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REPORT OF THE CHIEF OF THE BUREAU OF AGRICULTURAL ECONOMICS, 1936

UNITED STATES DEPARTMENT OF AGRICULTURE,
 BUREAU OF AGRICULTURAL ECONOMICS,
 Washington, D. C., October 8, 1936.

HON. HENRY A. WALLACE,
Secretary of Agriculture.

DEAR MR. SECRETARY: I transmit herewith report of the work of the Bureau of Agricultural Economics for the fiscal year ended June 30, 1936.

Sincerely yours,

A. G. BLACK, *Chief.*

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DROUGHT

Drought was the outstanding physical fact in American agriculture this year. Improvement in farm prices and income was the outstanding economic fact.

Drought will reduce crop production 20 to 25 percent below what farmers might have expected for the crop year with normal weather. The drought, affecting directly the production of several million farmers, is a serious misfortune to agriculture. Although less severe in some of its effects than the drought of 1934, it has left scars that will require time, careful planning, and much labor to erase. It sharply reduced feed supplies and interfered seriously with programs for increasing the acreages of soil building and erosion-preventing crops on many farms.

Weighed in social terms the cost of the drought will be very great. It has reduced drastically and even wiped out in many cases the very limited resources of many farmers who, except for the prompt assistance provided by Government action, would have fared far worse. It has emphasized the need for measures that will contribute to the security and stability of farm income.

RISE IN FARM INCOME

Despite the drought, farm income has increased with significant advances in prices to farmers who have products to sell. Cash income from farm marketings for the present calendar year, including Government payments, is expected to be \$7,850,000,000, which marks the fourth successive advance since the low point of 1932 when the comparable figure was \$4,328,000,000.

The increase in farm income, reflecting as it does improved business conditions and improved domestic demand for farm products, has not reached a point, however, that might be regarded as adequate or as justifying a cessation in efforts at improvement. An analysis of the income of farmers emphasizes the need for measures contributing to greater security and stability.

The outlook for agriculture next year is favorable. Supplies in most lines of production are no longer excessive. But it is essential that the outlook for agriculture be not judged in terms of a single year since there are fundamental weaknesses in the position of agriculture that still require vigilance—and action.

AGRICULTURAL BALANCE

We continue to have an agricultural plant in this Nation that, in years of average weather, can produce considerably in excess of existing market demands, even allowing for considerable advance in domestic demand. There is some improvement in foreign markets for our farm products but this improvement is taking place slowly. In most channels of commerce trade barriers offer resistance that did not exist when our agriculture was so greatly expanded during and after the World War. Domestic demand cannot be expected to advance to a point that will assure an ample market with satisfactory prices for all that American farmers can produce. Governments, Federal and State, should be prepared to take whatever steps are necessary to meet this situation.

It is important to note that plantings of wheat for harvest this year reached approximately 74,500,000 acres, the largest on record with the exception of 1919. There was very high abandonment, and yields were drastically cut by bad weather. Potential production this year, given normal weather, normal yields, and normal abandonment, was about 960,000,000 bushels. Because of the drought actual production was about equal to domestic needs. Had there been normal weather with normal abandonment and normal yields the surplus of wheat this year available for export might have been as much as 330,000,000 bushels. This would have meant a reduction in prices to world levels and the necessity for disposing of the surplus abroad.

How to dispose of surpluses that we have reason to expect in future years with the return of normal weather, despite greatly reduced foreign demand for our farm products, is a problem that the Nation must be prepared to meet. A most serious factor, of course, continues to be the bars that this and other nations have raised against the international exchange of goods. The reciprocal-trade-agreements program has made a start toward removing these bars and give reason to hope for an increase in international trade. But the need continues for emphasis on the fundamental problem of disposing of farm surpluses through normal trade processes.

It is possible that with normal weather the production of such crops as wheat and cotton may increase much more rapidly than foreign demand. Livestock numbers and their tonnage 2 or 3 years hence may become a serious surplus problem.

CONSERVATION

There is a need for increasing emphasis on programs of proper land use and upon soil and water conservation. Fortunately Americans generally have awakened to the serious problem of soil wastage and exploitation. They see the need for programs of action to halt this waste and to initiate conservation policies in the interest not only of agriculture but of the general welfare. Unless the Nation's basic resource—its soil—is conserved, the per-unit cost of food and fiber production must inevitably rise steadily.

The drought has contributed to a much wider recognition of the risks involved in agricultural production. We have seen the assets of many farm families dissipated as a result of drought. We have seen many undesirable yet sweeping changes in supplies and prices of farm products. This has aroused the public generally. Certain adjustments in farming practices will assist farmers to prepare for droughts but they will not meet successfully such extremes in weather as those experienced in 1934 and in 1936.

In view of the very sharp swings of the pendulums of production and prices in American agriculture, and of our great capacity to produce, we must move toward the storage of excess products in years of plenty, that they may be carried over and made available in years of scarcity. This should be done without handicapping farmers. Rather, farmers should be compensated for

contributing to an adequate and continuous supply of farm products, by being given a more secure income. Crop insurance and the principle of the ever-normal granary have been advanced as possible ways to produce this result. This Bureau is investigating the field of crop insurance in an effort to formulate principles for a program of action.

RECENT TRENDS IN FARM INCOME

The 1936 total cash income from farm marketings and Government payments, if it reaches the tentatively estimated total of \$7,850,000,000, will mark a gain of 11 percent over 1935, and 81 percent over 1932.

The estimates of cash income from farm marketings for the calendar years 1929 to 1936, including Agricultural Adjustment Administration payments, are as follows:

Year	Income from farm marketings and Government payments	Year	Income from farm marketings and Government payments
1929.....	\$10,479,000,000	1933.....	\$5,117,000,000
1930.....	8,451,000,000	1934.....	6,387,000,000
1931.....	5,899,000,000	1935.....	7,090,000,000
1932.....	4,328,000,000	1936 ¹	7,850,000,000

¹ Preliminary.

Just as the sharp decline in farm income during the 3 depression years of 1930-32 followed a precipitate decline in the price level of all farm products, the gains in farm income during the first 3 years of the recovery period reflected the sharp gains in the level of farm prices. The volume of agricultural production did not decline during 1930-32, but declined somewhat during 1933-35. The price level of farm products, however, after declining 56 percent from 1929 to 1932, rose in the succeeding years to 108 percent of the pre-war (August 1909-July 1914) average in 1935. This was a gain over the 1932 level of 66 percent.

For the first 7 months of 1936 a gain of 17 percent in income from farm marketings and Government payments has been registered over the corresponding 1935 period. This gain has been due chiefly to a larger volume of farm products marketed, for farm prices during this period averaged a little less than in the corresponding period of 1935. In view of the present drought situation, farm prices for 1936 will probably exceed the 1935 average.

The recovery in farm income has been distributed among practically all branches of agricultural production (table 1). By 1935, cash income from meat animals had made the largest percentage increase over 1932, and income from grains the second largest. The income from dairy products showed the smallest percentage increase over 1932. This does not mean that dairy farmers shared less in the recovery in farm income; on the contrary, it reflects the fact that the income from dairy products during the depression had declined relatively less than the income from other groups of farm products.

TABLE 1.—Cash income from marketings of major groups of farm products, excluding Government payments, in 1935, with comparisons

Commodity group	1935	1935		Commodity group	1935	1935	
		As a percent- age of 1929	As a percent- age of 1932			As a percent- age of 1929	As a percent- age of 1932
	<i>Million dollars</i>	<i>Percent</i>	<i>Percent</i>		<i>Million dollars</i>	<i>Percent</i>	<i>Percent</i>
Grains.....	598	42	161	Meat animals.....	1,679	67	173
Cotton and cottonseed.....	690	46	146	Dairy products.....	1,289	70	130
Fruits and vegetables.....	913	68	141	Poultry and eggs.....	619	70	145
All crops.....	2,813	55	150	All livestock.....	3,694	69	151

Taken as a percentage of the 1929 cash income, the 1935 incomes from dairy products, poultry and eggs, all livestock, and fruits and vegetables were ahead in the march toward recovery. In the first 7 months of 1936 further sharp gains in the income from crop and livestock items over the corresponding period in 1935 were recorded, particularly in grains and meat animals.

