kingdom are unusually large. Unemployment figures for the British wool-textile industry indicate a considerable decline in activity during the last two years which was not halted until October, 1931. The abandonment of the gold standard in that country was followed by a sharp increase in activity in the wool industry but the improvement appears to have been confined largely to the sections manufacturing for home trade. Exports of woolen and worsted piece goods during 1931 were 24 per cent less than in 1930 and 45 per cent less than in 1929.

Stocks of wool in the important wool-manufacturing countries of continental Europe are probably not excessive. Apparently consumption in these countries has been reduced, but imports have also been low. Comparing imports for the first 10 months of 1931 with the corresponding months of 1930, the declines

amounted to 19 per cent for France, 2 per cent for Germany, 17 per cent for Belgium, and 13 per cent for Italy.

The increased takings of wool by Japan have partially relieved the situation caused by continued high world wool production and decreasing mill consumption in other countries.

The steady improvement in mill consumption of wool in the United States which began in December, 1930, continued practically without interruption through July, 1931, and was only slightly checked in August and September despite the declines which occurred in general business activity during that period. In October, however, unsettled labor conditions and slow piece-goods markets resulted in larger declines in consumption which continued through the rest of the year. In most months of 1931, reported consumption was well above that for the corresponding months of 1930, and in July, 1931, it was the greatest reported for any month since May, 1923. Consumption of combing and clothing wool by reporting mills in the United States from January through November, 1931, totaled 384,000,000 pounds (grease equivalent) compared with 316,000,000 pounds in the first 11 months of 1930, and 395,000,000 pounds in that period of 1929.

Consumption of domestic wool during the 11-month period of 1931 exceeded by 38 per cent that reported for the same period of 1930, and by 13 per cent that for 1929, although the reported consumption of both domestic and foreign wools of this type in 1931 was only 23 per cent greater than in 1930 and was smaller than the total reported for 1929. During the last two years fine and half-blood wools have constituted an increasing percentage of the total consumption of combing and clothing wools while the lower grades have constituted a decreasing proportion of the total consumption.

The increase in the total quantity of wool consumed in 1931 may be attributed partly to a revived popularity of wool dress goods and to low prices, but the increase is in keeping with a tendency for wool consumption to recover from a depression sooner than general industrial production. Through the summer and early fall, wool consumption continued at a high level despite further declines in industrial activity. The slackening in the rate of consumption in late fall suggests the difficulties encountered in maintaining sales as wages and activity in industry generally continue to decline. The changes in proportions of the various grades entering into consumption may be attributed in part to style changes, but the relative prices and supplies of the different grades constituted important contributing factors.

Imports of combing and clothing wool into the United States in 1931 were the smallest for the last 30 years. Only 36,000,000 pounds of combing and clothing wool were imported during 1931 compared with 69,000,000 pounds in 1930, and 102,000,000 pounds in 1929. The average annual imports for the years 1926–1930, inclusive, were 113,000,000 pounds. Low imports resulting in relatively small supplies of foreign wools explain the decrease in the proportions of foreign wools entering into domestic consumption.

The increasing wool producing within the United States since 1922 has reduced the import requirements for combing and clothing wool. The lessened dependence on foreign supplies is indicated by the fact that the precentage of domestic wool in reported United States consumption rose from 49 per cent in 1923, to 79 per cent in 1929 and to 89 per cent in 1931. As domestic consumption increased during 1931, stocks were reduced, but so far it has not been necessary to increase imports. The extent to which imports are necessary in the next few years will depend upon the extent to which the improvement in consumption can be maintained or further increased, and whether domestic wool production continues upward or declines. The dependence upon foreign wool for a significant part of our domestic requirements determines the strength of prices in the United States relative to those in foreign countries.

The trend in wool prices has been downward since 1928. At their low point in June, 1931, domestic prices of 56s (three-eights blood) wool at Boston were 57 per cent below the high point of June, 1928. From June to September prices recovered slightly, but in October they lost most of the gain and since then have been quite steady. The index of prices paid to farmers in December was 72 per cent of the 1910–1914 average, whereas in December, 1930, it was 3 per cent above the pre-war base.

Prices in foreign markets declined somewhat more sharply than those in the United States until the latter part of 1929. Since early 1930, prices abroad have fluctuated considerably as periods of temporary recovery have given way to further declines, but the trend has been gradually downward. After

the suspension of the gold standard in Great Britain prices at the London wool sales in terms of British currency improved, but the rise was not sufficient to offset the decline in the exchange rate. In November, wool prices at London averaged 62 per cent of their July, 1914, level when stated in currency or 47 per cent when stated in terms of gold. From the high point of 1928 to the low point of 1931 the decline in prices of 56s wool at London has amounted to 74 per cent.

The margin of domestic over foreign prices has tended to narrow since the latter part of 1929. The sharp declines and partial recoveries in prices abroad have not been entirely reflected in domestic prices and for that reason the margin has fluctuated rather widely, but through most of 1931 it was below a freely importing basis on most grades of wool.

LONG-TIME PRODUCTION TRENDS

The long-time trends in sheep production will be influenced by the shifts that are likely to occur as a result of the present unfavorable economic position of the industry. Each previous major depression in sheep and wool prices has been followed by important shifts in the geographical distribution of sheep numbers and by marked changes in the character of the industry. During both the Civil War and the World War, wool prices advanced relatively more than did sheep and lamb prices, and following these wars they made greater relative declines. During periods of low prices also there was a tendency for wool prices to remain low for a longer time than did sheep and lamb prices. These tendencies, along with the necessity for obtaining maximum gross returns per sheep if the industry were to pay operating costs and withstand competition from other farm and range enterprises, apparently were responsible for initiating shifts from an enterprise where wool was the major source of income to one where mutton, and later, lamb production was of greater importance.

During previous major depressions in the sheep and wool industry, the first reaction was liquidation, the rate of such liquidation being greater in those areas in which sheep producers were most severly affected. In the period of low prices and liquidation from 1909 to 1914, which followed years when the industry had been greatly expanded in the Western States, such as it is now, the reduction in sheep numbers was brought about largely by the heavy marketing of lambs and the insufficient keeping back of young stock to replace the heavy losses of aged sheep resulting from lack of care, exposure, and old age.

There is no definite evidence yet as to what shifts, if any, will take place in the geographical location of sheep numbers, or in methods of sheep management by way of reducing operating cost or increasing efficiency in production during and following the next period of liquidation. If it becomes possible for producers in Texas to raise the necessary feeds and develop a mutton-type sheep adaptable to that area, spring-lamb production in Texas might become an important enterprise. Such a development would materially increase the supply of early spring lambs in the months when the areas that at present specialize on such production market their lambs. It is also possible that early-lamb production may be further stimulated in certain areas of the Corn Belt, since this has proved to be a profitable enterprise when efficient methods of production have been practiced.

MOHAIR

The outstanding features of the mohair situation are: (1) Continued increase in production in the United States in the face of a continued decline in prices; (2) a clip in Turkey and the Union of South Africa slightly larger than the average for the last five years; (3) a considerable accumulation of stocks in producing countries; (4) a heavy carry-over of old mohair in consuming centers; (5) a considerable decline in consumption in the United States and in Great Britain, the principal consuming countries; and (6) lower prices in all markets.

The mohair industry in the United States is no longer on an import basis. Considerably more mohair is produced in the United States each year than the mills are able to consume with their present limited outlets. From 1920 to 1926, production of mohair in this country expanded rapidly, increasing from 8,500,000 pounds to 11,800,000 pounds in 1926, in response to a growing demand at advancing prices. Considerable quantities of foreign mohair had to be im-

ported to supplement the domestic clip. In 1927, the demand for mohair began to decline but production continued to increase until it amounted to about 19,000,000 pounds in 1931. This increase in domestic production resulted first in decreases in imports of foreign mohair and later in accumulation of stocks. Imports are now almost negligible and consist mostly of special lots of fine kid hair.

Supplies of domestic mohair have been accumulating rapidly. Stocks of unsold mohair in the United States at the beginning of 1932 were probably in excess of 23,000,000 pounds, as considerable quantities of the 1930 mohair clip are still being held by the growers or by their selling agents. Present indications are that the 1932 mohair clip will probably not be below 19,000,000 pounds. This would mean that the supply of domestic mohair available for consumption during 1932, exclusive of stocks already held by the mills, would amount to over 42,000,000 pounds or about four times the estimated consumption of mohair during 1931.

Demand for mohair has continued to decline and activity in the mohair-manufacturing industry has been greatly restricted during the last three years. The decreased demand is due partly to the general world depression, which has so greatly curtailed consumer purchasing power in all countries and has forced the principal users of mohair upholstery fabrics—furniture and automobile manufacturers—to curtail their output, and partly because style changes, in these industries especially, for several years have been shifting to other fabrics.

Mohair prices in the United States reached a high point in the winter of 1927–28 and then declined sharply in 1929 and 1930. Prices on January 2, 1932, were considerably lower than those quoted on January 3, 1931. Quotations on domestic-sorted first-kid hair at Boston declined 5 cents a pound during 1931 and it is now quoted at 60 to 70 cents. Medium mohair sorts declined 15 cents a pound, being quoted at 30 to 35 cents on January 2, 1932.

Since the World War, mohair production has tended to decline in the Union of South Africa and to increase in Turkey. The combined clip for these countries is unofficially estimated at between 19,000,000 and 21,000,000 pounds for 1931–32 compared with approximately 21,000,000 pounds last year. In addition there was a carry-over of 6,000,000 pounds of old-clip mohair in South Africa and 3,000,000 pounds in Turkey. On December 19, stocks in the Union of South Africa were reported as 9,000,000 pounds, a quantity almost equal to a total season's clip. In Turkey, stocks at the end of November were reported as over 5,000,000 pounds.

Imports into the United Kingdom for the first seven months of the 1931–32 season (May 1 to November 30) amounted to only 6,975,000 pounds, being about 25 per cent below the corresponding period last season and 14 per cent below imports during the same period of 1929–30. Total imports for the 1930–31 season amounted to 13,923,000 pounds, or approximately the same as in 1929–30.

On a calendar-year basis apparent consumption in the United Kingdom during the first 11 months of 1931 was almost 34 per cent below 1930. During the three years 1928-1930 consumption ranged from 12,000,000 to 14,000,000 pounds compared with 20,000,000 pounds in 1927, an average of 20,000,000 for the years 1921–1925, and 29,000,000 pounds in the years 1909–1913. Exports of mohair yarns from Great Britain for the first 11 months of 1931 amounted to only 3,700,000 pounds and were 32 per cent under the same period of 1930. In pre-war years exports of mohair yarn averaged around 16,000,000 pounds annually.

Possibilities for increased consumption of mohair are indicated in reports from Turkey to the effect that Russia and Syria have recently been showing interest in qualities suitable for blending with carpet wools. Carpet manufacturers in the United States are also reported to be considering the possibility of using some of our lower grade mohair in the manufacture of specialty carpets.

HORSES AND MULES

Numbers, as well as the farm prices, of horses and mules continued to decline during 1931. The index of prices of all farm products received by farmers declined 24.4 per cent during 1931, while the prices of horses and mules declined approximately 12.3 per cent from December 15, 1930, to December 15, 1931. The number of horses and mules on farms on January 1, 1932, was 17,761,000 compared with 18,380,000 on January 1, 1931, and 25,748,000 January 1, 1920. Receipts at leading markets, although somewhat less than during 1930, met with a fairly active demand. With an up-turn in the agri-

cultural price level, horse and mule prices will probably start on the upward phase of the price cycle which has been retarded so long—(1) by the introduction of mechanical power and equipment, and (2) by the depression.

The number of horses on farms January 1, 1932, was estimated to be 12,679,000 as compared with 13,165,000 a year earlier. The number of mules was estimated to be 5,082,000 January 1, 1932, compared with 5,215,000 a year earlier. The decrease was relatively greater for horses than mules, being 3.7 per cent as compared with 2.6 per cent for mules.

Already market prices for desirable types and weights reflect this growing shortage. Although the prices of most classes of livestock declined at the markets during 1931, horse and mule prices declined little or not at all. At the Kansas City market the average for all classes and weights of work stock was the same in 1931 as for 1930. At St. Louis prices declined a little. At Chicago the 1,300–1,600-pound class sold within the same price range as in 1930.

Monthly farm prices of horses in the United States declined about 12 per cent, December 15, 1930 to December 15, 1931, reflecting to some extent the increasing proportion of old horses on farms. In most of those States that normally import their work stock, and in localities where agricultural income suffered the least in 1931, horse and mule prices declined the least or were the same as on December 15, 1930. In the North Central States horse prices declined approximately 15 per cent, in the North Atlantic group they declined 12.5 per cent, and in the South Atlantic 10.1 per cent. Mule prices declined about 13 per cent in the South Central States, but in Missouri, one of the principal shipping States, they were 22.5 per cent less than a year earlier. Low prices of cotton and wheat in the South and Southwest greatly reduced the demand for work stock.

Census data show the decline of the horse and mule population between 1920 and 1930. In general, the greatest decreases occurred in the Corn and Wheat Belts. Portions of the Cotton Belt show a heavy decrease in total numbers of work stock, particularly horses, as well as do the truck and fruit farming sections of the East and West. On April 1, 1930, there were approximately 20 per cent less work animals over 2 years of age on farms than on January 1, 1920. This represents an average decline of about 2 per cent a year for this 10-year period. The peak of the horse numbers cycle came in 1918; the peak of the mule cycle in 1926.

In a few areas where farm acreage was expanded between 1920 and 1930 there was an increase in numbers of horses and mules. In general, however, the total acreage in farms did not change greatly. The significant fact is the material decrease in the number of work animals per 1,000 acres of farm land, indicating a decreased utilization of animal power.

The census figures show a very great increase in the number of tractors and trucks on farms between 1920 and 1930. The 1930 figures were 920,395 tractors and 900,385 trucks, compared with 246,083 tractors and 139,169 trucks in 1920.

With fewer farms and an increased use of mechanical power there has been a greatly reduced need for animal power during this period. There is no likelihood that the adoption of the tractor and truck for farm use has reached its peak but it is not unreasonable to assume that any further increase in introduction will be at a lower rate than was the case in the period 1920–1930. Some expansion in the use of tractors and trucks seems necessary to offset the rapidly decreasing number of work animals, since under the most favorable conditions it will be some years before this decrease can be halted.

At present the low level of agricultural prices is keeping farmers from buying mechanical power, as the prices of such equipment have not declined in proportion to agricultural prices. Under existing price conditions it is difficult for many farmers to meet out-of-pocket costs for fuel and repairs but they have low-priced farm feed for work animals. Farm wages also are at pre-war levels in most regions so that any savings in labor costs that formerly may have resulted from the use of mechanical power are now greatly reduced. These conditions have led many farmers to get a maximum of use from their work stock and to reduce tractor use to a minimum.

Any tendency to decrease the use of mechanical power may be expected to increase the need for work stock. Unfortunately the available breeding stock is now limited and it will be several years before the decline in numbers can be checked.

Available returns from most States that have stallion and jack registration laws show that the numbers of such animals used for public service again

gradually declined during the 3-year period 1929–1931. The total numbers of licensed stallions in Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, North Dakota, Oklahoma, South Dakota, Utah, and Washington for 1931 was 8,207, a decrease of about 16 per cent from the 1929 figures of 9,721 stallions in the same States. Generally, the decline was much greater in the numbers of registered public-service jacks than in the stallion enrollment. These reductions, together with the fact that the average age of work stock is known to be high, indicate that if breeding is not resumed soon on an extensive scale, there will be a continuing reduction in the numbers of work horses and mules. The shortage of young draft stallions is now being felt in many States. The scarcity of good sires is accompanied by a decided shortage of young work mares suitable for breeding purposes. This shortage of suitable young mares and the small numbers of serviceable old mares discourage the keeping of good stallions in many areas. Even with a strong price incentive to increased breeding, progress would be slow for some years. Lacking this incentive numbers of breeding stock will continue to decline.

It is probable that when farm prices improve such improvement will be reflected rather quickly in a growing demand for work horses and mules. The comparative cost of mechanical power and of animal power and the available supply of work animals will be the limiting factors in setting the limits to such upward movement.

Farmers can not expect to replace their present work stock a few years from now at prevailing low prices. Those who expect to continue to use animal power on their farms should, as far as possible, replace their old stock with young mares at present prices. This would put them in position to undertake colt raising when horse and mule prices reach price levels that make this seem profitable.

There has been a sharp decrease in mule breeding in the States from which the Cotton Belt secures its work mules. Hence, unless other suitable sources of power are found, a shortage of mules will develop within the next few years. Farmers who are in position to produce mules under favorable conditions probably will find a good market for young mules.

DAIRY PRODUCTS

The number of milk cows and heifers 2 years old and older on farms on January 1, 1932, was 3.5 per cent above the number on hand a year ago, but the number of yearling heifers being kept for milk was 2.3 per cent lower. The number of heifers and heifer calves being saved for milk is now only about the number that would normally be required to maintain dairy herds at their present level. The culling of dairy cows has continued to decline since 1925, and the rate has been particularly low the past two years during which period the heavy decline in the price of cattle has reduced so greatly the beef value of discarded cows. The retention of herds of the older and less productive cows has, in a measure, held down the rate of production per cow.

Prices of dairy products during 1930 and 1931 have declined less than has the average for all farm products. Dairy prices have followed approximately the price level for all commodities whereas farm products as a group have fallen far below that level. Feed prices have fallen much lower than dairy prices, although the degree to which this is true varies in the different regions.

The returns from dairying continued to be relatively better than from alternative enterprises, and there was sufficient margin between feed costs and the price of dairy products to make possible the profitable utilization of farm-grown feeds in this enterprise up to the close of 1931. During January, 1932, a further decline in dairy products prices reduced these advantages.

The number of farms giving attention to dairy production on a commercial basis has increased. Considering this expansion, production during 1931 was smaller than was expected, mainly because of drought and poor pasture conditions during the season of heavy production. Manufactured dairy products show no increase in volume over 1930; farm production of milk and butter probably increased slightly. On the other hand, the storage stocks of most dairy products, particularly butter, are abnormally low. The need for additional farm income tends to induce the full use of the present stock of dairy cattle with the exception of those in the Northeastern States where recently reduced prices of fluid milk, with somewhat higher feed costs, are likely to put an effective check on expansion and even to reduce output below the 1931

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volume. The low rate of employment in industry has checked such increase in consumption as might have been expected to follow low prices, and has actually reduced consumption of fluid milk.

Comparatively heavy production abroad of the principal dairy products has been accompanied by reduced prices in foreign markets, which increased the possibility of foreign butter being sent to this country. In spite of substantial tariff protection, a condition of potential foreign competition developed in our markets in the early fall months when domestic prices would normally show seasonal advances. Pressure of foreign competition has since been relieved only by abnormal declines in domestic prices.

NUMBERS OF COWS AND MILK PRODUCTION

On January 1, 1932, the number of milk cows and heifers 2 years old and older, on farms, was 24,379,000. This was an increase of 3.5 per cent above the number on the same date last year and 6.4 per cent greater than the number two years ago. The increase in number during the last half of the year was probably the greatest in any similar period for many years. This increase would not appear to have been due to any abnormal number of heifers coming into production but was rather the result of decreased culling due to the tendency of farmers to keep more cows as long as the prices of dairy products are more favorable than those of other products and as long as feed is cheap relative to dairy products. Recent sharp declines in the market prices of dairy products will probably lead to some reduction in the northeastern States; but, with returns from other agricultural products greatly reduced, many farmers are willing to milk additional cows even though there is only a relatively small spread between the income received from the products and the market value of the feed. In the South the necessity of producing on the farms a larger share of the food needed is a compelling factor, and the large local supply of cottonseed products and the larger acreage of hay and feed crops harvested in parts of the South in 1931 have stimulated local dairy expansion on a commercial scale. In the Corn Belt and in the West the higher price of butterfat as compared with prices of hogs and sheep is tending to shift interest to milk cows. For these reasons the number of mlik cows has been increasing in practically all parts of the country.

In view of the sharp changes in prices occurring in recent weeks it is difficult to predict accurately either the changes that will take place in the number of milk cows on farms or the trend of milk production. The number of milk cows has been increasing steadily since early in 1929. The record of cows and heifers slaughtered under Federal inspection, which provides a rough indication of changes in the number of milk cows culled from the herds each month, has been declining since 1925. This decline in inspected slaughter continued at least until November, 1931, when inspected slaughter of cows and heifers was only 57 per cent of the average for that month during the previous eight years, but in view of the number of aged cows in the herds, it does not seem likely that culling can be reduced much further. When the price of cows declined from the 1929 peak the number of heifers saved for milk cows was reduced, and the number of yearling heifers being kept for milk cows on January 1, 1932, was estimated at 4,665,000 or 2.3 per cent below the 4,777,000 on hand in January, 1931, and nearly 1 per cent below the 4,700,000 on hand in January, 1930. The number of heifer calves on hand and being saved for milk cows on January, 1932, is estimated as 4,891,000 which is about the same as the number being saved last year and 2.3 per cent below the number being saved in January, 1930. This decrease is shared by practically all States except those in the West and Southwest. For the country as a whole, the number of heifers and heifer calves being saved for milk cows is now only about the number that would normally be required to maintain dairy herds at their present level.

Although the number of milk cows has been increasing for several years, the full effect of the increased size of herds on the production of dairy products has not yet been felt because through most of the pasturage seasons of 1929, 1930, and 1931 milk production per cow was materially reduced by widespread drought. The winter of 1930–31 and the first half of the winter of 1931–32 were unusually mild and winter production was heavier than it would otherwise have been.

Production also responds gradually to the relative prices of feed grains and dairy products. Last June when butterfat prices were at the low point, the returns from feeding grain for butterfat production were abnormally low and production was below normal. Drought in some areas contributed to the reduction in output and the price of butter increased. When new grains were harvested, the cost of feed grains fell to a very low point. The price of dairy products had strengthened, and as feed costs were lower in comparison with butterfat than in any period of the last 20 years (except the fall of 1931), and as there was some increase in fall freshening, a marked increase in rate of production came in fall months.

Recently the price of butter has fallen again and prices of feed grains have risen, and because of the largely increased competition for the fluid-milk market, returns from market milk have generally declined. As dairymen now have more milk cows, have a larger proportion of them in production, and have on their farms much larger supplies of grain than they had a year ago, it is not surprising that the current output of dairy products is heavier and the marketing situation more difficult than at this time last year. Conditions vary, however, rather sharply between the various producing sections. As freight rates are now exceedingly high in comparison with grain prices, prices of both mill feed and feed grains have been very low in the principal producing areas and relatively much higher in the deficit feed areas of the Northeast. Feed prices are relatively much lower in the butterfat-producing States than they are in the intensive market-milk areas. In the North Atlantic States, where grain costs are now high compared with the greatly reduced return from market milk, milk production is sharply lower than at this time last year.

Milk production this winter does not seem to be seriously affected by shortage of either hay or grain supplies on farms. Hay production in 1931 was far below average, and in 1930 was even slightly below. The shortage seemed rather serious in a large area extending from Michigan to California, but the generally mild weather up to the middle of January has permitted late grazing over a large area and has reduced hay requirements. Farmers have not greatly increased the proportion of straw fed to milk cows except in the areas most seriously affected by the 1931 drought. Feed-grain production in 1931 was below average in comparison with livestock numbers but exports of grains and feedstuffs are at a low level and much wheat has been fed, so the total tonnage of feed grains and commercial feedstuffs available for the current feeding season appears to be only slightly below average and markedly above supplies available for feeding last winter. During the fall months the quantity of grain fed to milk cows was probably slightly less than was fed last year, for the late fall pasturage available more than offset the much lower prices of feed grains as compared with the prices of dairy products. By the first of January there was a sharp curtailment in grain feeding in the principal northern and eastern market-milk areas where the price of milk is low compared with the cost of shipped-in feedstuffs. The supply of silage, however, is probably somewhat above that of 1931.

MANUFACTURED DAIRY PRODUCTS

The combined production of the principal manufactured dairy commodities in commercial plants in 1931 is estimated to have been about the same as in 1930. Production by commodities was very irregular, and was likewise irregular in different months. Substantial increases occurred in both creamery butter and evaporated milk for the months of January to April, inclusive, but with the development of unfavorable production conditions, particularly in the intensive dairy States of the Middle West, the manufacture of these commodities dropped abruptly to a level below that of the preceding year. This lower level held throughout the summer and early fall; but the relation between feed costs and butterfat prices made butter production comparatively profitable, and when weather conditions became quite favorable generally during the last three months of the year, the manufacture of creamery butter took a sharp upward swing, which was maintained to the end of the year in spite of some decline in butter prices. The production of concentrated milk, however, continued to be less than during the preceding year.

Regionally, some interesting and significant variations in production of creamery butter occurred in 1931, particularly in the Middle West, where the great bulk of the domestic supplies of commercial butter originate. All States in that

general area showed material increases up to May, but in May and throughout the heavy producing months that followed, sharp decreases were reported in Minnesota, Iowa, the Dakotas, Kansas, Nebraska, and Missouri. Production in these States remained below 1930 until November, when the factors governing production became exceptionally favorable for that time of the year, and production for the last two months of the year rose sharply above production during the corresponding period of 1930. For this area, the 1931 production was about 1 per cent less than in 1930. In most of the area including Wisconsin, Illinois, Indiana, Michigan, and Ohio, the effects of the drought in 1931 were not so severe as in 1930, and production registered an increase over 1930 for every month save July. Total production for this group of States was about 6 per cent larger than in 1930. In the East, production of butter was about 13 per cent less in New England than for the previous year, and in the Middle Atlantic States about 2 per cent less. No material change was evident in the South Atlantic States where dairying centers mostly around the production of fluid milk for small towns or for farm use, an occasional creamery being the exception rather than the rule. In the South Central States, the net change for the year was an increase of about 11 per cent. Although the quantity of creamery butter originated in this section is as yet of little significance in relation to the total United States production, the striking increase in butter, as well as other dairy products, not only in 1931 but in preceding years, is an indication of a growing interest in commercial dairying in that region. In the far West, some variation in production is found. In the Mountain States, production was approximately 2 per cent less, whereas in the Pacific Coast States it was about 6 per cent more.

Considerable irregularity is likewise evident in the production of American cheese, owing largely to variation in production conditions in Wisconsin, where over 60 per cent of the domestic supply of American cheese is produced. Unfavorable production conditions in that State for the first eight months of the year led to a much smaller production than in 1930, but in September, and for the remainder of the year, under the influence of unusually favorable seasonal factors, production was above 1930. For the year, Wisconsin's production was about 3 per cent less than for 1930. Increased quantities of cheese were produced in the South during 1931 as compared with 1930. This increase was not particularly large in relation to total production, but was of some importance from the standpoint of restricting outlets in the South for cheese from other sections. The total production for the year in the Southern States was about 22 per cent greater than in 1930. Other regions to register increases were the East North Central States (excluding Wisconsin) with around 13 per cent, and the Pacific Coast States with about 6 per cent. Because of the decrease in other areas, particularly Wisconsin, the entire domestic production was about 2 per cent less.

STORAGE STOCKS

Although the carry-over of cold-storage stocks of butter at the beginning of the 1931 storing season on May 1 was heavier than the 5-year average for that date, these stocks were considerably lower than those of the previous year. Stocks continued below those of a year previous throughout the remainder of 1931, and on January 1, 1932, the total quantity of butter in cold storage amounted to but 26,550,000 pounds, compared with 63,401,000 pounds on January 1, 1931, and a 5-year average of 53,951,000 pounds. At the opening of the new storing season in May, 1931, stocks of American cheese, though slightly higher than the previous year, were appreciably above the 5-year average. This situation was somewhat relieved as the year progressed, and at the beginning of 1932 cheese stocks of 55,735,000 pounds were 7,500,000 pounds below a year previous and almost 4,000,000 pounds below the January 5-year average. Stocks of evaporated milk in manufacturers' hands are now very materially below those of the last few years at this season, but this may be attributed in part to intensive selling by manufacturers during the fall months. Manufacturers stocks were reduced, but there was a considerable increase in stocks held by wholesale grocers who took advantage of what were considered favorable price concessions.

MARKET CONDITIONS

The general decline in prices of dairy products during the last two years has been influenced primarily by the deflation in commodity prices and the business

depression, since the increases in domestic production of dairy products during the last two years were relatively small. The price decline during January, 1932, was further influenced by the increase in December and January production. From January, 1929, to December, 1931, the general level of wholesale prices in the United States declined about 30 per cent to approximately the pre-war level, while farm prices of all farm products declined 50 per cent and on December 15 were 34 per cent below pre-war. During the same period, farm prices of feed grains declined 53 per cent as compared with a decline of 37 per cent in farm prices of dairy products. During 1931 prices of dairy products were low compared with prices in previous years, but were high compared with many other farm products. This price relationship has tended to stimulate dairy production.

The monthly price of 92–score butter at New York in June, 1931, reached a low point, during the decline of the last three years, of 23.3 cents. Cheese prices on the Wisconsin Cheese Exchange (twins) reached a low monthly average of 10.4 cents in May. During the late spring and early summer months butter production was relatively large. Storage operators were reluctant to store because of their discouraging operations of the 1929–30 and 1930–31 seasons and, with the decline in business activity, prices of butter and cheese dropped to the lowest level in 20 years. With the relatively light movement of butter into storage during the early summer and the curtailment in production during the late summer, butter and cheese prices rose sharply during July, August, September, and early October. The rise in prices occurred even though demand conditions, employment, and pay rolls continued to decline. In November and December, monthly prices of 92–score butter at New York were 30.9 cents and 30.6 cents respectively. During January, 1932, sharp declines occurred.

With the improvement in production during the late fall and early winter, and the further decline in business activity and low prices in foreign countries, prices declined from the high point in mid-October and by the middle of January were at about the same level as in June.

Prices paid by milk distributors for basic quantities of fluid milk for city use declined about 23 per cent during 1931. The general decline in prices of manufactured dairy products during the last three years had left dealer's buying prices for city milk relatively high as compared with manufactured products, although quantities of surplus milk were so large as to reduce net prices to producers in some areas almost to the level of manufacturered products. With increased production in prospect and some decreases in fluid-milk consumption, prices were reduced in practically all of the important fluid-milk markets, especially during the latter half of 1931.

The decline in wholesale prices of dairy products in the United States is being reflected somewhat in lower retail prices. The index number of retail prices of dairy products declined 16 per cent from November, 1930, to November, 1931. The retail price of fluid milk declined 2 cents per quart, butter 8 cents per pound, cheese 7 cents per pound, and evaporated milk 1.1 cents per can.

The estimated milk equivalent of creamery butter, cheese, and condensed and evaporated milk consumed during the first 11 months of 1931 was about 2.2 per cent larger than in the same months of 1930. The consumption of condensed milk was estimated to have declined 15.2 per cent, and cheese 1.4 per cent, whereas evaporated milk increased 1.4 per cent and creamery butter 3.4 per cent. With low prices for butter there was a shift from oleomargarine to butter, oleomargarine production during the first 10 months of 1931 being 30 per cent less than in the same period of 1930.

Current comprehensive data are lacking as to fluid-milk and cream consumption in cities, but such evidence as is available indicates that consumption declined slightly in 1930 in comparison with 1929, and declined further in 1931. Total milk and cream consumption in cities probably averaged about 5 per cent less in 1931 as compared with 1930. In some markets the decrease was greater whereas in some others there was a slight increase.

Receipts of fluid milk at New York by rail increased about 0.5 per cent per year in the period 1927–1929, but in 1930 there was a decrease of about 1 per cent. Increased truck receipts tended to offset decreased rail receipts during this period and in 1931 a decrease of about 6 per cent under the previous years. Total milk receipts at Philadelphia in 1930 were about 0.5 per cent less than in 1929, and in 1931 were some 2 per cent less than the preceding year. In Boston on the other hand, milk receipts showed an increase of close to 4 per cent in 1931, compared with 1930.

Receipts of fluid cream at New York showed an average yearly increase of 8 per cent in the period 1927–1929 but the yearly increases in 1930 and in 1931 were 1 and 3 per cent respectively. At Philadelphia, cream receipts decreased 0.5 per cent from 1929 to 1930, and 12 per cent from 1930 to 1931. Receipts of cream at Boston increased 1 per cent in 1931 as compared with receipts in 1930.

During the fall and winter of 1931, as in 1930, domestic prices of butter have been limited in their seasonal advance by foreign competition. Yearly average prices of butter in the United States have declined during each of the last two years fully as much (roughly 20 per cent) as in Copenhagen or London. However, the relation between average prices for the year in domestic and foreign markets does not closely reflect the actual competitive position. During the last two years, seasonal competition has continued, even with a tariff of 14 cents a pound on butter. Early in October, 1931, the price margins in New York over Canadian butter in Montreal, New Zealand butter in London, and Danish butter in Copenhagen, approximately our import duty. The volume of actual importation was small and principally from Canada, but offers of foreign butter laid down in our principal markets influenced prices out of proportion to actual volume of importation. Since the United States has been cut off as an outlet for Canadian cream and milk, butter production has been greatly increased in Canada and an exportable surplus of more than 10,000,000 pounds has developed within the last year.

