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**REPORT OF THE CHIEF OF THE BUREAU OF
AGRICULTURAL ECONOMICS, 1935**

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF AGRICULTURAL ECONOMICS,
Washington, D. C., September 17, 1935.

HON. HENRY A. WALLACE,
Secretary of Agriculture.

DEAR MR. SECRETARY: I transmit herewith a report of the work of the Bureau of Agricultural Economics for the fiscal year ended June 30, 1935.

Sincerely yours,

A. G. BLACK, *Chief.*

For the Bureau of Agricultural Economics, the past year has been one of increased opportunity and responsibility, growing out of the steady advances of agricultural recovery and readjustment, and the drought emergency. The public demand for current economic information, as well as for research on the numerous economic problems growing out of the changing conditions, has taxed the capacity of the staff. Not only has there been an increased load of special tasks, but the regular work of the Bureau—fact finding, analysis, administration in marketing, and like activities—has expanded. The Washington staff of the Bureau and those in the many field offices have alike contributed of their energies toward meeting the increased responsibilities and maintaining the volume of the Bureau's regular output with limited expansion of personnel.

Many Bureau activities have been coordinated with the work of the Agricultural Adjustment Administration. Many intricate problems have been studied by members of the Bureau's staff and the results made available for the adjustment programs. The Agricultural Adjustment Administration has in turn assisted the Bureau with financial aid for numerous emergency projects. The staff of the Division of Crop and Livestock Estimates was expanded to care for the additional work of supplying statistics for adjustment, a special field staff for the study of the direct marketing of hogs was provided, and numerous studies of marketing of various commodities were aided. The adjustment program has relied to a considerable degree upon the data and analyses prepared by Bureau workers who have been trained through several years of experience in assembling and interpreting statistical data with reference to various commodities and preparing outlook reports.

The outlook program, conducted in close cooperation with the Agricultural Extension Service, has led many farmers and others to think of planning their work with a view to the adjustment of production to demand. Likewise the Bureau's work in the field of land economics has been utilized as the basis for further planning for the administration of the Nation's land resources. One of the outstanding productions of the Bureau in this field culminated in the publication of the study entitled "Economic and Social Problems and Conditions of the Southern Appalachians" and in the land-utilization and land-policy section of the report of the National Resources Board.

Special mention should be made of the work of the Division of Crop and Livestock Estimates and its field statisticians in connection with the wheat, cotton, and corn-hog programs. This Division also assisted greatly in the administration of the Bankhead Act relating to cotton. The new Division of

Marketing Research cooperated constantly with the Consumers' Counsel of the Agricultural Adjustment Administration. The staff of the Division of Land Economics devoted a large part of its time to the work of the Land Policy Section of the Agricultural Adjustment Administration, later of the Rural Resettlement Administration. Later in the year the Division of Farm Management and Costs devoted almost its entire attention for a considerable time to regional-adjustment studies.

DROUGHT-EMERGENCY WORK IN 1934

The drought of 1934 created a shortage of feed and water that extended into the winter. Many of the problems encountered by the livestock industry were of sufficient public importance to necessitate continued attention from governmental agencies. Following the preparation of several reports on the extent and progress of the drought at intervals during the summer, the Bureau made surveys during the fall and winter to ascertain the extent of the drought damage and what needed to be done to minimize its effects. Special assistance was rendered in connection with Government programs of buying cattle and sheep in emergency drought areas, such as working out the price schedules for use in making purchases and the details of operation designating the counties to be included in the emergency area, and assembling statistical information needed by administrative officials in formulating policies and planning relief activities.

In order to assist stockmen in the drought areas to carry their livestock through the winter, the Bureau, in cooperation with the Agricultural Adjustment Administration, established a Federal livestock-feed agency at Kansas City with a branch office at Amarillo, Tex. This agency assembled information as to the amount and location of feed supplies of various kinds that could be made available, advised stockmen as to where feed could be purchased at the lowest cost, and disseminated weekly reports as to current feed prices and market supply-and-demand conditions. It compiled information as to freight rates under which feed could be transported and advised with shippers and buyers as to the most economical routing of feeds to be moved. Information was supplied to stockmen regarding the nutritive value of the different kinds of feed available, and how various feeds not commonly known in the drought area should be used to obtain balanced rations for stock. Since many of the stockmen who needed feed had had little experience in buying the kinds of feed offered, the hay inspection service of the Bureau was expanded and made available to them so as to insure their being protected in regard to the quality of the hay they purchased.