The 1935 cash-income figures in table 1 do not include Agricultural Adjustment Administration payments to farmers.

The recovery in farm income is also reflected in the figures for the various geographic regions of the country. Regional percentages of increase over 1932 were approximately at or above the United States average in every region except the North Atlantic States.

AGRICULTURAL ADJUSTMENT

Agricultural adjustment was the keynote of the Bureau's work in farm management. Both new undertakings and work on older projects were geared to the general objective of determining the adjustments needed to prevent soil erosion and to build up and preserve the productivity of the soil in farms. Ways were sought to bring these objectives into line with efficiency in production and the effective organization and management of farms.

This work was organized cooperatively with other Government agencies and with the 48 agricultural experiment stations. Increased emphasis was given the regional approach to agricultural adjustment. This brought together more fully than ever before the specialists in economic and technical fields—farm management, agronomy, animal husbandry—in cooperation on the common objective of agricultural adjustment in the different regions, States, and types-of-farming areas.

REGIONAL PROGRAMS

The regional adjustment project in cooperation with the Agricultural Adjustment Administration and the State experiment stations was an attempt to determine for each region, State, and type-of-farming area the extent of maladjustment and the specific changes which should be made in the acreage and production of crops, and in the number of livestock, in the interest of soil conservation and good farm-management practice.

The Bureau took active part also in the county program-planning project which was sponsored by the Agricultural Adjustment Administration and the Federal Extension Service, in cooperation with State extension services—a project contacting individual farmers and designed to supplement and carry further the results of the regional adjustment project.

The results of these projects demonstrate the practical value of cooperative action by all agricultural, economic, and technical research and administrative agencies to attain common objectives in agricultural adjustment programs.

SOIL CONSERVATION

Research in cooperation with the Soil Conservation Service was directed at evaluating the adjustments in crop production that will accompany the development of the new soil-conservation program, their effect upon the livestock industries, the changes they will bring in the internal organization and operation of individual farms of different types, and their probable effect upon farmers' income. A farm-to-farm survey is being made in 15 representative livestock-producing sections in the Corn Belt in an effort to determine normal, present, and probable future relationships between farm practices in crop and livestock production.

LAND PLANNING

The Bureau is cooperating with the Resettlement Administration in formulating a land policy that will lead to a planned utilization of land resources according to the uses for which our various types and grades of land are best fitted. A fundamental requirement in this project is the development of principles and procedures of classification by which the various types and grades of land can be classified according to their best long-time economic use. More or less intensive work on land-classification projects is under way in practically every State. The Bureau is cooperating with these undertakings, assisting in their coordination, and facilitating the exchange of information between the several States.

RURAL ZONING

Increased emphasis is being put upon studies of the origin, character, extent, applicability, and effectiveness of public measures intended to bring about readjustments in the use of land. One of these public measures deals with so-called rural zoning. Zoning has been extended into suburban territory, and more recently into the rural field, notably in Wisconsin. Some rural-zoning ordinances have been enacted in order to prevent scattered settlement on poor agricultural land, since many studies have shown that isolated settlement often results in undue burdens on the Public Treasury.

This Bureau deems it of fundamental importance in the development of a rural-zoning program, that an adequate rural land-use plan be available, supported by surveys of soil, slope, erosion, cover, population distribution, and economic conditions. The Bureau should be in position to provide at least a limited amount of technical assistance to the States in the preparation of such plans.

CROP INSURANCE

The subject of crop insurance has attracted widespread attention as a possible means of indemnifying farmers against crop losses. The theory is that a system can be worked out whereby farmers can insure themselves against crop damage, by paying premiums in money or in crops in years of above-average yields on individual farms, for protection against years of below-average yields. Such a system would insure the maintenance of an adequate food supply in years of excessive crop damage.

At your request the Bureau instituted a research project to explore the possibilities of establishing an actuarial basis for crop insurance of this general nature. Using individual farm records of the Agricultural Adjustment Administration, and aided by Bankhead-Jones funds, computations were made on the basis of crop yields on individual wheat farms; similar computations are now being made, with the assistance of the Agricultural Adjustment administration, in connection with crop losses in the production of corn and cotton.

FARM REAL ESTATE SITUATION

The Bureau issued its tenth annual report of the farm real estate situation. This report revealed a continued upturn in farm real estate values during the year ended March 1935, a further decline in the frequency of distress sales, an increased frequency of voluntary transfers of farm real estate, and continued progress in solving the distress problems accompanying the depression.

The average value per acre of farm real estate the country over had increased from 76 to 79 percent of the 1912-14 period taken as pre-war, the frequency of voluntary sales had increased from 17.8 to 19.4 farms per 1,000 of all farms, the frequency of forced sales and related defaults as a result of delinquency on mortgage debt had declined from 28 to 21 farms per 1,000 of all farms, and transfers as a result of delinquency on taxes had decreased from 11.1 to 7.3 farms per 1,000 of all farms.

A preliminary report giving the index numbers of estimated value per acre of farm real estate as of March 1936 showed that farm-realty values had continued upward for the third consecutive year, reaching for the country as a whole, a level of 82 percent of the pre-war base.

FARM TRANSFERS

As a product of a Civil Works project administered by the Bureau and assisted by various agricultural experiment stations, two reports, entitled "Transfers of Farm Real Estate" and "Ratio of Assessed Value to Consideration in Bona-Fide Transfers of Farm Real Estate", were published. The first presented data for 414 counties on the average value per acre at which farm real estate has been transferred at bona-fide sales over a period of years, together with information concerning the frequency of real estate transfers of other types. The second presents for 286 counties the ratio of the value at which farm real estate has been assessed to the price at which the properties were transferred at bona-fide sales. Similar work is being continued and expanded under a Works Progress Administration project.

FARM MORTGAGES

Several new research projects were begun in the field of agricultural finance. One was a cooperative project with the Bureau of the Census under which

information is being obtained from a large number of farm owners covering the amounts and sources of farm-mortgage credit. Another, with the Works Progress Administration, involved transcribing from official records in about 900 counties, information on farm-mortgage volume, terms, and conditions. A third, with the Farm Credit Administration, dealt with the compilation of current information on new mortgage recordings and releases. Reports and bulletins were prepared on agricultural loans by commercial banks, on Federal seed-loan financing, and on farmer bankruptcies.

FARM CREDIT

A study of short-term farm credit revealed a substantial increase by representative country banks in Wisconsin and Utah in the volume of new loans to farmers in 1934 and 1935 compared with 1932 and 1933. These loans were mainly for carrying on current farm operations, relatively few loans being made to finance long-term operations.

In cooperation with agricultural experiment stations, studies were made of the financial conditions and loan and investment policies of 108 country banks in Wisconsin and Utah. The purpose is to discover, from the actual experience of country banks, the operating policies best designed to promote the availability of depositors' funds and a continuous loan service to borrowers in agricultural areas.

FARM TAXES

The Bureau's series of annual farm real estate records was brought forward through the tax year 1934, and extended in preliminary form from 1913 back to 1890. These extensions were made possible by a cooperative project with the W. P. A. covering the collection of data on farm mortgages, land transfers, land values, and farm taxes. This work gave employment to more than 3,000 persons in about 900 counties. Rural tax-delinquency reports were published for 30 States, completing the State series begun in the preceding year.

RURAL LIFE

With financial help from the W. P. A. and the Resettlement Administration, the Bureau was able to expand its program of research in rural life. Projects included studies of rural population mobility in Iowa, South Dakota, North Dakota, Maryland, Arizona, and Missouri; of farm standards of living in Wisconsin, Minnesota, South Dakota, and Virginia; and an analysis of farm-labor conditions in selected counties in New Jersey and North Carolina.

Under a W. P. A. project, a trial survey of farm-labor conditions was conducted in three counties in New Jersey and four counties in North Carolina. The purpose was to determine the wages, living and working conditions, education, and occupational and employment experience of farm labor, and the seasonal distribution of farm-labor requirements.

FARM TENANCY

Bureau sociologists studied the social aspects of farm tenancy, standards of living and mobility of Appalachian Mountain families, and methods and criteria for selecting families for resettlement projects. Sociological aspects of the new rural communities established by the Federal Emergency Relief Administration and the Resettlement Administration, in Tennessee, North Carolina, Arkansas, New Mexico, California, and South Carolina, were critically analyzed.