The excess of United States imports over exports of all dairy products combined, on the basis of their total milk equivalent, further declined in 1931 to approximately 400,000,000 pounds from 606,000,000 pounds in 1930, and 780,000,000 pounds in 1929. The practical exclusion of Canadian cream and milk by the increased tariff rates on these products effective in June, 1930, accounts largely for the decline in total importation. Total imports of cheese declined from 76,000,000 pounds in 1929 to 68,000,000 pounds in 1930, and to approximately 60,000,000 pounds in 1931. Imports of cheese from Switzerland declined from 18,839,000 pounds in 1929 to 17,947,000 pounds in 1930, with imports during 1931 indicated as about the same as in 1930. Domestic production of Swiss cheese was increased from 19,406,000 pounds in 1929 to 26,393,000 pounds in 1930.

Consumption of butter in European countries generally has been stimulated by the low prices prevailing during last year, where large quantities of margarine have been used in place of butter. Supplies of imported butter absorbed in Great Britain and Germany were about 6 per cent greater during 1931 than in 1930. The increase in imports into Great Britain was about 20 per cent against a decrease in German imports of about 25 per cent. Some of the unusually large quantities of butter consumed in Great Britain would have been absorbed by Germany had not German buying power been lower than in other years. Consumption of imported cheese in Great Britain, on the other hand, appears to have been lessened materially in 1931 with London prices for cheese at the end of the year as much depressed as were the prices for butter.

Increased dairy production in Europe was moderate in 1931, as compared with increases in Canada, New Zealand, and Australia. Danish butter production was increased by about 2 per cent, against a 15 per cent increase in Canadian creamery butter (during the first 11 months). During the remainder of the winter and early spring, butter and cheese shipments from sources in the Southern Hemisphere will be the most important factor on the supply side in the European market situation, as they have been during 1931, since New Zealand and Australia are still near the peak of a season of record output for both countries. Gradings of butter in New Zealand and Australia afford the best indication of current production. The quantities graded in New Zealand were 7.4 per cent heavier during the first four months of the current producing season than a year ago, and Australian gradings about 30 per cent heavier. Shipments of butter afloat from New Zealand, Australia, and Argentina, principally to Great Britain, amounted on December 31 to 49,000,000 pounds against 45,000,000 pounds a year earlier and 33,000,000 pounds on the corresponding date in 1929. With the exception of periods during which domestic prices are seasonally highest, as in our winter months, prevailing tariff rates of 14 cents per pound on butter and 7 cents per pound on cheese may be expected to provide an effectual barrier against foreign products entering United States markets, but not to insure against the possibility of domestic supplies bringing our prices to the world level, as occurred last summer.

REGIONAL READJUSTMENTS

With more cows on farms in nearly every State than a year ago, with abundance of feed available at prices lower relatively than dairy-products prices, with farm wages at pre-war levels, and with prices of other products so low as seriously to reduce farmers' income from other sources, there are capacity and motive for still further expansion in dairy production.

These conditions and motives are not of equal importance in all parts of the country. The situation in the northeastern section, particularly in New England and New York, is in sharp contrast with those in the other dairy-producing areas. Here feed costs are relatively high and recent sharp reductions in fluid-milk prices have made it of doubtful wisdom to buy commercial feeds for the production of milk in excess of that volume which can be sold at base prices. Some reduction in output is, therefore, to be expected in this region.

Reduction in fluid-milk base prices for these States during the fall months of 1931 amounted to about 30 per cent of the rates in force a year earlier, to say nothing of smaller returns for surplus milk because of a decline in the price of butter. On the other hand, feed prices have risen by about 10 per cent in the same period.

In the Middle West, however, with cheaper feeds, which are on the farms and thus are not a matter of cash outlay, the motive to reduce production is not in evidence. With the prevailing low prices of hogs and other farm products a continued pressure for realizing additional income by dairying will continue to be an outstanding factor maintaining heavy dairy output and even increasing it.

In the South the low price of cotton in the last two years has caused a considerable shifting of crop land to feed crops, and depleted income from cotton has led farmers to resort to other sources of income, all of which has tended to increase the emphasis on dairying. There are potential resources for a very substantial expansion in dairy output in the South and it may be expected that these resources will be used in larger and larger measure if income from cotton continues low. In the Great Plains and in the Mountain States the dairy output has been curtailed by recent droughty conditions. Some increase in this region may be expected with better feed conditions. This is particularly true if the price of wheat does not recover substantially. In the Pacific Coast States the steady growth of population has stimulated increased dairy output and the substantial increase in production during last year may well be taken as an indication of the working out of economic conditions there, both on the farm and in the market, leading toward continued growth in the dairy output.

Throughout much of the agricultural areas of the United States farmers are being forced to a hand-to-mouth, self-sufficing type of production and consumption. This encourages a continuation of dairy output wherever feed is available and where sufficient dairy stock can be obtained at reasonable figures. For the country as a whole the tendency to expand dairy output will probably be maintained. It will be held in check by the limitations of the market and the reviving alternative opportunities as they may appear in other lines of production now more depressed than dairying.

POULTRY AND EGGS

The outlook is for a smaller production of eggs in 1932. The number of hens and pullets in farm flocks on January 1, 1932, was reported at about 5 per cent less than on the same date in 1931. Commercial flocks on the Pacific coast also showed a considerable decrease in numbers.

Market supplies of poultry during the first half of 1932 probably will be smaller than for the first half of 1931. The total receipts for the year will be influenced by the extent to which old hens will be sold and by the number of chickens raised and the age at which the young stock is marketed.

Up to about the close of 1931, conditions indicated that the number of chickens to be raised in farm flocks in 1932 would be increased. The 1931 season had been more favorable to poultry and egg producers than to producers of most other farm products. The severe break in winter-egg prices at the close of 1931, resulting from heavy storage stocks and large winter production of eggs, altered the situation. Owing to the availability of poultry and eggs for farm use, and the favorable outcome in 1931 in spite of the February slump in prices in that year, farmers may still decide to go ahead with an increase. If the low egg-

price tendencies shown in January should continue, however, a decrease in numbers of chickens raised in 1932 might occur instead of an increase.

A small total egg production is expected in 1932 because of fewer hens on January 1 and low midwinter prices of eggs. If bad weather in February and March should cut production and support the price of eggs, the resulting heavier feeding, fewer sales of hens, and larger hatching of pullets, might limit the expected decreases.

The carry-over of storage eggs in 1932, although less than in 1931, was unusually heavy. Two unprofitable storage years in succession will tend to curtail demand for eggs for storage this spring.

Poultry-feed supplies are large and poultry-feed prices were low in relation to egg and poultry prices during most of 1931. The feed-price situation was distinctly favorable to both poultry and egg production until the winter break in egg prices.

The poultryman ,especially if engaged in general farming, is able to make adjustments to changes in demand within a shorter period and with a smaller sacrifice than is true with most other branches of livestock. Unprofitable layers can be marketed if egg demand lags. With a strong demand for eggs, fewer hens are marketed, and increased production per hen is sought by heavier feeding and better care. The normally large farm consumption can be considerably increased or decreased, according to the attractiveness of prevailing prices. A very large increase or decrease in numbers of chickens is possible within a period of six or eight months of a single season. Actual adjustments for the poultry industry as a whole are more deliberate but this possibility of rapid adjustment to changing conditions makes it difficult to anticipate future developments very far ahead or in other than rather general terms. At the same time study of seasonal and long-time trends together with attention to general conditions and current developments, is of much help to poultry and egg producers.

POULTRY

Laying birds in farm flocks were slightly fewer throughout 1931 than during 1930. Preliminary returns indicate that numbers at the beginning of 1932 were about 5 per cent less than at the beginning of 1931. Decreases shown by the monthly returns of farm flocks for January 1 are 4 per cent for the North Central States; 6 per cent both for the South and the far West; and less than 1 per cent for the North Atlantic States.

Pullets held for layers on December 1 were reported at 6 per cent less than in 1930, and at 10 per cent less than in 1929. Reduction in numbers of pullets on December 1 was 6 per cent for the North Central States, 2 per cent for the North Atlantic and the far Western States, and 7 per cent for the South, thus showing a smaller decline for numbers of birds in farm flocks in those portions of the country where large commercial flocks are important. These figures are based upon returns for farm flocks containing less than 400 hens and pullets of laying age on January 1, and therefore fail to show changes in charge commercial flocks. A tabulation of the returns from about 600 commercial farm flocks having between 400 and 1,000 hens and pullets each, shows numbers per flock to be practically the same on January 1, 1932, as at the beginning of 1931. The much smaller egg receipts in the final months of 1931 than in 1930, at the primary markets on the west coast, where commercial flocks are important, indicate that the decreases in commercial flocks have been greater than in farm flocks for that section of the country.

The number of chickens raised in 1931, judging from numbers of young chickens reported on farms during the year, was apparently at least 5 per cent less than in 1930. Farm hatchings made up a much larger proportion of the total in 1931 than in 1930, so that the decrease of about 26 per cent in commercial hatchings did not result in a corresponding decrease in farm flocks. The average date of hatchings by commercial hatcheries was much later in 1931 than in 1930. The increased proportion of farm hatchings, which ordinarily come much later than those in commercial hatcheries, tended further toward late average hatchings. This lateness of the hatchings in 1931 is reflected in the fact that numbers of young stock reported in farm flocks compared with numbers the previous year were 22 per cent less in May, 14 per cent less in June, 10 per cent less in July, and only 5 per cent less in October.

The cycle of change in numbers of chickens has been almost uniformly four years, an increase for 3 years followed by 1 year of decrease, coupled with a

long-time upward trend. The decrease in numbers in 1931, following only two years of increase, may have resulted from the falling price levels of 1930–31. The indication from the normal cycle is therefore confused. The usual reaction to increase after a year of decrease might not occur. Instead, 1932 might show the usual fourth-year decrease.

In view of the relatively favorable season to poultry and egg producers during most of 1931 it seemed likely that there would be a tendency toward an increase in hatchings in 1932 over 1931. At about the close of the year, however, the burden of rather heavy storage stocks of eggs and a record high rate of winter egg production per hen, along with the general price trend, resulted in a precipitate fall in winter-egg prices, which reached almost a record low January level. With this price break, occurring at the beginning of the seasonal increase of egg production which normally continues up to the April or May peak of layings, the situation is greatly altered. Conditions in January, if continued, will tend to discourage an increase in numbers of chickens to be hatched and may result in a further decrease this year rather than an increase.

The low prices received for eggs during the winter of 1930–31 led to a close culling of farm flocks and a heavy movement of dressed poultry into the four markets of New York, Chicago, Botson, and Philadelphia. The usual summer and autumn rise in fresh-egg prices checked the movement of hens but receipts throughout 1931 were nevertheless heavy. Part of the heavy receipts were undoubtedly due to some forced selling of poultry to satisfy the need for cash to meet the current expenses of poultry producers, and part to the fact that the decline in poultry and egg prices was accompanied by even greater declines in feed prices, making poultry production relatively more profitable and resulting in increased weight per bird marketed during 1931.

Total receipts of dressed poultry at the four markets for 1931 amounted to about 386,000,000 pounds as compared with 369,000,000 pounds for the year previous and 380,000,000 pounds for 1929. Receipts for these three years were the highest on record, and the receipts of 1931 were about 5 per cent over those of 1930. It is believed, however, that a part of the increased receipts of 1931 was due to a heavier movement of turkeys, particularly in December. Receipts of live poultry at New York and Chicago, the only two markets for which information on receipts of live poultry are available, were less than those of 1930 by about 986 cars, or about 15,000,000 pounds in terms of dressed poultry. This makes the total receipts of poultry, dressed and live, at the four markets for 1931 very similar to those of 1930.

Heavy early marketings of dressed poultry, together with small stocks in storage at the same time, caused the 1931 movement of dressed poultry into the freezers to start in June instead of late August as is usually the case. Dealers anticipated relatively light receipts of poultry later in the year and stored poultry so freely that by October 1 total stocks reported in storage were about 9,000,000 pounds more than on October 1, 1930, and 8,000,000 pounds above the 5-year average. The fact that fall receipts of dressed poultry were maintained at about a normal level, and that the demand for current consumption was gradually weakening, caused storage operators to become conservative, with the result that on January 1, 1932, stocks were reported at about 117,000,000 pounds, approximately 12,000,000 pounds more than the very low stocks on the same date in the previous year, but 7,000,000 pounds less than the 5-year average for January 1. A part of the increased holdings of January 1, 1932, was due to a larger stock of turkeys, the increase amounting to 5,736,000 pounds. Making an adjustment for changes in stocks of turkeys, other classes of poultry at the beginning of 1932 were only about 6,000,000 pounds more than at the beginning of 1931, and 8,000,000 pounds less than the 5-year average.

The urban consumption of poultry in 1931 was apparently smaller than in 1930, the decrease amounting to about 4 per cent. Consumption varied markedly during the year, being heavy throughout the first part when farmers were selling off their flocks rather drastically and generally low prices prevailed, but falling below 1930 during the latter part of the year in line with continued decrease in the general consumption demand, and because of the competition through lower prices for other meats.

The farm price of chickens in December, 1930, was 15.3 cents per pound or nearly 4 cents below December, 1929. Usually in the spring the farm price of chickens makes a pronounced seasonal rise which is followed by a gradual decline during the rest of the year. The spring price in 1931 did not advance

so much as usual and the price did not begin to fall materially until the last quarter of the year. The spring price advanced irregularly up to a peak of 16.7 cents per pound in April and it was maintained at about 16 cents during the next five months after which it declined to 13.9 cents in December, which was the lowest December price since 1916.

Feed for poultry is in ample supply this year. The corn crop, which provides the principal component of the chicken ration on most farms, was larger in 1931 than in 1929 and about a half billion bushels larger than the drought crop of 1930. The wheat crop was also large, being about 8 per cent above the 5-year average.

Poultry products were not immune to the general downward trend in prices. However, declines in the farm price of poultry and eggs were much less to December, 1931, than those of farm feed for poultry. The December 15, 1931, farm price of eggs was 96 per cent, of chickens 91 per cent, and of poultry feed 61 per cent of the prices of these items on December 15, 1930. Compared with December average prices for the years 1923–1927, the price of eggs was 55 per cent, of chickens 75 per cent, and of poultry feed 47 per cent.

The severe decline this year in winter-egg prices came two or three weeks earlier than the corresponding break of last year. In the winter of 1930–31 the farm price of 26.8 cents per dozen for eggs on December 15, fell to 22.1 cents on January 15 and to 14.1 cents on February 15. These figures for each month were the lowest in the record beginning in 1910. By March 15, prices had recovered to 17 cents; they held at 16.2 cents in April and fell to 13.3 on May 15 at the peak of the laying season.

This season farm egg prices fell from 25.6 cents on December 15 to 17.2 cents on January 15, the latter price being 7.6 cents below that of any January in the 23-year record of farm prices. The record of wholesale egg prices at Chicago available for the first market day of each month, indicates that January farm egg prices this year were probably the lowest since 1897.

Comparison of the prices for feed and for poultry products on January 15 shows that the price of feed is 46 per cent and that of eggs 44 per cent as much as the average January 15 prices for these products in the years 1923 to 1927, and that both are 61 per cent as high as the January 15 prices of the years 1910 to 1914. The January 15, 1932, prices of feed for poultry and of eggs were therefore about equally low for that date.

For chicken, however, the January 15 farm price of 13.3 cents per pound this year is 70 per cent as high as the January 15 average for 1923–1927, and 123 per cent as high as that of 1910–1914. Compared with feed prices, therefore, January prices of chicken are 52 per cent higher judged from 1923–1927 levels, and twice as high judged by prices for these products in January, 1910 to 1914.

EGGS

The number of eggs laid per hen during 1931 was unusually large. The reported daily layings per hen in farm flocks for the first day of each month in 1931 exceeded the average for the same month in recent years in every month save one. The number of eggs laid per 100 hens and pullets of laying age on December 1 was 17 in 1931 compared with 14.9 in 1930, and 12.8 for the 5-year average. The average of the 12 daily layings reported for the first day of each of the 12 months, amounted to 35.5 eggs per 100 hens and pullets in 1931 compared to 33.7 in 1930, with 33.3 for the 5-year average and with a previous high record of 33.9 in 1929. The favorable season, abundance and cheapness of feed, with a much higher-than-usual proportion of wheat in the farm poultry ration, and close culling, are some of the factors responsible for the high rate of laying during 1931.

Owing to the reduced number of layers, the total production of eggs shows only a small increase in 1931 over 1930. The total number of eggs laid per farm flock, in the 12 days reported during 1931 was only about 1 per cent greater than in 1930 and 3 or 4 per cent greater than the 5-year average.

The total farm production of eggs this year will probably be less than last year owing to a decrease of about 5 per cent in number of layers. The exceptionally large number of eggs laid per hen in 1931, owing to abundant feed, close culling in the spring, and the favorable season for poultry, is not likely to be surpassed in 1932.

The receipts of shell eggs at the four markets in 1931 were slightly less than those of 1930, amounting to about 15,276,000 cases compared with 15,401,000 cases for the preceding year. A very mild and open winter, together

with a heavy production from the large and very early hatched pullet crop of 1930 caused receipts to be especially heavy from the first of the year up through the middle of March. Sharp reductions in farm flocks in late February and March, following the extremely low midwinter prices for eggs, combined with more seasonal weather in early spring, led to some decline in the level of shipments as compared with 1930, and receipts of eggs at the four markets in the latter part of 1931 dropped below the receipts of the same period in 1930. Although farm production of eggs during 1932 is expected to show a decrease under 1931, receipts of eggs at the four markets may or may not decline proportionally. The weekly need for cash may cause farmers to market a larger proportion of the eggs produced. On the other hand, extremely low prices, such as prevailed in January, tend to increase farm consumption.

Fewer eggs were stored during the into-storage season of 1931 than were stored during the corresponding period of 1930. Total stocks in storage July 1, at the peak of the 1931 season, amounted to 9,507,000 cases, compared with 11,198,000 cases on August 1, 1930, and the 5-year average August 1 peak of 10,249,000 cases. Although peak holdings of 1931 were reached a full month or more earlier than ever before and were approximately 1,691,000 cases less than the peak holdings of 1930, and 742,000 cases less than the 5-year average, stocks on January 1, 1932, were only 400,000 cases less than the record-breaking stocks of January 1, 1931, and about 300,000 cases more than the 5-year average for that date.

The results of the storage-egg deal in 1931 resembled in many respects those of 1930. Although fewer eggs were stored and at lower prices than in the previous year, the combination of a continued lessened consumer demand and a liberal fresh-egg production developed a trade in storage eggs that was very unsatisfactory to those who were handling them. Prices on Refrigerator Firsts on the New York market from September through December averaged only about 2 cents higher than the prices at which they went into storage, which was not sufficient to pay storage and other costs, to say nothing of profits. The severe financial losses sustained on the 1930 storage deal adversely affected the strength of demand and reduced the volume of eggs stored in 1931. Even though the losses sustained in 1931 were more moderate than in the previous year, it is natural to expect that the demand for eggs to be stored in 1932 will be further weakened by the unsatisfactory outcome of both years.

Although no definite data on egg consumption for the country as a whole is available for 1931, the information which is available indicates that the quantity of eggs consumed in the principal urban centers was slightly larger than the corresponding consumption of either 1930 or the years just preceding. Prices were the lowest for many years, and in some months the lowest since long before the World War. Consumption, compared with previous years, was especially heavy for January, February, and March, when the glutted condition of the storage-egg markets and an unusually heavy midwinter fresh-egg production, caused the prices of both storage and fresh eggs to drop to the lowest points reached since the early part of the present century. It is estimated that during these three months approximately 17 per cent more eggs were consumed in the larger cities than were consumed during the same time in 1930. This level of consumption, however, was not long maintained, for with the beginning of the 1931 storage season prices held relatively close to the midwinter prices instead of showing the usual seasonal decline, and consumption became irregular. During the latter part of May, June, and early July, when prices were again approximately the same as the low points reached in February, consumption was somewhat above the corresponding consumption of 1930, but with prices for the last half of the year approaching more closely the comparative prices for 1930, consumption was generally less. For the entire year, however, consumption was possibly 2 or 3 per cent larger than in 1930.

FROZEN EGGS

The quantity of eggs broken commercially and frozen in 1931 is estimated to be about one-third less than 1930, but the frozen-egg industry has undergone rapid expansion within the last few years, and apparently is causing some changes in the distribution of eggs that may eventually have far-reaching effects. From small plants originally designed to utilize the small, irregularly shaped, and "checked" eggs in the receipts of the large markets, the industry has now reached the stage where large breaking plants are maintained close

to the centers of production which no longer confine their breakings to small-sized and cracked eggs but also break eggs of the same quality as those required by the regular shell-egg trade. It is obvious that the economies in handling, storing, and using frozen eggs make them well suited for manufactured products in which eggs are used. It is in this field, especially in the baking and confectionery trades, that the use of frozen eggs is becoming more important each year and is replacing to a large extent the use of shell eggs, particularly storage eggs, in these industries. It is to storage eggs that frozen eggs will perhaps offer the greatest competition, and in the future will undoubtedly serve to restrict to an increasing degree the outlets for storage eggs of the lower grades, which, although not meeting all the requirements of the more selected shell-egg trade, are well suited for manufacturing purposes. It is evident that with a decrease in the demand for storage eggs for manufactured products, a greater dependence must be placed upon shell-egg outlets for disposal of storage supplies. To insure storage eggs meeting the requirements of these outlets, the demand for eggs for storage is increasingly toward eggs of high quality.

Storage stocks of frozen eggs were again large in 1931, although the 115,000,000 pounds reported for the peak on August 1 was slightly less than the 116,000,000 pounds reported for a year earlier. The decrease in stocks during the latter part of the year, however, was larger than a year ago, amounting to approximately 35,500,000 pounds to January 1 compared with a corresponding reduction of 33,000,000 pounds in 1930. Total stocks of frozen eggs on hand at the beginning of 1932 were about 79,000,000 pounds compared with 83,000,000 pounds on January 1, 1931.

The imports of frozen eggs in 1931 showed a marked decline from those of the preceding year, which in turn were only about 37 per cent as large as the imports for 1929. Practically all of the 1931 imports were made up of frozen yolks. Total frozen-egg imports for 1932, including frozen whole eggs, yolks, and albumin, amounted to only 714,000 pounds compared with 5,130,000 pounds in 1930, and 13,771,000 pounds for 1929. The explanation of the rapid shrinkage in frozen egg imports during the last few years is found in part in the increase in the tariff rate in 1930 from 7.5 cents to 11 cents and in part in the rapid expansion of the domestic frozen-egg industry. Improvements in the methods of breaking, packing, and storing, and the high quality of the domestic product, has made it possible to compete with the imported product.

Imports of dried eggs, including dried whole eggs, yolks, and albumin, in 1931 were only about 63 per cent as large as the imports of 1930. Most of the imports came in during the first part of the year. With an increase on July 24, 1931, from 18 cents to 27 cents per pound in the existing tariff rate, the importations for the last half of the year were relatively small. Some increase in the domestic production of dried eggs is anticipated.

Although egg prices in 1931 in common with those of other commodities, were considerably below 1930 levels, the difference gradually grew smaller. The average price per dozen of Fresh Firsts at New York by quarters during 1931 was lower by 14.3 cents, 6.2 cents, 3.7 cents, and 2.7 cents respectively than the corresponding prices of 1930. This difference, in the case of better grades, has not dimished so much, corresponding 1931 figures for Fresh Extras being 13.9, 6.1, 5, and 4 cents, respectively; Pacific Coast White Extras were 12.5, 8, 5.6, and 4.6 cents, respectively, below corresponding quarterly average prices in 1930. Peak prices in 1930 were reached in November; Fresh Firsts averaged 33.5 cents and Pacific Coast White Extras averaged 52.9 cents. The seasonal decline in 1931 continued until June, when Fresh Firsts averaged 17 cents and Pacific Coast White Extras were 26.3 cents, prices being depressed by heavy production and a limited demand for eggs for storage. In the fall, with production continuing relatively heavy, peak prices in November, 1931, were not so high as a year before; Fresh Firsts averaged 29.2 cents and Pacific Coast White Extras were 45.4 cents. The price of the latter grade in December was, however, above last year's level in December.

TURKEYS

The upward trend in turkey production seems likely to continue, because of the increasing number and size of specialized flocks handled on a commercial scale by producers using modern methods. Improved methods of incubation and brooding are reducing the cost of raising turkeys and making it possible to sell them at prices nearer to the market price of chickens. Production of

turkeys will tend to expand as long as the increasing consumption at the narrowing price differential between turkeys and chickens leaves a price for turkeys that shows a profit to the producer.

The relatively favorable returns to turkey producers in 1931 will encourage an increase in production in 1932. The size of the 1932 crop will be determined to a considerable degree, however, by weather conditions during the hatching and growing season. The losses from unfavorable weather, although largely overcome in the case of those using the improved methods of brooding, are still an important element in the number of turkeys raised from the ordinary small flocks of poults allowed to range with the hen. Also, losses to older birds held in large flocks, from various causes including diseases, are severe at times.

Farm prices for turkeys for the 1931 Thanksgiving market for the United States as a whole were between 2 and 3 cents per pound lower than for the same period in 1930. Some decline in the price had been generally anticipated, on account of the estimated increase in the crop as compared with 1930 of nearly 2 per cent, and the general uncertainty of consumer demand because of prevailing industrial conditions. The October and November farm prices for live turkeys, averaging 18 cents, represent a return to the price levels of 1916.

Although a large percentage of the turkey crop was somewhat more mature than is usual for Thanksgiving, general conditions were unfavorable for marketing the normal and expected percentages of the crop. Among the unfavorable conditions were the unseasonably warm weather, and the producers' early ideas of value which were considerably higher than the offers of dealers. As a result, Thanksgiving marketings were light, relative both to the previous year and to the total 1931 crop, and the market situation was generally stronger than anticipated. By the close of the Thanksgiving transaction, supplies were practically cleaned up at retail prices only slightly lower than for Thansgiving 1930.

The Thanksgiving marketing season closed in such a strong position that market confidence was maintained for Christmas trade. Farm prices in December averaged about 1 cent higher than for November. As the holiday approached, however, it was found that market supplies were rather burdensome, and wholesale prices worked to lower levels, averaging between 3 and 4 cents per pound below the levels of a month earlier. But this decline did not clear the market, as considerable supplies were left unsold.

There has been a distinct shift this year in the turkey market to a demand for smaller sized birds. In previous years large young toms commanded a premium over small toms and hens, but this differential has been gradually lessening until this year the smaller birds were quoted at 2 to 4 cents per pound premium. This unusual demand for small birds was probably caused by more families having their Thanksgiving and Christmas dinners at the home table and by the need for greater economy. This shift in demand, if continued, will require breeders and producers to pay more attention to quick maturity and finish of both hens and toms.

The carry-over in cold storage on January 1, 1932, was 10,300,000 pounds, as compared with 4,566,000 pounds on January 1, 1931. The current carry-over, however, does not compare so unfavorably with the 5-year average of 9,000,000 pounds, and was exceeded by the stocks on hand January 1, 1924, 1925, and 1927. The necessity for the trade to push the sale of turkeys, especially to the hotel and restaurant trade, will have the favorable effect of keeping turkeys before the public during the remainder of the winter season. There have been indications for a number of years of a tendency for turkeys to be consumed over a wider period, and the reserve supplies now on hand will enable this trend to be continued.

One factor contributing to the heavy carry-over this year was the increase in imports. In spite of an increase in the tariff rate to 10 cents per pound, imports were heavier than in 1930, and amounted to nearly 5,000,000 pounds. Most of these birds arrive before the Thanksgiving movement of the domestic crop begins. Although imports can not be ignored, the importance of foreign turkeys in our markets may be easily overestimated, since the 1931 imports represent only about 2 to 3 per cent of the total domestic production.

The outcome of the 1931 turkey-marketing season was favorable to producers considering the general conditions prevailing. The farm price of turkeys held up much better than the farm price of most other products. The absolute prices of turkeys touched pre-war levels but the 1931 relation of turkey prices to feed prices was higher than in any of the past 20 years except in 1921.

The outcome in 1931 may tend to stimulate excessive promotion of turkey production in 1932, with resulting disappointment to many who may be led to venture into this field and unsatisfactory returns to those already producing turkeys.

The improvements in method of commercial hatching and shipment of day-old poults, and in brooding with artificial means and under controlled sanitary conditions, make possible a very rapid expansion in production, such as could not have occurred a decade ago.

HAY AND PASTURE

Although the shift from timothy and other tame grass hays to alfalfa, clover, and other legumes has continued for several years, legume hays still offer better returns per acre because of the declining demand for grass hays. The drought of the last two years has greatly restricted the maintenance and expansion of tame-hay acreage, but further expansion of hay and pasture land seems evident owing to the increasing numbers of dairy cows, other cattle and sheep on farms, and the relatively high prices of hay in comparison with other feeds. The increase in the world acreage devoted to cash crops, and the resulting low prices, are making it relatively more difficult to obtain satisfactory returns from the production of cash crops on the more rough and hilly or other low-yielding lands of the United States. In many areas where there is a shortage of hay and pasture land, the better types of these poorer lands are being converted to the production of hay to advantage and many of the poorer types are reverting to pastures and forests.

The 1931 crop was light, being estimated on December 1, 72,366,000 tons compared with an average production of 84,491,800 tons for the 5-year period 1926 to 1930, inclusive. The production of clover and timothy in 1930 was reduced materially by the drought. In 1931, as a result of the killing out of a considerable acreage of the new seeding in 1930 because of lack of moisture, the production of these two classes of hay was again curtailed, being estimated December 1 at 27,594,000 tons compared with 27,570,000 tons produced in 1930 and 38,405,000 tons in 1929. Low yields of alfalfa in the Great Plains and Western States in 1931 were offset in part by the comparatively high yields east of the Mississippi River. The total production of alfalfa in 1931 fell to 20,914,000 tons compared with 22,871,000 tons in 1930 and 23,854,000 tons in 1929. Wild-hay production was estimated at 8,133,000 tons compared with 10,751,000 tons in 1930 and 11,194,000 tons in 1929. The 1931 crop of annual legume hay, especially in the Southern States was large because of increased acreage and good yields. In the Corn Belt States in 1931 the production of annual legume hay, most of which was soybean hay, was 69 per cent greater in 1930 and 65 per cent greater than in 1929. A total of 4,420,000 tons of annual legume hay was produced in 1931 compared with 2,708,000 tons in 1930 and 3,065,000 tons in 1929.

Because of the shortage of all other types of hay and the poor filling of heads of grain crops in some areas, principally in the Northwest and on the Pacific coast, the acreage of grains cut for hay was much larger than usual in both 1930 and 1931. Production of grain hay in 1931 was estimated at 4,645,000 tons compared with 4,145,000 tons in 1930 and 3,506,000 tons in 1929. About the usual quantities of millet, Sudan, sorgo, and other miscellaneous crops were cut for hay in 1931.

Despite the smaller hay crop in 1931, supplies remaining outside of the drought areas on December 15 were not far different from other recent years because of the unusually slow demand for hay so far this feeding season. This lack of inquiry has been due to several causes. The most important are: The low purchasing power of farmers, the high prices of hay when compared with prices of feed grains and commercial feedstuffs, the increase in hay acreage in the Southern States which heretofore have been large consumers of hay, and the unusually mild weather during the fall and early winter, together with ample fall rains which extended the pasture season much later than usual in many of the cattle and dairy producing areas.

Supplies of hay remaining for market in the principal timothy and clover producing States on December 15, 1931, were larger than for the last several years in all except a few North Central States where the crop was considerably below average. The outturn in the North Atlantic and Middle Atlantic States in 1931 was much larger than in 1930 because of more favorable weather.

But as the sections usually supplied with hay from the surplus from these States are also rather well provided with hay and forage the movement of timothy, clover, and grass hay from them has been the slowest on record.

The yield of alfalfa and prairie hay in the principal producing States was somewhat below normal in 1931. The usual southern and eastern inquiry for these hays has not developed so far. But because of the drought in the Dakotas and Montana there has been a heavier movement of both of these hays into those States from neighboring surplus-producing sections. Unusually dry weather was responsible for a somewhat smaller-than-usual crop and increased consumption of alfalfa and prairie hay in the States west of the Mississippi River. In the States east of the Mississippi River production was greater than last year but not sufficiently large to offset the reduced production in the Western States. For the country as a whole, remaining supplies of these two classes of hay are about equal to those usually on hand at the middle of the feeding season.

Hay prices have declined much less than the prices of most other homegrown feeds during the last two years. The average farm price of tame hay for the country as a whole on December 1 was $9.06 or 26 per cent below the farm price on December 1, 1929. Wild-hay prices averaged $6.18 or only 23 per cent lower than two years earlier. During the same period farm prices of wheat declined 59 per cent, corn prices declined 54 per cent, oats 46 per cent, and barley 35 per cent in spite of the unusually short crop in 1931. This smaller decline in hay prices in some areas largely because of short crops has materially increased the relative advantage of hay in comparison with most other crops and greatly increased its importance as a part of the cost of producing livestock and livestock products, when hay must be purchased. Because of the relatively high prices for hay, farmers in some areas are finding it advantageous to supply a larger part of their hay and pasture requirements on their own farms whenever possible.