As part of the Federal livestock-feed agency, a cattle-transfer unit was established for the purpose of effecting the transfer of livestock from the drought areas to sections where surplus feed was available. Lists of those who desired to sell feed or buy livestock and those who needed feed or who had livestock for sale were compiled and given wide dissemination, thus making it possible to effect contacts quickly between these various groups and bring the livestock and feed together.

Offers of feed for cattle wintering were received from farmers in 32 States; stockmen in 10 States listed cattle that had to be moved before real winter set in. As all contacts were made directly between the parties involved, there is no way of knowing accurately just what volume of livestock was shifted at the reduced drought freight rates, or how many were bought by farmers east of the Mississippi River or in Arizona and on the Pacific coast through the efforts of this office, but its services were utilized by all interested agencies and by thousands of producers. More than 400,000 cattle in excess of the normal movement went to California; over 175,000 head went from the "dust bowl" section of Texas, Oklahoma, Kansas, and Colorado to south Texas. It is known that many thousands of head went to rough feed or pasture in Kentucky, Tennessee, and the prairie belt of Mississippi, Alabama, and Georgia. Thousands of tons of rough feed were offered in the southern half of Illinois and Indiana and in Ohio, Pennsylvania, and Maryland.

The Federal livestock-feed agency was responsible for acquainting thousands of livestock feeders, State officials, county agents, and feed dealers with the best sources of supplies of feed. It is safe to say that more feed was transported by truck during the last several months than ever before during a like period.

CURRENT-INFORMATION SERVICES

The gathering of statistics of production of agricultural products, of stocks and movements to market, of prices, foreign trade, and related subjects, is basic work of the Bureau. Increased need for more facts on all of these phases of the agricultural industry continued to increase during the year because of changing conditions. The divisions of the Bureau charged with the task of estimating crop production, the several commodity divisions gathering market news, and the foreign offices, together constitute the great news-gathering agency of the Bureau, which has carried the increased load.

CROP FIGURES ESSENTIAL TO ADJUSTMENT PROGRAM

The Crop and Livestock Estimating service of the Bureau, under the direction of the Crop Reporting Board, continued and expanded its regular service on crop reports, farm prices, and wages, and in addition devoted a considerable part of its attention to adjustment problems.

HELPING WITH THE COTTON PROGRAM

All available information necessary for the preparation of official estimates of cotton acreage and production in each county were compiled and analyzed. The county estimates prepared by the Bureau were used in determining county allotments under the voluntary acreage-reduction program and the Bankhead program.

The Division of Crop and Livestock Estimates has devised a method of determining the proportionate share of the county maxima of base acreage and production to which the producers who have signed offers of contracts in 1935 are entitled. The statisticians of each State have made the necessary statistical analyses for each county, under the general supervision of the cotton statistician of the Washington office.

The procedure in 1935 under the Bankhead Act provides that the Bureau again prepare the official county allotments under section 7 of the act, for the use of the State allotment boards in allocating tax-exempt certificates to individual farmers. State and county estimates of cotton production for the period 1928-32 were revised in the light of information developed during the 1934 programs, and the revised estimates were used in computing the official county quotas under the provisions of the act.

THE RICE AND SUGAR PROGRAMS

With the inauguration of the rice and sugar program the Division of Crop and Livestock Estimates was called upon to provide a considerable volume of statistical data concerning these crops, and assistance was given in a special investigation of sugarcane prices in Louisiana during the base period (1909-13) for the use of the Agricultural Adjustment Administration in establishing parity prices in that State. A special investigation was made of rice-huller operations in Louisiana for the purpose of truing up official estimates of Louisiana rice production.

A SURVEY OF FLORIDA CITRUS

Special funds were made available by the General Crops Section of the Agricultural Adjustment Administration for an expansion of fruit- and truck-crop estimates. Orchard-to-orchard enumeration of the numbers and acreages of citrus trees by age groups and by varieties were made, and additional data were secured on tree removals, total production, utilization, and prices received by growers. This is the first time that an attempt has been made to secure comprehensive information of this nature for entire counties. Such information will be invaluable to agencies engaged in the study of future adjustments within the fruit industry, and will be of great assistance in improving official estimates of production.