There was a large demand for the Bureau's publications and reports dealing with rural sociology, and for its annual estimate of the size of the farm population and the shifts that had occurred as between farm and nonfarm populations. The Bureau's sociologists were constantly consulted for technical guidance by officials of the W. P. A. and the Resettlement Administration.

MARKETING AND DISTRIBUTION

Studies by this Bureau have revealed that about 58 cents out of each dollar spent by consumers for food goes to processors, distributors, and transportation agencies. While this does not condemn the marketing system as inefficient, it points to the need for careful studies of marketing methods and of marketing structure. Farmers and consumers have a real interest in such studies.

Here is a field in which Federal and State agencies can cooperate effectively to the end that marketing costs may be reduced and retail prices lowered. Investigations by Congress and this Bureau nearly 20 years ago were instrumental in providing regulations to remove abuses and in establishing services advantageous to farmers in the marketing of their products. New problems, constantly arising in the changing field of distribution, are the subject of critical study by this Bureau, so far as its facilities will permit.

PRICE SPREADS

A summary of price spreads based on 10 of the more important foods was prepared early in the year. This was followed by more detailed studies, and a mimeographed report has recently been released bringing up to date the material and including price margins on 58 foods. Whenever the data are available the price spreads have been calculated each year from 1913 to 1935.

These studies show that the costs and charges for transportation, processing, and marketing change only gradually and slowly. Fluctuations of prices at the farm, therefore, are proportionally wider than fluctuations in retail prices. The abrupt drop in prices received by farmers during the depression of 1921 and again during the downswing from 1929 to 1933 were examples of this situation.

STUDYING THE PHILADELPHIA MARKET

The Bureau is making an intensive study of terminal markets for fruits and vegetables at Philadelphia and other large cities, with regard to marketing facilities and regulations. The Philadelphia study is in cooperation with the State Colleges of Pennsylvania and New Jersey. A large volume of data gathered from growers, carlot receivers, jobbers, truckers, and buyers gives a detailed picture of the quantities and origins of perishable products received in the market during typical periods of the year and of the distribution from each of the major market centers.

The distribution picture includes a summary of the quantities of various products shipped from one market to another within Philadelphia. Material has been gathered concerning the history of the various market centers and concerning a number of problems of trade practices and market regulation. These facts are being studied for the purpose of analyzing the efficiency of the present market and are expected to suggest definite improvements that can be made both in its physical lay-out and in the regulation of marketing practices and methods by the trade and public agencies.

MARKETING LEGISLATION

A rapid increase has taken place during recent years in the number of Federal, State, and municipal laws and regulations concerning the marketing of farm products. Some of these obstruct the free movement of farm products in interstate commerce and raise important questions of public policy. The Bureau is making a survey of them to discover their effects on producers, consumers, and the trade, in order to help clarify issues that must be faced in defining the functions of the Federal and State Governments in marketing, and in formulating long-time policies.

Important laws and regulations being so considered are health and sanitary laws, pure-food laws, quarantine laws, laws regulating marketing agencies and market practices, laws designed to concentrate the control of marketing of a product in the hands of a single agency, and tax laws, including special taxes on certain products, license fees, and similar charges.

COTTON MARKETING

A study of the concentration and movement of raw cotton is under way, dealing with the distribution of raw cotton from various producing areas, the areas of supply and distribution of the principal markets and ports, and the place of production of cotton consumed in various domestic mill centers. Various studies of cotton quality-price relationships in producers' markets are under way, involving the marketing practices of growers, the types of marketing agencies through which cotton is marketed, and the marketing procedures and attitudes of first buyers of cotton. Data have been accumulated covering 100 typical cotton-market areas which provide a good cross section of the marketing situation throughout the Cotton Belt.

GRAIN-STORAGE RESEARCH

During the latter part of the year the Bureau cooperated with the Bureaus of Agricultural Engineering and Plant Industry in organizing a research project under the Bankhead-Jones Act on storage of grain in farm granaries. Objectives are to determine the maximum moisture content at which wheat of the various classes can be stored, without hazard, the most useful and desirable designs and materials to use in the construction of farm granaries, and the effect of micro-organisms on the quality of wheat during storage.

This research is being conducted in cooperation with State agricultural experiment stations in North Dakota, Minnesota, Kansas, Illinois, Michigan, Ohio, and Maryland. Sixty experimental bins were built by the Bureau of Agricultural Engineering at agricultural college stations in Illinois, Kansas, Maryland, and North Dakota, in which wheat of varying moisture content was stored for observation. In addition, about 150 farm granaries of various design in use by farmers were selected in the States named, in which wheat stored by prevailing methods of harvesting and storage will be subjected to observation and study.

LIVESTOCK-MARKETING RESEARCH

The study of direct marketing of hogs was expanded to include cattle, calves, sheep, and lambs. The extent to which each kind of livestock is marketed direct in different parts of the country also was determined. Related economic research included revisions of the estimated numbers of cattle, calves, hogs, sheep, and lambs slaughtered at wholesale, and studies of the normal behavior of beef-cattle prices for different days of the week at Chicago. Spreads between hog prices and product values were compiled for the period 1905 to date.

A. A. A. MARKETING PROBLEMS

Three studies were made bearing directly on marketing problems of the A. A. A. These dealt with marketing agreements, milk marketing in the New England States, and poultry and egg marketing. Eight fruit and vegetable marketing agreements were analyzed in detail for use in developing policies by the A. A. A. The milk-marketing studies deal with several important problems of public policy, including Federal, State, and municipal regulations on marketing. A series of studies in cooperation with the A. A. A. is aimed at working out programs for diversion and relief purchases of eggs and poultry.

FOREIGN TRADE

Many reports were issued on significant developments in foreign agricultural production and marketing. Foreign agricultural news was reported currently by Bureau economists in all the leading foreign agricultural countries. This vast body of authentic data proved invaluable to governmental agencies dealing with the formulation of foreign-trade policies.

Our agricultural exports during the fiscal year showed the first upturn since 1931-32. The index of volume of exports stood at 60, as compared with 54 the preceding year. The index for the 5-year period, 1910-14, was 100. There were substantially larger exports of cotton, tobacco, and fresh and dried fruits. But exports of lard continued to decline, as did exports of cured pork, and there were practically no exports of domestically produced wheat.

TRADE AGREEMENTS

Members of the Bureau's foreign agricultural service actively cooperated with the Department of State and other governmental agencies in the development of reciprocal trade agreements. During the year trade agreements were concluded with nine countries—Columbia, Canada, Honduras, the Netherlands, Switzerland, Nicaragua, Guatemala, France, and Finland. Agreements had already been completed with Cuba, Brazil, Belgium, Haiti, and Sweden. The countries with which agreements have been made ordinarily represent outlets for about one-fourth of our total agricultural exports. The agreements have contributed toward reducing foreign-trade barriers.

The situation as to agricultural imports was closely studied, particularly with regard to the extent of their competition with American products; research was practically completed on the proposed publication of a monthly index of volume of agricultural imports; a study was completed of the effects on cotton of the 1930 Tariff Act.

EXPORT PROGRAMS

Much work was done in connection with proposed export or domestic-diversion programs under section 32 of the Agricultural Adjustment Act, and some work with regard to proposed import quotas under section 22 of that act. Detailed economic statements were prepared covering the import restrictions now being encountered, or likely to be encountered, in specific foreign markets and the extent of the competition in these markets from other sources of supply.

These statements were used by the A. A. A. in the preparation of economic briefs which provide basic material in determining whether individual programs shall be recommended to the Secretary of Agriculture. Export programs were approved and are now in effect on dark tobacco, pecans, walnuts, substandard prunes, and Pacific Northwest flour shipped to the Philippine Islands.

FOREIGN POLICIES

In connection with its extensive research in foreign agricultural policies, the Bureau issued a review entitled "Farm Aid in Foreign Countries", covering policies in 20 countries. This paper dealt chiefly with developments since the beginning of the depression, but included sufficient historical background to bring the more recent developments into proper perspective. Foreign countries have been unusually active in providing direct relief to their farmers, with emphasis on direct price-supporting measures. In many cases governmental marketing control boards on a commodity basis have been established.