The marked increase in the acreage devoted to hay in the Southern States from 1929 to 1931 is evidence that farmers are growing a greater part of their hay supplies than formerly. The acreage of tame hay in the Cotton Belt States increased nearly 600,000 acres or 12 per cent from 1929 to 1931. The present relation of hay prices to prices of other farm products in many areas is such as to encourage further expansion of the hay acreage especially in the rough and hilly or other low-producing areas where hay supplies are frequently short and the cost of producing cash crops is relatively high.

The increasing numbers of cattle and dairy cows and the declining numbers of horses are resulting in an increase in requirements for alfalfa, clover, and other legumes and a decrease in the need for timothy and other tame-grass hays. Although the percentage of legume hays being produced has increased, the farm price is higher than that for timothy hay. On December 15 the farm price of alfalfa hay was $10.38, and clover $9.70 compared with $9.14 for timothy hay. In view of the higher prices and larger yields for legume hays this tendency to shift toward the production of legume hays is likely to continue.

The increase in the numbers of sheep, dairy cows, and other cattle on farms is also likely to result in an increase in the acreage devoted to pastures, especially in those areas in which pastures have been unusually short in recent years. In some areas, sweet clover is becoming of considerable importance in supplying the need for increased pasturage. Present low prices for cash crops have greatly increased the relative returns that can be made from rough and hilly lands by converting some of them into pastures.

FEED CROPS AND LIVESTOCK

The ratio of prices of feed crops as a group to prices of livestock and livestock products as a group, during the first few months of the feeding season from crops produced in 1931, were favorable to expansion of livestock numbers. The recent sharp declines in prices of livestock and livestock products in contrast with the comparatively staple feed-crop prices have resulted in present ratios which are less favorable. The probabilities are that the ratios will continue at about the present level throughout the remainder of the season. Feed-crop production in 1932 will probably be on a high level, but present indications are that the spring-pig crop will not be materially different from a year ago and both dairy cattle and other cattle numbers are on the increase so that the feed crop-livestock ratios for the 1932–33 season are not likely to be greatly different from those for the present season.

Total production of the principal feed crops in most parts of the United States in 1931 was materially larger than in 1930, but was greatly reduced by drought in the northwestern part of the Corn Belt. Production in this area was smaller than a year ago. The combined production of corn, oats, barley, and grain sorghums in 1931 of 97,000 000 tons was 11.3 per cent larger than in 1930, but was 7.6 per cent below the 1925–1929 average. The acreage devoted to these crops increased 2.6 per cent from 1929 to 1930 and 2.3 per cent from 1930 to 1931. Production of hay in 1931 was 2.5 per cent less than in 1930 but was 15.6 per cent below the average production for 1925 to 1929. The acreage of hay cut in 1931 was about 1,000,000 acres less than in 1930, due to the sharp decline of 1,800,000 acres in the acreage of wild hay.

The number of livestock on farms on January 1, 1932, expressed as animal units was about 2 per cent larger than a year earlier. There was an increase of 9.4 per cent in the number of hogs, 2.4 per cent in the number of cattle and calves, and 2.2 per cent in the number of sheep and lambs, while horses and mules declined 3.7 per cent and 2.6 per cent respectively. The combined livestock population has tended to increase since January 1, 1930, with most of the increase occurring during 1931.

The production of corn, oats, barley, and grain sorghums, the principal feed grains in 1931, was 2,223 pounds per animal unit, compared with 2,038 pounds in 1930, and 2,294 pounds in 1929. Production of feed grains per animal unit, was below average for all three of these years, largely because of the small production of corn. The production of hay of 1,918 pounds per animal unit for 1931 was about 3.4 per cent below 1930 and 18.4 per cent below 1929. The level of prices of the 1931 feed crops from the beginning of the crop season to January 1 was 65 per cent of the pre-war (1910–1914) average, while the corresponding level of livestock and livestock-product prices was 83 per cent of prewar. During last year the prices of livestock have declined from 101 per cent of the pre-war level to 70 per cent and livestock products from 112 per cent to 95 per cent, and prices of feed crops have declined from 87 per cent to 65 per cent. This greater decline in the prices of livestock has made feeding of livestock less favorable than a year ago.

At the present ratio of feed prices to livestock prices, only about normal feeding is to be expected during the remainder of the winter except in the northwestern part of the Corn Belt, where production of feed supplies was curtailed by drought. Owing to the shortage of supplies in this area, the ratio of feed prices to most kinds of livestock and livestock products is not favorable to normal feeding. This unfavorable ratio, together with the shortage of feed supplies, has resulted in considerable numbers of livestock being shipped out of that area at unusually light weights. Unless the remainder of the winter-feeding season should be unusually favorable in this area, there is likely to be some further liquidation of livestock numbers. For the country as a whole the late fall pastures and mild winter have permitted the economical use of feeds, and supplies of feeds in most areas on January 1 were about equal to average. With normal weather from now until the pasture season begins, there will probably be about an average carry-over of most feed crops on farms at the end of 1931–32 season.

Although the December, 1931, pig survey indicates little change in the spring pig crop, the increase in cattle numbers, especially dairy cows on farms on January 1, 1932, indicates that feed requirements for the 1932–33 season will be greater than in the 1931–32 season, especially if the winter in the 1932–33 season should be less favorable for feeding. This increased number of livestock, however, is likely to be at least off-set by increases in feed-grain production. A further increase in corn acreage in 1932 is likely, which with average yields would result in a considerable increase in corn production. Barley production in 1932 should also exceed the 1931 production which was materially curtailed by the drought. Oats production in 1931 was also below average, because of poor yields, so that with the same acreage in 1932 and average yields, production would be considerably larger than in 1931. Hay production has been materially below average for two years, because of smaller-than-average yields. In view of the outlook for larger production of feed crops next year, production per animal unit may be somewhat greater in 1932 than it was in 1931.

During the next few years, work-stock numbers will continue to decline and sheep numbers also will probably decline gradually, while cattle numbers will continue upward. Since these changes will tend to offset one another, the

equilibrium of livestock numbers and feed production will depend upon a stabilized hog production. Increased production of livestock outside the intensive feeding area may occur, however, regardless of the relative prices of feed crops and livestock because of the tendency toward a self-sufficient type of agriculture, stimulated by the very low level of prices of cash crops, such as cotton, tobacco, and wheat.

FEEDSTUFFS

Consumer demand for straight and commercially mixed feeds has been materially reduced owing principally to the larger supplies of feed grains for the 1931–32 season, compared with the previous season, and the restricted purchasing power of the dairy and livestock industries. This reduction has come in spite of the larger numbers of livestock this year. The smaller outturn of the main products, such as flour, cottonseed oil, corn sirups, and the like, has curtailed the production of feedstuffs including wheat feeds, cottonseed cake and meal, gluten feed and meal, respectively. The small supplies of domestic flaxseed and alfalfa hay have been factors in the limited production of linseed meal for domestic use and of alfalfa meal. Prices of feedstuffs (as a group) are lower than at any time since before the World War.

The combined tonnage of feed grain and feedstuffs supplies for the 1931–32 season is slightly below average but considerably larger than for 1930–31. The December 1 estimate indicated a corn crop of 2,557,000,000 bushels, which was about 500,000,000 bushels over the short 1930 crop, but less than the average production of the previous five years. This larger 1931 crop was supplemented by farm stocks November 1 of nearly 93,000,000 bushels, compared with 72,000,000 bushels last year. The oats supplies at the beginning of the season, August 1, was 1,197,000,000 bushels, compared with 1,354,000,000 bushels in 1930. Barley production was 199,000,000 bushels, compared with 305,000,000 bushels last year. Total supplies of barley, including stocks on farms and in markets on August 1 of 21,000,000 bushels, amounted to 220,000,000 bushels. Production of grain sorghums was 105,000,000 bushels, compared with 64,000,000 bushels produced in 1930. The quality of the 1931 corn crop was excellent, but the quality of oats and barley was poor, on account of the drought. Hay supplies for 1931–32 are slightly smaller than a year ago, the reduction being confined principally to the wild-hay crop. The December 1 estimate of all hay was 72,366,000 tons, compared with 74,214,000 tons for 1930.

Supplies of raw materials from which by-product feeds may be produced are plentiful, but the present depression has limited the output of the main products. As a result, production of by-product feeds has been reduced. Supplies of wheat mill feeds have been smaller on account of the reduced grindings of flour. The estimated outturn of wheat feeds at merchant mills during the last season ended with June, totaled 4,745,000 tons, compared with 4,895,000 tons in the previous season; 4,855,000 tons in 1928–29, and 4,834,000 tons in 1927–28. Wheat-offal production, July through December, this season was about 7 per cent under that of the same period a year earlier. Screenings supplies in the Northwest are small because of the light carry-over and short spring-wheat crop, and because of the short Canadian spring-wheat crop, screenings supplies in that Dominion available for shipment to the United States were greatly reduced.

Large supplies of cottonseed are available this season. Cottonseed production in 1931 was estimated at 7,523,000 tons compared with 6,185,000 tons in 1930 and 6,590,000 tons in 1929. The mill carry-over of old meal on August 1 was unusually large and totaled 147,000 tons, which, together with the meal equivalent of the carry-over of seed at mills on the same date, made a total carry-over of about 159,000 tons. This compares with 76,000 tons on August 1, 1930. If a normal proportion of the large supply of cottonseed available for the 1931–32 season should be crushed, it would yield roughly about 2,650,000 tons of meal which, added to the mill carry-over, would make a total potential supply for the season of 2,809,000 tons. Last season 2,238,000 tons were available, and in 1929–30 about 2,327,000 tons. However, present indications suggest that less than the normal proportion of the cottonseed supply will be crushed. Normally about 85 to 90 per cent of the cottonseed supply available for crushing is processed annually, but in the previous severe depression of 1920–21 only 76 per cent was crushed. Crushings of cottonseed from August through December, 1931, totaled 2,958,000 tons compared with 3,135,000 tons in the same period last year despite a cottonseed crop 22 per cent larger than in 1930–31. The slower rate of ginnings this season compared with the last may also be a contributing factor.

Domestic supplies of linseed meal are very short, on account of the small flaxseed crop and reduced crushing activity. The 1931 flaxseed crop as indicated by the December 1 estimate was 11,018,000 bushels compared with last year's harvest of 21,240,000 bushels.

Wet-process corn grindings, from which gluten feed and meal are by-products, were of small volume last season, influenced by the limited outlet for the main products made from corn. About 66,600,000 bushels of corn were ground by this process in the period November, 1930, through October, 1931, compared with about 77,500,000 bushels in the same months of the previous season and 88,200,000 bushels in 1928–29. The November and December, 1931, grindings were about equal to those in the same months the year previous. Grindings in past years have fluctuated in general with changes in business activity. Most of the wet-process corn-grinding plants are in the North Central States, where corn supplies are large. Smaller corn-meal output has reduced hominy feed production.

The 1931 crop of soybeans was large, reflecting the increased acreage and better-than-average yields. Crushings have increased with the larger supply and markets are being found for soybean oil, but at low prices. As a result of this expansion in crushing activities, production of soybean meal has increased. However, they still remain only a small percentage of the total supply of high-protein concentrates.

Smaller supplies of alfalfa hay especially in the western area and relative cheapness of wheat mill feed have reduced alfalfa-meal grindings this season compared with the outturn for similar periods for recent years. About 301,000 tons of alfalfa meal were produced in the season ended May, 1931, 351,000 tons in the previous season, and 380,000 tons in 1928–29. Production of meal for June through December this season totaled approximately 131,000 tons, compared with about 210,000 tons in the same months of 1930, and 216,000 tons in this period in 1929. There has been an accumulation of meal at mills this season and mill stocks at the close of December were about 38,200 tons. Exports have been of very small volume.

Production of by-product feeds was relatively light in 1931 despite the plentiful supply of raw materials from the 1930 and 1931 crops from which they may be processed. In the 1930–31 season production of the principal feedstuffs, adjusted for the usual seasonal variation, advanced sharply early in the season from 98.6 per cent of average (July, 1924, to June, 1930=100) in July to 105.5 per cent in September, 1930. Production then receded sharply, reaching the season's low of 82.1 in March, 1931. Some recovery occurred in the spring months and the 1931–32 season opened with production at 96.1 per cent, in July, 1931. From that month to December the index fluctuated between 84.0 in August and 95.6 in November. The index for December was 90.4 per cent.

The decline in the consumption of feedstuffs has occurred in spite of increased livestock numbers. Livestock numbers were slightly larger at the close of 1931 than a year earlier. The horse and mule population is smaller, but milch-cow numbers are 3.5 per cent larger than a year ago. Cattle numbers on January 1, 1932, were 2 per cent greater than on that date in 1931. Hog production has been stimulated by relatively cheap feed. The increase in sheep numbers in 1931 over 1930 was about 2 per cent. The number of chickens on farms at the first of 1932 was about 5 per cent less than on January 1, 1931, according to preliminary returns covering farm flocks. No adequate data are available to show changes in commercial flocks.

The corn-hog ratio was above average during the fall months, but in November and December the ratio became less favorable. The United States corn-hog ratio based upon farm prices as of October 15 was 14.1 bushels, compared with the 20-year average of 11.2 bushels and showed the relative cheapness of corn compared with hogs. However, the December 15 ratio was 10.9 bushels. The narrow margin between the cost of feed and the price of butter widened in the fall of 1931, but became smaller at the close of the year and was smaller early in 1932. Chicken and egg prices were high compared with feed prices at mid-December, 1931, but the weakness in poultry-product prices in January, 1932, has made the relationship less favorable.

A number of factors have developed this season (1931–32) which have limited the consumption of feedstuffs and the movement of hay from surplus to normally deficit areas. Liberal supplies of feed grains and cheap wheat have caused heavy feeding of those products especially of wheat instead of commercial feeds on farms. The small farm income from the 1931 crops and limited

credit are also contributing factors. The fall and early winter was unusually mild and has been a factor in the reduced feed requirements so far in the 1931–32 season.

Prices of feed grains, hay, and feedstuffs are at unusually low levels, as are the prices of products into which these commodities may be converted. The December 1 farm price of corn for the United States was 36 cents per bushel, the lowest for that date since 1900. Oats and hay are extremely cheap compared with past years. The average United States farm price of oats on December 1 was 23.1 cents per bushel, wild hay, $6.18, and tame hay $9.06 per ton. Feedstuffs as a group are the cheapest since before the World War. The index of feedstuff prices during December, averaged 52.4 per cent of the 1926 level, compared with 78.6 per cent in December, 1930. This index stood at 49.3 per cent on January 26, 1932.

SOYBEANS FOR OIL AND MEAL

Prices obtained for soybeans of the 1931 crop were lower than those in any previous year of the last decade. Despite the physical adaptability of soybeans to many conditions of soil and climate the increase in acreage in 1931 was not so great as that in recent years. The decline in the prices of vegetable oils and their accompanying protein concentrates, and the resulting effect upon the price of soybeans, acted to reduce the advantage which this crop has had in many areas. Soybean oil competes with linseed, cottonseed, and certain other oils and the meal competes with linseed, cottonseed, and other protein feeds in the market. The present limited market outlet for soybean products should be kept in mind when judging of the probable returns from adding or increasing the cash-crop soybean acreage as against the other alternatives possible on the farm.

The commercial production of soybeans has increased rapidly since 1924. Of the 14,917,000 bushels of soybeans gathered in 1931, 87 per cent were contributed by six States—Illinois, Indiana, North Carolina, Missouri, Iowa, and Ohio. More than 40 per cent of the total was furnished by Illinois alone. The acreage of soybeans in 1931 was about five fold greater than 10 years ago. Acreage has grown very rapidly during the last few years, the annual increase being about 40 per cent in 1930 and 10 per cent in 1931. The increase has been greatest in the North Central States, especially in Illinois, where soybeans are produced mainly for oil and meal. Soybeans produced in North Carolina are mainly for seed purposes, primarily for distribution in the Cotton Belt where they are used for the production of forage. Yields of soybeans in the commercial producing States as a whole have averaged usually from 12 to 16 bushels per acre. Yields of 20–25 bushels have been recorded in central Illinois.

During the year ended September 30, 1931, 121,455 tons of soybeans were crushed in the United States, compared with 48,000 tons in 1930 and 26,400 tons in 1929. Stocks of soybeans at mills on September 30, 1931 were 14,800 tons compared with 3,490 tons on the same date in 1930 and 2,100 tons in 1929. Receipts of 1931 crop soybeans at mills during the period October-December, 1931, were somewhat less than the previous year, as indicated by records of cars inspected under United States Standards. The absence of "contract" soybeans in 1931 accounts in part for the slower movement, for shipments to apply on advance contracts in 1930 were rushed to the market as harvested.

The United States tariff on soybean oil was increased from 2½ cents to 3½ cents per pound, effective June, 1930. At the same time soybean cake and meal, formerly on the free list, received a duty of $6 per ton. Mixtures of soybean meal containing small quantities of corn meal, wheat, and rice bran, previously admitted on a basis of 10 per cent ad valorem, were ordered taxed at $6 per ton on and after January 7, 1931. The duty on soybeans is 2 cents per pound.

Owing to these additional tariff restrictions, imports of soybean oil, cake, and meal were much smaller during the year ended September 30, 1931, than in previous years. Imports of soybean cake and meal during this period were only 23,998 tons compared with 73,524 tons in 1930 and 69,530 tons in 1929. For the first time since the development of the soybean-crushing industry in the Middle West the domestic production of soybean meal has exceeded the imports. Only 5,364,000 pounds of oil were imported compared with 11,230,000 pounds in 1930 and 17,182,000 pounds in 1929. Stocks of crude oil on September 30,

1931, were 11,374,000 pounds compared with 10,000,000 pounds in 1930 and 9,010,000 pounds in 1929.

Soybean oil and meal in recent months have been in closer competition with cottonseed oil and meal than formerly. With an ample supply of linseed oil at relatively low prices soybean oil was forced to seek an outlet in industries using nondrying oils. The result was lower prices for soybean oil more in line with cottonseed oil. Crude soybean oil averaged 3.7 cents per pound, tank cars f. o. b. mills in December, 1931, compared with 6.7 cents in December, 1930, and 9.6 cents average in December of the years 1925–1929. On January 4, 1932, this price was 3.25 cents.

Affected by the drastic decline in price of cottonseed meal and to a less extent linseed meal, prices of soybean meal have ruled mostly within a range of $20 to $25 per ton f. o. b. mills since the spring of 1931. Distress stocks have in some cases been sold at less than these prices. Cottonseed meal declined from around $26 f. o. b. southern markets in March, 1931, to $11 to $12 in October and was quoted mostly at $14 to $16 in December. Linseed meal averaged $32.50 in March, 1931, declining to $25.25 in early October, and has ruled mostly $31 to $32 since that date.

On the basis of these low prices for oil and meal, the prices offered growers for soybean at the beginning of the movement of the new crop in October were not encouraging. Old-crop beans sold as late as June, 1931, at 70 cents per bushel delivered mills. Bids were made for the new crop as low as 23 to 25 cents per bushel, basis United States No. 2 Yellow, f. o. b. country stations. Prices advanced later to 40 cents and in some cases 45 cents per bushel. In the meantime European mills became interested in the low prices and high quality of the crop and over 100,000 bushels were exported in November, 1931. Further exports, however, are contingent upon the outturn of oil and meal from these initial shipments and future prices of soybeans in the United States compared with those of oriental countries.

Despite reduced prices in Manchuria for the 1930 crop, the 1931 planted acreage was only slightly less than in 1930. Production in 1931 is placed at only 1½ per cent below the record crop of 1930. Manchurian markets are reported to be very slow and with the large carry-over from the 1930 crop the supplies are excessive. Political and military disturbances, however, have not interferred with the movement of the crop. December, 1931, prices in Manchuria were approximately 15 per cent lower than in December, 1930, and may reduce the 1932 acreage but the alternative cash crops in Manchuria are few and the special adaptability of soybeans to the soil and climatic conditions of that region together with new lands being brought into cultivation in north Manchuria may maintain the soybean acreage without substantial reduction.

The foreign situation respecting soybeans does not appear to have much direct bearing on the American situation at present, but the indirect effects are of considerable significance. Manchurian production becomes an inseparable part of the world-wide vegetable-oil supplies of Europe and because of varying degrees of interchangeability of soybean oil with other oils has an indirect bearing upon the prices in the United States of linseed and cottonseed oil, as well as lard and butter.

CLOVER AND ALFALFA SEED

Red and alsike clover seed production has decreased far more than hay production since 1929. If farmers this year bring their clover acreage up to that of 1929 and thus overcome losses sustained from the killing of stands by drought and heat during the last two years, available supplies of these seeds may well be expected to be absorbed. Sweetclover and alfalfa acreage for seed production were below those of recent years. Current supplies of sweetclover seed are close to normal planting requirements whereas those of alfalfa seed are somewhat in excess. Although prevailing prices of clover and alfalfa seed are about one-third lower than last year and two-fifths lower than the 5-year average, they have not declined relatively as much from pre-war prices as have many other agricultural products.

Sales of red-clover seed in the spring of 1931 were not so large as in 1930, but they were of sufficient size to draw upon the carry-over. Total production of red and alsike clover seed in 1931 was 73,326,000 pounds, compared with 91,386,000 in 1930 and with the near-record crop of 157,638,000 pounds in 1929.

Imports of red-clover seed for the fiscal year ended June 30, 1931, amounting to 2,805,300 pounds, were about 650,000 pounds larger than for the preceding year, but less than one-fourth as large as the average annual imports 1925–1929. No seed except 30,800 pounds of United States-grown seed that had been shipped to England, has been imported since May, 1931. Export from the United States have been the largest since 1927. They amounted to 670,304 pounds in 1931, compared with 535,472 pounds in 1930, and 523,535 pounds in 1929.

Foreign competition in red-clover seed hardly seems to exist at present. The European crop was relatively small, and of inferior quality. There will be but a small surplus for export at prevailing prices. In Europe prices are about 4 or 5 cents a pound lower than in the United States. This, however, is more than offset by the tariff of 8 cents a pound. Current wholesale prices in the United States are lower by about $9.75 per 100 pounds (36 per cent) than a year ago on a corresponding date and by $13.15 (44 per cent) than the 5-year average, 1926–1930.

Available supplies of alsike-clover seed are much smaller than usual because of the small quantity of old seed carried over, the decreased production in 1931, and the decline in imports. These factors, however, were offset in part by a reduction in sales last year as well as in other recent years. The 1931 crop was the smallest since 1928 and imports for the last fiscal year dropped to the lowest point on record, amounting to only 93,800 pounds, compared with 7,220,300 pounds the preceding year and about 7,600,000 pounds, the average annual imports for the five years 1925–1929. Large imports are not expected during the next six months or more because the Canadian crop was even smaller than the short crop of 1930. Current wholesale prices are lower by about $7.80 per 100 pounds (33 per cent) than a year ago and by $13.25 (46 per cent) than the 5-year average.

Production of sweetclover seed in 1930, amounting to 45,600,000 pounds, and in 1931, amounting to 50,900,000 pounds, was more nearly in line with planting requirements than for several years. Acreages in 1930 and 1931 were about equal but were 20 to 40 per cent smaller than the acreages in 1925–1929. Chiefly because of the decreased production, the carry-over is the smallest in seven years or more. Imports, after declining for five years, reached the vanishing point in 1931. Sales in the spring of 1931 were slightly larger than those in 1930. Current wholesale prices are lower by $2.85 per 100 pounds (32 per cent) than a year ago and by $3.45 (36 per cent) than the 5-year average, 1926–1930.

Alfalfa-seed production in 1931, amounting to 51,200,000 pounds, was about 25 per cent smaller than in 1930, when the largest crop since 1926 was produced, and 15 per cent smaller than in 1929. Production was smaller than in 1930 in Montana, South Dakota, North Dakota, Idaho, Wyoming, Colorado, Kansas, Oklahoma, Arizona, Texas, and Wisconsin, but larger in Utah, California, Oregon, Nebraska, New Mexico, and Michigan. Greatest decreases occurred in the more northern producing districts where the drought was more detrimental to the crop than elsewhere. Sales in both spring and fall were smaller than in 1930. Exports fell off sharply, amounting in 1931 to 218,044 pounds, compared with 832,965 pounds in 1930 and 825,830 pounds in 1929. Imports were unusually small, no seed having entered the United States during the second half of 1931. Stocks are more than sufficient to take care of normal requirements. Current wholesale prices for common alfalfa are lower by about $7.85 per 100 pounds (33 per cent) than a year ago and by about $6.60 (30 per cent) than the 5-year average. Grimm alfalfa prices are lower by about $11.65 (33 per cent) than a year ago and by about $15.50 (40 per cent) than the 5-year average.

POTATOES

With intentions to make only a slight decrease in acreage in 1932, with fair chances of a better growing season than those of the last three years, potato growers in the late-producing States face another season of increased supply with no compensating improvements in demand conditions.

Total production in 1931 amounted to 376,000,000 bushels, or about an average crop compared with 333,000,000 bushels in 1930 and 329,000,000 bushels in 1929. The increased volume was due chiefly to an increase in acreage from 3,038,000 acres in 1930 to 3,382,000 acres in 1931. Yields averaged about 110 bushels to the acre in 1929 and 1930 and 111 bushels in 1931 compared with a record of 127 bushels in 1924 and prospects for an average of about 120 bushels under normal weather conditions.

In the 11 Southern States, acreages were increased from 382,000 to 463,000 in 1931. Yields also averaged somewhat higher (87.5 bushels in 1931, 84.3 bushels in 1930) and production was therefore considerably higher, amounting to 40,618,000 bushels in 1931 compared with 32,204,000 bushels in 1930 and 27,945,000 bushels in 1929. This large increase contributed to the lower potato prices during the first part of 1931, in contrast with the higher prices of 1930 which were partly sustained by the relatively small supplies of both early and late crops of that year.

The seven intermediate States (New Jersey, Delaware, Maryland, Virginia, Kentucky, Missouri, and Kansas) produced 37,160,000 bushels in 1931 compared with 36,328,000 the previous year. The acreage was nearly 8 per cent larger than in 1930, but yields were lower, averaging 107 bushels compared with 113 bushels the year before.

In the 30 late States, production increased from 264,678,000 bushels in 1930 to 298,470,000 bushels in 1931 owing chiefly to an increase in acreage since the average yield of 116 bushels per acre was only slightly higher in 1931 and the average of 113 bushels in 1930.

Certified seed potatoes in the United States last year were produced in one-third larger quantity than in 1930, mainly through an increase in acreage. The production of about 8,700,000 bushels exceeded the 1929 production somewhat but was about one-sixth smaller than the record quantity certified in 1928. There has been dull demand for seed, probably because of the low price being received for table stock. Prices received by growers for certified seed, last fall, averaged about 60 cents per bushel or down to the 1928 level, compared with approximately $1.25 in 1930 and $1.65 in 1929. These low prices may encourage the use of good seed, particularly in areas where its use is essential to good yields.

Prices received by producers of late-crop potatoes during the fall months of 1931 were about half of those received a year earlier, and reflected the increase in total supply of about 13 per cent, a decrease in prices of foods in general of about 12 per cent and a slower rate of consumption. On December 15, the average United States farm price which includes prices in deficit as well as surplus areas, was only 45.7 cents per bushel compared with 89.8 cents per bushel a year earlier or a decline of about 50 per cent. In the selected surplus-producing sections, prices declined even more except in the West. F. o. b. shipping point prices per 100 pounds for U. S. No. 1 potatoes during December, 1929, 1930, and 1931 averaged as follows: At Presque Isle, Me., $2.01, $1.25, and $0.44; at Rochester, N. Y., $2.40, $1.54, and $0.68; at Waupaca, Wis., $2.11, $1.24, and $0.59; and at Idaho Falls, Idaho, $1.92, $0.93, and $0.69, respectively.

In the two eastern areas prices in December, 1931, were 81 to 86 cents lower than in December, 1930, in Wisconsin they were 65 cents less, and in Idaho only 24 cents less, the smaller decline in Idaho being due to a smaller 1931 production in 10 Western States compared with that of 1930 and in contrast with increases in most of the other late Northern States.

The unusually low prices this season have tended to restrict sales by farmers. These restricted sales in turn tended to check the price decline and to promote some advances during the first part of January. The 18 surplus States which produced 261,000,000 bushels in 1931 compared with 231,000,000 bushels in 1930, shipped only 84,000 cars so far this season (through January 16) compared with 104,000 cars in the previous season of smaller supply. These shipments do not include movement by truck, but it is clear that the relatively small volume marketed by rail so far this season indicates a larger than normal proportion of the year's supply available for marketing during February-June, 1932. These forthcoming supplies will be important factors in determining the course of late-crop prices for the remainder of the season and will compete with the southern early crop.

The total United States potato acreage in 1932 is likely to be only slightly lower than that of 1931. Since the decline in potato prices has been no greater than the decline in other farm products during the past year—if growers carry out their intentions as reported to the Department of Agriculture on January 1—the total United States potato acreage in 1932 is likely to be 1 or 2 per cent smaller than in 1931. The intended changes in acreage vary considerably between different groups of States and between the commercial and noncommercial or farm crop in the early and intermediate States.

The intended decrease in total acreage in the 11 early Southern States amounts to 11 per cent. This is expected to occur through a 31 per cent decrease in the commercial acreage for shipping purposes while the remaining

acreage, largely for home or local supplies, is expected to be increased about 2 per cent.

In the seven intermediate States an intended decrease of 2 per cent is indicated for the total acreage. A material decrease is expected in Virginia and some reduction in Kansas. These are partly offset by increases in New Jersey, Delaware, Kentucky, and Missouri. Maryland reports no change. This intermediate group plans a reduction of 13 per cent in the commercial acreage, but an increase of 5 per cent in the farm-crop acreage.

The reduction planned in the commercial acreage in the early and intermediate States would result in an acreage slightly below the reduced acreage of 1929. The reports from commercial growers in these States show a greater degree of uncertainty concerning plans for the approaching season's plantings than has prevailed for several years. Although expenses will average lower on many important items entering into the cost of producing potatoes, credit is restricted and the difficulty of securing the usual finances to grow a crop is reflected in a majority of the reports.

The reports from the 18 surplus late-potato States indicate plans for only a slight decrease in the 1932 acreage. The most marked decreases planned are, in general, reported from commercial districts located far from markets.

The 12 other late States (the five New England other than Maine, West Virginia, Ohio, Indiana, Illinois, Iowa, New Mexico, and Arizona) which produce potatoes mainly for home or local consumption, show intentions to increase their acreage 4 per cent. The increases in the five Central States more than offset the minor decreases in the five New England States outside of Maine.

Changes in yields per acre from the low yields of the last three years are likely to be the chief factor in determining the volume of the 1932 potato crop. Hot and dry conditions in certain eastern and central areas placed the 1931 potato crop under a handicap during the early part of the growing season, which was not completely overcome by beneficial rains and a generally favorable finish to the growing period. In the West, a water shortage held potato yields below the quantity usually to be expected in some of the States, especially Colorado and Utah. As a result of these conditions, the estimated average yield for the country as a whole was 111.3 bushels per acre, making 1931 the third successive year of comparatively low yields. In each of the past three seasons, the yield has been close to 110 bushels. Favored with only average weather conditions, crops of 120 to 123 bushels per acre could ordinarily have been expected. Considering the acreage shifts that seem likely to occur, and barring the experience of unusual weather hazards in 1932, it is not unreasonable to anticipate a yield the coming season at least 10 bushels greater than in 1931.

The considerable acreage reductions now being planned in the Southern States are likely to result in an improvement in market conditions. Ordinarily such reductions could be expected to produce pronounced improvements, but this year the large carry-over from the 1931 late-potato crop, together with the continued low level of consumer incomes are likely to act as restraining factors.

The acreage and yield prospects for the main late-potato crop in the Northern States suggest a somewhat larger crop in 1932 than in 1931 and a continuation of approximately 1931–32 market conditions unless a material change takes place in consumer incomes and in the level of food prices in general. The 1932 potato crop will probably be produced with a much smaller cash outlay, for prices of material and labor are now lower than a year ago.

SWEETPOTATOES

Farmers in the Cotton Belt planted a greatly increased acreage to sweetpotatoes in 1931, as is usual when the price of cotton is low. In most of the Cotton Belt States, however, yields per acre of sweetpotatoes were far below average as a result of adverse growing conditions, so the total crop was below that of 1929. The crop was moving from the farms in December at the lowest prices for that month in 30 years but, except in the commercial area from Virginia to New Jersey where yields were unusually heavy, the prices were not unfavorable compared with the prices being received for other farm products of importance in the South.

So large a percentage of the acreage of sweetpotatoes in the Southern States is in fields of less than an acre that no statistics on either acreage or yield per acre can be relied upon implicitly. The estimates indicate, however, that the area of sweetpotatoes in the United States in 1931 was 778,000 acres, an increase of 20 per cent over the 648,000 acres harvested in 1930.