A DAIRY PRODUCTION SURVEY

During the year efforts were made to measure currently adjustments being made by milk producers and to help dairymen plan ahead to meet the situation. This work was particularly needed because the drought caused a wide-spread

shortage of feed and forage, heavy marketings of milk cows and young stock, increased imports of butter, and increased use of butter substitutes, and brought about marked changes in feeding practices in all States.

Although these adjustments resulted in an abnormally low level of milk production during the late winter and early spring, it was important for dairymen to realize that the reduction was temporary and that it was due chiefly to a change in feeding and, to some extent, to close culling of old cows, particularly of milk cows due to freshen during the late fall months. As soon as good pasturage became available and the cows freshening in the spring and early summer came into production, milk production increased rapidly and on July 1 reached the highest level on record for that date.

The experience of last season demonstrated that the basic factors of milk production can be determined currently for the country as a whole with sufficient accuracy for most needs, but that a much more extensive service is necessary to furnish local details.

One of the features of the reports secured from dairymen that was of particular value was the quantity and kind of grain being fed to milk cows. These reports showed the regional and annual differences in the kind and quantities of feed fed to milk cows and helped to provide a basis for various estimates of normal feed requirements and for accurate forecasts of changes in livestock numbers that the drought made necessary.

POULTRY REPORTS REVISED

The poultry reports of the Bureau, showing annual estimated numbers by States since 1925, were revised and published. Although poultry and eggs represent one of the most important farm enterprises, no definite provision has been made to supply the industry with an adequate service of estimating.

SPECIAL INQUIRY ON PRICES PAID BY FARMERS

A special inquiry on prices paid by farmers was conducted with funds allotted by the Civil Works Administration, and tabulations were completed during the past year. This provided a much-needed and larger sample of retail-price information with which to strengthen the quarterly price reports of prices paid by farmers.

ASSISTANCE ON THE CENSUS

This Bureau cooperated with the Bureau of the Census in the analysis of data on values as of January 1935, as in previous years. Price estimates by States, prepared by the Crop Reporting Board, were used to evaluate enumerations in the census. The Census Bureau assigned clerks to handle the additional clerical work involved. Bureau statisticians helped wherever possible in analyzing census results, which in turn are used in revising estimates of production.

The regular quinquennial request for crop and livestock information was received from the Bureau of the Census, and data on average prices of crops produced and livestock products sold during the calendar year 1934 and livestock inventory values as of January 1, 1935, were supplied. In order to increase the reliability of these data, the scope of the inquiry was considerably expanded this year, and queries were sent to a larger number of correspondents.

The demand for detailed statistical production data by counties was the outstanding statistical development of the year. The personnel and facilities of the Division of Crop and Livestock Estimates have been inadequate to meet these demands except in a few States. More cooperation from the States is desirable, and the experience of the past year shows that accurate county statistics can be developed when efficient personnel has been trained. Many statistical data must be collected currently, or they will be entirely lost, since it is often impossible later to secure such data and the collection is also increasingly expensive.

COTTON GRADE AND STAPLE STATISTICS

Reports on the grade, staple length, and tenderability of the cotton carry-over and similar reports throughout the season on current ginnings were continued for the seventh successive season. From the season of 1928-29, when the work was inaugurated for the Cotton Belt, to 1931-32, the reports

were issued at intervals of about a month during the ginning season. Weekly reports on the crop, supplementing the regular periodic reports, were begun for States and divisions of States at the beginning of the 1932-33 season. During the last two seasons the State reports were issued from the field offices in order that the information might be more timely.

At first, in 1932-33, cooperating ginners were furnished a copy of the daily classification sheet showing how the samples they transmitted were classed. The sheets did not carry the numbers identifying the bales from which the samples had been taken. Because of their interest in the classing activities, these ginners agreed to furnish samples free during the 1933-34 season in exchange for daily classification sheets carrying numbers identifying the bales, although in previous years they had received payment for samples. In 1934-35 cooperating ginners again furnished the samples free on the same basis.