Other research in the foreign field included efforts to learn the results of particular programs in the various countries, in terms of acreage, imports and exports, and farm income. A study in Germany, for instance, revealed that although that country has adopted extreme measures in an effort to build up a self-sufficient agriculture, no success has been won with respect to the supply of proteins and fats, but that under normal weather conditions self-sufficiency has been practically achieved with regard to bread grains. In recent months Germany has shifted emphasis toward completing barter and other arrangements involving the exchange of German industrial products for necessary agricultural imports.

EXPORTS TO INCREASE

Our studies show conclusively that the recent increase in competitive agricultural imports by the United States has been due largely to unfavorable weather conditions. With improving economic conditions there is reason to believe that the imports of some products such as we have always imported in substantial quantities to supplement domestic production will increase, but that these imports will have no significant bearing on the question of agricultural adjustment in this country.

The Bureau believes that a more liberal import policy will improve greatly the prospects for a substantial recovery of our exports of certain agricultural products, notably cotton, tobacco, fruit, and lard. With normal weather conditions we shall have a substantial volume of these products available for export. These products will be bought in substantial quantities provided we are willing to sell them at competitive prices, and to help increase foreign purchasing power for these products by importing more goods and services from abroad.

BUREAU SERVICES AND RELATED RESEARCH

It is impossible to detail the Bureau's many services, research activities, and the administration of specific laws, within the limits of this report, consequently only the high lights will be discussed. The Bureau operates the world's largest agricultural market news service, covering practically all farm commodities in all the leading markets of the United States and the production and marketing situation in many foreign countries. It has developed standard grades for more than 100 farm products. It provides various inspection services whereby the quality of products is certified by the Bureau at shipping points and terminal markets. These three services—market news, standardization, and inspection—are designed to promote orderly marketing.

The Bureau has under way 247 economic-research projects dealing with almost every aspect of agriculture, from the management of the farm through the marketing of farm products. There are research projects relating to the estimating of crops and livestock, farm management, costs of production, the

marketing of various farm commodities, farm population, rural life, land economics, and many other subjects. Many of these projects are in cooperation with State agricultural extension services.

OUTLOOK REPORTS

Well in advance of the new growing season, the Bureau issued its annual outlook report covering various crops and classes of livestock. This report, based on the Bureau's research and statistical work, was completed in cooperation with representatives of the various States and of other bureaus. In 12 years the outlook work has been developed into an extensive program covering not only crop and livestock production, but many other important phases of agriculture.

A major purpose of the outlook reports is to make available to farmers in summarized form the pertinent facts showing present and prospective trends in production, demand, market conditions, and price movements. It recognizes that farmers must make forecasts with respect to these trends when deciding on a program of planting and breeding for the ensuing year. Unlike large business concerns, it is ordinarily impracticable for individual farmers to undertake to assemble and analyze the facts necessary as a basis for deciding on programs for the year. Consequently, farmers often act altogether on what has happened in the recent past rather than on information as to what may be expected in the future.

AN EDUCATIONAL PROGRAM

The outlook report is a part of an educational program carried to farmers largely through the Extension Service. The outlook information is adapted to State and local conditions in various ways. These include State outlook reports prepared by State agencies and based largely on the national report with such modifications as may be dictated by local conditions.

The outlook report has assumed growing importance in recent years as an aid also to organized groups of farmers and to public agencies and administrative officials responsible for developing and executing public policies and programs for farm adjustment.

The Bureau is seeking direct and effective ways of applying the outlook to the practical problems of farming in various regions and types-of-farming areas. This applies not only to problems upon which individual farmers exercise independent action but also to those broader considerations on which individual action becomes effective through joint action with other farmers and in cooperation with public agencies and programs.

CROP AND LIVESTOCK ESTIMATING

Estimating crop and livestock production is the oldest activity in the Department of Agriculture. The work was begun nearly 100 years ago when Congress appropriated a small sum for the collection of agricultural statistics. Research during this period has greatly improved the technique of estimating and forecasting agricultural production. With 300,000 voluntary reporters, and branch offices in 40 States, the service now covers all important crops and livestock.

Last year 226 separate reports were released from Washington relating to crop conditions, farm stocks, crop yields, acreages, numbers of livestock, the production of livestock products, prices received by farmers, prices paid by farmers, farm labor, and wages. Many additional reports were released from the field offices. As in the preceding 2 years, the technical staff engaged in crop and livestock reporting worked in close cooperation with the A. A. A.

WHEAT ESTIMATES

Some high lights from this branch of the Bureau's work include the revising of estimates of wheat production by classes; research in the relation of weather to the yields of crops; preparation of county estimates of acreage, yields, and production of wheat for the A. A. A.; analyzing applications for wheat-production-adjustment contracts in connection with the 1936-39 wheat program of the A. A. A.; furnishing the A. A. A. with basic statistics needed in connection with the agricultural-conservation program and calculating county ratios of acreage of soil-depleting crops to all land in crops.

FRUIT SURVEYS

Special fruit and nut surveys were made in California, Washington, and Oregon involving enumerations of the numbers or acreages of trees by kinds, varieties, and age groups, the total production in 1935, and utilization of the crops according to methods of disposal and methods of sale. A survey of pecan production was made in 10 Southern States and a detailed fruit survey in New York. Estimates were made of citrus fruits by seasonal or varietal groupings in California and Florida. Estimates of production were issued on 23 fruit and nut crops.

LIVESTOCK ESTIMATES

Estimates of livestock numbers on farms and of livestock production were revised on the basis of agricultural census enumerations. Monthly reports were issued on the production of poultry and eggs. A special report covered the intentions of poultrymen to increase or decrease flocks. Surveys were made to reveal the quantity of chickens and eggs consumed on farms.

PRICE DATA

The scope of investigations in the field of price and labor statistics was materially enlarged. Estimates of prices for the entire marketing season were substituted for prices as of a single date (Dec. 1), and a definite start was made in attacking the problem of estimating agricultural employment.

CROP FORECASTING

Research in long-range weather and crop forecasting was begun last February under a project financed by funds from the Bankhead-Jones Act. Comprehensive soil, phenological, yield, and weather data are being collected from experiment station records in nine North Central States and in two Middle Atlantic States, and from records of the dry-land farming stations of the Bureau of Plant Industry, for study of the relationships between weather and crop yields. A project, in cooperation with Harvard University, deals with relationships between solar and terrestrial phenomena, especially relationships that have a bearing on long-range weather forecasting.

LIBRARY RESEARCH AND SERVICE

The Bureau's economic library performs research and service considered indispensable by public and private agricultural workers and agencies. A feature of its activities is the preparation of economic bibliographies. Eight new bibliographies were issued during the year, dealing with the economic development of the cotton-textile industry, price studies, farm tenancy, farm real estate valuation, the financing of American cotton production and marketing, livestock financing, Government control of cotton production, and agricultural labor.

STATISTICAL RESEARCH

Many of the agricultural and economic problems arising out of the depression and subsequent recovery to date were studied by the Bureau and numerous Government departments, private agencies, and individuals were supplied with the resultant basic data and analyses. Studies were made of farm income, farm prices, index numbers, cotton production, the poultry industry, tobacco statistics, and of revisions of historical series of acreage and production of principal crops.

FARM-INCOME STUDIES

The work on farm income was expanded, revised, and improved in response to a widespread demand for information on this subject. Work was begun on a project for an extensive study of incomes, involving field work in a number of States and the compilation and analysis of data in Washington. A new project was planned and is well under way for collecting historical data on prices received and prices paid by farmers. This study, extending over several States, will be an important contribution to the general income and expenditures study required by officials who are administering the Soil Conservation and Domestic Allotment Act.

TRANSPORTATION AND AGRICULTURE

A study was made of comparative production, employment, and income in railway transportation and in agriculture during prosperity and depression. It was found that the gross and net incomes have followed much the same course in both industries, but that in proportion to services rendered the compensation of the farming industry declined much more during the depression than did that of the railroad industry.

DAIRY AND POULTRY PRODUCTS

Statistical data on annual production of manufactured dairy products were revised, and estimates were made of annual manufactured dairy products for the intercensus years from 1869 to 1919. A report was begun on the volume of production and consumption of manufactured dairy products in the United States, and studies were made of the competitive position of the dairy industry in Australia, Germany, and Canada. An economic analysis was practically completed of the live-poultry industry in New York City. Plans were developed for a material improvement and expansion in the Bureau's statistical work related to the poultry industry, as a result of an increase in appropriations for this work which Congress granted at the urgent request of representatives of the poultry industry.