The yield per acre averaged 80.9 bushels compared with 82.8 bushels in 1930 and 100.6 bushels in 1929. Although the yield per acre was less than it was last year, production was increased from below 54,000,000 bushels to nearly 63,000,000 bushels or 17 per cent. With other food prices also lower, the December 1 farm price was 37 per cent below that of a year earlier.

Looking ahead, southern farmers are faced with a need to produce on their own farms an even larger share of the food required by their families than they produced in 1931. In most cases this will mean an acreage of sweetpotatoes large enough to supply family needs even though yields should again be low. Because of this situation southern farmers who grow sweetpotatoes for sale face the probability of substantially increased local supplies pressing on southern markets and there are indications that some southern growers are planning to shift a larger part of their acreage to varieties that are suitable for shipment to northern markets.

In the four States along the Atlantic coast from Virginia to New Jersey, where sweetpotatoes of the dry type are grown chiefly for shipment to northern markets, the acreage planted has not been affected by the price of cotton and returns have depended largely on local production and on the demand in northern markets. In these States the acreage of sweetpotatoes was increased from 63,000 in 1929 to 65,000 in 1930 and to 70,000 in 1931, and production was increased from 9,093,000 bushels in 1929 and 5,555,000 bushels in 1930 to 10,113,000 bushels in 1931. Although shipments were heavy, this 1931 production was more than could be marketed to advantage and prices reported as being paid to Virginia and Delaware growers in December were lower than has been reported from any other States in any December since the Civil War. In view of the exceedingly low price and the prospective increase in competition from the Southern States some reduction in the acreage planted in Virginia, Maryland, and Delaware in 1932 is to be expected.

COMMERCIAL VEGETABLES

The commercial shipping vegetables, with only a few exceptions, brought lower prices during the 1931 marketing season than in 1930. Following the tendency exhibited by the low general level of food prices, unusually low prices were received even for some vegetables and truck crops that were produced in smaller quantity than the year before. The decline in vegetable prices, as a whole, however, has not been so sharp as that shown by field crops in general. There is evidence that, because of this situation and the high gross returns per acre on vegetables, growers look upon vegetable production as holding inviting prospect for expansion or as a relatively profitable alternative for other cash crops that have paid disappointingly low returns the last few seasons. Before shifting from these crops to vegetables, growers should give careful thought to the higher costs and greater risks usually involved in the production and marketing of the perishable crops.

Appraisal of the prospects for vegetable producers in any season is rendered difficult by the various uncertainties that are peculiarly associated with production of these perishable and highly unstable crops. Unusually favorable weather conditions, or the reverse, may so quickly change the crop situation, or even affect the attitude of the consuming market toward some products, that earlier prospects will be completely upset. Marked variations in quality or grade and conditions affecting the rate of harvesting and marketing of the various crops are elements the influence of which can not be foreseen.

In general, it does not seem likely that the competition of supplies from various producing areas will be less in 1932 than in 1931 and for some parts of the marketing season it may be materially increased. In 1931, yields per acre averaged somewhat lower than usual for most of the vegetables, yet rather more-than-the-usual quantities were left unharvested because of market conditions. As usual, surplus production was most serious for vegetable crops planted on a largely increased acreage or for which the yields per acre were unusually heavy; in general, overproduction was most in evidence in areas at some distance from consuming markets. The commodities which were most seriously in excess of market requirements in 1931 were early beets, cucumbers, and onions, and early and midseason cabbage, carrots, and watermelons. Prospects for 1932 are affected by the lower level of food prices now prevailing and by the increased attention being given to home gardening both around urban areas and on farms. The demand for certain vegetables and vegetable fruits, furthermore, may not be quite so great as in 1930 and 1931 when it appears to

have been increased by the abnormally hot weather during part of the consuming period.

Reasonable diversification of vegetable crops and production at lower unit cost, which are important considerations in any season, will be especially important in 1932. Under present conditions, growers located nearest to the markets have greater advantage than usual. With food prices lower and freight rates relatively high, the margin between market prices and shipping costs has been materially decreased. This greatly reduces the distance that the lower quality or the lower priced vegetables can be shipped. With cheaper labor and other reduced expenses, cost of truck transportation of vegetables has decreased more than freight rates which gives greater advantage to areas within trucking distance of their market and is causing shifts between producing areas.

For the first time since 1925, there was a slowing-up in the acreage expansion of commercial shipping vegetables in 1931. In the four years from 1926 to 1929, the commercial acreage of 20 truck crops (not including early potatoes and strawberries) has shown successive annual increases ranging from 5 to 9 per cent. In 1930, there occurred an unusually sharp increase of 12 per cent, but in 1931 the increase amounted to less than 3 per cent.

In 1931, the value per acre of the 20 truck crops combined, fell 17 per cent below the 1930 value, which in turn was 20 per cent lower than that of 1929. Although these reductions were sharp, amounting to a total of 34 per cent in two years, the general field crops have shown a much more serious decline in acre value during the same period, averaging 50 per cent. The nearest approach to this great decline in the major vegetables occurs in cabbage, with a 51 per cent reduction; tomatoes with 49 per cent; watermelons, 44 per cent; and lettuce, 43 per cent. In comparison, potatoes show a 2-year decline of 66 per cent in acre value; dry beans, 60 per cent; cotton, 55 per cent; tobacco, 46 per cent; and peanuts, 44 per cent.

The generally lower prices received by growers in 1931 are undoubtedly causing growers to plant more moderate acreages for the 1932 season. On the early season acreage of 15 of the crops, growers' reports on actual or intended plantings indicate that the 1932 acreage has been or will be decreased about 2 per cent. In 1931, the early crops represented in these reports had nearly one-fourth of the estimated United States acreage of the 20 commercial truck crops. Among the early crops for 1932, important increases are shown for asparagus, beans, cauliflower, onions, and spinach; the major decreases are reported in cabbage, cucumbers, lettuce, and tomatoes.

WINTER VEGETABLES FROM CUBA AND MEXICO

Winter vegetables, such as tomatoes, green peas, peppers, and eggplant, have continued to come into the United States from Mexico and Cuba in about the usual volume the past few seasons. There have been some shifts among the commodities, with green peas, for example, assuming relatively more importance in the imports from Mexico. Such declines as have taken place in shipments in the last season or two can probably be attributed largely to the depressed market conditions in the United States. Because of the increased tariff, shippers of vegetables into the United States markets are apparently paying more attention to quality.

Plantings of early vegetables in Mexico for 1931–32 were apparently somewhat less than in 1930–31, but the acreage in Cuba was about the same. On the Mexican west coast a cold wave in January is reported to have caused considerable damage to the growing vegetables. Shipments of vegetables from these countries to the United States thus far this season (1931–32) have been running considerably behind those of last season, largely because of the lateness of plantings in Mexico and the replantings that were necessitated in Cuba as a result of damaging rains in November.

CANNING VEGETABLE CROPS

The acreage of nine vegetable crops grown for commercial canning or manufacture, following heavy annual increases of 16 per cent or more in each of the three seasons from 1928 to 1930, was reduced by 19 per cent in 1931. The canning crops did not show so great a reduction in acre value as the shipping vegetables in 1930, but declined nearly one-fourth in 1931,

with a total decline of 30 per cent since 1929. For every one of the canning vegetables except sweet corn, the 1931 production was below that of 1930. The gross tonnage of the nine crops was 27 per cent less than the exceptional tonnage produced in 1930 and 20 per cent less than in 1929, but about 5 per cent above the 1928 tonnage. Compared with the 1930 production, the greatest reduction occurred in tomatoes with a crop 42 per cent smaller. Decreases for a number of the other important crops were: Peas, 39 per cent; cabbage, 37 per cent; asparagus, 33 per cent; snap beans, 24 per cent; and cucumbers, 22 per cent.

Reports of the United States Department of Commerce on the 1931 pack of several important products indicate reductions of 44 per cent in canned tomatoes, 40 per cent in peas, 28 per cent in green beans, and 21 per cent in wax beams, compared with the 1930 pack of these commodities. The pack of canned corn, on the other hand, shows an increase of 24 per cent.

No extensive data are available on the stocks of canned goods upon which to appraise the general situation with respect to present holdings compared with previous years. A recent report issued by the Department of Commerce gives the comparative holdings of a representative group of canners and distributors but only for the two dates, October 1, 1931, and January 1, 1932. The reporting canners indicate a disappearance of October 1 stocks during the last quarter of the year amounting to 27 per cent of corn, 22 per cent of peas, and 19 per cent of green and wax beans. Canned-tomato holdings increased tremendously during the quarter as a new pack has gone into storage since October 1. During the same quarter, distributors' stocks of canned peas declined 17 per cent and green and wax beans 9 per cent, while their stocks of canned tomatoes increased 10 per cent and corn 4 per cent.

CABBAGE

Although the 1931 cabbage acreage was reduced about 2 per cent below the record of 1930, and the production was lower than in either 1929 or 1930, prices averaged about 46 per cent below those of the previous two seasons, dropping to the lowest point on record. The exceptionally low prices were largely a reflection of the restricted buying power of consumers, although heavy market supplies during certain parts of the early season contributed materially to the decline. Principally as a result of the extremely low returns obtained from the crop, decreases are being made in the early and second early acreage for 1932. Further decreases will probably also occur in some of the intermediate and late States.

Production of domestic and Danish types of cabbage in the late States last season amounted to less than 500,000 tons compared with about 615,000 tons in 1930 and a little more than 550,000 in 1929. Acreage had been decreased about 15 per cent, Wisconsin making most of the reduction. The production of domestic-type cabbage, which includes the major portion of the sauerkraut crop, amounted to 236,400 tons, the smallest crop since 1921. Although the crop was 27 per cent smaller than in 1930, prices averaged 11 per cent lower in 1931. The late Danish or storage crop of cabbage, at 261,300 tons, was 10 per cent smaller than the 1930 crop but prices received by growers up to about December 1 were nearly one-fifth lower than the year before.

According to the reports of growers and dealers on January 1, 1932, the holdings of Danish cabbage on that date amounted to 62,242 tons, compared with stocks amounting to 61,126 tons on January 1, 1931. New York had more than its usual proportion of the January stocks owing to the large crop produced and to the light crop in Wisconsin in 1931. Warm weather and the poor quality of much of the cabbage placed in storage in New York is reported to be causing an unusually heavy shrinkage.

The fall crop of cabbage in South Carolina and Norfolk section of Virginia, starts the movement of the new crop each year with marketings usually from November to February. It is only within recent years that the crop began to take on any importance as a part of the movement during the fall and winter months, acreage increases in the fall of 1929 and 1930 more than doubling the production compared with previous years. For the 1932 crop, the plantings last fall were reduced 35 per cent to 650 acres.

The early States (California, Florida, Louisiana, and Texas) reached a record of 40,600 acres in 1931, or 41 per cent larger than the year before. With exceptionally good yields in Florida and Texas, where the principal acreage increases occurred, the production amounted to 247,000 tons. This exceeded

the previous record crop of 198,500 tons in 1929 and was nearly four-fifths larger than the 1930 crop, upon which exceptionally good returns were secured. Prices fell to an extremely low level and nearly one-fourth of the crop was left unharvested. Acreage for 1932 was reduced 14 per cent, but it is still about 12 per cent larger than the average acreage of the previous five years.

In the second-early States (Mississippi, Alabama, Georgia, the Carolinas, and eastern Virginia) acreage was reduced slightly in 1931 but very good yields were obtained. Production from the 13,300 acres in this group in 1931 was 7 per cent above the low production of 1930, but 16 per cent below the average production for the preceding 5 years. Prices to growers were, however, the lowest on record.

A 9 per cent decrease in acreage occurred in the intermediate shipping group which includes most of the other Southern States and Washington, New Mexico, Missouri, Iowa, Illinois, New Jersey, Long Island, and areas in Ohio and Virginia. Yields were larger than in 1930 but production was slightly lower. Prices were at an unusually low level.

LETTUCE

Lettuce acreage, which has increased more than fourfold during the past decade, was again expanded in 1931 but the increase was much less pronounced than has been the case during recent years. Yields were smaller by 7 per cent and production was lower than that of 1930 by 5 per cent but the average value per acre declined 22 per cent. Increases in acreage in the early and the late groups of States more than offset decreases in the second early and intermediate districts and the total 1931 acreage of about 177,000 acres was nearly 3 per cent above the previous record acreage of 1930.

Of the States producing Iceberg-type lettuce, acreage increases in 1931 were most marked in the earliest crop planting in California and Arizona and in the late crop in California, whereas decreases were most noticeable in the second-early districts of Arizona and in the Colorado late acreage. Of the Big Boston-type producing districts, the most pronounced increase occurred in the early acreage in Florida and the late acreage in New York was reduced about 7 per cent from the level of the previous year.

The yield per acre was low in 1931 and, in the early, second-early, and late States, was well below average. The total production of 18,600,000 crates was about 5 per cent below the 1930 production and about 8 per cent below the 1929 production.

Demand for lettuce in 1931 was less than in previous years and prices to growers for the country as a whole averaged about 16 per cent below 1930 prices notwithstanding the reduced crop. Price declines were most marked in the early lettuce-growing districts in Arizona and Florida but prices generally showed a downward tendency in most producing districts.

The early 1932 lettuce acreage (Arizona winter crop, Imperial Valley of California, Florida, and Texas), according to December estimates, is 48,850 acres, representing a decrease of 21 per cent, or about 13,000 acres below the acreage of the previous season. Some decrease is also indicated for the second-early States in recent reports.

TOMATOES

The harvested acreage of tomatoes grown for market in 1931 was the highest on record, with 160,810 acres as compared with the previous high mark of 156,350 acres grown in 1930. Owing to the unfavorable growing conditions in some sections the yield per acre was the lowest in the last 14 years, decreasing from an average of 108 bushels in 1930 to 103 bushels in 1931. This lower yield resulted in a 2 per cent decrease in total production in 1931.

The average price received by growers was the lowest in years, averaging about one-third less, for the country as a whole, than the average price received in 1930. The 1931 yields were noticeably reduced by unfavorable growing conditions; otherwise marketing difficulties might have been even greater. The business depression, which was reflected in lower commodity prices and restricted purchasing power, was the largest factor contributing to the low prices received for the crop. The total estimated farm value of tomatoes grown for market in the second-early, intermediate, and late States together, decreased from about $15,800,000 in 1930 to $12,700,000 in 1931.

Total car-lot shipments of fresh tomatoes during 1931, exclusive of the movement by truck, amounted to 27,591 carloads as compared with the previous 1930 record of 34,050 carloads, or a decrease of about 19 per cent. In the heavier producing States of California, Florida, Mississippi, Tennessee, Indiana, and New Jersey, shipments were decreased sharply. Texas and Ohio showed increases, Texas alone shipping 8,772 cars in 1931 as compared with 7,538 in 1930.

The fall-crop acreage in Florida and southern Texas for the 1932 season was reduced about 50 per cent from that harvested the previous season. The acreage of the late-winter crop in the South Florida district is reported to have been decreased about 25 per cent this year. The crop has been favored by very good weather conditions.

In the other early sections of Florida, which usually begin shipping the latter part of April, the acreage was reduced from 19,000 acres in 1930 to 15,400 in 1931. Plantings in the lower valley of Texas were increased slightly in 1931 to 10,300 acres and in the Imperial Valley of California to 1,600 acres. Total production in these three areas was 2,149,000 bushels, or bout equal to the average of the two previous seasons. The Florida and Texas crops were retarded by the cool spring, and the active shipping season was delayed until the latter part of May, resulting in greater overlapping with movement from the second-early States. Prices to growers in this early group averaged less than one-half of the prices received in 1930.

Acreage in the second-early group, comprising the States of Georgia, Louisiana, Mississippi, South Carolina, and parts of Texas other than the lower valley, continued upward to 1931, to 39,050 acres compared with 34,130 in 1930. East Texas increased its acreage from 12,400 acres in 1929 to 19,500 in 1930, and to 25,000 in 1931. The Mississippi plantings also increased slightly to 9,600 acres but light yields resulted in rather a short crop for that State. Acreage decreases occurred in Georgia and South Carolina. Total production for this group was slightly less than the record crop of 1930, but prices averaged 20 per cent lower than the low level of the previous year.

In the intermediate States comprising Arkansas, Tennessee, Missouri, Virginia, Maryland, New Jersey, North Carolina, parts of California and Ohio, and one county in Illinois, the 1931 acreage was increased to 39,120 acres, or 10 per cent more than the large acreage of the previous year. Yields were rather light but production almost equaled the previous record crop of 1929, and prices were the lowest in years.

In the late States—Colorado, Delaware, Indiana, Iowa, Kentucky, Michigan, New York, Oregon, Pennsylvania, Utah, Washington, northern California, and parts of Illinois and Ohio—the 1931 acreage of 31,670 acres was slightly larger than the previous high acreage of 1930. With lower yields, production amounted to about 4,000,000 bushels, or practically the same as in 1930. A sharp decrease in production in the northern district of California was offset by increases in several other States. The average farm price for this group was about 13 per cent lower than the 1930 average, only California and Oregon showing higher prices than in 1930.

The late fall acreage in the southern district of California was reduced from 10,500 acres in 1930 to 8,500 in 1931. With lower yields, production was decreased about 36 per cent, and the price to growers was about 37 per cent greater than in 1930.

The estimated production of tomatoes for manufacture for the 1931 season was 1,014,600 tons, compared with 1,745,600 tons in 1930 and with an average of 1,300,000 tons the previous five years. The light production in 1931 was brought about by a 29 per cent reduction in acreage from the peak acreage of 1930 and by the lowest average yield per acre in 14 seasons. The pack of canned tomatoes in 1931, as reported by the United States Department of Commerce, was 9,573,025 cases of No. 3 cans, compared with 16,997,799 cases in 1930, when the pack was the second-largest on record. No data are available on the pack of other tomato products, such as juice, paste, pulp, puree, catsup, soups, sauces, etc. Reports from canners during the last two seasons have indicated that nearly half of the total tonnage of tomatoes for manufacture was used for tomato products other than canned whole tomatoes.

Notwithstanding the fact that a large portion of total production is always utilized in these other tomato products, a close relationship has existed in past years between the total estimated production of tomatoes for manufacture and the size of the pack of canned tomatoes. According to this relationship, an average yield per acre (4.22 tons for the 5-year period 1926 to 1930)

on the 1931 acreage would normally have resulted in a pack of canned tomatoes of approximately 12,000,000 cases. The average pack for the five years preceding 1931 was about 12,455,000 cases. Should no change be made in the 1932 acreage of tomatoes for manufacture, and should average yield per acre be obtained on this acreage, the pack of canned tomatoes in 1932 would probably be near this average pack. The small production in 1931 has placed canners in a more favorable position to dispose of their surplus stocks held over from previous seasons. With the possibility of increased yields and the fact that more open-market tomatoes may find their way into the canneries in 1932, excessive plantings in 1932 could easily reverse this situation.

No definite data are available on total stocks of canned tomatoes on hand January 1, 1932. A quarterly summary of the holdings of a certain number of representative canners and distributors was begun on July 1, 1931, by the Foodstuffs Division of the United States Department of Commerce, with the purpose of showing the trend of disappearance by a quarterly comparison of the holdings of identical firms. A report by that department shows that 280 representative canners held a total of 3,765,000 cases of old and new crop tomatoes on January 1, 1932, and 1,572,000 cases of old-crop tomatoes on October 1, 1931, the increase being due to the inclusion of the new pack in the January 1, 1932, holdings. The holdings of 513 distributors consisted of 1,550,000 cases on January 1, 1932, compared with 1,407,000 cases on October 1, 1931. The usefulness of this type of report will not be fully established until a more complete series of quarterly reports has been compiled.

ONIONS

On a harvested acreage 8 per cent below that of 1930, the total production of onions (early, intermediate, and late crops) in 1931 was 27.5 per cent below the peak production of 1930. The average yield per acre was the lowest on record because of unfavorable growing conditions for the late crop. Up to December 1, 1931, the average price received by growers was 79 cents per bushel, compared with a seasonal average price of 51 cents per bushel in 1930. For the crop in 1928, which was 9 per cent larger than that of 1931, the average price to growers was $1.19 per bushel.

In the early Bermuda and Creole onion States—California, Louisiana, and Texas—which in 1931 produced 21 per cent of the total onion crop, the acreage now planted for harvest in 1932 is estimated at 24,050 acres, or an increase of 23 per cent over the 1931 acreage and 14 per cent over the 5-year average for the period 1926 to 1930. Of this total, Texas has about 21,000 acres of which more than half is planted on dry-land areas. Much of the dry-land planting is late and the January condition of the crop, although good, will not determine the final outcome. The average yield per acre will depend more than ever upon rainfall in the dry-land areas. Production of early onions in 1931 was slightly below that of 1930, and prices received by growers averaged 77 cents per bushel compared with 75 cents in 1930 and with $1.06 per bushel for the peak production in 1929. Storage stocks of late onions on January 1, 1932, were only 50 per cent as large as those of a year ago and were the lightest in the last five years. With storage holdings at these exceptionally low levels, the marketing of the first shipments of Bermuda and Creole onions should be somewhat favored.

In the intermediate shipping States—California, Iowa, Kentucky, New Jersey, north Texas, Virginia, and Washington—which market their crop in June and July, production in 1931 was 19 per cent larger than that of 1930, and the average price to growers was 72 cents per bushel compared with 76 cents in 1930. Production of these midseason onions is usually less than 10 per cent of total production, and the marketing season is relatively short. In 1932, growers of this type of onion are faced with the possibility of more direct competition with the Bermuda type, owing to the increased acreage and later plantings in the early producing States. Should average yields per acre be obtained on the Bermuda and Creole onions, it would mean a production of early onions close to the record-high production of 1929. A part of this production would be marketed in competition with the intermediate crop.

The acreage of late onions in 1931 was nearly 13 per cent below the peak acreage of 1930, and was 6 per cent below the 5-year average for the period 1926 to 1930. Long periods of extremely hot weather during the growing season, together with unusually heavy thrip infestations in the

Northern States, resulted in the lowest average yield per acre on record. Production declined from the high record of 20,032,000 bushels in 1930 to 12,605,000 bushels in 1931. The average price received by growers to December 1, 1931, was 80 cents per bushel compared with the record low price of 43 cents per bushel in 1930. In 1928, when the crop was only 3 per cent larger than that of 1931, the average seasonal price to growers was $1.35 per bushel. The following season, or in 1929, the late States as a group made a sharp increase in the acreage, amounting to 15 per cent. The Colorado acreage was nearly doubled, and California, New York, and Michigan made pronounced increases. The late-crop yield per acre in 1929 was about average and, as a result of the large crop, prices were less than half those of the 1928 season.

With the growers and local dealers holding less than 3,000,000 bushels of late onions in storage on January 1 this year, compared with nearly 6,000,000 bushels the year before, the marketing situation for the remainder of the late shipping season is relatively favorable. In planning their acreage for 1932, growers of onions in the late producing States should bear in mind that the decrease in acreage in 1931 was only 6 per cent below the 5-year average and, had average yields per acre been obtained, production would have been one-fourth larger than the crop actually harvested. A significant feature about the 1931 crop is that the estimated farm value of the 12,605,000-bushel production is $10,126,000 compared with $8,697,000 for a production of 20,032,000 bushels in 1930.

CITRUS FRUITS

The combined production of oranges and grapefruit has increased tenfold during the last 40 years and has been increasing at an average rate of about 6 per cent per year during the last 10 years. By the fall of 1931 the total number of trees in orange and grapefruit groves was twice as large as it was in 1920. Although about 69 per cent of the trees reported by the 1930 census were listed as of "bearing age," many are still too small to produce fruit in paying quantities and only about one-third are 15 years old or older—the age at which they have reached or are approaching full production. Both in Texas and Florida plantings in the winter of 1930–31 showed some decrease from the heavy plantings of 1928. Allowing for the continued plantings in Arizona, the total area set was apparently about 20,000 acres in both 1930 and 1931. Many of these recent plantings have been made in relatively new areas in which there is little information on which to base estimates of probable production from present groves when their young trees shall have reached 15 or 20 years of age, and all calculations may be upset by freezes or other adverse conditions, but production from the groves already in bearing has increased to a point where it exceeded 54,559,000 boxes of oranges and 18,690,000 boxes of grapefruit in even a moderately favorable season like that beginning in the fall of 1930. The exceptionally low prices received by growers that season and again in the current season show the difficulties to be faced in marketing the rapidly increasing production.

ORANGES

In the country as a whole there are about 537,000 acres of orange groves, excluding groves now being set. Slightly more than four-fifths of the trees will be 5 years old or older by April, 1932, or are nominally of bearing age, but only two-fifths are as much as 15 years old.

The Florida statistics are conflicting, but judging from the records of orange, tangerine, and Satsuma trees in groves and on urban properties, as collected in connection with the fruit-fly eradication work, supplemented by allowances for recent plantings and for the areas not surveyed, the present area in orange trees in Florida is probably somewhere around 265,000 acres. Roughly, slightly more than one-fifth of the Florida orange trees are less than 5 years old, nearly three-fifths are 5 to 15 years old and are therefore of bearing age, but not in full bearing, and one-fifth are at least 15 years old and have reached or are approaching full production. The proportion of young trees is apparently sufficient to permit production to continue to increase at an average rate of about 4 per cent per year. Of the 23,000 acres of oranges in Texas, only about half are 5 years old and a negligible proportion is in full bearing. The California orange groves include about 230,000 acres, of which 26,000 acres, or 11 per cent, are classed as not yet of bearing age. According to the 1930 census,

nearly three-fourths of the young trees in California were Valencias, a variety shipped largely during the months when few oranges are being picked in Florida and Texas. In California the production of Washington navel oranges, the variety that competes with southeastern oranges, has probably about reached its peak. Arizona has about 7,000 acres of oranges; about 25 per cent are of bearing age and about 10 per cent are approaching the age of full production. Production is also increasing in Louisiana, Alabama, and Mississippi.

During the last 18 years exports of oranges have averaged about 8 per cent of the United States commercial orange crop. Most of these exports have gone to Canada. With the increase in the orange crop during recent years there has been a decided upward trend in exports. In 1930–31 season (November, 1930, to October, 1931, inclusive) the total orange exports were the second largest on record, amounting to 4,936,000 boxes, of which Canada took 3,137,000 boxes and the United Kingdom 1,136,000. An interesting development was the large increase during the season in imports by continental European countries, mainly Germany, Netherlands, Sweden, and Norway. These imports amounted to 462,000 boxes against 213,000 in 1928–29, which was the largest previous year. Oranges are exported to Canada the year round, with December and March the months of heaviest movement. Exports to European countries occur mainly during the summer orange season (May to October) and consist mostly of California Valencias. The large and growing competition from countries in the Mediterranean Basin makes winter exports in quantity unprofitable. The present crop that is being harvested in the important Mediterranean Basin countries, Spain and Palestine, is a large one. The plentiful supplies and the low purchasing power of consumers has resulted in low prices.

In the 1931 summer orange season (May to October) Europe, and particularly the United Kingdom, imported large quantities of oranges, most of which, excluding the late spring shipments from Spain, were supplied by Brazil, South Africa, and the United States. Shipments from South Africa fell somewhat below those of 1930 but those from the United States, although not up to the 1929 level, increased greatly over 1930. Those from Brazil, however, assumed the record proportions of 1,750,000 boxes and actually exceeded for the first time shipments from either South Africa or the United States and thus identified Brazil as the source of the principal future competition during the European summer orange season.

The Canadian tariff of June 2, 1931, which placed a duty equivalent to 75 cents a box on American oranges but left on the free list oranges imported from South Africa, Australia, and Jamaica has stimulated some trial exports from South Africa and Australia to Canada. In the three months, July to September, British South Africa shipped about 12,700 boxes, Australia 18,000, and Jamaica 2,100 boxes. The latter figure is about normal for Jamaica. Exports to Canada from these countries have not assumed any commercial importance, but reports indicate that shippers in both Australia and South Africa intend to try to develop the Canadian market further in the 1932 summer orange season.

GRAPEFRUIT

Grapefruit production has been increasing at an average rate of 7 per cent per year during the last 10 years, and the proportion of young trees is now much larger than it was 10 years ago. The available statistics are conflicting but, excluding plantings since the summer of 1931, the area in grapefruit trees in the continental United States is perhaps 193,000 acres. Somewhere around 43 per cent of the trees will be less than 5 years old in the summer of 1932, and only about 17 per cent are as much as 15 years old. Florida now has perhaps 93,000 acres in grapefruit trees, of which perhaps one-third are as much as 15 years old. The California bearing acreage is reported at 12,000 acres, with 3,000 nonbearing. Texas, with an acreage of 72,000, has only 30 per cent of this acreage that will be as much as 5 years old in the spring of 1932. In Arizona the bearing acreage is increasing rapidly. That State now has about 13,000 acres of grapefruit, and only about 30 per cent of the trees are of bearing age. Porto Rico reports 6,120 acres with trees over 6 years old; 1,680 acres with trees 2 to 5 years old; 310 acres with trees 1 to 2 years old; and 200 acres with trees 1 year old.

The upward trend in grapefruit exports was continued in the 1930–31 season (October to September). Total exports amounted to around 7.3 per cent of the crop, or 1,363,000 boxes, of which 855,000 went to the United Kingdom,

426,000 to Canada, and 52,000 to continental Europe. Takings by most countries increased, but the greatest increase occurred in the case of the United Kingdom which country took 273,000 boxes more than in the previous record year of 1928–29. The per capita consumption of grapefruit in most countries is still very low but the trend is strongly upward. The United States and Porto Rico supply most of the grapefruit consumed in foreign countries, but the production and exports of Palestine, the West Indies, Brazil, Argentina, and South Africa are increasing. In 1926 the United Kingdom imported 93,000 boxes of grapefruit from countries other than the United States or Porto Rico. By 1928 these imports amounted to 164,000 boxes and in 1931 they exceeded 375,000 boxes.

In competing in European markets, Porto Rico has a number of distinct advantages over most grapefruit-producing countries. Shipping rates are relatively favorable, production costs are low, and fruit of the desired small sizes can be produced the year around. Commercial grapefruit production in Porto Rico during the 5-year period, 1926–27 to 1930–31, has averaged about 1,010,000 boxes yearly, of which 672,000 boxes have been exported. Grapefruit from Palestine is of high quality and gives promise of offering some of the strongest competition for American fruit in export markets. Exports increased from 2,000 boxes in 1927–28 to 57,000 boxes in 1930–31, and if the present rate of export is maintained in the present season, the total may reach 100,000 boxes. No large expansion of grapefruit production is expected in South Africa. Exports during the last three seasons have averaged 100,000 boxes a year, most of which went to the United Kingdom. Some increase in production has occurred in the British West Indies, especially Jamaica. Exports in 1930–31 amounted to 95,000 boxes or a little less than last season. Exports from the Isle of Pines in 1930–31 totalled to 235,000 boxes, an increase of 15,000 from the previous year, but still 34,000 boxes short of the pre-hurricane exports in 1926–27. The grapefruit industry in Brazil and Argentina is receiving a great deal of attention and may be expected to be of importance in a few years.

Grapefruit exports from the United States in the first two months of the present season (1931–32), have been maintained at approximately the same level as last season but the smaller grapefruit crop, coupled with the unfavorable demand conditions in Europe, suggest that total exports are not likely to be as large as were those of last year.

LEMONS

The United States lemon acreage, which is located almost entirely in California, has not changed much since 1921, although the abnormally hot weather during the summers of both 1930 and 1931 greatly increased the demand for lemons, and stimulated plantings. Production has averaged during the 5-year period, 1926–27 to 1930–31, about 7,092,000 boxes a year, of which around 250,000 boxes have been exported. Practically all the exports go to Canada. United States imports from Italy are heaviest during the spring and summer, and average around 900,000 boxes a year. Italy is the world's largest producer of lemons, followed by the United States and Spain. In both Italy and Spain, the industry is practically stationary, as the trees are mostly all in bearing and no new plantings of importance have been reported. The Italian industry has suffered from lack of markets and low prices in the last few years and is receiving serious attention from the Government. Efforts are being made to improve the pack and to regulate shipments. In years of small California crops, substantial imports from Italy may be expected.

APPLES

The general apple situation is such that, in seasons of favorable weather, heavy supplies of the commercial crop may be expected to continue, assuming that orchards will be given average care and that plantings will be at about the average rate of recent years. Efforts of European countries to expand and to modernize their fruit industries, and the expected continuation of increasing supplies of fruits that compete with apples, suggest the continuation of difficulties in marketing large apple crops. In the past, apple growers have incurred heavy losses by setting new trees on poor locations, or by the selection of unprofitable varieties. It is as important to-day as ever before that new plantings be confined to suitable varieties and to soils and sites that are

likely to produce a crop in years of generally light production as well as in years of heavy production.