FATS AND OILS

A statistical service covering fats and oils was established to collect data for price analysis and special studies. Reports were issued dealing with excise taxes of 1934 and 1936 on fats and oils, and a compilation made of State and Federal laws and court decisions relating to oleomargarine.

PRICE ANALYSIS

Extensive data were collected and analyzed dealing with the behavior of prices of agricultural products and of the supply and demand factors associated with price movements. Price analyses dealt with factors affecting acreage and acreage changes, factors affecting prices of animals and animal products, price movements, exports and imports, and the effect of changes of production and prices on farm income. These studies were used in general outlook work and in other ways. Many of them were included in the monthly outlook reports—the Price Situation, World Hog and Pork Prospects, World Wheat Prospects, World Wool Prospects, World Cotton Prospects, Feed Prospects, the Dairy Situation, the World Sugar Situation, in monthly income statistics, and in annual and semiannual outlook charts and publications.

WORLD COTTON SITUATION

An analysis was completed and a report issued dealing with the forces that have affected cotton production in the United States during the last three decades. This work was part of a world cotton-situation study for use in developing a production and marketing program for American cotton producers. It covered the changes and shifts that have occurred in the American cotton industry, the relation of domestic to foreign cotton production, and the alternative opportunities for the land and farm labor in the Cotton Belt.

STANDARDIZATION AND INSPECTION

This Bureau has long advocated that farmers sell their products on the basis of quality. Grade standards developed by the Bureau toward this end are in widespread use by farmers, cooperative marketing organizations, and distribution agencies. The Bureau has now formulated grades for practically all fruits and vegetables, for livestock, meats, wool, dairy products, poultry products, cotton, tobacco, grain, hay, feed, and seed. The effort to make these grades accurately representative of the various qualities of crops and livestock requires continuing and exacting research. Recently there has been a pronounced trend toward the use of grades by consumers or the development of consumer grades for farm products.

GRAIN STANDARDS RESEARCH

Major research in grain standardization during the year dealt with moisture testing, oil tests for flaxseed, the checking and testing of grain-cleaning devices, a special study of the influence of light test weight on milling and baking qual-

ities of wheat, and the mixing of shrunken wheat with heavy test-weight wheat in wheat deliveries of contract grade. Much research was conducted on the malting properties of barley, improvement of the grain and rice standards as measures of quality, and methods for evaluating the soundness and "condition" of grain for future use in grain-inspection procedure.

RUST DAMAGE

As a result of the widespread epidemic of rust in the 1935 crop of spring wheat, the test-weight-per-bushel quality of much hard red spring wheat was materially lowered. Many producers and shippers of wheat asked for information as to the value of low-test-weight wheat for milling purposes. Representative samples of the commercial movement of spring wheat into the Minneapolis market were obtained and exhaustive milling, baking, and laboratory tests were applied to them as well as to samples having normal or heavy test-weight-per-bushel quality.

Results of these studies were given wide distribution in the grain industry. The flour yield from light-test-weight-per-bushel wheat was materially less than from heavy wheat, the decrease in flour yield was accompanied by an increase in the quantity of millfeeds, the flours produced had an abnormally high ash content, the percentage of carotene pigment was abnormally high, the percentage of protein, ash, and fat in millfeeds was above average, and important losses of wheat as screenings were experienced in preparing the low-test-weight wheats for milling.

RICE INSPECTION

The permissive rice inspection service supervised by the Bureau was conducted principally under agreements between this Bureau and the States of Arkansas, California, Louisiana, and Texas. Federal rice inspection is conducted at New Orleans. Under the agreements with the States, inspections are made by federally licensed State employees whose work is supervised by Federal rice supervisors.

Public sentiment in the Southern States indicated an increasing future need for rice inspection on a permissive basis for the purposes of rice merchandising, storage, financing, and export. Louisiana made a biennial appropriation of \$10,000 for the support of the service in that State during the fiscal years 1937 and 1938.

COTTON STANDARDS

A substantial revision was made in the official cotton grade standards in order to make the standards more representative of the grade characteristics of the cotton now produced and to increase their usefulness in domestic and foreign trade. The number of grades was reduced from 37 to 32, and the number of standard boxes from 25 to 13.

Changes in the colors in cotton crops of recent years have been toward the white. Research studies have shown definitely that most of the crop now falls in the White and Extra White, Strict Middling, Middling, and Strict Low Middling grades, with the higher grades tending toward Extra White and away from the creamy or "buttery" color.

In the revised standards, the grades for tinged and yellow-stained cottons have been changed so that the grades for tinged no longer carry as deep color as formerly, and the grades for yellow-stained embrace all cottons deeper in color than tinged. Certain colors represented in the previous standards were eliminated since little, if any, cotton of these colors could be found in recent crops for use in the preparation of practical forms of the standards.

COTTON "CHARACTER"

Studies were made of a method of classifying cotton fiber fineness and fiber maturity. If the method proves successful it should have immediate practical importance. The method consists in comparing a photomicrograph of the cross sections of fibers from the test sample with a system of rows and columns of photomicrographs representing degrees of fiber fineness and maturity respectively. Each standard photomicrograph would be selected once and for all on the basis of scientific measurement and the proper classification of the unknown sample would be made by visual comparison of its photomicrograph against the standard. The only technical skill required would be in the preparation and photographing of the fiber cross sections.

COTTON QUALITY REPORTS

The quality of the cotton crop was reported as rapidly as the crop was ginned and weekly reports were issued by field stations over the South, revealing the quality of the cotton. The weekly reports showed the percentage distribution among grades and staple lengths of crop samples furnished by cooperating ginners and classed, according to official standards, during the weekly periods specified; they showed also the tenderability of these samples.

GRADE AND STAPLE REPORTS

During the 1935-36 season 1 grade and staple report was issued on the carry-over stocks on hand at the beginning of the season on August 1, and 68 periodic reports, exclusive of weekly reports, were issued on the crop. These 68 reports included 4 for the United States and 4 for each of the States of Alabama, Arizona, Arkansas, California, Florida, Georgia, Louisiana, Mississippi, Missouri, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. Of the 900 weekly reports, 14 were issued for the United States, 206 for States, and 680 for districts into which the States are divided.

COTTON SERVICE TO GROWERS

Cooperating ginners were furnished copies of the classification sheets showing the identifying numbers of the bales from which the samples were obtained. They were supplied with franked cards, to include with the samples, on which to write the farmer's name and address. After the samples were classed the grade and staple were recorded on the card and the cards mailed direct to the owners of the bales from which the samples had been taken. This feature of the Bureau's activities proved popular, for ginners supplied the names and addresses of farmers producing 321,799 bales.

In a survey of farmer patrons of cooperating ginners 31 percent of those replying said they had received better prices than they would have received had their cotton not been classed; 29 percent said the classification on individual bales made it possible for them to judge the accuracy of the class specified by buyers at the time of sale; 16 percent said the classification information enabled them to compare different varieties grown on individual farms and in their communities, thus making it possible to ascertain the varieties that produced the longest staple, and to gain some idea as to adaptability and relative profitableness of different varieties.

LIVESTOCK AND MEAT STANDARDIZATION

Nearly 423,000,000 pounds of meats were graded by Bureau representatives in leading consuming markets, or 48 percent more than in the preceding fiscal year. This enlarged service was made possible through continued cooperation with the National Live Stock and Meat Board.

Many slaughter tests, particularly of cattle, were made in an effort to insure the greatest possible accuracy in quoting cattle prices by grade and to bring about the highest practicable degree of correlation in the application of United States standard grade terminology in connection with live cattle and beef grading.

MEAT GRADING

The widespread interest in meat grading is shown by the recommendations of livestock and meat-trade organizations that Federal grading be made mandatory. The American National Live Stock Association, for instance, passed a resolution at its last national convention that its legislative committee prepare a bill that would make Federal grading and stamping of beef in interstate commerce mandatory; similar resolutions were passed by the American Farm Bureau and the National Association of Retail Meat Dealers.