A tree survey of commercial orchards for 41 States showed that in 1928 the 10 most important apple varieties, in terms of number of trees, in order of importance were Delicious, Winesap, Jonathan, Baldwin, Stayman Winsesap, Ben Davis, Rome Beauty, York Imperial, McIntosh, and Grimes Golden. These 10 varieties constituted about 60 per cent of the total trees in commercial orchards. Plantings of Delicious trees, 73 per cent of which were under 14 years of age in 1928, point to increasing supplies of this variety for several years. Production of the McIntosh and the Stayman Winesap varieties is expected to increase, since 60 per cent of these varieties were under 14 years old in 1928. Another group of varieties in which there are prospects for increased production is composed of Winesap, Jonathan, and Grimes Golden. In 1928, 43 per cent of the trees of these three varieties were under 14 years of age. Ben Davis plantings have declined for several years. Only moderate plantings of Baldwin, Rome Beauty, York Imperial, and the many less important varieties have been made during the last 10 years.

From 1910 to 1930 economic factors have been forcing an adjustment of the apple industry. During this period the number of apple trees declined about 101,000,000 or 46 per cent. The removal of these trees has gone far toward correcting the situation caused by overplanting 25 years ago and has done much toward placing the industry on a sounder economic basis. In spite of these removals, however, production has averaged only 3 per cent less for the period 1928–1931, than for the period 1908–1912, and about 13 per cent less than for the high period, 1913–1917. These smaller declines in the production as compared with tree numbers were due to the shift that has taken place from the farm to commercial orchards with better locations, better care of these orchards, and the increasing bearing capacity of many trees as they approached or reached full bearing age. This trend is manifest in the average yield per tree which increased from 1.2 bushels per bearing tree in the period 1908–1912, to an average of 1.9 bushels during the period 1928–1931. Commercial production increased until a peak of 39,000,000 barrels was reached in the very favorable growing season of 1926. Since 1926 it has averaged somewhat higher than for the five years previous to 1926, and the 1931 commercial crop was the fourth largest on record.

Important adjustments that have taken place in tree numbers are indicated by data from the Bureau of the Census. Although the total number of apple trees in 1930 was 46 per cent less than in 1910, the number not of bearing age was 58 per cent less, and the number of bearing age 41 per cent less. During the period 1920 to 1925, plantings were at a somewhat higher rate than from 1910 to 1920 or 1925 to 1930, and consisted of some of the more popular and more profitable varieties.

According to data available, the production of oranges, grapefruit, peaches, pears, and grapes, together with the imports of bananas, increased 58 per cent from 4,933,000 tons in 1919 to 7,770,000 tons in 1931. The Hawaiian pineapple pack nearly doubled from 1924 to 1930, and for the latter year amounted to 12,672,000 cases. These tremendous increases in competing fruits have undoubtedly added to the difficulty of disposing of large apple crops.

In the following discussion yield figures were obtained by dividing average annual production for each period indicated by the number of bearing trees reported for the census year included in the period.

From 1908–1912 to 1928–1931 average production in the three Pacific Coast States increased nearly 300 per cent, although numbers of trees decreased 28 per cent as the result of removal of trees from poor locations and a thinning-out process. This tremendous increase in production in the face of decreasing tree numbers was caused chiefly by a steady increase in yield per bearing tree from an average of 1.6 bushels during 1908–1912 to 5 bushels during 1928–1931. Washington produces two-thirds of the apples grown in these three States. Tree numbers in Washington have declined 22 per cent since 1910; but yield per bearing tree has increased from 1.5 bushels for the period 1908–1912 to 6.4 bushels for the period 1928–1931.

For some years the increases in production have been at a lower rate, and production during the last four seasons averaged 12 per cent greater than during the previous five years. Although only 14 per cent of the trees in these three States are yet to come into bearing, it is believed that the potential bearing capacity of the orchards is being maintained by resets and by increase in age of trees. As shown by the survey, in 1928 about 33 per cent of the trees that

were under 14 years of age were Delicious; 19 per cent were Winesap; 8 per cent, Rome Beauty; 6 per cent, Yellow Newtown; and 4 per cent, Jonathan. In California the Gravenstein is prominent. Plantings in the Pacific Coast States the last few years have been light and confined largely to Delicious and Winesap.

In the eight Mountain States production increased 68 per cent on the average from 1908–1912 to 1918–1922. During the next 5-year period it increased slightly and then declined somewhat. Idaho, the principal producing State in this group, and Wyoming and New Mexico, are producing more apples than formerly, but production in Colorado, Utah, Montana, Arizona, and Nevada has declined. Numbers of trees decreased 64 per cent from 1910 to 1930; but yields increased from 1.2 bushels per bearing tree during 1908–1912 to 2.6 bushels in 1928–1931.

In 1930 only 11 per cent of the trees were not of bearing age. Plantings have been light during late years. During the last four seasons these eight States produced less than 6 per cent of total production, and over a period of years they are not expected to exert any great influence on changes in production for the country as a whole.

The principal varieties planted, in order of number of trees, are Jonathan, Rome Beauty, McIntosh, Delicious, and Winesap. Recent plantings have been confined largely to Delicious, Jonathan, and Rome Beauty.

During the last four seasons the South Central States produced only slightly more than one-half (55 per cent) of the quantity of apples they produced 20 years earlier. Between 1910 and 1930 the number of trees was reduced by 23,121,000, or 63 per cent. Although this decrease was going on, yields increased from 0.7 bushel per bearing tree in 1908–1912 to 1.1 bushels in 1928–1931.

This group of States now has more apple trees than does the Pacific coast group, but produces only about one-fifth as many apples. Only about one-fifth of the crop in the South Central States is classed as commercial. The region is subject to weather hazards and to severe damage from diseases and insects. For decades farmers in parts of the region have been setting out apple trees and then neglecting and removing them as they failed to produce well, or as strong competition was encountered from other growing regions. During the last 10 years many old orchards have been cut down, and in the region as a whole, considerable planting of the more popular varieties has occurred. According to the tree survey, in 1928 nearly 50 per cent of the trees in commercial orchards of the region were under 9 years of age, and according to the 1930 census 33 per cent of all apple trees in the region were yet to come into bearing. In order of number of trees, the Delicious is the most important variety planted in late years, although Winesap, Jonathan, and Stayman Winesap represent a relatively large proportion of the young trees. It is believed that the newer orchards of the region are more favorably located than many of the earlier plantings, and that the past rate of tree mortality may be reduced. If this should happen, some increase in production may be expected over a period of years.

The North Central States contain about 31 per cent of the total number of apple trees in the United States, and produce 18 to 20 per cent of the apples. From 1910 to 1930, the number of trees decreased 58 per cent and production decreased 41 per cent. Yield per bearing tree increased from an average of 0.8 bushel in the years 1908–1912 to 1.2 bushels for the last four years, 1928–1931.

A large part of the decrease in tree numbers came in the first half of the period 1910–1930, and many of the orchards now remaining are well supplied with young trees, many of which were planted during the last 10 years. According to census figures, about 29 per cent of the trees in these States had not yet reached bearing age in 1930. In some districts of this region, particularly southern Ohio, reports indicate that a considerable number of trees died from the effects of the 1930 drought, but this loss will have little effect on production as a whole.

Tree numbers have declined less in Ohio, Michigan, and Wisconsin than in the other States of the region, while in Iowa, Missouri, Nebraska, and Kansas the percentage decrease was most severe. Apparently there are enough young trees to maintain, and possibly increase, commercial production, if well cared for. The principal varieties planted in the last few years are Jonathan and Delicious. The trees under 9 years old in 1928, were composed largely of Delicious, Jonathan, Winesap, Stayman Winesap, Grimes Golden, Yellow Transparent, and Rome Beauty.

The Atlantic States include West Virginia and all Atlantic Coast States from New York to Florida. These States produce about 38 per cent of the apple crop. From 1910 to 1930, all trees declined 21 per cent in number, but trees not of bearing age decreased 46 per cent.

It is probable, however, that much of the decrease in total tree numbers occurred in farm orchards and poorly located commercial orchards. Improved practices of orchard management are being increased in some important apple sections, and any further decline in production should be gradual and probably less severe than tree removals and recent light plantings would indicate. Yields per bearing tree averaged about 1.8 bushels during 1908–1912 and in 1928–1931 were approximately the same. In late years both production and yields per tree have decreased in New York and Pennsylvania, and have increased in New Jersey, Delaware, Maryland, Virginia, and West Virginia. In 1928, trees under 19 years of age in these seven States varied in the individual States from 55 to 77 per cent of all trees, according to the tree survey of commercial orchards. Reports from the Cumberland-Shenandoah district indicate that tree losses from the 1930 drought are not as severe as was anticipated, probably not over 5 per cent.

This survey also showed that a large proportion of trees under 14 years of age in the States south of New York were of the following varieties, listed in order of number of trees: Stayman Winesap, Delicious, Winesap, Rome Beauty, York Imperial, and Grimes Golden. In New York the younger trees are of the McIntosh, Delicious, and Wealthy varieties. Relatively small percentages of Baldwin, Rhode Island Greening, and Northern Spy have been planted in recent years. Early varieties are prominent in Delaware and New Jersey.

From 1910 to 1930, the number of trees in the New England States decreased 36 per cent. Yields per bearing tree remained about the same at 1.6 bushels during the periods 1908–1912 and 1928–1931, and production fell off 39 per cent. The removal of many farm and old orchards probably accounts for a very large part of the reductions in tree numbers and in production. In 1930, 27 per cent of the trees were not of bearing age, and the percentage of trees not of bearing age was greater than in any of the previous three census years. Decline in production has slowed up in late years, and probably will not continue much further, if the orchards are well cared for.

The most important varieties in order of number of commercial trees in the region are: Baldwin, McIntosh, Ben Davis, Wealthy, Delicious, Northern Spy, Gravenstein, and Rhode Island Greening. In 1928, according to the tree survey, some plantings were being made of each of these varieties, particularly of the McIntosh, Baldwin, and Delicious. Plantings of Ben Davis and Rhode Island Greening were especially light.

In the last five seasons (1926–27 to 1930–31) apple exports from the United States have averaged one-sixth of the total commercial crop. About one-seventh of the commercial barreled apple crop and one-fifth of the commercial boxed crop were exported during this period. Despite a larger apple crop in this country, this season (1931–32) apple exports are running somewhat behind those of last season, which were the third largest of record. This decline in exports has been due to increased competition from large continental European apple crops this season and extremely unfavorable economic conditions including unfavorable exchange rates in our most important foreign markets.

It becomes increasingly apparent that more attention should be given to market demands as to grade and quality in our foreign markets. In the present (1931–32) season great improvement has been shown in the quality of barreled apples received in European markets from Nova Scotia, the principal competitor in the American barreled apple trade on the British market. The Buy-British-Goods campaign is also tending to increase the competition of Canadian apples. Certain varieties of Canadian apples have sold this year for the first time at prices equal to or above similar varieties from the United States.

In the 1930–31 season France became, for the first time, a fairly important outlet for American apples. But the French market was overloaded with low-quality and poor-condition fruit, with the result that returns have been much below what might reasonably have been expected. The French market is probably the most discriminating in Europe. Only the best apples, well-colored, in sizes ranging from 2½ inches up, can be sold to advantage in that country.

From a long-time point of view there appears to be a definitely upward trend in the consumption of fruit in European countries. The extent to which this will be reflected, in larger takings of American apples, will depend to a consider-

able extent upon the competition of European-grown supplies. Apples are produced in practically all European countries. Serious efforts are being made in many of these countries to put their fruit industries on a more modern basis. Progress in this direction is being made, particularly in Netherlands, Switzerland, northern Italy, and parts of Germany. In these countries new plantings are being made with proper spacing and proper distribution of varieties, and production and marketing methods are being improved. Although some of the most important surplus apple-producing countries of central and southeastern Europe still show no evidence of significant improvement in the apple industry, it is clear that on the whole more competition, especially from the point of view of quality, may be expected.

PEACHES

A combination of favorable conditions in 1931 for peach production over most of the country resulted in probably the largest United States crop of peaches ever produced. This unusually large crop occurring in a year of depressed business conditions resulted in the lowest average price since the beginning of the Bureau of Agricultural Economics price record in 1918. Notwithstanding the low returns in 1931 the outlook is for some improvement in the peach industry as a whole. In the South the planting of peach trees in commercial orchards in recent years has apparently not been sufficient to maintain the present number of bearing trees. In California the production of clingstone varieties appears to have reached a peak for the present cycle and for freestone varieties the production trend is slightly downward. In the other peach-growing areas as a whole no large change in the number of bearing trees is indicated, although in some of the Rocky Mountain States the trend is upward and in some of the North Atlantic States it is downward.

Judging from surveys and other available information the annual plantings of peach trees in commercial orchards in the South during the last four years have averaged less than 5 per cent of the number of trees now in commercial orchards. Assuming the average length of life of southern peach trees to be 13 to 15 years, this rate of planting is not sufficient to maintain the present number of trees.

The 1931 peach crop in 11 Southern States (North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Tennessee, Arkansas, Oklahoma, and Texas) was among the largest on record. The crop-condition figure for Georgia in 1931 expressed in percentage of a full crop was 91 compared with 58 in 1930 and a 10-year average of 70. The figures for other important southern peach States show similar comparisons. The extremely heavy production was due to the combination of a number of factors. The trees were in good condition following the light crop of 1930, and there was little, if any, damage from winter freezes or spring frosts. Weather conditions at pollination time and during the growing season were generally good, and there was very little damage from insects and disease. About two-thirds of the southern peach trees are now at an age at which they are capable of bearing heavy crops. This occurrence of such generally favorable conditions of production is unusual.

Although the 1931 production in the South was at a high figure, car-lot shipments from 11 Southern States of about 23,000 cars were exceeded both in 1926 and 1928. Even including the quantity marketed by truck, the commercial movement in 1926 and 1928 was apparently greater than in 1931. Considerable fruit was not shipped in 1931 because of unsatisfactory market conditions. In 1931 the average farm price of peaches in seven important Southern States was 60 cents per bushel. In the eight years prior to 1931 the average farm prices ranged from 92 cents in 1926 to $1.71 in 1923. Under better business conditions in the consuming markets than prevailed in 1931, it has therefore been possible in some years to market larger quantities of southern peaches at higher prices.

Commercial-peach-tree surveys made by the United States Department of Agriculture, in some instances in cooperation with State agencies, in 1929, included five leading Southern States—Georgia, North Carolina, South Carolina, Tennessee, and Arkansas. A supplementary survey was made in Georgia in 1930. In 1931, 98 per cent of the car-lot peach movement from the South originated in these States, which largely supply the fresh-peach markets up until the first part of August. Eighteen per cent of the trees reported in the 1929 survey in commercial orchards in the five States were under 5 years old; 65 per cent were 5 to 9 years old; 14 per cent were 10 to 14 years old; and 3 per cent

were over 14 years. About two-thirds of the trees were near the age of greatest potential productivity. Plantings in 1930 and 1931 in most Southern States were not large.

Census figures for the 11 southern peach States, which include both commercial and farm orchards, show that the total number of peach trees in 1930 was 31,878,586, which is only 83 per cent of the total number in these States in 1925. The number of trees listed in the census as not of bearing age in 1930 was 23 per cent of the total number of trees in these States.

The 1930 survey showed that in Georgia, which has produced 38 per cent of the crop in 11 Southern States during the last four years, 16 per cent of the trees in commercial orchards were less than 5 years old in the fall of 1930; 60 per cent were from 5 to 9 years; 20 per cent were from 10 to 14 years; and 4 per cent were more than 14 years old. The 1930 census indicates that only 14 per cent of the total peach trees in Georgia were not of bearing age and that the total number of trees was only 62 per cent of the number in 1925. The situation in the leading southern peach State is, therefore, that more than four-fifths of the trees are of bearing age and the number of trees not of bearing age is considerably less than would be necessary to maintain the present number of bearing trees. The census indicates that Georgia had 9 per cent less bearing trees in 1930 than in 1920. The phony peach disease has apparently been reduced through control work to a point at which its effect on production is very limited. It has been found in most of the other Southern States.

Some of the early and midseason varieties have been planted rather heavily in south Georgia. The early varieties from south Georgia are the first peaches to reach the market. Good prices have frequently been received for limited quantities of the earliest varieties, but the demand for them is restricted and the markets are easily oversupplied.

In North Carolina 79 per cent of the trees in commercial orchards were 5 to 9 years of age in 1929 and 11 per cent were under 5 years old. In South Carolina 67 per cent of the trees in commercial orchards were 5 to 9 years old and 25 per cent were under 5 years. In Tennessee 75 per cent of the commercial trees were from 5 to 9 years old and 14 per cent were under 5 years, according to the survey; while in Arkansas, in which a larger percentage of the commercial trees were young than in the other Southern States, only 52 per cent were 5 to 9 years old and 36 per cent were under 5 years in 1929.

In the North Atlantic States there has been a decline in the number of peach trees during recent years. The 1930 census shows for this group of States only 83 per cent of the number of peach trees included in the 1925 census, and that 29 per cent of the trees in 1930 were not of bearing age. In New Jersey a survey in 1930 in cooperation with the New Jersey Department of Agriculture indicated that only 9 per cent of the trees in commercial orchards were under 4 years old, and that 40 per cent were more than 9 years old.

In the group consisting of Delaware, Maryland, Virginia, and West Virginia, there has been a slight decrease in the number of peach trees in the 5-year period from 1925–1930 according to the census. The number of trees not of bearing age in this group of States appears to be about sufficient to maintain the present number of bearing trees.

In the North Central States the census figures show a slight decrease in the number of trees from 1925 to 1930 and the number of trees not of bearing age in 1930 for the group as a whole does not indicate any pronounced change in production from the average of recent years. In Illinois, the principal peach-producing State in this region, the 1931 crop apparently marked the peak of production for the present cycle. Twenty-six per cent of the Illinois trees were reported as not of bearing age in the 1930 census and plantings in 1931 were light.

In some of the Western States there has been an increase in the number of trees since 1925. This is particularly true in Colorado where the number of trees increased 93 per cent from 1925 to 1930. Forty-two per cent of the peach trees in Colorado were reported in the 1930 census as not of bearing age which indicates the probability of a decided increase in production. Increases in the number of trees from 1925 to 1929 also occurred in Utah, Washington, and Oregon according to the census.

In California there was a 10 per cent decline in the number of trees during the period 1925 to 1930 according to the census, and only 14 per cent of the trees were not of bearing age in 1930. The peak of production of clingstone varieties for the present cycle has apparently been reached, although surplus production may continue for several years unless there is a marked reduction in the number

of trees. As was the case in 1930, large quantities of California peaches were not harvested in 1931 because of market conditions. Owing to the light plantings in recent years a slightly downward trend in production of freestone peaches in this State is indicated.

Damage from insect pests was unusually light in 1931 in most commercial peach areas except California. The oriental fruit moth is, however, a continuing menace in the eastern, mid-western, and some southern peach districts. Growers are confronted with serious problems of financing in most sections, but commercial growers generally are reported as making efforts to care for their trees. In some areas there has been a tendency toward expansion of local markets through the use of the motor truck and roadside stands.

CHERRIES

Production of cherries in the 10 more important commercial States (New York, Michigan, Wisconsin, Montana, Idaho, Colorado, Utah, Washington, Oregon, and California) in 1931 amounted to about 95,590 tons, being about 12 per cent smaller than the large crop of 1930 but around 14 per cent larger than the average of the preceding five years. Production in the principal sour-cherry States (New York, Michigan, and Wisconsin) amounted to 45,500 tons in 1931 or about 11 per cent less than the exceptionally large 1930 crop but 22 per cent more than the crop of 1929. In the sweet-cherry States of the Pacific coast, California produced 23,000 tons in 1931, this being nearly a third larger than the 1930 crop and perhaps the largest crop of cherries produced in the history of the State. Owing to low prices, growers abandoned about 3,000 tons of fruit. Washington and Oregon, however, because of adverse weather conditions during the season, lost considerable fruit and production amounted to but 19,000 tons, as compared with about 29,000 tons in 1930 and 24,000 tons in 1929. The proportion of the 1931 crop utilized for maraschino manufacture in these States was considerably larger than in the preceding season.

In spite of the fact that production in the 10 States during 1931 was considerably smaller than during the year preceding, the average seasonal farm price for all cherries combined was about 38 per cent less than that received in 1930. In the three Eastern States producing mainly sour cherries the 1931 average farm price for the season was about 40 per cent below that received for the large 1930 crop and about 48 per cent lower than the price that prevailed for the 1929 crop. The corresponding figures for the Pacific coast States, where sweet cherries predominate, show that the farm price in 1931 was about 43 per cent less than in 1930 and about 61 per cent less than in 1929.

The lower prices prevailing for the 1931 crop were due to a number of factors, the more important being the prevailing depressed business conditions, which not only affected the current prices but made more difficult the moving of the relatively large pack of canned cherries from the 1930 crop and the consequent lesser demand on the part of canners for the raw fruit in 1931.

Bearing trees in the 10 State increased about 9 per cent from 1920 to 1930. The percentage of the total trees not of bearing age in 1920 was about 22 per cent and in 1930 about 39 per cent. In the three Pacific coast States (Washington, Oregon, and California) the increase in bearing trees from 1920 to 1930 amounted to about 36 per cent. In 1920 about 27 per cent of the total trees were not of bearing age; in 1930 the nonbearing trees constituted 37 per cent of the total. In the three important Eastern States (New York, Michigan, and Wisconsin) the number of bearing trees was about the same in 1930 as in 1920, whereas the number of nonbearing trees was around 125 per cent more in 1930 than in 1920. In 1920 about 22 per cent of the total trees in these three States were nonbearing as compared with 39 per cent in 1930.

The expansion in the number of trees has apparently been accompanied by a decline in the number of farms growing cherries, indicating an increase in the average size of orchard. This would tend to indicate that a shift is in process from the general farm orchard to specialized orchards and the abandonment of less favorable locations to more specialized commercial areas. This fact, together with the large proportion of nonbearing trees reported in the 1930 census, would indicate that the upward trend of production in evidence over the last decade can be expected to continue.

If it should happen that the present level of general commodity prices continues over the next few years, it seems likely that the shifts now in evidence will be accentuated and the abandonment of the general farm orchards and those in the commercial areas on less profitable locations will be forced at a more rapid rate than has been in evidence in the past.

GRAPES

The bearing acreage of grapes is still so large as to produce burdensome surpluses in seasons of normal growing conditions, even though total production has been declining during the last three seasons.

CALIFORNIA GRAPES (EUROPEAN TYPES)

In California there has been some reduction in acreage from the peak which was reached in 1927. Some acreage has also been abandoned, but much of this still remains as a potential source of supply. The bearing capacity of the vineyards was estimated in 1931 to be about 13 per cent lower than in 1927. With average growing conditions, however, the total production might still be in excess of that which was harvested in 1930, when approximately 20 per cent of the crop was left on the vines. Insect injury during 1931 may cause some reduction in future yields, but the industry is still faced with the hazard of recurring surpluses.

The small California crop of 1931 was not due to the small change in bearing capacity, but to excessive summer heat, serious insect damage, and a shortage of water, all of which resulted in a yield per acre of approximately 40 per cent below the 10-year average. Total production in the State was estimated at 1,287,000 tons, compared with 2,181,000 tons in 1930 (of which 433,000 tons were not harvested), and 1,827,000 tons produced in 1929. Shipments of fresh grapes from the State amounted to only slightly more than 39,000 carloads in 1931, as compared with 65,000 cars in 1930 and 59,000 in 1929.

TABLE GRAPES

With the greatly reduced supplies in 1931, California grapes packed for table use sold on eastern auctions at higher average prices than in 1930, in contrast to the decline in the general commodity price level. Thompson Seedless (Sultanina) and Red Malaga were in fairly good demand, but white Malaga has been meeting with less demand as table stock and an increasing percentage of this variety has moved into juice channels. Production of Flame Tokay was severely reduced in 1931 by the hot winds and other unfavorable factors, and the light supplies brought comparatively favorable returns in eastern auctions. With normal growing conditions, however, the Tokay crop may be expected to again approach previous production levels.

JUICE GRAPES

The demand for black juice grapes was so poor in 1931 that with about 40 per cent lighter shipments, prices barely equaled those of 1930. There has been some decline in the bearing acreage of the strictly juice varieties during the last three years but this decrease has apparently been offset by the increased productivity of maturing vines, and crops as large as the 486,000 tons produced in 1930 might still be obtained from the present acreage. Such production has proven to be excessive in past seasons. Eastern demand for juice grapes has also decreased during recent years.

Previous to 1927, black juice varieties commanded considerably higher prices than did table grapes in eastern markets, but during the last four seasons their prices have averaged lower than the table stock. Early maturing juice varieties, such as the Zinfandel, have arrived on the markets before the normal seasonal demand has developed, and have brought low returns compared with returns from later shipping varieties. Custom and temperature conditions usually delay the demand for juice grapes until the latter part of the season. It is important that adjustment in production and shipping be brought about to eliminate the depressing effect of these early shipments of juice stock upon later markets.

Because of the relatively stronger demand in 1931 for grapes as table stock and raisins than for juice purposes, relative small quantities of Thompson Seedless and Muscats were shipped as juice stock. Yields per acre of Muscats were more reduced by the extreme summer heat than was true of any variety except Flame Tokay. This fact, together with early maturity, caused growers to dry a larger proportion than usual. The result was the lightest interstate movement of fresh Muscats in 10 years, and eastern auction averages were somewhat higher than in recent seasons.

RAISIN GRAPES

Notwithstanding the larger percentage of the production of raisin varieties dried in 1931, the total tonnage of raisins produced was smaller than in any year since 1921, and prices have been higher than a year earlier. After allowing for such quantities of Thompson Seedless and Muscats as can be marketed for table or juice purposes, the present acreage of raisin varieties is, however, still sufficient to produce in years of normal yield a supply well in excess of domestic demand, and severe competition from foreign raisins is expected to continue in export markets. About 25 per cent of the California raisin shipments during the crop years beginning September 1, 1929 and 1930, were exported to overseas markets.

Production of raisins in Australia, Smyrna, Spain, Greece, and Crete, which averaged only about 85,000 tons during 1921–1923, increased to an average of 142,000 tons annually during the three years 1928–1930, and preliminary estimates for 1931 are about 121,000 tons. Foreign production of currants has also been increasing. The currant output of Greece and Australia increased from an average of 131,000 tons in the years 1921–1923 to 164,000 tons for 1928–1930, with preliminary estimates of about 105,000 tons for 1931. Normal production and exports of raisins and currants from these countries will probably continue to be about as large as in recent years, and some additional competition from Russian and Persian raisin exports to European markets may likewise be expected.

AMERICAN TYPES

In the States east of the Rocky Mountains in which American-type grapes are produced, the combined production in 1931 exceeded that of previous seasons. Michigan produced somewhat less than the record crop of 1930, but New York, Pennsylvania, and Ohio had heavy yields, and returns in these States were unsatisfactory. There is very little new acreage to come into bearing, and no indication of continued increases in production. On the other hand few vineyards have been removed and comparatively few have been neglected or abandoned, consequently there is no immediate prospect of material decreases in production except as yields per acre vary from year to year. Heavy competition from California grapes also continues to be one of the principal factors affecting the marketing of the eastern crop.

STRAWBERRIES

Present indications are that the total commercial strawberry acreage for harvest in 1932 will be about 23 per cent higher than the small harvested acreage of 1931, and only 5 per cent less than the average acreage of the large crops harvested from 1927 to 1929, inclusive.

In both 1928 and 1929 the harvested strawberry acreage exceeded 200,000 acres, and in these years, in some of the important second-early and intermediate-shipping States, prices were barely sufficient to cover the cash outlay for harvesting. Largely because of low prices and the drought, acreage fell from the 1928 peak of about 207,000 acres to about 154,000 acres in 1931. Prices of strawberries in 1930 were, in general, the highest since 1926. These favorable prices stimulated plantings to a point where the indicated 1932 acreage for harvest of 190,540 acres has been surpassed only by the large acreages harvested in the seasons of 1927 to 1929.

Acreage increases are indicated in 1932 for each of the different groups of States but are most marked in the second-early and intermediate States where acreage reductions from 1928 to 1931 were especially large. In the other groups of States the indicated acreage for picking in 1932 will be the highest in years, although not much larger than in 1931.

Plantings for harvest in 1933, except in the early States, will be made during the spring months of 1932, and growers will be largely influenced in their planting operations by the prices received in 1931. Although the 1931 prices were lower than the high prices of 1930, they were still favorable, especially when compared with prices of other farm crops. The relatively favorable position of strawberries in 1931 suggests the probability of further increases in acreages in 1933, especially in the second-early and intermediate States where the indicated 1932 acreage is considerably below the high acreages of 1927–1929. It is in these two groups of States that marketing difficulties have been greatest in years of heavy production.

In the early-shipping States of Florida, Louisiana, Alabama, Mississippi, and Texas, the indicated acreage for harvest in 1932 of 45,730 acres is the highest of record and about 13 per cent above the 1931 acreage. Strawberry acreage in these early States has increased markedly during the last decade. During the first half of this decade prices to growers in the early States were upward, reaching a peak in 1926. Since 1926 the trend has been downward and prices in 1931 averaged 16 per cent less than for the five preceding crops. Although 1931 prices were relatively low, the yield per acre for that season was about 40 per cent above the average for the five preceding years. The crop that year amounted to 76,560,000 quarts and brought the growers $14,643,000, or a 20 per cent larger gross income than the previous high return for the 1928 crop.

In the second-early States of Arkansas, Tennessee, North Carolina, Virginia, South Carolina, and Georgia, the estimated acreage for picking in 1932 is 43,580 acres, which is about 43 per cent larger than the low harvested acreage of 1931. It is, however, about 20 per cent below the average of the three large acreages of 1927–1929. Although increases in acreage for 1932 are indicated in each State of this group, the increase in Arkansas and Tennessee combined is expected to be about 9,800 acres, or 74 per cent of the total increase for this group.

Production in 1931 was 36 per cent less than the average production for the five years preceding 1930. Prices to growers in 1931 averaged 15 per cent less than in 1930 and were about the same as in 1929, but slightly higher than the low prices of 1928.

In the intermediate States of Missouri, Kentucky, Delaware, Maryland, New Jersey, Kansas, Illinois, and Oklahoma, present estimates indicate a total commercial acreage for picking in 1932 of 47,010 acres. This figure exceeds the 1931 acreage by 11,540 acres, or 33 per cent, but is 24 per cent less than the average for the three large acreages harvested during 1927–1929.

Yields in these intermediate States in 1931 were low, being only slightly higher than the low yields of 1930, and only 72 per cent of the average yields for the five crops preceding the 1930 crop. With a small acreage and with low yields, production in 1931 was smaller than for any year in more than a decade, and was only about 50 per cent of the average production of the five preceding crops.

Prices to growers in 1931 averaged 22 per cent less than the very favorable price of 1930, but were considerably above the low prices received in both 1928 and 1929.

In the late States of Indiana, Iowa, Michigan, New York, Ohio, Pennsylvania, and Wisconsin, indications are that the commercial acreage for picking in 1932 will be 28,380 acres or 13 per cent larger than the average acreage of the five preceding crops and 6 per cent above the high acreage of 1924. In these States changes in acreage since 1919 have not been especially marked.

Both yield per acre and total production in 1931 were the largest since 1927, and prices to growers were about 42 per cent below the favorable 1930 price and the lowest for more than a decade.

In the Pacific Coast and Mountain States (California, Oregon, Washington, and Utah), much of the production is utilized by frozen pack and other local processing plants. Strawberries sold for consumption as fresh fruit are largely utilized in western markets. The indicated 1932 acreage for picking of 25,840 acres is slightly larger than the previous record acreage of 1928 and exceeds the 1931 harvest acreages by about 10 per cent.

The 1931 production in these States was about 14 per cent greater than in 1930 but was 8 per cent less than the record 1928 production. Prices to growers in 1931 were 10 per cent lower than in 1930, and 12 per cent lower than the average price for the five years 1926–1930, inclusive.

CANTALOUPES

If, in 1932, the acreage of cantaloupes and miscellaneous melons, in the early, second-early, and intermediate areas, continues upward or remains as high as in 1931, an average yield per acre would result in a crop of such size that a considerable proportion of it would probably be left in the field.

With most other truck crops which require a lot of labor and offer a chance for getting a high value per acre, cantaloupes and miscellaneous melons shared in the general increase in acreage planted in 1931. For the United States as a

whole the acreage of 138,180 was 7 per cent higher than in 1930 and 22 per cent above the 1928–1930 average acreage. The 1931 increase over the 3-year average acreage was especially marked in the second-early producing areas, of lesser degree in the intermediate States, and was hardly noticeable in the late States. Yields in 1931 were slightly above the low yields of 1930, but 11 per cent below the average yields of 1928–1930. Hence total production was only 10 per cent above the average of the previous three years.

For all but the intermediate States, the decline in price per crate from the previous 3-year average was less than the decline in the general price level for the same period. The combination of low yields and low prices, however, lowered the value per acre about in proportion with the drop in the general price level.

The acreage in Imperial Valley, Calif., in 1931 was 51,640 acres or slightly higher than the 1930 acreage and 26 per cent higher than the average 1928–1930 acreage. The estimated yield of 152 crates per acre in 1931 was higher than in 1930 but below the usual average. The price averaged 25 per cent below that of the previous three years while the decline in value per acre was about 30 per cent below.

The second-early producing areas include Arizona and parts of California and Texas. The other important producing States in this group are Arkansas and the Carolinas. Texas increased its second-early acreage from 2,320 acres in 1930 to 11,530 in 1931 and was responsible for most of the 21 per cent increase in this group of States. Yields at 120 crates per acre in 1931 were below average for this group so that total production was only 4 per cent above the average of the previous three years. The average 1931 farm price was about one-fifth lower than the average for the previous 3-year period and the value per acre was nearly two-fifths below the average.

The intermediate group, of which Maryland, Indiana, Delaware, Washington, and New Mexico are the main producing States, increased their acreage 10 per cent from 18,620 acres in 1930 to 20,460 in 1931. Yields were slightly above average and prices to growers dropped about 30 per cent below the previous 3-year average.

The late group—mainly Colorado, Michigan, and New Jersey—had a slight decline in acreage in 1931, having 18,510 acres as compared with 19,310 in 1930. Yields were unusually low or about the same as in 1928. Prices to growers dropped 12 per cent below the average for 1928–1930.

WATERMELONS

A 1932 planting of watermelons as large as the record acreage of 1931, unless yields are lower than the usual average, would probably again result in large quantities of marketable watermelons being unharvested. In 1930 the quantity left in the fields in the early and second-early States represented more than 6 per cent of the entire country's commercial crop, and in 1931 nearly 4 per cent. Watermelons nevertheless appear to have paid relatively better returns than did some other cash crops, but the prospects for 1932 may not offer much inducement for a shift to watermelons.

The 1931 commercial watermelon acreage of 238,820 acres was the largest on record, slightly exceeding the previous high acreage of 1930, but owing to a lower yield, total production was about 8 per cent below 1930. Lower production was followed by a more marked reduction in car-lot shipments. There were approximately 52,000 cars, or about 14 per cent below the record movement in 1930. Notwithstanding this reduced production, prices to growers in the United States declined about 13 per cent and the total farm value of the 1931 crop declined about 18 per cent compared with 1930.

The early acreage in Florida and Imperial Valley of California in 1931, was 40,300 acres, compared with 43,200 acres planted in 1930. There was a decrease in Florida of about 10 per cent, but an increase in California of 9 per cent. Prices to Florida growers decreased about 20 per cent in 1931. The marketing problems were complicated by the lateness of the Florida shipping season, which resulted in increased competition with other sections. Prices to California growers, who produced their largest crop in 1931, were the lowest in more than a decade and about 9 per cent less than the average price realized for the 1930 crop.

There was a slight decrease in the 1931 acreage in the second-early States (Alabama, Arizona, Georgia, Mississippi, North Carolina, South Carolina, and Texas), which planted a record of 147,290 acres in 1930. The decrease of 6

per cent in Georgia, which had about 52 per cent of the total acreage in this group, was partially offset by increases in the Carolinas. Production in this group was about 23 per cent lower than in 1930, the decrease in Georgia amounting to approximately 37 per cent. Prices to growers, however, showed improvement over 1930 prices only in South Carolina and, for the group as a whole, averaged about 15 per cent below 1930.

The record acreage shown for the country as a whole in 1931 was mainly due to the larger acreage grown in the late States (Arkansas, Colorado, Delaware, Illinois, Indiana, Iowa, Maryland, Missouri, Nevada, New Jersey, Oklahoma, Oregon, Utah, Virginia, Washington, and California). The acreage in this group exceeded that of 1930 by 19 per cent and was 8 per cent larger than the previous high record of 1926. The yield per acre was considerably above that of 1930 and the estimated total production of 19,256,000 watermelons exceeded the previous record crop (15,785,000 in 1926) by 22 per cent. The price to growers in 1931 dropped 30 per cent below that of the previous year.

DRY BEANS

The total production of dry edible beans in 1931 appears to be fully equal to the average annual disappearance during the last three years. This new crop supply is distributed among varieties or commercial classes more closely in line with the usual requirements for each class than was the 1930 crop. However, the unusually heavy carry-over of Pintos, Great Northerns, Pinks, Blackeyes, and Baby Limas adds materially to the available supply and changes to some extent the distribution of the total supply by classes. The 1931 crop is moving relatively slowly at very low prices and unless utilization is increased materially another heavy carry-over at the end of the present season seems highly probable.

The total acreage harvested in 1931 was 11 per cent less than that of 1930, about the same as that of 1929, and 15 per cent greater than the estimated average for 1924–1928. The average yield for the United States was 690 pounds (11.5 bushels) which was 30 pounds greater than in 1930 and the highest since 1925, but only 3 or 4 per cent higher than the 10-year average yield of 666 pounds. The total production was 12,705,000 bags of 100 pounds each, compared with 13,757,000 bags in 1930, 12,240,000 bags in 1929, and 10,325,000 bags average for 1924–1928. An average yield in 1932 on an acreage equal to that of 1931 would produce 12,432,000 bags, which without the impending carry-over this year is about equal to the average annual disappearance the last three years. There was an increase of 25 per cent in the production of Pea beans and 75 per cent in Red Kidneys, and a reduction of about 50 per cent in Pintos and Blackeyes.

Average prices of all types of beans declined with the movement of the 1931 crop and on December 1 averaged $2.46 per 100 pounds to growers. This price compares with $3.90 on the same date in 1930, $6.27 in 1929, and an average of $5.67 for the years 1924–1928. It is about a third less than the average price of $3.80 for the pre-war years 1910–1914. Prices of individual classes may vary from the average of all classes, but with few minor exceptions they have all declined drastically since December, 1929.

Both imports and exports of beans were light during September, October, and November, 1931—the first three months of the new crop marketing season. Imports, less re-exports of foreign beans, were only 3,000 bags during this period, compared with 135,000 bags in 1930 and 312,000 bags in 1929. Exports of domestic beans for these months were only 31,000 bags, compared with 37,000 in 1930 and 56,000 in 1929. Net annual imports for the season from September, 1930, to August, 1931, were 508,000 bags, compared with 1,135,000 bags for the previous 12-month period and 464,000 bags for the years 1924–1928.

A large proportion of the beans imported during recent years has been made up of white beans competing with domestic Pea beans and other classes of white beans. The unusually small imports for the early months of the current season are attributed to plentiful supplies of domestic white beans and low prices rather than any shortage of foreign beans. The price of domestic Pea beans at New York in December averaged only $3.01 per 100 pounds wholesale, or barely topping the 3-cent a pound import duty. Prices of imported pea beans averaged $1.20 per 100 pounds, and Otenashis (large whites) averaged $1.76 per 100 pounds in bond at New York City in the same month. There is a surplus above domestic requirements both in the Danubian countries and in Japan, although the 1931 acreage of export types in Japan was

reduced materially following the low prices received for the previous crop. In Rumania there is less tendency to change bean acreages in response to changes in price.

OUTLOOK BY CLASSES OR TYPES

PEA BEANS

More favorable growing conditions in Michigan and New York in 1931, compared with the bad drought conditions of 1930, resulted in a more nearly average production of Pea beans, despite a somewhat smaller acreage. However, the average yield per acre in Michigan, the principal producing State, was only 540 pounds (9 bushels) in 1931, compared with the 10-year average of 666 pounds (11.1 bushels). The total production of this class was 3,709,000 bags compared with 2,825,000 bags in 1930, 3,305,000 bags in 1929, and 3,646,000 bags the average for 1924–1928. Prices continued downward with the movement of the new crop. The average farm price in Michigan on December 1 was $2.10 per 100 pounds compared with $4.30 on the same date in 1930, $6.20 in 1929, and $5.45 average for the years 1924–1928.

GREAT NORTHERN

Productiton of Great Northern beans in 1931 was estimated at 2,006,000 bags. This is about 3 per cent less than the high record crop of 2,066,000 bags produced in 1930. The total harvested acreage of all beans in the three States producing mainly Great Northern (Idaho, Montana, and Wyoming) was somewhat less than in 1930 but about 19 per cent greater than in 1929. The average yield per acre in these three States was 1,119 pounds in 1931 compared with 1,139 pounds in 1930, 1,112 pounds in 1929, and the average of 1,069 pounds for the 5-year period of 1924–1928.

The large 1930 crop of Great Northern beans moved into trade channels under declining prices, the crop year beginning with a farm price of $5 to $5.50 per 100 pounds in September, 1930, and closing at about $2 in August, 1931. The carry-over from the 1930 crop was unusually heavy and the December 1, 1931, farm price was about $1.50 per 100 pounds.

RED KIDNEY AND DARK KIDNEY

The 1931 crop of 586,000 bags of Red Kidney and Dark Red Kidney was 75 per cent larger than that of 1930 and 40 per cent larger than 1929. Although production is still considerably below the 724,000 bags—the average for 1924–1928—it has been followed by a marked decline in prices.

PINTO

The 1931 crop of Pinto beans, estimated at only 1,499,000 bags compared with the record crop of 3,024,000 bags in 1930 and 2,305,000 bags in 1929, was about 11 per cent larger than the average for 1924–1928. The sharp falling off in production in 1931 was due to a substantial reduction in harvested acreage and to low yields as a result of lack of moisture. The heavy production in 1929 and 1930 was due to very high yields on large acreages. The accompanying low prices discouraged planting in 1931 to some extent and with a heavy abandonment the area harvested in Colorado and New Mexico was estimated at 481,000 acres compared with 601,000 acres in 1930 and 539,000 in 1929. The carry-over on September 1, 1931, was unusually large and prices to growers averaged only $1.94 per 100 pounds on December 1 compared with $2.29 on the same date in 1930, $4.44 in 1929, and $4.80 average for 1924–1928.

LIMA AND BABY LIMAS

The production of both Lima and Baby Lima beans in California was somewhat less than in 1930, although still considerably above the average of preceding years. The 1931 outturn of standard Limas was estimated at 1,064,000 bags compared with 1,102,000 bags in 1930, 987,000 bags in 1929, and 861,000 bags average for 1924–1928. Baby Limas in 1931 were estimated at 663,000 bags compared with 696,000 bags in 1930, 486,000 bags in 1929, and 378,000

bags average for 1924–1928. With lower prices for the 1930 crop, a smaller acreage was planted in 1931 and the production was further reduced by the drought. Prices for Limas f. o. b. San Francisco averaged $5.30 per 100 pounds in September and $4.80 in December, 1931, compared with $9.40 and $6.20, respectively, during the same months in 1930. Baby Limas showed similar declines from 1930, being quoted at $3.25 in September and $3.20 in December, 1931, compared wih $7.90 and $4.50 on respective dates the previous year.

PINK

The 1931 production of Pink beans is estimated at 567,000 bags compared with 666,000 bags in 1930, 644,000 bags in 1929, and 533,000 bags average for 1924–1928. Prices for Pinks have held up better than for most beans and on December 1, 1931, averaged $4.65 f. o. b. San Francisco compared with $4.45 at the corresponding period a year ago.

BLACKEYE

The 1931 production of 462,000 bags of Blackeye beans was only about one-half that of 1930 and substantially under the 515,000 bags produced in 1929, but, with a carry-over of 182,000 bags greater than in 1930, prices have continued unusually low.

PEANUTS

The outstanding features of the current marketing situation for peanuts harvested for nuts are that the 1931 crop was the largest produced in more than a decade, the carry-over of old crop supplies into the current marketing season was very small, imports so far have been of small volume, and prices to growers have been lower than for any year of the twentieth century.

The production of peanuts harvested for nuts in 1931 was about 13 per cent above the large 1929 crop and about 45 per cent larger than the 1930 crop. The 1931 crop of 1,083,110,000 pounds exceeded the average annual production of the 5-year period of 1925–1929 by about 282,000,000 pounds, or 35 per cent. The 1931 harvested acreage of 1,419,000 acres exceeded the 1930 acreage by about 25 per cent and was about 4 per cent greater than the large 1929 acreage. The average yield per acre in 1931 was about 16 per cent higher than in 1930 and about 5 per cent above the average yield for the 5-year period ended with the 1929 crop. Yields approximating 1930 yields were reported in southeastern States but in Virginia, North Carolina, and in the Southwestern States yields were materially better than those reported for 1930.

The crop for the country as a whole is reported to be of exceptionally good quality. Prices to growers have declined rather consistently since the beginning of the season, and in January, 1932, were at the lowest levels of the current season, and the lowest reported in more than 30 years.

The 1931 crop was the largest produced in more than a decade, but the 1930 crop was the smallest reported since 1926 and the carry-over of old-crop peanuts into the current marketing season was lower than for any recent year and materially reduced from the large carry-over of the 1929–30 season. Stocks in Chicago, the principal receiving market, were reported to be equal to about one-third of similar stocks in October for each of the two previous seasons and are chiefly Spanish-type peanuts. Shipments of peanuts to consuming markets have been approximately 40 per cent greater this season than for the corresponding period last season in the Virginia-North Carolina section; about 75 per cent greater in the Southeast; and about 60 per cent greater in the Southwest. Considerable of this increased movement was to satisfy the current demand of a market that was relatively bare of peanuts at the beginning of the season, but consumption of peanuts and peanut products appears to have increased with the present low prices. Storage stocks in Chicago about the middle of January were reported as less than those for corresponding dates of recent years.

Average annual crushings by oil mills for the five marketing seasons, ended October 31, 1930, were approximately 60,000,000 pounds of peanuts in the shells. Takings by oil mills are usually of low-grade peanuts but in years of large production and low prices, crushings have tended to include nuts of better quality. Although peanut prices are low, prices for cottonseed oil and other sources of vegetable oils are even lower and present prices for peanuts of average quality

are still relatively too high to permit of heavy purchases by oil mills for crushing in view of the present low prices of other vegetable oils.

For the group of States (Virginia, North Carolina, and Tennessee) which produce chiefly Virginia-type nuts, both acreage and production in 1931 were very large. The 1931 production of 476,360,000 pounds exceeds the 1930 production by about 173,650,000 pounds, or 57 per cent, and is larger than the crop of 1929 by about 72,000,000 pounds, or 18 per cent. Importations for the current season of oriental peanuts which are of the Virginia type have so far been slightly heavier than during the 1929–30 season, but otherwise the smallest imports in more than 20 years and only about 18 per cent of the average annual imports for the five seasons ended October 31, 1929. For the 12-month period ended October 31, 1931, imports were the equivalent of about 14,000,000 pounds of peanuts in the shell. The carry-over of old-crop farmers' stock Virginia peanuts at the beginning of the current season was reported to be small in volume and of poor quality.

In the Southeastern States (Georgia, Alabama, Florida, South Carolina, and Mississippi), which grow both the runner and Spanish types, 772,000 acres of peanuts were harvested in 1931. This was an increase of about 29 per cent over the 1930 harvested acreage. Production in this group of States in 1931 was about 30 per cent greater than in 1930. The supply of old-crop peanuts in the Southeastern States at the beginning of the 1931–32 season was reported to have been small.

In the Southwestern States of Texas, Oklahoma, Arkansas, and Louisiana, which grow chiefly Spanish-type nuts, 220,000 acres of peanuts were harvested in 1931. Acreage in these States was increased about 33 per cent as compared to 1930. Yields for 1931 were much better than the low yields of 1930 and the total production of 118,350,000 pounds was about 69 per cent greater than in 1930. Owing to the relatively small 1930 crop, supplies of old-crop peanuts were negligible at the beginning of the current marketing season.

Difficulty in financing the purchase of fertilizers may result in some shifting of acreage to peanuts in those sections where fertilizer is used on other cash crops. In other years when the relation of the income per acre from peanuts to that from cotton has been about the same as in last season, there has been a tendency for a small increase in the acreage planted to peanuts in the following year. It is uncertain whether or not this same tendency will prevail this coming season owing to the extremely low prices for all cash crops, which may result in a reduction of the total crop acreage on the farms.

PECANS

An outstanding factor in the pecan situation is the increasing trend in production, particularly of the improved varieties. The large number of young trees of improved varieties suggests that over a period of years, production is likely to continue to increase. The price trend of pecans has been downward for a number of years prior to the severe decline in 1931. The prospects appear favorable for further increasing the demand for pecans even though the supply of walnuts and other nuts may increase.

The estimated production of pecans of improved varieties was 19,003,000 pounds in 1931, the highest of record. The production was 12,434,000 pounds in 1930, 8,814,000 pounds in 1929, and 16,988,000 pounds in 1928.

The estimated production of seedling pecans was 55,982,000 pounds in 1931, 34,035,000 pounds in 1930, 42,574,000 pounds in 1929, and 42,637,000 pounds in 1928. Combined production of seedlings and improved varieties of pecans was 74,985,000 pounds in 1931, 46,469,000 pounds in 1930, 51,388,000 pounds in 1929, and 59,625,000 pounds in 1928.

An upward trend in the production of improved varieties is evident. The production for the 4-year period 1928–1931 is approximately 45 per cent greater than for the 4-year period 1924–1927. A similar comparison for seedling pecans shows an increase of approximately 28 per cent. The increase for the total production was approximately 32 per cent.

There has been heavy planting of trees of improved varieties during the last 10 years, and a large proportion of the trees of such varieties over 10 years of age have not come into full production. A pecan-tree survey made in 1929 indicates that of an estimated total of about 8,000,000 trees of improved varieties, 65 per cent or about 5,000,000 trees were planted during the 10 years ended in 1929. Plantings during the five years ended in 1929 constituted about

42 per cent of the total number of trees improved varieties which indicates an annual increase of about 12 per cent in number of improved trees during the five years beginning in 1925. The Federal census of 1929 shows for the six coastal States from North Carolina to Mississippi that 43 per cent of the trees enumerated were classified as of nonbearing age.

According to the survey, about 6,000,000 trees, or 79 per cent of the total trees of improved varieties, were in States east of the Mississippi River; in order of importance they are Georgia, Alabama, Mississippi, Florida, South Carolina, and North Carolina. About 73 per cent of the improved trees under 10 years of age were in this group of States. There has been considerable top-working of seedling trees to improved varieties, especially in Texas and Oklahoma. The total improved trees in these two States including top-worked trees, were estimated roughly at about 1,000,000, or 15 per cent of the improved trees in the United States. Of an estimated total of approximately 10,500,000 forest and cultivated seedling trees in the United States in 1929, 27 per cent were of nonbearing age according to the survey of that year.

The early optimism regarding the average yields per tree that may be expected from improved trees at various ages has been greatly tempered by the difficulties and hazards incident to the production of the crop. Some individual growers have obtained profitable average yields, but many have not been so successful. A study of the yields obtained in 1928 from 75 representative orchards of improved varieties 15 to 19 years of age, in commercial-producing areas east of the Mississippi River, showed an average of 145 pounds per acre. Thirty-two of these orchards, having 72 per cent of the acreage in the 75 orchards had yields of from 5 to 160 pounds per acre; 22 orchards having 21 per cent of the entire acreage had a yield of from 161 to 360 pounds per acre; and 21 orchards having only 7 per cent of the entire acreage had a yield of over 360 pounds per acre. The average per orchard was 103 acres for the first group, 43 acres for the second, and 14 acres for the third.

Another phase of the 1929 survey, covering 920,000 trees of improved varieties 10 years old and over, indicated a yield in 1928 of approximately 6 pounds per tree. On a basis of 17 trees per acre, a yield of approximately 100 pounds per acre was indicated in a year considerably above average in production. All of these trees were over 10 years of age and 82 per cent were under 20 years.

Although pecan trees may bear a few nuts when 3 to 5 years of age, growers in most sections should be in a position to finance the development for a period of at least 10 years before expecting production of any consequence.

The large crop of 1931 and low prices have probably resulted in introducing the pecan to an increased number of consumers. For the first time, improved varieties of pecans are competing with English walnuts on about the same price basis.

The December 1 farm price per pound of seedling pecans was 11.3 cents in 1929, 10.8 cents in 1930, and 5.7 cents in 1931. Improved varieties of pecans sold at about 31.7 cents in 1929, at 27.8 cents in 1930, and at 13.8 cents in 1931. These prices for improved pecans compare with prices for English walnuts of 16, 20.5, and 13 cents in the three years. The December farm price of almonds was 24 cents for the short crop of 1929, 10 cents in 1930, and 8.8 cents in 1931.

For the 6-year period 1925–1930 inclusive, the total per capita supply of pecans in the United States on an unshelled basis has averaged around 0.44 pound compared with 0.68 pound for almonds and 1.03 pounds for English walnuts. Unshelled pecans reaching the consumer have probably averaged less than one-sixth of a pound per capita. A large proportion of the crop, especially seedlings, are shelled and used by confectioners and bakers.

An increase in production of English walnuts can be expected. The census of 1930 showed 2,970,000 English walnut trees in California of which 31 per cent were of nonbearing age. Of 508,000 English walnut trees in Oregon in 1930, 55 per cent were of nonbearing age. The number of almond trees in California has remained practically constant for several years.

During the last 20 years, annual imports of English walnuts on an unshelled basis have ranged from about 21,000,000 pounds to 87,000,000 pounds. For the past 5 years the average has been about 54,000,000 pounds, compared with an average of 74,000,000 pounds the previous 5 years. Almond imports for the past 20 years have ranged from 44,000,000 pounds to 94,000,000 pounds. They have averaged 57,000,000 pounds for the last 5 years compared with an average of 79,000,000 pounds the previous 5 years. During the last 5 years

annual imports of seedling pecans from Mexico have averaged slightly more than 500,000 pounds. In the previous 5 years the average imports were 1,706,000 pounds.

COTTON

In view of the detailed consideration given to the cotton outlook at the southern outlook conference held in November, this report deals mostly with the recent developments in the situation. Further treatment of the cotton situation is found in the Agricultural Outlook for the Southern States 1931–32, Miscellaneous Publication No. 137; Some Facts About the Cotton Outlook in 1932, Miscellaneous Publication No. 139; Cotton Outlook Charts with Explanations (rotaprint); and the outlook reports issued by the cotton-growing States.

The excessive supply of American cotton, the world depression that has reduced the consumption of cotton, and the deflation in commodity prices generally when measured in terms of gold, continue to be the dominating factors in the cotton situation. It is now clear, however, that the production outside the United States has been materially reduced. Prices of Indian and Chinese cotton have risen in comparison with prices of American cotton, and mills are turning more to American cotton in place of these foreign growths. The gains in consumption noted earlier in the season for some important countries have not been entirely maintained, but the consumption of American cotton has apparently been larger so far this season than in the corresponding months of last year. The price recovery of late October was partly lost, but prices since mid-November have been unusually stable, reflecting the quite definite establishment of the size of the crop and the influence of some very large purchasing movements, together with limited farmers' marketings. The trend of consumption in the United States for the remainder of the season is likely to depend largely upon developments in the general industrial situation and employment during the spring months. In foreign countries the influence of political developments on general economic conditions may play an important part in the cotton-textile industries. The depression in continental Europe continues to dominate the textile industries of those countries. The recovery in the British cotton-textile industry has been checked by the reduced demand in many importing countries, the boycott in India, and the competition from Japan since that country again went off the gold standard; but the boycott of Japanese goods in China, if it continues to be effective, would be moderately favorable to Great Britain. Cotton consumption in Japan has increased moderately despite agreements among manufacturers by curtailment, but exports of piece goods are low.

Rainfall in western Texas and Oklahoma has been above normal since October, but sales of fertilizer tags in the cotton States are even lower than they were a year ago, and it has become more certain that the weevils entering hibernation were more numerous and widespread than they were in the fall of 1930. The supply of farm labor continues to increase in the Cotton Belt as laborers leave industrial centers, but the supply of bank credit has become more limited than it was in the fall months.

The world supply of all cottons for 1931–32 is now estimated to be 41,600,000 bales, 4,900,000 bales larger than in 1930–31, and 5,800,000 bales larger than in 1929–30. Most of the increase has been in the carry-over. World production, estimated at 27,200,000 bales for 1931–32 is only 1,800,000 bales larger than in 1930–31 and 700,000 bales larger than in 1929–30. The successive declines in world consumption to 22,500,000 running bales in 1930–31, according to reports of the International Federation of Cotton Spinners, and the continued high production are the factors resulting in the increases in the carry-over.

American cotton not only accounted for the increases in total supply during the last two years but more than offset a decrease in foreign supplies for 1931–32. With production in 1931 estimated at 16,900,000 bales and a world carry-over of American cotton of 8,800,000 bales, the supply for 1931–32 amounts to 25,700,000 bales. This supply is 5,500,000 bales larger than in 1930–31 and 6,400,000 bales larger than in 1929–30. The increase this year over last has been a little more in production than in carry-over, but compared with 1929–30 the increase in the carry-over is over twice as great as the increase in production. The decline in world consumption of American cotton (associated with the world depression) from 15,100,000 running bales in 1928–29 to 13,000,000 running bales in 1929–30 and to 10,900,000 running bales in 1930–31, using the figures of the International Federation of Cotton Spinners, explains the increase

in the carry-over. The continued low demand so far in 1931–32 is the reason the record supply of this year is so burdensome. The large crop of 1931 was due to unusually favorable weather conditions resulting in a yield estimated at 200.1 pounds per acre, the highest since 1914, and in marked contrast with the yield of 147.7 pounds in 1930 and the average yield of 154.4 pounds per acre for the years 1920–1929. Against the increase of 35.5 per cent in the yield per acre over that of 1930, acreage was reduced 10.2 per cent, to 40,495,000 acres, according to present estimates in 1931.

Some developments have occurred that may be significant with respect to production in 1932. The movement of laborers from industrial centers has continued, and on January 1 the supply of farm laborers in Southern States was 5 per cent above that of January 1, 1931. Rainfall in the western parts of Texas and Oklahoma has been above normal since September. On the other hand, fertilizer tag sales, which are of significance with respect to yields in the eastern part of the belt, were 32 per cent lower for December in 1931 than in 1930 and were 40 per cent lower than in 1929. Subsequent reports corroborate earlier indications that more weevils entered hibernation and that they were present in numbers over a much larger portion of the belt in the fall of 1931 than in 1930. Up to the end of January, 1932, temperatures were mild.

The supply of foreign-grown cottons for 1931–32 is the smallest since 1927–28. The carry-over of foreign cottons has been increasing for each of the last four years. Owing largely to the record carry-over of Egyptian cotton, the carry-over of all foreign cottons, as far as reported, showed an increase of 500,000 bales at the beginning of the 1931–32 season. World production outside the United States, however, is now estimated at 10,300,000 bales for 1931–32, compared with 11,500,000 bales in 1930–31, and 11,700,000 bales in 1929–30. China, India, and Egypt show decreases for the year totaling around 1,600,000 bales, nearly half the decrease being for India. Russia, Brazil, and Mexico have increases totaling nearly 500,000 bales. Production in Russia for 1930–31 has been revised downward to 1,550,000 bales and the Bureau of Agricultural Economics now estimates production in 1931–32 at 1,900,000 bales. The total supply of foreign cottons of 15,900,000 bales for 1931–32 is 600,000 bales smaller than in 1930–31. Production and supplies of foreign cotton, on the whole, then, are moderate in view of the consumption of 11,600,000 running bales in 1930–31 and 12,200,000 running bales in 1929–30 as reported by the International Federation of Cotton Spinners.

The apparent supply of American cotton remaining in the United States on January 1, 1932, amounted to 17,000,000 bales compared with 12,700,000 bales on January 1, 1931. Despite this increase of 4,300,000 bales, the visible supply in the United States on January 8 was only 1,200,000 bales larger than a year earlier, doubtless reflecting a holding movement on the part of producers.

Cotton consumption in the United States in the period August through December amounted to 2,196,000 bales in 1931, 186,000 bales more than in 1930, but 542,000 bales less than in 1929. For each month after May consumption was higher in 1931 than in 1930. From September through December the trend of consumption was slightly downward, partially reflecting the declines that occurred in general industrial activity.

The trend of cotton-cloth production in the United States has been similar to that of cotton consumption. Throughout most of the 1930–31 season there was a gradual improvement, and weekly average production has been higher each month since April, 1931, than in the corresponding month of 1930. Production of cotton cloth in mills reporting to the Association of Cotton Textile Merchants totaled 18.5 per cent more for the months August through November of this season than last, but the difference for the month of December was only 8.8 per cent. After being low during the first two months of the season sales rose sharply, and in October and November were higher than in either of the last two years, but in December they lost a part of the relative improvement. Shipments declined gradually from 57,000,000 yards per week in August to 53,000,000 yards per week in November, and averaged 48,000,000 yards per week in December. Although some of the improvement in the situation noted earlier in the season has been lost, as continued declines in industrial activity and consumer buying power were reflected in the demand for cloth, stocks held by mills reporting to the association were 20 per cent lower on January 1 this year than last and unfilled orders were 11 per cent larger.

Exports of raw cotton from the United States from August through December, 1931, amounted to 4,035,000 bales, or were 2 per cent higher than for the cor-

responding period in 1930. Exports were lower than in 1930 through September; but since then they have been larger and they continued to increase through December, contrary to the usual seasonal tendency. The quantities going to the various countries show pronounced changes from previous years. The leading country this year has been Japan; exports to that country amounted to 993,000 bales, an increase of 515,000 bales over last season. According to commercial reports, exports to Japan and China together, to January 8, were over two and one-fourth times as large as during, or practically 1,000,000 bales above, the corresponding period last year. These large exports reflect the low prices of American cotton and the reduced competition from Indian and Chinese cottons rather than a high current rate of consumption in these countries. Among European countries Italy is the only one to which exports from the United States have been higher this year than last, but even to that country exports have not been as large as in 1929. For Europe, as a whole, exports through December were 900,000 bales lower than for the corresponding months last season. The decrease for Great Britian amounted to 21 per cent; for Germany, 27 per cent; and for France, 75 per cent. These exports reflect but do not measure the situations in the cotton-consuming industries in these countries. The slight improvement in the export movement to Europe during December apparently resulted from the very low stocks of American cotton in those countries.

Exports from India from August 1 to January 7 were 46 per cent lower than a year earlier and 34 per cent lower than in 1929–30 according to the Commercial and Financial Chronicle. With the period of usually large exports from India now reached, the movement has been about half that of last year. In addition to the short Indian crop, the high rate of mill consumption in India, due at least in part no doubt to the boycott of foreign goods, is probably an important factor limiting exports.

Mills have been shifting from foreign growths to American cotton. So far the changes have been limited because of the generally low level of consumption, but the trends indicate the responses to relative prices. Some shift has occurred in consumption by United States mills, although this is more a response to the tariff on long-staple cotton and to conditions affecting particular sections of the textile industry than a response to relative world prices. In Great Britain, where considerable stocks of foreign growths had accumulated, forwardings to mills of American cotton were above last season for the first 21 weeks of the season, by 93,000 bales, or 24 per cent, whereas forwardings of foreign growths were 128,000 bales, or 30 per cent, above last season, according to the Liverpool Cotton Association. On the Continent forwarding of American cotton decreased 164,000 bales, or 10 per cent for the season to January 7, according to the New York Cotton Exchange. Judging from changes in continental port stocks and exports from India the decrease in continental forwardings of foreign cottons may have been at least twice as great as the decrease in takings of American cotton for the season to January 1. Forwardings of American cotton in the Orient are reported by the New York Cotton Exchange to be 729,000 bales larger, or more than two and one-third times as great, to January 7 this season as in 1930–31. Exports from the United States to Japan and China for the season to January 7 are reported to have been 983,000 bales larger, an increase of 131 per cent over 1930–31, whereas exports from India to Japan and China were 260,000 bales smaller, a decrease of 36 per cent. The total forwardings of American cotton to foreign mills are reported by the New York Cotton Exchange to have been 669,000 bales larger than, or 24 per cent above, last season for the period to January 7. Although these forwardings figures do not measure the change in consumption, they show mill responses to the relative prices existing this season and will eventually be reflected in consumption.

On the continent of Europe the cotton-textile industries continue to be depressed, along with other industries, in response to low consumer buying power, credit and financial difficulties, and restricted export markets. In France, where the depression was so slow to develop, reduced sales and shipments of cloth have resulted in large stocks and necessitated a reduction in cotton-textile production. Reduced output of the Italian cotton-textile industry has lowered stocks of finished goods and resulted in a more favorable situation within the industry, but consumer buying power has probably been influenced by reduced employment and low industrial activity. The rather steady decline in employment in Germany and the fall in industrial activity during the late summer and fall of 1931 to the lowest levels since 1924 have reduced consumer demand for cotton goods; but the production of cotton textiles may have been

reduced sufficiently to offset these developments. Attempts to adjust output to reduced demand in the Polish cotton-textile industry have not been entirely successful. Trade restrictions of Germany, Austria, and Hungary, together with financial difficulties, continue to hamper the cotton-textile industry of Czechoslovakia. The credit difficulties in Austria still dominate the situation in that country. In Russia, plans for increased output of cotton textiles, if fully carried out, will require a quantity of cotton about equal to the estimate of the 1931 Russian cotton crop as made by the Bureau of Agricultural Economics, but during the last two years textile production has been considerably less than the plan called for.