During the last 6 months of 1935, 24 percent of all federally inspected Prime, Choice, and Good grade steer and heifer carcasses were federally graded. This represents about 7 percent of all carcasses produced under Federal inspection. The grading of commercial sausage products also expanded, more than 29,000,000 pounds having been certified for grade during the year.

LIVESTOCK DEMONSTRATIONS

Through cooperation with the Extension Service, the Bureau conducted livestock-grading demonstrations in most of the range States and extended these

demonstrations farther in the South Atlantic States. These activities have stimulated increasing interest in the better selection and preparation of livestock for market and the marketing of better slaughter stock from these areas.

About 100 livestock-grading demonstrations and outlook discussions held in the range States were attended by more than 10,000 persons, principally livestock producers. Requests were received for similar demonstrations and lectures this year from New Mexico, Colorado, Montana, Wyoming, Utah, California, Washington, Oklahoma, Texas, Kansas, Virginia, and West Virginia.

LAMB AND CATTLE GRADING

Keen interest has developed in Virginia, West Virginia, and North Carolina in the grading and marking of market lambs for grade, and in marketing the lambs according to the official standards of the United States. Interest has developed in these areas also in the marketing of cattle according to grade. Cattle producers in Virginia requested a close study of the differences between grass- and grain-fattened cattle to determine whether the lower prices for Virginia grass-fed cattle as compared with those for grain-fed cattle of similar appearance as to fatness were phases of unwarranted market discriminations. Preliminary plans were inaugurated to make such a study, in cooperation with the Bureau of Animal Industry, Virginia Bureau of Markets, State College and State Extension Service of Virginia, and the Tennessee Valley Authority.

WOOL STANDARDIZATION

The preparation and distribution of sets of the official wool standards was continued as heretofore. Progress was made in the development of specifications for the dimensional values of the grades of wool top in cooperation with the Textile Foundation and the American Society for Testing Materials. Wool-fiber research yielded much additional basic data relating to wool grades and wool standardization.

A series of wool-shrinkage tests were made involving the separate scouring of portions of fleeces and of the entire fleeces to determine the shrinkage relationships of selected parts to whole fleeces. One objective of this research is the development of a simple method that producers can use to test fleeces for shrinkage.

FRUIT AND VEGETABLE STANDARDS

Standardized grades developed by this Bureau are being used in the selling and buying of a large part of the commercial supply of fruits and vegetables. There are grades now for 52 different fruits and vegetables and 5 related products. These grades are revised from time to time to meet changing conditions in the produce trade; standards for grapefruit, oranges, peanuts, pears, and potatoes were revised last year.

During the year, studies were made with a view to recommending new standards for cucumbers for pickling, maple sirup, horseradish, lima beans, peas for canning, and asparagus for canning. The Bureau has now been asked by producers and the trade to prepare standards of this kind for such diverse commodities as beans for canning, blueberries, collards, Christmas trees, coconuts, dried apples, cut flowers, limes, lemons, grapefruit for canning, cranberries, and shelled pecans.

FRUIT AND VEGETABLE INSPECTION

The volume of inspections of fruits and vegetables was the largest in the history of this service, the equivalent of 339,420 carloads having been inspected at shipping points and 55,830 carloads in receiving markets. This was an increase of 32,979 cars at shipping points and of 2,387 cars in destination markets over the preceding year. There was a marked increase in the use of the farm-products inspection service by other Federal agencies, particularly in the purchase of surplus commodities for relief purposes, and by veterans' hospitals.

GRADES FOR CANNED FOODS

Intensive research was conducted in an effort to improve the grades for canned fruits and vegetables, to develop improved instruments and methods for mechanically determining the maturity of certain canned products such as canned corn and canned snap beans, to determine the clarity and consistency of fruit and vegetable juices as related to market values, and to develop grades for frozen fruits and vegetables, particularly frozen peas. Large quantities

of canned products were graded for commercial organizations and various governmental departments.

Certain State governments requested the Bureau to revise their specifications covering the purchase of canned and dried fruits and vegetables. Kansas and New York adopted the suggested revisions, and this Bureau now inspects and grades all bid and certain delivery samples in connection with canned foods purchased by these States.

DAIRY AND POULTRY STANDARDS

Grading and inspection work on dairy and poultry products were expanded because of increased commercial grading in terminal markets and the extension of grading services at country points. Other new work included the establishment of Federal butter-grading services for a number of concerns at country points where butter is concentrated, where payment may be made to the creameries on the basis of grade, and where the graded butter may be packaged with certificates of quality. New egg-grading services at points in States where this work was already under way contributed to an increased volume of eggs graded under Federal supervision. During the year there was undertaken in a small way at Chicago and New York the examination of frozen eggs for condition only.

BUTTER AND CHEESE STANDARDS

Studies were continued, looking to the possible revision of the United States standards for butter and cheese. Several years' experience in the grading of these products has indicated the need for a more systematic basis for grading and a more informative and exact classification and evaluation of the quality factors involved. Studies leading to the possible revision of the grades for butter and eggs are of special interest because the recently enacted Commodity Exchange Act, which covers futures trading in butter and eggs, requires that when grades are officially promulgated deliveries made in settlement of futures contracts shall conform to the official grades.

HAY STANDARDS

Standardization studies were made on hay, revised standards were promulgated, and new handbooks were issued. An extension program on standardization and inspection of hay was inaugurated in cooperation with the Extension Service. Various colleges and experiment stations undertook to correlate the various phases of hay production and utilization in this educational work, and steps were taken to correlate extension work on hay with soil conservation. Further studies were made of standards for alfalfa meal and a conference was held with mixed-feed manufacturers in connection with ground-alfalfa standards.

HAY—INSPECTION SERVICE

Inspection services on hay, beans, sorghums, and peas were expanded. Outstanding gains were shown in soybean inspections, of which there were more than 19,000 compared with about 6,000 the preceding year. This increase was due chiefly to the increased production of soybeans for commercial purposes, but an increase in the number of mills crushing soybeans, and in the export movement, contributed to the growth. Inspection service on soybeans was extended during the year to Minneapolis, Milwaukee, Memphis, Nashville, Columbus, and Clinton (Iowa).

BEAN AND PEA STANDARDS

Bean standards were revised, and were broadened to include all classes and kinds. Provisions were made for the issuance of dockage certificates on thresher-run beans. Official standards for dry peas were promulgated, superseding tentative standards recommended in 1933. Tentative standards for split peas were issued. Soybean standards were revised and promulgated as official United States standards. Chemical studies were continued to determine the extent to which present grading factors reflect oil content and protein quantity and quality in soybeans.

SEED VERIFICATION

There was a decrease of about 20 percent in the quantity of alfalfa seed verified but an increase of 15 percent in that of red clover. About 48,100,000 pounds

of alfalfa and 12,600,000 pounds of red clover seed were verified. Practically all the principal wholesale distributors of alfalfa seed in the United States were enrolled in the service.

MARKET NEWS

Reporting the markets for farm products has been a major activity of this Bureau for more than 20 years. The objective is to put in the hands of farmers, distribution agencies, and consumers authentic current information on supplies, prices, and other market conditions at shipping points and consuming centers. Every means of communication is employed to disseminate this news—radio, telegraph, telephone, the press, and the mails.

PRODUCE MARKET NEWS

The Bureau is developing ways to report the daily motortruck movement of fresh fruits and vegetables from producing areas to consuming markets. Shipments from some southern producing areas are being reported, and arrivals in a few consuming markets, but these reports cover only a fraction of the 500,000 carloads of fresh fruits and vegetables now shipped annually by motortrucks.

Reports are issued covering practically the entire rail and boat movement from producing areas to market centers, and on prices and other market conditions on most of the trade in fruits and vegetables at shipping points and receiving markets. The only gap in the picture is the lack of complete information on the motortruck movement.

The problem of covering the motortruck movement is complicated by the fact that most of the truckers start moving from producing areas without having a definite destination in mind. Little information can be had, therefore, as to where the trucks are going, and virtually none on final sales unless they are made in markets where State or Federal market news reporting agencies are located.

LIVESTOCK MARKET NEWS

Three new livestock market-reporting and market news-disseminating offices were established at Baltimore, Oklahoma City, and San Antonio. Twenty-seven public livestock markets are now being reported, five wholesale meat markets, and the Boston wool market.