The situation of the cotton-textile industry in Great Britain depends largely upon its export trade, particularly in the Orient. Following Great Britain's going off the gold standard in September there was a marked increase in employment in its textile industry. To some extent this may have been based on increased textile consumption within the country, but the increased ability to compete in foreign trade and the boycott of Japanese goods by China appeared to favor exports at that time. The low purchasing power and the declines in exchange rates of other countries, as they also went off the gold standard, has limited the effectiveness of Great Britain's action. India, the country's most important market, still maintains an effective boycott against foreign goods. If China maintains its boycott of Japanese goods, Great Britain should continue to some advantage in that market, but in the other oriental markets the improvement in the competitive position of Great Britain has been largely nullified by Japan leaving the gold standard. Through December exports of cotton piece goods from Great Britain continued low and production of textiles was said to exceed sales. Recently, labor difficulties are reported to have developed within the British cotton-textile industry.

Exports of cotton piece goods from Japan have been low, in recent months, partially as a result of the Chinese boycott on its goods. General industrial activity has been somewhat depressed since late in 1929 and cotton consumption has also been restricted. Cotton-textile production has been gaining in recent months, however, and this continued through December despite an agreement to curtail output. The ability of Japanese mills to meet price competition has been improved by that country again suspending the gold standard and permitting its exchange rate to decline to the level of Great Britain's. Also to the extent that Japanese mills purchased supplies of cotton while the exchange rate was at par, or nearly so, the advantage applies to the cost of the raw cotton as well as to conversion costs.

Cotton mill activity in China was at a high rate among the Chinese and British-owned mills, but was restricted among the Japanese-owned mills. Owing to the small supplies and comparatively high prices of native and Indian cotton, and to the Chinese mills turning to higher count yarns, a large proportion of American cotton is being used.

Prices in the United States fell gradually from the beginning of the season to early October, and at the low point on October 5, Middling 7/8-inch cotton at the 10 spot markets averaged 4.89 cents per pound. A part of the subsequent recovery was lost but for the month of November they averaged 5.95 cents and for December 5.78 cents per pound. Prices of Indian cotton have strengthened relative to American cotton, until there is practically no difference between the average of three grades of Indian cotton and the average of Middling and Low Middling American cotton at Liverpool. Prices of Chinese cotton in China in some cases exceed prices of American cotton. The relative prices of Egyptian and American cotton in Liverpool have not changed materially.

Preliminary estimates of the staple lengths of cotton ginned in the United States prior to December 1, 1931, show a considerably smaller proportion of the crop with staple lengths shorter than 7/8 of an inch and considerably larger proportions of the crop with staple lengths 1 1/8 inches and longer than for any previous year for which data are available. Since August, 1931, discounts for cotton with a staple length of 1 1/8 of an inch compared with 7/8 of an inch have narrowed considerably and in December, 1931, these discounts, when expressed in points per pound, were narrower than at any other time for which data are available; and when expressed as percentages of Middling 7/8-inch cotton, were narrower than at any other time since October, 1929. Premiums for staple lengths longer than 7/8 of an inch since September, 1931, when expressed in points per pound, have continued to decline and in December, 1931, were smaller than at any other time since 1924. When expressed

as percentages of the price of Middling 7/8-inch cotton, premiums have declined since September, 1931, but in December, 1931, the staple premiums for each of the longer lengths except 1 1/8 and 1 3/16 inches were greater, on the average, than during the season of 1930–31.

TOBACCO

The present tobacco situation is characterized by large supplies of leaf, a diminishing rate of consumption of tobacco products, declining exports, and very low prices to growers. These characteristics have resulted primarily from the curtailed buying power of consumers, the relatively high prices of tobacco products, disturbed conditions in international finance, and increasing tariffs in foreign countries. For some of the types, increased competition from foreign-grown leaf also has been an important factor.

The total consumption of tobacco products in the United States, as shown by internal revenue stamp sales, declined about 4 per cent in 1931 as compared with 1930; in Europe the decline was about 10 per cent. This is in sharp contrast with other recent years, when tobacco consumption in most countries has been increasing. Consumption by classes of products in the United States for 1931 compared with 1930 was as follows: Cigars, 9.7 per cent less; cigarettes, 5 per cent less; manufactured tobacco (smoking and chewing combined), 0.2 per cent less; snuff, 1.3 per cent less. As indicated by the greater decline in cigarettes than in smoking mixtures and the shift from high-priced to lower-priced cigars, consumers have been using cheaper products as well as smaller total quantities. Similar changes in consumption have been reported in European countries.

Of the important cigarette types, flue-cured production was reduced about 24 per cent in 1931 as compared with 1930, but this reduction was largely offset by an increase in stocks, so that the total supply was only 8 per cent below that of 1930. With weaker foreign and domestic demand prices declined about 30 per cent below the low level of 1930. Burley production was expanded again in 1931, and stocks continued to increase. Disappearance, on the other hand, showed a decrease and prices are about 40 per cent lower than in 1930. The production of Maryland tobacco was increased materially in 1931. Prices recently have declined about 25 per cent, partly because of the low quality of the 1930 crop sold throughout 1931, and the increased supplies available for the current season.

In the dark fire-cured and dark air-cured districts production and stocks both were increased in 1931. Weakened foreign and domestic demand, reflecting the world-wide trend of consumption toward the lighter types of tobacco, have adversely affected the market for all these types and prices for each of them appear to be at or near record low levels.

Production of most cigar types was increased in 1931 and the market for all of them shows pronounced weakness. The consumption of cigars has diminished during the last two years at a rate that involves a decrease of 10,000,000 to 15,000,000 pounds of tobacco a year in the requirements of cigar manufacturers.

CIGARETTE TYPES

The domestic consumption of flue-cured, burley, and Maryland tobacco is mainly in the form of cigarettes, smoking mixtures, and chewing tobacco. Domestic cigarette consumption rose rapidly during the last decade, and the quantity of leaf tobacco of all types used for manufacturing cigarettes in 1929 was about 120 per cent greater than the quantity used in 1921. Cigarette production began declining during the latter part of 1930, and for the year totaled about 0.5 per cent above the 1929 volume. For the first half of 1931 cigarette production was about the same as in 1930, but during the latter half of 1931 it declined 10 per cent, so that for the year production was about 5 per cent lower than for 1930.

The trend of consumption of manufactured tobacco has been downward during recent years. Since August, 1931, it has been higher than in the corresponding months of 1930, the increase for the six months ended December 31, 1931, being about 3 per cent. Sales of smoking and chewing tobaccos, both of which are included under manufactured tobaccos, can not be separated, but there is little doubt that sales of chewing tobacco are still declining, and that sales of smoking tobaccos are now increasing. This may be attributed in part to the increased use of granulated smoking tobacco in hand-rolled cigarettes.

FLUE-CURED TOBACCO, TYPES 11, 12, 13, AND 14

The supply of flue-cured tobacco is 8 per cent lower than that of a year ago, but owing to weaker foreign and domestic demand, prices paid to growers are the lowest since 1909. The weakness in the demand situation is due primarily to widespread unemployment resulting in diminished sales of cigarettes, to increased foreign tariffs, and to unfavorable rates of exchange. The combined effect of these adverse conditions has more than offset the effect of reduced supplies of flue-cured tobacco, and prices to growers to December 1 have averaged only 8.9 cents per pound compared with 12 cents per pound for the previous crop.

The production in 1931 is estimated at 657,715,000 pounds, the lowest since 1926, but stocks on hand July 1, 1931, were larger than a year earlier, and the total supply of 1,334,467,000 pounds on July 1, 1931, was only 8 per cent lower than the supply of July 1, 1930.

The domestic consumption of flue-cured tobacco is mainly in the form of cigarettes, granulated smoking tobacco, and plug chewing tobacco. The changing character of the domestic demand for flue-cured tobacco, aside from the temporary effects of current economic conditions, is apparent in the effect on the respective types of flue-cured tobacco. The most northern of these types, type 11, is relatively darker and heavier than types of more southern growth. Being somewhat less suited to the needs of cigarette manufacturing, and running correspondingly more to the chewing grades, it appears to suffer more from the decreased cigarette and chewing tobacco consumption, and to respond less to improved conditions in the cigarette industry.

Approximately two-thirds of the total production of flue-cured tobacco during recent years has been exported. Exports for the year ended June 30, 1931, totaled 432,738,000 pounds redried weight, and were greater than in any previous season. Exports for the six months ended December 31, 1931, were about 19 per cent below those during the corresponding months of the 1930–31 season, notwithstanding the especially low prices prevailing during the current marketing season. The decline in exports is apparently due to declining foreign consumption resulting from industrial unemployment, to high prices of manufactured tobaccos, to unfavorable foreign exchanges, and to increased competition from foreign-grown tobaccos. The United Kingdom in the past has been the leading foreign buyer of flue-cured, and during recent years takings by the United Kingdom have amounted to about 45 per cent of the total flue-cured exports. The depreciation in the exchange rate of the pound sterling and increased duties on imported tobaccos affected adversely importations of flue-cured tobaccos during 1931, the decline during the last six months of the year amounting to 29 per cent. In continental Europe, which usually accounts for from 10 to 12 per cent of the flue-cured exports from the United States, conditions are similar to those in the United Kingdom.

Exports to China usually rank second to those of the United Kingdom in importance, and during recent years have approximated 25 to 35 per cent of our total flue-cured exports. In 1931, however, China took first place. Continued expansion of the cigarette output in China brought about increased imports of flue-cured tobacco, but owing to the unfavorable exchange rate the Chinese takings have shifted to lower grades. The domestic crop in China, the manufacturing uses of which are similar to those of flue-cured, is reported to be from 15 to 20 per cent larger than in 1930. Even with the larger crop China's production will be equal to only about one-third of the leaf requirements of China's tobacco manufacturers, according to reports.

If the rate of exports during the last half of 1931 is maintained during the first half of 1932, and domestic consumption continues about as at present, some reduction in stocks from the high point reached on July 1, 1931, appears likely by the beginning of the next marketing season.

BURLEY, TYPE 31

The production of burley tobacco reached successively new high levels in each of the years 1929, 1930, and 1931, the latter crop being estimated at 465,000,000 pounds. Consumption, however, has not increased materially in recent years, and stocks of old tobacco have accumulated.

Domestic consumption seems to have increased only about 1 per cent a year during the last 10 years. Larger quantities have been used in making cigarettes but smaller quantities have been used for chewing and smoking tobacco.

Exports continue to be relatively unimportant. Total disappearance for the year ended October 1, 1931, was 283,000,000 pounds, which was less than for any year since 1926.

The large crop of 1931, together with the stocks of 437,000 pounds on October 1, 1931, made a total supply of 902,000,000 pounds at the opening of the 1931–32 market season. This was 18 per cent larger than the previous record supply of 1926 and equal to approximately three years of total disappearance, whereas the usual total supply is equivalent to only about two years of disappearance. Stated differently, if consumption and exports continue at the present rates and average yields are obtained, the acreage of burley tobacco in 1932 would have to be reduced more than 30 per cent to bring about any reduction in the total supply by October 1, 1932.

MARYLAND, TYPE 32

Developments in the Maryland tobacco situation are confused as a result of the nature of the 1930 crop, which was carried to market during 1931. That crop, owing to unusual weather conditions during growth, appears to lack the fine burning quality usually associated with Maryland tobacco. Apparently because of this, there has been but little sale for some grades, particularly those in the heavy leaf or "dull" group. Prices for Maryland tobacco as reported have been better maintained than for almost any other type. In recent months they have declined somewhat, possibly as a result of the low burning quality, but the lack of sale for certain grades makes it difficult to interpret present prices.

Production of Maryland tobacco in 1931 of 31,540,000 pounds was about 90 per cent larger than the very small 1930 production. The greatly increased production was largely due to yields much better than the low yields of 1930, since the 1931 acreage increased only about 11 per cent. Disappearance of this tobacco for the year ended October 1, 1931, was greatly reduced from the level of recent years and notwithstanding the small 1930 crop, stocks on October 1, 1931, were about 5,000,000 pounds greater than a year earlier. The total supply of 53,600,000 pounds on October 1, 1931, was about 60 per cent larger than the supply of the previous year and the largest supply figure reported in more than 15 years.

FIRE-CURED TOBACCO

Since the World War producers of fire-cured tobacco in the United States have been faced with a declining market for their products. Exports which formerly accounted for about 80 per cent of the total production have been greatly reduced. For the Virginia and Kentucky-Tennessee types combined the reduction has been from approximately 200,000,000 pounds exported in 1923 (the first year for which specific data are available) to 81,000,000 pounds in 1931. This reduction has had two chief causes: (1) Consumers have been turning from the stronger and heavier forms of tobacco to the milder forms; (2) the countries which formerly bought most of this tobacco have been encouraging the production of similar types at home and in their colonies. In addition, the fiscal and economic difficulties growing out of the current depression have further restricted these foreign outlets.

Production in the United States was expanded in 1931 by increased acreage and larger yields per acre. Also, since the combined domestic consumption and exports during the year ended October 1, 1931, were smaller than the 1930 crop there was an increase in stocks. The domestic uses for fire-cured tobacco are narrow in scope and exacting in respect to grades of leaf required. Thus the sharp curtailment of foreign orders leaves much intrinsically good tobacco without an effective market, and a large quantity of low-grade tobacco which scarcely will bring selling charges.

VIRGINIA FIRE-CURED, TYPE 21

The acreage of Virginia fire-cured tobacco in 1931 was about 8 per cent greater than in 1930, and 37 per cent greater than in 1929, when production was about in line with disappearance. Stocks of old tobacco on hand on October 1, 1931, were slightly larger than a year earlier, and the total supply was estimated at about 59,000,000 pounds, or 16 per cent above the indicated supply for the 1930–31 season. Disappearance declined to a new low point in 1931 and for the year ended October 1 was about 6,000,000 pounds less than the

estimated production for that year. Exports for 1931 were 11,598,000 pounds, and much lower than for any year since 1923, when statistics of tobacco exports by types first became available.

Although the quality of the 1931 crop is reported to be low, it is probably higher than in 1930. Prices to growers to January 1, 1932, averaged 4.7 cents per pound, the lowest shown by department records and nearly 50 per cent lower than those paid for the 1930 crop.

KENTUCKY AND TENNESSEE FIRE-CURED, TYPES 22 AND 23

In spite of the very low prices that prevailed for the 1930 crop, particularly in the western districts, the acreage of Kentucky-Tennessee tobacco was increased in 1931. This increase, combined with the larger yield per acre in 1931, gave a production of 156,000,000 pounds, which was materially in excess of the usual disappearance of these types. The total supply of 285,000,000 pounds on October 1, 1931, was considerably larger than for other recent years and was the largest since 1926.

Exports declined from the relatively high level of 105,441,000 pounds in 1930 to 69,206,000 pounds in 1931. This was 13 per cent less than the previous low figure of 79,777,000 in 1929. Domestic consumption apparently has not changed much in recent years and total disappearance for the year ended October 1, 1931, was only 113,000,000 pounds. If this rate of disappearance continues during 1932, and growing conditions for the year prove to be normal, a reduction in acreage of more than 23 per cent would have to be made to bring about any reduction in total supply by the opening of the next market season.

HENDERSON FIRE-CURED, TYPE 24

In common with other fire-cured types, the exports of Henderson fire-cured tobacco fell off sharply in 1931, resulting in an increase in stocks from 736,000 pounds on October 1, 1930, to 3,102,000 pounds on October 1, 1931. At the time when disappearance was showing this unexpected decrease production rose from 8,940,000 pounds in 1930 to 10,944,000 in 1931, so that the total supply increased 45 per cent. These facts have contributed to the weakest marketing position and the most unfavorable outlook that have confronted this type in years.

DARK AIR-CURED TOBACCO

The domestic uses of dark air-cured tobacco are confined to the manufacture of chewing and smoking, especially the former. This market outlet is constantly narrowing, both here and abroad.

1-SUCKER, TYPE 35

The acreage and production of 1-sucker tobacco in 1931 were not greatly different from those of the two preceding years. However, since production has continued to outrun consumption, stocks have increased and the total supply of 62,000,000 pounds on October 1, 1931, was larger than at any time since 1926. Disappearance for the year ended October 1, 1931, was only 22,000,000 pounds.

GREEN RIVER, TYPE 36

With the fourth successive increase in acreage, the 1931 production of 37,000,000 pounds was larger than for any year since 1926, being 9,000,000 pounds larger than the disappearance for the previous year. Stocks of 24,000,000 pounds on October 1, 1931, showed a slight increase over the preceding year, and the total supply of 61,000,000 pounds was 13 per cent larger than that of 1930. Exports, which usually account for between one-third and two-fifths of the total disappearance, were extremely small in 1931, amounting to only 5,500,000 pounds.

VIRGINIA SUN CURED, TYPE 37

The production of sun-cured tobacco in 1931 of 4,800,000 pounds was about 44 per cent above the small 1930 crop. The increase was largely due to improved yields, since the 1931 acreage was only 3 per cent larger than that of

1930. Stocks on October 1, 1931, were the lowest in years, but the total supply of 8,600,000 pounds on that date was about 18 per cent larger than the supply of the previous season.

CIGAR TYPES

Producers of cigar tobacco have been confronted by a narrowing outlet for their leaf. Production, on the other hand, was 4 per cent larger in 1931 than in 1930. This increase was due largely to improved yields per acre, principally in the Pennsylvania Seedleaf district, rather than increased acreage. Stocks of most types increased during the year so that the total supply on October 1, 1931, was larger than at any time during the last five years.

During the last two years, in response to economic conditions, cigar consumption has declined at a pronounced rate, and for 1931 it was about 9 per cent less than 1930. This has taken place in spite of a further substitution of cheaper cigars for the higher-priced classes. Other changes taking place in the industry have been a continuing trend toward concentration of production into fewer and larger units and the gradual replacement of independent leaf dealers by company buyers. The net results of these developments have been a contraction in the market outlet and a lowering of the price range for cigar tobacco.

PENNSYLVANIA FILLER, TYPE 41

The acreage of Pennsylvania filler tobacco in 1931 was not greatly different from that of other recent years. Because of increased yields, however, production was somewhat larger than usual, and materially larger than in 1930, when the crop was adversely affected by drought. Stocks on October 1 were about 10 per cent smaller than for other recent years, but production was enough larger to give a total supply of 134,000,000 pounds, or approximately equal to the average of the last five years. Disappearance of 44,800,000 pounds for the year ended October 1, however, was materially smaller than for the 1929–30 season and the smallest on record. Although Seedleaf always has been one of the most popular of domestic filler tobaccos, apparently its disappearance has been affected adversely by the decreased consumption of cigars.

MIAMI VALLEY FILLER, TYPES 42, 43, AND 44

The acreage of Miami Valley filler tobacco was increased in 1931 in spite of the lower average prices received for the 1930 crop. Although production for the year was only slightly larger than in 1930, it was the second largest crop since 1920. Stocks also increased materially in 1930, resulting in a total supply on October 1 of 87,000,000 pounds, which was larger than for any year since 1926. Disappearance, on the other hand, continued to decrease during the year, and for the 12 months ended October 1, 1931, was only 14,500,000 pounds. This is by far the smallest disappearance on record, it being only about half as large as for other recent years, and about one-fourth as large as in pre-war times. Apparently the readjustments that have been taking place in the cigar industry have reacted more unfavorably upon Miami Valley tobacco than upon any of the other domestic fillers.

NEW ENGLAND BROADLEAF, TYPE 51

Following the small crop of 12,057,000 pounds in 1929, production of New England broadleaf increased to 18,540,000 pounds in 1930 and 18,613,000 pounds in 1931. Stocks were low in 1930 as a result of the small 1929 crop, but increased again in 1931. The total supply on October 1, 1931, was 48,561,000 pounds, an increase of more than 5,000,000 pounds over the two previous years. At the same time these increases in supply were taking place, disappearance fell from 18,264,000 pounds during the 12 months ended October 1, 1930, to 13,401,000 pounds during the year ended October 1, 1931.

NEW ENGLAND HAVANA SEED, TYPE 52

Production of New England Havana seed remained at about 17,800,000 pounds in 1929 and 1930, but fell to 15,173,000 pounds in 1931. Owing to rapidly decreasing disappearance, however, stocks have increased in each of the last two years and the supply on October 1, 1931, was 53,438,000 pounds, compared with 50,783,000 pounds one year earlier and 49,195,000 pounds two

years earlier. From 1922 to 1929 the trend of disappearance of this tobacco was distinctly upward, and for the season ended October 1, 1929, disappearance was about 23,000,000 pounds. Since then disappearance has declined rapidly, amounting to only 12,518,000 pounds during the year ended October 1, 1931. Because of the decreasing demand for tobacco of this type, the price paid to growers declined from an average of about 31 cents per pound for the 1929 crop to an estimated average of about 15 cents in 1931.

WISCONSIN BINDER TOBACCO, TYPES 54 AND 55

The production of Wisconsin tobacco during the last four years has averaged about 51,000,000 pounds. The disappearance during the same period has averaged about 41,500,000 pounds. This excess of production over disappearance has resulted in an accumulation of stocks that has greatly depressed the market. The effects are likely to be felt for at least another year. Production decreased to 49,385,000 pounds in 1931 from 55,765,000 pounds in 1930, but stocks on October 1 showed an increase of about 20,000,000 pounds. The resulting net increase of 13,515,000 pounds in the total supply, occurring at a time of diminishing consumption, resulted in lower prices to growers. There are no present indications that consumption will increase.

BROOMCORN

Domestic requirements of broomcorn during recent years have averaged about 45,500 tons and exports about 4,500 tons, making a total utilization of approximately 50,000 tons. To produce such a crop with the 5-year average yield (1927–1931) of about 315 pounds per acre would require 320,000 acres. In 1931, 47,900 tons were harvested from 309,000 acres.

During the last 15 years yields of broomcorn have ranged roughly from 250 to 360 pounds per acre. With a yield as low as 250 pounds per acre, 320,000 acres would produce 40,000 tons. The same acreage, with a yield of 360 pounds per acre would result in a crop of 57,000 tons, or a total supply (including carry-over) of about 80,000 tons compared with the average annual supply of 75,000 tons for the 5-year period 1927–1931.

The annual carry-over of brush from the production of the previous year has been gradually reduced from some 32,000 tons on May 31, 1927, to less than 23,000 tons on May 31, 1930. Stocks on May 31, 1931, were about 24,000 tons. If the consumption for the current 1931–32 season is equal to the average for the past few years, 26,000 tons would need to be taken from the 1931 crop of less than 48,000 tons. This would leave a carry-over on May 31, 1932, of less than 22,000 tons. On the other hand, new-crop movement to December 1, 1931, was slightly less than 25,000 tons, compared with about 29,000 tons in 1930 and more than 30,000 tons in 1929 for the corresponding period.

As the uses of broomcorn are practically limited to the making of brooms and the seasonal demand is satisfied at about 50,000 tons, a crop much greater or less than these requirements usually results in a decided change in the farm price.

Although the farm price of broomcorn shows a decided decline during the last three years, this reduction in price is in about the same proportion as the reduction in the price of grain sorghums, corn, and cotton—the principal cash crops that compete with broomcorn. Broomcorn growers in 1931, therefore, did not suffer greater comparative reductions in prices than did growers of competing cash crops in the same areas.

Broomcorn production requires experienced handling, special equipment, and an adequate supply of labor. As buyers do not ordinarily visit unimportant outlying districts, growers in communities that have a total acreage sufficient to assure a market have a material advantage over those not so situated.

RICE

Since 1920 rice acreage has been maintained at an average of about 960,000 acres. This acreage with average yields would produce a supply sufficient for the usual domestic needs and leave a surplus for export and carry-over about equal to that of recent years.

The 1931 rice crop for the United States was estimated at 45,014,000 bushels (12,504,000 barrels) of which 37,014,000 bushels (10,281,667 barrels) were

estimated for the southern belt and 8,000,000 bushels for California. The revised estimate for the 1930 crop is 44,299,000 bushels (12,305,300 barrels), and a 5-year 1926–1930 average crop of 40,876,000 bushels (11,354,500 barrels). The carry-over as of August 1 was estimated to be the equivalent of 117,000,000 pounds of milled rice (1,170,000 barrels or 4,200,000 bushels rough rice), which is 37,000,000 pounds larger than the carry-over a year earlier but about the same as the average carry-over of the last five years.

The disappearance of the 1930–31 supplies of rice in the United States indicates somewhat smaller domestic takings with sales to island possessions and exports somewhat above average. Exports of rice totaled 221,702,000 pounds (7,981,500 bushels) during the 1930–31 crop year as compared with 224,364,000 pounds (8,077,300 bushels) for the 1929–30 crop year and an average of 209,843,000 pounds (7,554,570 bushels) for the 5-year period 1925–26 to 1929–30. Sales to Porto Rico during 1930–31 totaled 212,952,000 pounds (7,666,490 bushels), which was the largest annual movement to this market. Shipments to Hawaii during the 1930–31 crop year totaled 89,183,000 pounds (3,210,690 bushels), which is the largest annual movement to Hawaii. There has been a steady upward trend in the shipments of United States grown rice to Porto Rico and Hawaii. The annual shipments to Porto Rico appear to have been affected more by changes in prices than have the annual shipments to Hawaii.

The domestic market, consisting of continental United States and insular possessions, normally takes between 900,000,000 and 1,000,000,000 pounds of rice each year. The total quantity exported usually varies with prices more than do the takings of the domestic market. For the five years 1926–27 to 1930–31, when domestic prices were relatively low, annual exports averaged about 250,000,000 pounds. During the period 1923–24 to 1925–26, when domestic prices were high, annual exports averaged only 865,000 pounds. Almost 50 per cent of the total exports during 1930–31 were to Germany, Argentina, Chile, and the United Kingdom. During the last two years, exports to Germany, Argentina, and the United Kingdom have decreased, whereas exports to Chile have been increasing. The decline in total exports from 1928–29 to 1930–31 can be accounted for, in large part, by the net decrease in the takings of those countries. During this same period the total net German rice imports declined 35 per cent whereas imports of United States rice have declined 30 per cent. Total net imports into the United Kingdom during this period declined 12 per cent whereas imports of United States rice declined 28 per cent. For Argentina net imports increased 36 per cent during this period whereas imports of United States rice decreased 50 per cent, reflecting the increased competition from Brazil.

The accounted-for stocks and movement of rice for 1930–31 were as follows: Continental United States, including Alaska, 690,063,000 pounds; Porto Rico, 212,952,000 pounds; Hawaii, 89,183,000 pounds; total domestic, 992,198,000 pounds; exports, 221,702,000 pounds; and 117,000,000 pounds (milled rice equivalent) carried into the 1931–32 season makes a total of 1,330,900,000 pounds for the year. The apparent supply for milling for the 1931–32 season, based on stocks as of August 1 and estimated production is equivalent to 1,302,000,000 pounds of milled rice.

SOUTHERN BELT

The movement of new-crop rice to mills during the period August through December, 1931, totaled 5,520,000 barrels as compared with 5,639,000 barrels for the corresponding period in 1930. The movement of milled rice into consuming channels during this period amounted to 466,900,000 pounds as compared with 476,800,000 for the corresponding period last year and a 5-year (1927–28 to 1931–32) average of 473,200,000 pounds. Stocks of rough rice in first hands on January 1, 1932, were estimated to be 4,856,000 barrels, as compared with 4,684,000 barrels a year earlier. Shipments to Porto Rico for the first five months of the 1931–32 crop year totaled about 90,191,000 pounds, which was about the same as the Porto Rico takings for the corresponding period last year and above the average of the last five years. Exports from southern ports for the first five months of the current crop year totaled 80,608,920 pounds compared with 92,011,012 for the corresponding period last year. Stocks of rough and milled rice in the millers' hands on January 1, 1932 were the equivalent of about 196,400,000 pounds of milled rice as compared with 164,200,000 pounds a year earlier and a 5-year (1926–27 to 1930–31) average of 226,800,000 pounds.

Prices of milled rice during the current crop year to January were at a lower level than at any time since the spring of 1921. Fancy Blue Rose at New Orleans averaged $3.21 per 100 pounds for August. Subsequent declines resulted in a price of $2.75 for the middle of October. Quotations on this variety and grade for January 4, 1932, ranged from $2.87½ to $3. Rough rice prices at Louisiana mills during early October were averaging about $2 per barrel. Quotations on Blue Rose rough at these points on January 4 ranged from $2.40 to $2.60 per barrel.

CALIFORNIA

Supplies of California rice for milling this year appear to be the equivalent of about 250,000,000 pounds as compared with 230,000,000 pounds for 1930–31. Shipments of California rice to Hawaii during the period August 1 to December 31, 1931, totaled 31,550,000 pounds as compared with 36,517,000 pounds for the corresponding period last year. Exports of California rice for these same periods were 1,746,144 pounds and 3,365,671 pounds, respectively.

The outlook for exports of California rice to Japan during the remainder of this crop year may be indicated to some extent by the supply situation in Japan. The Japanese crop is officially reported to be the equivalent of 17,287,000,000 pounds of brown rice. The carry-over from the 1930–31 crop was about 2,871,000,000 pounds, making a total domestic supply of 20,169,000,000 pounds. The consumption in Japan during 1931–32 is estimated to be 22,935,000,000 pounds. Therefore, the deficit in domestic supplies appears to be 2,766,000,000 pounds. This is the largest deficit for any year during the last 10 years. The next largest was in 1926–27, which amounted to 1,702,000,000 pounds. During 1926–27 Japan took about 92,000,000 pounds of California rice. Usually a large percentage of the deficit in Japan proper is made up by shipments from Taiwan and Chosen, the remainder being supplied from imports. The bulk of the Japanese imports came from Asiatic surplus-producing countries and from California. This year the exportable surpluses of these Asiatic surplus-producing countries are reported to be smaller than the record supplies of last year. Prices in these countries, however, continue at relatively low levels. The supply situation in Japan at the present time appears favorable for imports of California rice, but prices in the Asiatic surplus-producing countries continue at low levels, and it is probable that the bulk of the Japanese imports will come from that section.

The limiting factor in Japanese takings of California rice is the San Francisco and Tokyo price relationship. The Tokyo price of brown rice is usually from 80 cents to $1 per 100 pounds above the San Francisco price of brown rice when Japan is buying California rice. Middle quality brown at Tokyo on January 6 was quoted at $2.22 per 100 pounds and No. 1 Brown at San Francisco on January 4 at $2.65.

The price of fancy California-Japan at San Francisco has declined from $3.52½ on October 5 to $2.95 on January 4, 1932. During the corresponding period last year the price of this grade of rice advanced from $3.57 to $3.60 per 100 pounds. Prices of No. 1 paddy f. o. b. Sacramento growing points have been accordingly lower this year, averaging from $1.25 to $1.35 per 100 pounds during the first part of October and $1.30 to $1.35 during the first week of January, 1932.

SUGAR

Low prices and restrictive measures appear to be reducing world sugar production. Reports to date indicate that the 1931–32 world beet and cane sugar production probably will be about 28,700,000 short tons, as compared with the record crop of 31,984,000 short tons harvested in the previous season. The decrease in production, however, is offset in part by an increase in stocks. The total stocks of sugar reported at the beginning of the 1931–32 sugar season (September 1, 1931) amounted to 8,335,000 short tons, which is 1,424,000 short tons in excess of the stocks at the beginning of the previous season. Of this amount, however, 2,800,000 short tons have been segregated, to be held off the market and to be released gradually over a period of five years. Should the world's sugar consumption during the present season equal that of last season, the world's stocks at the end of the season will be less than at the beginning of the season.

A more detailed discussion of the sugar situation was presented in the Agricultural Outlook for the Southern States, 1931–32, Miscellaneous Publication No. 137, pages 27–29.

HONEY

No authoritative figures exist on the total number of colonies of bees in the United States and no current figures are available on relative production of honey from year to year. But the crop of 1931 is known to have been one of the smallest in several years in the important commercial producing areas of the western Mountain States and the North Central States, and in some of the Pacific coast areas.

Demand for honey in large lots, both for domestic use and for export, has continued light during the last year. Although prices are now the lowest since before the World War, price declines during the past year have been less than for most other farm crops. This was partly because of the short crop, but also, beekeepers have increased their efforts to dispose of honey locally, by retail sales or through near-by stores, thus lessening the supplies of honey entering the commercial channels of trade.

Total exports for the 12-month period ended December 31, 1931, were about 4,200,000 pounds. Although this was slightly higher than for the preceding 12 months, it is a heavy drop from the exports of the fiscal year ended June 30, 1929, when nearly 12,000,000 pounds were exported. Great Britain has replaced Germany as the leading foreign market for American honey, with Germany in second place.

The outlook is favorable for a good flow of nectar this season. Fall and early winter precipitation, mostly in the form of rain in the East and of snow in the western mountain regions, has been sufficiently abundant so that beekeepers in most important commercial areas are optimistic over the possibilities of this year's nectar flow. On the other hand, the condition of colonies appears to be less satisfactory. Owing to late brood rearing, colonies generally went into winter quarters strong in young bees. The warm fall enabled bees to work exceptionally late on nectar-bearing plants, so that the fall honey flow was generally ample for ordinary requirements and in some cases furnished a surplus. Because of the unprofitable 1931 season, however, less care than usual was taken to prepare the apiaries for winter, and the mild fall and early winter resulted in so much unseasonal activity on the part of the bees through most of the Northern States that consumption of stores has been heavy and colony strength has been weakened. Feeding will be necessary in many apiaries if the colonies are to survive and extra attention will have to be given the colonies in the spring in areas in which the main honey flow comes early. Bees wintered in cellars require close watching during mild winters like this one so that they may be moved out of the cellar at least temporarily if they become too restless. Even if losses of colonies this winter should be no greater than usual the early strength of the colonies may be below average because of excessive winter activity.