So-called direct hog markets at 9 packing plants and 21 concentration yards in interior Iowa and southern Minnesota were reported through the Bureau's office at Des Moines. Contract and direct sales of sheep and lambs that were effected in large producing areas in nine intermountain and Pacific Coast States were reported each week through offices at Casper, Ogden, and San Francisco. A temporary market news-disseminating office was maintained at Scottsbluff, Nebr., during the first 4 months of the calendar year.

LIVESTOCK MARKET NEWS BROADENED

The scope and value of the livestock market news service was broadened in many ways. The release of many of the more important spot-market reports was speeded up and their dissemination made more widespread, particularly through the facilities of cooperating news-distributing agencies. More rigid adherence to regularly scheduled periods for the filing of leased and commercial telegraph wire reports was effected. Daily and weekly statistical data were released on the average cost and weight of hogs purchased at the leading market centers, segregated as between packing sows and barrows and gilts.

SHEEP AND LAMB MARKETS

Estimates of sheep and lamb receipts at Chicago, segregated as between receipts for the market and receipts billed direct to packers, were made possible in a release made at 6 a. m. of daily estimated receipts at that market—a service that was instituted at the urgent request of the National Wool Growers Association. The Boston weekly wool market report and the weekly wool statistical report were revised to clarify, broaden, and increase their usefulness.

CANADIAN CATTLE IMPORTS

Concurrent with the date on which the United States-Canadian reciprocal trade agreement became effective, arrangements were made at field offices at markets that receive Canadian cattle for the regular issuance of weekly reports carrying statistical data on imports and prices paid for the various classes and

grades. This information helped to correct numerous erroneous impressions and reports dealing with Canadian cattle imports.

DAIRY AND POULTRY NEWS

Reporting wholesale prices of dairy and poultry products was given special attention. The problem of reporting these markets is becoming increasingly difficult because of changing market practices, and a consequent decline in volume of wholesale business. There is need for market news research on this situation and for research dealing with the adequacy of information regarding motortruck receipts, methods of estimating production, and types of statistics that might be developed to measure current consumption.

POULTRY AND EGG PRICES

Reports of prices paid the shipper, f. o. b. market, for nearby eggs and poultry were instituted at Boston, similar to those at Washington, Philadelphia, San Francisco, Portland, and Seattle. These reports are of direct value to producers supplying local markets. A new type of report, called the Weekly Feed-Egg Ratio, was inaugurated to show the relationship between prices of eggs and feed at Chicago.

A daily post-card price report was started at San Francisco to provide creameries and poultry interests with current price information. Arrangements were made to release the monthly hatchery report 10 days earlier each month so as to make this information more timely. A report on turkey hatchings was issued in July.

DAIRY PRODUCTS PRODUCTION

Cooperation with trade organizations resulted in more complete dairy production reports, such as the production of ice cream by different size plant groups and graphic material to be published by one of the trade associations showing geographic distribution of butter, ice-cream, and evaporated-milk production. Issuance of a weekly butter-production report for the entire United States is being considered as a result of combined suggestions from several dairy organizations.

COTTON MARKET NEWS

Reports are being issued daily and weekly covering various phases of cotton marketing. The daily reports cite prevailing prices for Middling cotton, $\frac{7}{8}$ -inch staple, on each of 10 designated spot cotton markets, prices for grades other than Middling, and quotations for length of staple fifteen-sixteenths of an inch and 1 inch.

The weekly cotton reports bring out the high lights in the whole cotton-marketing picture, from production of the raw cotton, through marketing here and abroad, to its manufacture into cloth. Volume of sales and prices of both raw cotton and cloth are reported. These reports are being widely published by southern newspapers in an effort to keep cotton growers informed currently on market conditions.

GRAIN, HAY, FEED, AND SEED NEWS

The grain, hay, and feed market news service was expanded in response to a substantial increase in requests for weekly market reviews. The seed-reporting service was continued on about the same basis as heretofore, but greater interest was shown in seed reports because of the relatively short crops of the principal farm seeds and the soil-conservation program. In addition to the regular scheduled reports, a number of special reports were prepared for the A. A. A. to keep that organization informed currently regarding supplies and prices of farm seeds.

TECHNOLOGICAL RESEARCH

Technological research by the Bureau included improvements in the handling and storing of farm products, objective ways to estimate crop production, and mechanical devices useful in standardization work. Extensive research is under way in connection with cotton-ginning practices, development of new and extended uses for cotton, and devices used to determine the moisture content of grain. Bulletins were issued dealing with the preparation for market of seven different fruits and vegetables.

GRAIN MOISTURE TESTS

Studies were concluded which permitted the preparation of new conversion charts for use with the Tag-Heppenstall electric meter in determining the moisture content of Argentine flint corn, buckwheat, flaxseed, edible beans, rice, and popcorn. This research also suggested changes that should be made in the conversion charts in determining the moisture content of dent corn, white wheats, and large-kerneled types of rye.

FLAXSEED OIL TESTS

A project was concluded dealing with improvements in the refractometric method for determining the oil content of flaxseed. It was learned that by this method the oil content can be determined accurately in 30 minutes as compared with the 16 to 24 hours required by standard analytical procedures. Three men using the refractometric method can make 100 complete analyses for oil content and iodine number in an 8-hour day.

GRAIN-SIEVING DEVICE

A grain-sieving device called the Federal dockage tester, developed by Bureau employees, was installed, after practical tests, in all Federal grain supervision offices for use in determining the quantity of dockage and certain foreign material in samples of grain. The tests showed that the device yields more accurate and uniform results than the equipment that has been in use heretofore.

A COTTON "BOLLMETER"

Preliminary studies have indicated a high correlation between the average size of cotton bolls and yields of lint per acre. A device called a cotton bollmeter, developed in this Bureau, measures the cubic displacement of sample bolls. This device was tested in the field during the year, and an index was developed of the size of cotton bolls in relation to yield of lint.

COTTON-GINNING STUDIES

Studies were made to determine the effect of prevalent ginning practices on imperfections in the ginned lint and finished yarn, and a basis was laid for the extension cotton-ginning programs which are being initiated by various State extension agencies. Studies of factors affecting ginning capacity are under way in this connection at the Bureau's experimental cotton gin at Stoneville, Miss., in an effort to discover ways to increase ginning capacity without sacrifice of lint quality.

OTHER COTTON RESEARCH

Other technological research on cotton deals with the artificial drying of cotton, spinning tests of cotton harvested by different methods, the properties of seed cotton, devices for identifying cotton bales from the gin to the cotton mill, and the influence of fiber strength on the properties of yarns and fabrics.

Of far-reaching importance are the Bureau's findings with respect to the spinning quality of a short, little-known cotton seemingly possessing little commercial value, grown by the Hopi Indians of the Southwest, and of a cross between this Hopi cotton and Acala, which is a longer stapled upland cotton that possesses many desirable qualities.

NEW USES FOR COTTON

Two new cotton fabrics—one for use in building roads and the other in packaging raw sugar—were developed by Bureau technologists who are seeking new and extended uses for cotton. The road fabric is being used in the experimental construction of test "cotton roads" in 24 States under a project sponsored by the A. A. A. Bags made of the sugar bagging are being tested in experimental shipments between Hawaii and the United States.

LAWS ADMINISTERED

The Bureau is charged by the Congress with administering a number of specific regulatory laws that deal with marketing processes. These are the Grain Standards Act, Cotton Futures Act, Cotton Standards Act, Perishable Agricultural Commodities Act, Produce Agency Act, Standard Container Acts, Warehouse Act, Export Apple and Pear Act, and Tobacco Inspection Act.

TOBACCO INSPECTION ACTS

The Tobacco Inspection Act, approved August 23, 1935, invokes the principle of the referendum in putting a governmental service into operation. It provides for mandatory inspection by federally supervised inspectors of tobacco at auction markets should two-thirds of the growers who patronize these markets vote favorably. The framers of this act intended that this method should supersede the voluntary or permissive inspection and market news service in operation heretofore insofar as auction sales are concerned.

Referenda have been held on 20 tobacco markets. Growers voted favorably in 19 markets. In three markets in South Carolina the Government has been estopped by temporary injunction obtained by warehousemen from putting the inspection and market news service into effect, but the service is in operation in three markets in North Carolina and will be inaugurated in markets in other districts this fall. Meanwhile, additional referendums will be held, and the service will be expanded as quickly as the needed personnel can be trained in its administration.

Under a recent amendment to the Tobacco Stocks and Standards Act reports are being issued quarterly on stocks of tobacco on the island of Puerto Rico as well as in continental United States. Also, under this act a comprehensive statistical report has been prepared for publication on the United States production, manufacture, exports, and consumption of tobacco.

GRAIN STANDARDS ACT

The Grain Standards Act has been in effect for 20 years. It was passed by the Congress in 1916 to establish uniform grain standards and inspection throughout the country. Activities under this act are both service and regulatory in character.

The act requires that all grain for which standards have been established and which is merchandized by grade in interstate or foreign commerce from or to an inspection point must be inspected, graded, and certificated according to the official grain standards established by the Secretary of Agriculture. It contains provisions designed to prevent fraud and misrepresentation in the merchandising of grain.

GRAIN INSPECTION

At the close of the last fiscal year there were 394 licensed grain inspectors, inspection service was available at 173 points in 33 States, and there were 45 Federal grain supervision field offices at the important grain markets. Administrative field headquarters offices were maintained at Chicago, Ill., and Portland, Oreg.

More than 1,000,000 carloads of grain in railway cars, elevator bins, trucks, sacked lots, and in cargo vessels were inspected. Federal grain supervisors handled 49,416 appeals from original inspections, or about 5½ percent of the total volume of grain inspected. There were 19,409 more appeals than in the preceding year, and 3,349 more than the 5-year average. The Chicago and Portland Boards of Review handled 983 Board appeals from appeal inspections, compared with 581 in 1935.

The number of appeal inspections and the volume of supervisory work increased on account of the generally low quality of the 1935 grain crops caused by rust and drought damage to small grain and by the high moisture content of the corn crop.

COTTON LAWS

An important feature of the work under the Cotton Futures Act and the Cotton Standards Act was the revision of the standards for grade for American upland cotton, and hereinabove covered.

The sixth international conference under the universal cotton standards agreement was held at Washington in March 1936. The nine European associations, signatories to the universal cotton standards agreements, were represented, as were the Japan Cotton Spinners Association, the Japan Cotton Merchants Union, and various American cotton trade organizations and southern agricultural colleges.

Key sets of copies of the revised universal standards were approved for use by the Department of Agriculture and the various associations during the 3-year period beginning August 1936. It was mutually agreed that future meetings under the universal standards agreements be held at 3-year instead of 2-year intervals.

During the year there were substantial increases in sales of copies of the official cotton standards, both for grade and for length of staple, and in the quantities of cotton classified and certificated for delivery on futures contracts. There was a marked increase in the number of classifiers' licenses issued under the Cotton Standards Act, and in the volume of cotton classified by such licensees. These licensed classers made more than 4,000,000 classifications of cotton during the season.

PRODUCE ACTS

The Perishable Agricultural Commodities Act has been in effect for 6 years. It has been amended twice, some rather extensive amendments becoming effective on April 13, 1934, and some minor ones on June 19, 1936. The Produce Agency Act has been in effect since March 3, 1927. Both acts relate primarily to the suppression of unfair practices in the handling of fresh fruits and vegetables in interstate commerce.

Under the Perishable Agricultural Commodities Act, unfair practices are dealt with through orders issued by the Secretary of Agriculture after investigation of complaints and the consideration of evidence submitted by both parties concerned, either at formal hearings or through sworn statements of facts and depositions. If the reparation awarded by the Secretary is not paid within the prescribed time or the licensee has not taken an appeal to a Federal district court as provided in the act, his license is automatically suspended until payment is made. The Secretary is authorized also to suspend or revoke licenses for flagrant or repeated violations of the act. Under the Produce Agency Act, which is a criminal statute, violations must be prosecuted through Federal courts. The penalty prescribed is fine or imprisonment, or both.

PRODUCE DEALERS LICENSED

An outstanding feature of the year's work under the Perishable Agricultural Commodities Act was an increase in the number of licenses in effect, from 15,697 to 16,653. During the year 2,182 complaints of violations of the act were received. Amicable settlements were arranged in 703 cases; 111 formal hearings were held, and 320 orders were issued by the Secretary. There was a decrease of 473 in the number of complaints—a decrease which was due, probably, to the somewhat higher level of farm prices. About 60 percent of the cases were closed as a result of action taken by the Bureau; in fully one-half of these, amicable settlements were effected. Since April 13, 1934, amicable settlements have resulted in known payments of \$387,724.06. Under the Produce Agency Act there was a slight increase in the number of complaints. Four commission merchants were prosecuted and convicted.

STANDARD CONTAINER ACTS

Under the Standard Container Acts the dimensional-measurement method of testing certain types of containers was adopted in place of or in conjunction with the bulk-for-bulk or volumetric method formerly exclusively used on all types of containers. Standard specifications for certain splint baskets were established to stabilize manufacturing procedure and simplify enforcement. The new method may be applied in the field, thereby affording better and more effective supervision of manufacturers' operations. Results indicate the desirability of extending this method to all types of containers.

WAREHOUSE ACT

At the close of the year, 956 warehousemen were under license under the Warehouse Act, and 2,152 persons licensed to sample, inspect, weigh, and grade stored products. Bureau representatives made 3,800 inspections of licensed facilities.

A movement was initiated in the Pacific Northwest early in the year toward placing about 113 elevators and grain warehouses having a storage capacity of about 12,000,000 bushels and used by farmers and farmers' organizations, under the provisions of the Warehouse Act. Field investigations resulted in the licensing of some of these houses.

COTTON INSURANCE

A regulation was issued on July 18, 1935, requiring cotton warehousemen who issued insured receipts to insure the cotton in companies approved by the

Department of Agriculture and on a form of coverage which automatically attaches for the full value of the cotton so long as the receipt is outstanding.

This requirement has made for cheaper insurance to warehousemen and depositors, and has resulted in a form of policy that is accepted by lending agencies generally, thereby avoiding duplication in insurance or high cost of short-term insurance.

Premiums charged by surety companies for bonds written under the Warehouse Act have been considered excessive by warehousemen and the Department of Agriculture. After more than 10 years of effort the Bureau succeeded in having the rating bureau revise its rates effective May 1, 1936, so as to make the premium rate about 0.5 percent of the principal.

COOPERATION

An important feature of the Bureau's research and service work is found in its cooperative relationships with other Federal and State agencies. There are 395 cooperative agreements in effect with these agencies which include Federal research and administrative agencies, State agricultural experiment stations and extension services, and State departments of agriculture.

Examples of cooperative research are studies of income parity for agriculture, the relationship of weather and crop yields, interregional competition in the production and sale of farm products, accounting studies of farm organization and management, types-of-farming studies, the economic and social effects of planned programs of soil conservation, and a regional program of research in agricultural economics in New England.

Cooperative technological research with other Federal bureaus and with State agencies includes such projects as cotton-ginning investigations, utilization research in cotton-fabric construction, milling and baking studies, investigations of factors affecting the grade and quality of hay and hay products, and investigations of the carrying quality of fruits and vegetables in transport from producing areas to consuming markets.

The Bureau has in effect with State departments of agriculture and other State agencies 154 cooperative agreements dealing with inspection services on fruits, vegetables, dairy products, poultry products, meats, livestock, grain, hay, feed, seed, and tobacco, and the issuance of cotton grade and staple estimates. The Bureau has cooperative agreements in 30 States with State departments of agriculture, State agricultural colleges, or other agencies covering the estimating of crops and livestock production.

Market news agreements are in effect with 20 States, chiefly with the State departments of agriculture. Most of these agreements cover market reporting services for fruits and vegetables, but in California they deal as well with the markets for livestock, hay, feed, seed, dairy products, and poultry products. With the New England States there is a regional agreement covering a radio market news service at Boston.

Besides these formal agreements for cooperative research and service, there is much informal cooperation with other Federal and State agencies in furtherance of the Bureau's efforts to focus upon problems the combined talent, resources, and information available to all parties with a common interest in these problems. The advice and services of this Bureau are also continually sought by many public and private agencies, outside of any formal agreement.