THE LONG-TIME AGRICULTURAL OUTLOOK

In this portion of The Agricultural Outlook for 1932 there are presented certain general aspects of the agricultural situation which could not well be included in the detailed discussion of the outlook for individual agricultural commodities and other specialized sections of this report. For the most part, the longer time view, rather than the 1-year look ahead, is adhered to in this general discussion.

THE GENERAL PRICE LEVEL

When a significant revival in business finally arrives it will probably be accompanied by price stability or by a recovery in prices from the low points of this depression. Much will depend on developments in national and international financial conditions, in trade relations, in efficiency in the use of gold and other credit factors, in trends of production and improvements in industrial and agricultural technic.

From the high point of inflation in 1920 prices have fallen to the present low level in two major collapses, the first of about 44 per cent between the summer of 1920 to the summer of 1921 and the other after a period of comparative stability, a drop of about 33 per cent between the winter months of

1929 and the winter months of 1931. Viewing the entire price movement of the past 11 years, it now appears to have been but the aftermath of war-time inflation not unlike the downward trends in prices which set in after the inflated price levels of the Civil War period and of the period 1812–1815. Each of the earlier periods of major price inflation was followed by long-time downward trends for about 30 years.

These earlier periods, 1815–1845 and 1865–1896, were characterized by temporary price recoveries associated with periods of industrial prosperity and credit expansion, and as these periods of prosperity gave way to depression, commodity prices went to still lower levels. Agricultural prices shared in these cyclical movements. Not unlike these earlier experiences was the temporary recovery in prices from the low levels of 1921 to the higher level of 1925, a recovery associated with the industrial and credit expansion which began in 1921 and, as in the former periods, the succeeding depression of 1929–1931 has been accompanied by commodity prices falling to a level well below that of the previous depression.

The course of prices during the few years preceding 1931 indicated that there were forces making for a downward trend in the general price level. Even during the prosperity period 1923–1929 there was evident a persistent downward trend in nonagricultural prices in the United States and a downward trend in the price levels of certain foreign countries. Several countries had shifted from an inflated currency to a previous gold basis, or stabilized their currencies upon new gold bases, or adopted other financial policies that contributed to a world-wide contraction in currency and credit available for an expanding volume of production and trade. The expansion in world industrial and agricultural production in the prosperity years up to the beginning of the present depression, was marked by rapidly improving technic resulting in or accompanied by reduction in unit costs in many lines of production. In addition to their effect on prices through increasing total production, the reductions in costs per unit have tended through competition to lower prices. Although production has been greatly curtailed during this depression, many industries have placed themselves in a position to produce in the future at still lower costs per unit through the further development of improved methods, through their ability to obtain raw materials at much lower prices, and through some reduction in wages.

Certain of the policies pursued by some foreign countries up to 1931, leading to lower prices, have been suddenly reversed. England and a number of other countries went off the gold standard during the last half of 1931. By these actions, they have cheapened their various media of exchange, and prices in some important foreign countries are already somewhat higher, but are not sufficiently higher to offset the depreciation in exchange. In the United States prices are still declining (January, 1932).

So far during this depression, as during most major depressions, prices of farm products have fallen more than have prices of nonagricultural products. The latter have been partly sustained by the great curtailment in production; it is partly because of the inability of agriculture to make such drastic curtailment that agricultural prices have fallen more.

Inasmuch as increasing gold production is one of the factors that eventually tend toward higher prices, it is worth noting that during recent years, the annual increases in output have been small compared with the marked annual increases that took place during the period 1875–1878 and 1891–1895, the years that immediately preceded general price advances. Gold production in 1930 was stimulated by the increasing value of gold in terms of falling commodity prices and lower costs of production. This increase in the value of gold has recently brought forth from India gold not hitherto used for monetary purposes. If a marked expansion in gold production should occur, and especially if it should continue for several years, the release of gold for credit purposes would be one of the factors counteracting any deflationary tendency.

FOREIGN COMPETITION AND DEMAND

Conditions in foreign countries continue to reduce demand abroad for the agricultural products of the United States. The conditions of the last two years have encouraged many importing countries to resort to measures increasing the self-sufficiency of their agriculture, while many of the surplus-producing countries without profitable alternatives have generally maintained production in the face of the declining prices. In some cases shifts have been made which may prove to be only temporary. Doubtless significant improve-

ments in business in important consuming countries would tend to cause some relaxation of trade barriers and consequently to check movements toward self-sufficiency in agricultural production. In the long run, specialization in production for international trade is likely to continue, but even in this the United States may meet increasing competition for many agricultural products from surplus-producing countries.

As indicated in the section on Foreign Competition and Demand of this report, the severest competition is likely to be in wheat from Russia, Canada, Australia, and Argentina. Doubtless exports from all of these countries can be increased but they are not likely to be increased in the face of such low prices as prevailed during last year. However, if the price level should remain low, with continued low prices for alternative production, all of these countries are likely to remain important exporters even at prices considerably lower than those that prevailed during the 1924–1929 seasons. Considering recent trends in production and prices, it seems likely that Russia may contribute during the next 10 years important export surpluses of wheat; Canada probably will export on the average more than it has from the reduced yields of the last two years; and Argentina and Australia are likely to maintain exports perhaps somewhat above the average of the last five years.

Butter, lard, and vegetable oil production in the United States probably will continue to be subject to severe competition from the vegetable oils of the Orient and tropical countries. The large volume of present production and the low prices tend to check imports, particularly during the business depression; and improvement in business conditions in this country probably will bring larger imports of vegetable fats and oils, even at very low prices. The European demand for lard from the United States, which has been considerably reduced by the world-wide depression, may be revived to some extent but will continue to suffer from the increasing competition from foreign fat and oil production.

Low prices seem to be reducing the production of cotton in many foreign countries, as they are in the United States. The prevailing low prices for American cotton are giving an impetus to the foreign consumption of our crop. The cotton producers of the South are no doubt in position to hold an important place, in the long run, in world cotton production and in foreign cotton markets.

SOME FACTORS AFFECTING FUTURE VOLUME OF AGRICULTURAL PRODUCTION

In view of the unfavorable prospects of the export market for American farm products, the outlook for a considerable expansion in volume of production for the Nation as a whole depends largely on whether a considerable expansion of domestic consumption of farm products can be expected.

One significant question is whether there is a prospect for a large increase of population. The developments of the last decade indicate a radical change from the very rapid increase of population and expansion of land requirements to which we have become accustomed during the greater part of our national history. The tendency toward a declining rate of national increase in population which has continued for several decades has been accentuated by restrictions on immigration and a marked decline in the birth rate during recent years. Assuming the continuance of these conditions, statisticians now foresee a total increase of population little more than 20,000,000 above the present level. Already the current annual increase is estimated at less than 1,000,000, and this increment is likely to become progressively smaller.

The prospect for so small an increase in the number of people to be fed and supplied with raw materials from agriculture during the next two decades indicates that we should not count on needing any appreciable increase of total arable acreage. In fact, the rate of such long-time expansion need not be even so great as the rate for population, since the further substitution of mechanical power for horsepower and increased efficiencies in the utilization of land may provide most, if not all, of the additional production required for such population increase as we have reason to anticipate.

During most of the period since the World War, until very recently, farmers were embarrassed by the high cost of farm labor, as compared with prevailing prices of farm products. This, however, was offset to some extent by substitution of machinery. In some sections not very well adapted to the use of machinery the scarcity of labor was accentuated by migration to cities of many of the able-bodied men of the farm population. In many areas this scarcity

of labor has partly contributed to the inadequate maintenance of the farm plant.

The high ratio of farm-wage levels to prices of farm products, which prevailed throughout most of the decade preceding 1929, was further increased by the severe decline of prices that began in that year. As usual, farm wages lagged considerably behind the drastic decline of prices. Although recently there has been a tendency for the gap to be narrowed somewhat, many farmers find it virtually impossible to hire labor even at present relationships between wages and prices, because farmers are compelled by low returns to cut cash outlays wherever possible.

On the other hand, reports indicate that there has been an accentuated movement of population from cities to the country in search of cheap food and shelter. This movement has augmented the supply of available farm labor that may be obtained in some places with little or no payment other than subsistence. Until such time as the volume of industrial unemployment is materially reduced, the farm-labor supply may be expected to continue more abundant than it has been during most of the decade since the World War. The present motive to increase the use of labor is intensified by the fact that machinery prices have not fallen in proportion to other prices. When machinery costs are again in line with farm wages, or when the prices of farm products are significantly improved, the displacement of farm workers by machinery will once more become a possibility.

LAND VALUES

The latest available estimates (March 1, 1931) indicated that farm real-estate values for the United States averaged 6 per cent above the pre-war base of 1912–1914, or approximately 38 per cent below the peak of 1920. In view of the further decline in prices of farm products since last March, and because of the tendency for farm-land values to lag behind the movement of prices, considerable further decline as compared with last March may be shown when figures for March 1, 1932, are available.

The market for farm real estate during 1931 has been affected by two sets of conflicting forces. Continued low prices for the products of the farm have resulted in the reduction of farm income to less than half that of 1929. Operating costs have been reduced somewhat, but not in proportion to the decline in prices of farm products. Fixed charges have declined little if any; taxes have continued at high levels, and for many farmers interest and principal on debts have remained undiminished. As a result of these tendencies, therefore, a considerably greater proportion of the gross income of the farm is required to meet fixed charges than before the present general depression began. The increased difficulty experienced by farmers in meeting their fixed charges with their drastically reduced incomes has resulted in continued foreclosures and distress sales, with consequent addition to the holdings of agencies the primary business of which is not farming, and which may therefore be regarded as prospective sellers of farm land. The continued decline in the ratio of prices received by farmers to prices paid by them has led to a cautious attitude on the part of many prospective buyers of farm lands.

On the other hand, there are certain factors which may exert an influence toward checking the decline in farm-land values. These factors have become somewhat more tangible during the last year.

There is a distinct tendency for farms in strong hands to be withheld from the market at present prices. Recent financial measures for strengthening the credit system and the more general recognition by loan agencies of the inadvisability of policies of drastic foreclosure should also lessen some of the pressure in the market for farm lands. Unemployment in industry has led many to consider the advisability of returning to the farm, and has probably served to stimulate somewhat the demand for farms. The weak financial status of many of this group, however, has tended to direct the primary effect of this movement toward the rental rather than the purchase market.

FARM-MORTGAGE CREDIT

The long-term outlook is for an ample supply of farm-mortgage credit for conservative loans at moderate interest rates. The Federal land banks, recently strengthened by $125,000,000 additional capital from the United States Treasury, should be in improved position to care for applicants whose security

is ample and who satisfy other requirements. The experience of other loan agencies and investors during the recent business depression has shown that farm-mortgage loans made on a conservative basis compare favorably with city mortgages, highly rated corporation stocks, and even with many classes of bonds. Return to more normal industrial conditions should increase the supply of mortgage credit available from local banks and other sources. It should reduce the present demand for policy loans of life insurance companies and strengthen their demand for other loans and investments.

The future difficulties in the farm-mortgage field lie, therefore, so far as can be foreseen, not in the supply of new credit but rather in existing obligations. Although most of these mortgages represent conservative amounts, substantial numbers are excessive in size in relation to present land values.

This difficulty traces directly, of course, to the high war-time prices and inflated land values, followed by a drastic deflation in prices of agricultural products which was more recently greatly intensified by the general industrial depression. Such prices are at present less than 70 per cent of pre-war levels, whereas fixed charges, particularly taxes, and interest obligations continue practically unabated from the high levels chargeable mainly to war-time derangements. Although farm taxes have recently indicated a slight downward tendency, they stand at roughly two and one-half times the pre-war level.

In consequence of these conditions, a decline in the amount loaned per farm and an increase in the number of farms mortgaged appear likely to occur during the next several years if farm-commodity prices should continue at or near present levels. The fact that 5 per cent of mortgaged farms reported debt greater than the full value of the farm and that 10 per cent reported debt between 75 per cent and the full value of the property in 1931 suggests the probability of further forced liquidation. The process of readjustment is being eased by greater willingness of creditors to adjust terms and conditions to borrowers' circumstances.

The decrease in voluntary transfers and the lower land values have reduced the demand for loans to purchase farms. On the other hand, the failure of about 9,000 banks, or 30 per cent of the number operating in 1920, caused an unusual resort to mortgage credit from other sources to fund short-term obligations and to meet operating expenses. The difficulty of quickly reestablishing adequate country-bank facilities to supply personal and collateral credit is likely to contribute further to the increase in the number of farms mortgaged, which has risen from 27 per cent of owner farms in 1890 to 42 per cent in 1930.

MECHANIZATION

In this section of the report of the Agricultural Outlook for 1921, statements were made with reference to the development and progress of new types of farm equipment and the mechanization of agriculture. It was pointed out that progress in mechanization usually means increased efficiency, lower costs, expanded output, and hence lower prices; that these necessitate readjustments, geographic and otherwise, of the volume and composition of the agricultural output to consumer demand and a restabilization of prices. It was further stated, that, although further progress in mechanization of American agriculture might be expected in the next 10 years, the extent of it would be limited by the rapidity with which industry can absorb displaced agricultural labor.

It became evident during last season that the depression, which had in 1930 slowed up the sale of machinery and checked the progress of mechanization, has become more pronounced in these effects. The sale of farm machinery has dropped to a very low level. This means not only a reduction in the rate of replacement of farm machinery far below normal but it means a cessation in the opening up of new farms which, in the last decade, accounted for a considerable portion of the demand for farm implements of the newer types. By virtue of the stern necessity, cash outlay has been contracted throughout all of our agriculture. This has meant not only fewer purchases of machines but in some cases it has meant deferring repairs and, to a limited extent, laying aside of motorized machinery to avoid the cash outlay involved in buying fuel and oil for its operation. Even granting that highly improved machinery contributes to the lowering of the cost of production, it seems obvious, in the light of current experience, that extremely low prices of products curtail rather than stimulate the purchase of machinery. When the price falls below a figure that will compensate for the current operating cash costs as well as interest and

depreciation on these machines, expansion in their use can go no further until prices and cash returns again improve.

This is not to say that American agriculture is destined to go backward in the important matter of the use of improved machinery. The limited extent of current replacement of tractor use by horses has taken place in the areas in which horses are most numerous and in which farm operations are of such nature as to have kept a fairly good supply of horses still on farms. In the most highly motorized regions, such as the Great Plains, where the supply of work animals is relatively small, this tendency has not been marked. It is altogether likely that with any significant recovery in prices of cotton, wheat, and other staple products, the production of which is facilitated by the use of more mechanical equipment, progress in its use may be resumed. However, the present lull in the development of mechanization can be considered as one of the significant and withal normal manifestations of a depressed agriculture.

READJUSTMENTS IN PRODUCTION

The trend of world crop production has been upward for 30 years. For 20 years following 1900, crop production in the United States moved parallel with that of all other countries as a group. Since 1920, production in the United States, after moderate annual increases, appears to have fallen off slightly, whereas the production in the other countries has gone ahead even more rapidly than before the war. Growth of world population and gradual improvement in standards of living suggest a continuation of the trend of world crop production upward at a decreasing annual rate, except in years of bad growing conditions and except for retardations attributable to temporarily adverse economic forces.

For the last decade, net production in the United States (crops, livestock, and livestock products) may be represented by a smooth curve slightly convex with the high point at 1926. Crop production has varied with the seasons and with the shifts in geographical distribution of commodity production. Production was low in 1921, a poor season; it increased rapidly during the next three years; since then changes have been small. Livestock production has increased moderately since 1924. Total acreage in crops has changed little during the decade, in spite of marked annual changes in acreage of individual crops. These year-to-year shifts have not all been as advantageous as those who made them hoped they would be.

During most of the decade 1920–1929, production was maintained with increasing efficiency by a decreasing number of farmers, and it has been maintained over a period in which farmers saw inventory values of their real estate decline toward pre-war levels, their tax and credit burdens increase, and the relative prices of their products remain continuously below the prices they were paying for current purchases for living and for production. In 1930, low prices and short crops reduced their gross income by 2½ billion dollars below that of the year before and in 1931 still lower prices for a slightly larger production took another 2½ billion dollars from farmers' gross income. Farm income of 1931 thus became the lowest in 20 years.

Production during the next few years depends on reactions to the present bad situation in which most farmers find themselves. It has been assumed in the past that farmers would do about what they were accustomed to doing, that alternatives were few, and that possible changes were of small importance. Now it appears that the ability of many farmers to continue production may depend on fairly thorough-going readjustment of their obligations to a new basis as yet to be developed. Farmers who are out of debt may not be willing to proceed on the customary basis with prospects of the meager returns. Production in the immediate future is likely to show some reduction pending these readjustments to new relationships.

A better idea of the significance to farmers of these changes in trends of production may be gained by a consideration of individual commodities. For this purpose it is convenient to classify certain of our leading agricultural commodities on the basis of their relation to world and domestic markets. The first group may be called world commodities; that is, commodities of which a considerable proportion of our total production seeks a foreign outlet. The most important of these are wheat, cotton, tobacco, and pork. The second group are domestic commodities, or those in which domestic production and domestic consumption are approximately in balance; the important ones are dairy prod-

ucts, beef, poultry products, fruits, and vegetables. The third group are what we may call the deficit agricultural commodities; that is, those of which our domestic production is important but falls short of meeting domestic demand. The important commodities of this group are sugar, wool, and flax.

First are considered the so-called world commodities, of which cotton, measured by the percentage exported, is by far the most important. The trend of cotton production, in terms both of acreage and of total yield, has been sharply upward during the last 30 years. It has risen and fallen but it now stands almost 75 per cent, as measured by total output, above the level of about 1900. Most of this increase had been realized by 1926. The present situation does not supply a motive for further expansion. Indeed, as noted in the cotton section of this report, a downward turn has already taken place in acreage as a result of low prices.

Almost from the beginning, cotton in American agriculture has been outstandingly a world commodity. The present situation in the South, under which cotton is overwhelmingly the leading crop and the main dependence for income for the entire region, makes it unthinkable that cotton should not continue on an export basis. The question therefore of readjustment centers around those means and methods by which cotton producers, and the Cotton Belt as a whole, can meet the new elements in the competitive situation in cotton production. In every similar situation in the past there has been a significant reduction in acreage such as that which seems now to be under way. This reduction has always been followed by at least a compensating expansion when price and cost conditions have again become favorable.

But reduction in acreage can go only a little way in meeting present difficulties. Diversification has been recommended as a cure for the economic ills of the Cotton Belt. The recently advocated live-at-home program has been widely adopted and has helped the situation this year. It is a rational expedient not only in hard times but under more favorable conditions. Another means of readjustment has been the curtailing of cash expenditures wherever possible. The present hard situation makes justifiable, as an emergency measure, such curtailment through the reduction in the use of fertilizer and hired labor beyond a point which can be maintained permanently. From the longer time viewpoint, adjustments that look toward greater productive efficiency and lower costs and that will prove more permanently beneficial in their effects must be sought.

Throughout the so-called poorer cotton-producing areas it seems evident that no very rapid shifting of land and people out of agriculture can be expected. Before much of this sort of development can take place, alternative opportunities must be available to the displaced farm families either in industry or in a growing demand for other farm products made possible by expanding industrial population. In the areas of more favorable natural conditions continued progress in improving the methods of production by the greater use of machinery and in improved farm practice may serve further to reduce costs, if these things are accompanied by better financial organization. This sort of readjustment will probably be necessary if American cotton is to hold its own in the intensified world competition.

The next most important American world crop is wheat. The volume of output of this grain has risen and fallen, but the trend had been substantially upward, so that the present rate of production represents an expansion of about 25 per cent above that of 30 years ago. Normal export of wheat grown in the United States amounts to roughly 20 per cent of total domestic production. So large a dependence upon the foreign market makes it probable that wheat production in the United States also will continue to be based upon the world market outlet. To reduce, at this time or in the near future, to a volume commensurate with domestic consumption, would take out of use much good wheat land and throw out of employment a considerable body of agricultural labor for which there is not yet any prospect for remunerative employment elsewhere.

In planning for adjustment the ascendancy of the 1-crop system, or a close approach to it, in practically all of the most important wheat-producing areas must be recognized. Readjustment under these conditions, through a shifting to alternative enterprises, has only very limited possibilities. Attention at this time is being directed toward the growing of larger quantities of feed crops, in combination with wheat, in some of the most highly specialized wheat areas of the Great Plains, with accompanying livestock production. This is an adjustment of questionable wisdom not only in view of the limitations in feed and livestock production to be found in the physical conditions, except on an extensive grazing basis, in those wheat-producing areas, but also in view of the

unpromising prospects for the prices of those alternative products, especially if their total output should increase materially.

The present extremely low prices have led to a situation which will involve in some areas, a considerable amount of land abandonment and bankruptcy, with extensive realignment of ownership and tenure, and probably eventual return to grazing use.

Some relief may be looked for in the long run in the direction of improvement in production method. It is practically out of the question to curtail cash outlays in specialized wheat production in these areas by any sweeping abandonment of the use of tractors and large-capacity machines. On the other hand, the further progress toward greater efficiency through mechanized methods, which was expected two or three years ago, probably will not be realized under extremely low prices because of the additional costs that would be involved in the replacing of obsolescent machines. It would seem that such progress must be largely at a standstill until better prices arrive to stimulate it.

Hog production is another enterprise in which the American farmer has depended to a considerable extent on the foreign market, although from 1900 to the outbreak of the World War the trend in the exports of hog products from the United States was gradually downward. During and immediately following the war, exports of pork were greatly increased and those of lard were expanded materially in the early postwar years. Pork exports in 1919 represented about 24 per cent of the total domestic production, and lard exports in 1923 were about 43 per cent of the total production. Since those years, the trend of exports of both has been sharply downward, and in 1931 less than 3 per cent of the domestic production of pork and only about 24 per cent of that of lard were exported. From 1910 to 1914, exports of these commodities averaged about 32 per cent of total lard production and 6.6 per cent of total pork production. During the World War, European hog production was reduced to a very low level, but since the war it has been greatly expanded, and in 1931 was somewhat above pre-war levels. Import restrictions in foreign countries, together with depressed conditions and lower purchasing power abroad, are additional factors that have contributed to the reduction in exports of American hog products.

There is grave question not only as to whether recovery in exports may be expected or whether, indeed, this diminution in export outlet has run its course. In any case, this contracted foreign demand is having the initial effect of inducing a high degree of distress in the Corn Belt. It is contributing to a severe shrinkage in land values accompanied by heavy mortgage foreclosures and delinquency in taxes.

In an effort to meet the situation, farmers are seeking alternative sources of income. With a wider range of productive possibilities it is easier for the Corn Belt farmer than for the wheat farmer to turn to alternative enterprises. Dairying is being expanded as a result of this motive. This in itself is affecting the farmers of other regions, particularly those who have been specializing in dairy production. It is likely that the Corn Belt will see a still further realignment in crop acreages looking toward less production of concentrate feeds and possibly a larger production of roughages to support an expanding dairy enterprise.

As is true of farmers in other parts of the country, Corn Belt farmers are making every effort to reduce cash outlay. They are producing more of their own requirements on the farm, postponing replacement of buildings and machinery, and limiting their expenditures for fertilizers and repairs. All of these efforts at readjustments are likely to have a more or less permanent effect, resulting in important changes in the future farming of the region. Such farming is likely to be characterized by greater attention to the intensified forms of livestock production, particularly dairying, by the greater production of food crops, and by a retardation or actual reversal of the recent tendency toward larger farms and more mechanized production.

Tobacco is another agricultural commodity of which the United States produces a supply far in excess of domestic demands. Approximately 50 per cent of this crop is annually exported. The domestic production of tobacco has practically doubled during the last 30 years. It is produced in widely scattered areas under extremely diverse conditions and is a commodity of greatly differing types and grades. These facts greatly complicate the economic situation with reference to it.

It furnishes another example of declining export demand for American products. Foreign shipments have greatly diminished within the last two years. This aggravates the condition of acute oversupply, particularly with reference to certain types and grades, a full discussion of which is given in the tobacco section of this report.

As it is a highly intensive crop, and makes extremely heavy drafts on certain elements of soil fertility, tobacco normally does not occupy a very high percentage of the acreage of the farms on which it is grown. On the other hand, it usually is a major source of income on the farms and in the areas in which its production is important. These circumstances make exceedingly difficult the problem of adjusting its production to demand. Abandonment of tobacco on the acreage devoted to it does not ordinarily afford an alternative opportunity for anything like an equivalent amount of income. Tobacco is a heavy user of family labor, and when it is removed from the farming system a major disruption of the whole labor program results.

Next are considered what have been termed domestic products; those the production of which is approximately in balance with domestic demand. The most important of these, from the point of view of total gross income and the farm population affected, are dairy products. Since 1900, there has been a greater and greater tendency for dairy production to keep pace with the growth in population. During most of that period there has been a slight net import of dairy products, mostly in the form of foreign types of cheese. The trend of production has been upward at a moderate rate and production is at present in the neighborhood of 50 per cent above the level of 1900.

The dairy section of this report shows a marked shifting of the center of production westward into the upper Mississippi Valley, where dairy production has come more and more into competition with meat production as a result primarily of the declining income derived from the latter source. At present there is a well-defined competitive relation between the older northeastern dairy areas and this upper Mississippi Valley region, in large parts of which dairying is comparatively new as a major commercial enterprise. This western area has unmistakable natural advantages in the competition in the way of cheap feed, abundant pasturage, and adequate labor supply.

The question arises as to whether conditions of low income in older major enterprises of the Middle West, such as beef and pork production and wheat growing, will make for a permanently overexpanded condition in the dairy industry itself. Certain factors tend to prevent such a development. In the first place, within certain limits dairy production is highly elastic. It can respond quickly to price stimulus either through increased or through decreased production by means of quick changes in the number of cows used and the rate of feeding. Further, it is an enterprise requiring a large amount of labor of a sort not very attractive to the average farm family. It, therefore, yields readily to other enterprises when the latter show promise of any considerable improvement in income-producing power.

It seems altogether likely that dairy products will lose a large part of the price advantage they have recently had over alternative products. The disadvantage of producing for world markets is so great that there is little likelihood of dairying expanding to the extent of depending to any considerable degree upon the foreign outlet. It is altogether likely, however, that now and then the American price will approximate the world price level; that situation alternating with situations characterized by higher domestic price with imports of foreign butter in spite of tariff protection.

The beef-cattle enterprise which is also essentially on a home-market basis is closely related to dairying through the common use of basic production stock for both commodities throughout a large part of the producing area. The trend of beef production in this country has been only slightly upward during the last thirty years; the production to-day is apparently only about 20 per cent more than in 1900. It has not kept pace with increasing population, and net exports of beef, except in abnormal conditions such as existed during the war, are nonexistent.

Up to the present, beef-cattle production as a specialized enterprise unconnected with dairying has been a weak competitor with hog production and other crop and livestock enterprises except under range conditions. The important beef-growing and beef-fattening enterprises in the Corn Belt and in other limited areas are largely maintained as a means of utilizing surplus corn and other feeds beyond those needed for pork production and other

purposes. This condition apparently does not obtain in the competing countries, such as Argentina; beef from these sources long ago displaced American beef in European markets.

Although the present trend of production is not likely to undergo a great change aside from the rather regular cyclical movement which characterizes it, conditions are now developing which favor some expansion in beef production. But it is not likely again to assume the dimensions of an export enterprise. Reference is made to the beef cattle section of this report for a fuller discussion of the long-time situation.

A third enterprise the output of which in this country, is approximately in balance with domestic consumption is that of poultry and eggs. There is a relatively minor annual import of frozen and dried eggs from the Orient and there is a somewhat smaller net export of eggs in the shell. The trend of production during the last 30 years has been steadily upward. This country is now producing about 56 per cent larger volume than in 1900; poultry and egg production has therefore kept pace approximately with the expanding population.

The poultry enterprise is carried on under two rather essentially different sets of conditions. In the Northeastern States and in a limited number of Pacific and Mountain States a high degree of specialization in poultry farming, with extremely large flocks has developed; a very high percentage of the total farm income is derived from this main enterprise. On the other hand, throughout the Middle West and in various other parts of the country, poultry production is carried on as a very incidental thing in connection with types of farming in which other enterprises constitute by far the more important sources of income. Thus the Corn Belt produces over half of the commercial supply of poultry and almost half of the commercial supply of eggs, and yet the income derived from the poultry enterprise represents a small percentage of the total gross income of that region.

In this respect the poultry enterprise has some characteristics in common with dairying. It is a line of production easily resorted to in time of declining income from other sources. In the areas in which it is incidental, it is carried on by means of family labor—it is often the housewife's enterprise—and is supported by feedstuffs much of which might otherwise be wasted. This sort of production, characterizing both dairy and poultry as they are carried on in the Middle West, tends to make severe competition for the specialized producers in other parts of the country where the major portion of the costs represent direct cash outlay and hence are more keenly felt by the producers. Poultry production is beginning to arouse interest in the Cotton Belt and in other areas in which, until recently, it has been unimportant.

In the Middle West poultry production is benefiting by better and more efficient farm practice so that the output is likely to expand still further through the increase in the size and in the productivity of farm flocks. It is a type of farm enterprise which fits well into the more self-contained form of farm organization that is being forced upon many parts of the country as a result of the extremely low prices of leading agricultural products. It can be entered upon with but a small outlay of capital if it is conducted on the modest scale characteristic of the general farm.

Fruit production in this country has followed, in general, the trend in population. With minor exceptions, it continues to be a home-market enterprise. The changes in farm production have been in the direction of a higher degree of specialization, and a decline in the relative importance of production on the general farm. The shift has come in response to important advantages in specialized production, but it has carried with it certain disadvantages in the way of a high degree of risk for the specialized producers and a tendency to extreme overproduction which is the more difficult to deal with because fruit production is a long-time proposition, involving planning and development years in advance of the income to be realized.

There has been a most rapid upward trend in the commercial production of vegetables, a group of commodities which is outstandingly dependent upon the home market. The expansion has been made possible largely by the increase in urban population. The enterprise has been moving toward a higher degree of specialization, with respect to the type of farming under which it is produced and with reference to the geographic areas of heaviest production. Reference is made to the section of this report regarding potatoes and the commercial vegetable crops.

Next comes the group of commodities that are produced in this country in considerable volume but of which large quantities are usually imported. These commodities have been assumed to offer opportunity for expansion by the shifting of land and labor from the depressed surplus commodities. But such readjustment is slow in coming because of the low competitive strength of these commodities in comparison with those that are produced in greater quantities.

Sugar is perhaps the most important of this group. This country produces about half of its annual consumption. The trend, however, has been rapidly upward during the last 30 years and shows an increase of approximately 200 per cent since 1900. This increase was realized mostly in the earlier decades, and of late the volume has tended to decline. The main barrier to expansion of the domestic sugar crops through their substitution for other enterprises is found in the extremely low prices caused by a vastly increased world production. The only hope for better returns and expanded domestic production would seem to lie in the direction of a decline in foreign production sufficient to improve the price situation. Technical developments in both beet and cane production may have some significance in raising their comparative advantage and giving them a somewhat larger place in the farming of their respective areas.

Wool is another deficit commodity of considerable importance. Its production has increased in this country during the last 30 years, but domestic production still falls short of meeting domestic consumption under normal conditions.

The wool enterprise, although protected by tariff, has shown little strength in competition with other livestock enterprises except in very limited areas. In the better farming regions as well as in the better areas of the range country, cattle seem to have the ascendency over wool-type sheep. The great bulk of our wool production is a joint product with meat production through the use of mutton-type sheep. The limited market for lamb has not permitted that part of the industry to grow to sufficient volume so that the wool output might expand to the full extent of American consumption. The sheep outlook report indicates that a diminution in production rather than an increase may be looked for as the next development in the sheep industry.

Flax is the third deficit commodity of importance. The trend in its production is extremely irregular because it is produced in the specialized wheat regions and must compete with that grain for acreage. It is also subject to wide variations because of favorable and unfavorable seasons. The present situation in wheat probably dictates an expansion in flax production, but growers have thus far displayed considerable caution, inasmuch as overplanting combined with abnormally high yields might easily place the output temporarily on the foreign-market basis with resulting low returns.

The trend toward what may be called self-sufficing farming induced by the agricultural depression, conceivably may exert considerable influence upon production. In the first place, thousands of farmers who are finding no profit in their usual program of production on a commercial scale have retrenched, especially where this resulted in a significant reduction in cash outlay, and are producing more largely for home use. In the second place, other thousands of men employed in towns and cities whose incomes have been reduced or entirely cut off, have moved to near-by farms in an effort to secure a living.

The major part of this retrenchment process is a natural response to the pressure of the present price situation and may be expected to modify itself about in proportion as the depression passes. For the present, however, an element is introduced that tends to slow up the effects of mechanization, new technic, and other economic factors which have been enlarging the productive capacity of agriculture.

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