INFORMATION ON CURRENT QUALITY OF GRAIN

A new service that has met with favorable response from practically every branch of the grain industry includes the dissemination at 15-day intervals of information regarding the quality of the various grain crops moving to market. The basic information is obtained from reports of licensed grain inspectors as the result of their official grading and certification of the new crops as they move to market. The data are carried forward cumulatively, and at the end of each 3-month period a summary is issued.

NEW DEMAND FOR OUTLOOK REPORTS

The several field campaigns relating to adjustment programs, covering cotton, wheat, corn-hogs, tobacco, and other commodities, created an increased demand for economic statistics and charts such as the Bureau has been furnishing to extension workers for outlook work. The fact that most of the extension workers concerned with the adjustment campaign had utilized this material in the past led them to call for more of it. The result has been that the Bureau's statistical summaries and commodity reports in mimeographed form, as well as hundreds of statistical charts, have been widely distributed. In cooperation with the Agricultural Economics Section of the Extension Service, several new forms of publications have been developed and distributed.

The annual outlook conference to prepare the Agricultural Outlook Report for 1935 was held in October at Washington with a very representative attendance from the States. The active interest in this conference has continued among State workers. Suggestions have been received that the regional outlook conferences, such as were held a few years ago before necessary economies reduced the program, be resumed.

MARKED CHANGE IN FOREIGN TRADE

The foreign trade of the United States in agricultural products during the fiscal year 1934-35 was characterized by a continued downward trend in agricultural exports and by a very considerable expansion, as a result of the drought, in imports of competitive agricultural products. In the fiscal year 1934-35 the physical volume of exports of agricultural products amounted to 54 percent of the annual average exports during the 5 years immediately preceding the World War, as shown by the index prepared by the Foreign Agricultural Service. This compares with 83 percent in 1933-34 and 97 percent in 1929-30. The principal factor in this low volume of exports was the decline in shipments of cotton.

United States imports of competitive agricultural products as a whole were smaller during the fiscal year than the average imports of these products during the preceding 10 years. There was, however, a great expansion in imports of certain products, such as feeds and fodder, butter, and canned beef. There were also substantial imports of durum wheat and rye, which are normally on an export basis, because of the failure of the domestic crops in 1934. The large increase in imports of the products mentioned may be attributed to the effects of the 1934 drought. Although the quantity of imports was large in relation to past trade, it is significant that it was small in relation to domestic production. In fact, the entire imports of feeds and fodder during the fiscal year represented only 4 percent of the estimated reduction of these products resulting from the drought.

As previously indicated, the total imports of competitive agricultural products were less than the 10-year average. This was true because of the relatively small imports of such products as wool, eggs and egg products, and dairy products other than butter.

FIRST TRADE AGREEMENTS DEVELOPED

The Bureau's specialists in foreign trade devoted a large part of their attention to assisting in the development of trade agreements. They prepared basic data and participated in the commodity and country committees that were charged with the negotiations with representatives of foreign countries.

Since the trade-agreements program contemplates reductions in American import duties in return for reductions in import restrictions affecting American products in foreign countries, it is especially important to consider the progress of this program in relation to agriculture. In the second place, as regards foreign governmental policies, it is important to consider the fundamental developments in this field as an indication of what may be expected in the way of trade barriers to agricultural products during the next few years.

At the end of the fiscal year, trade agreements had been negotiated with Cuba, Belgium, and Haiti and had gone into effect. An agreement had been negotiated with Sweden which went into effect on August 5, 1935, and agreements have been negotiated with Brazil and Colombia, but at this time (September 1935) these have not been ratified by the legislatures of those countries. From the point of view of agriculture, the most important of these agreements was the one with Cuba. As regards agricultural products, the United States made substantial concessions to Cuba on sugar, tobacco, and winter vegetables. In the cases of sugar and tobacco the United States duty was reduced, but a limitation was placed on the quantity of these products which could be brought into the United States.

In addition to the countries mentioned, with which negotiations have been completed, announcements have been made by the Department of State that negotiations would be entered into with Canada, the Netherlands, Switzerland, Finland, Spain, Italy, and five of the Central American countries. At the end of the fiscal year negotiations had not been completed with any of these countries.

Experience has not yet been sufficient to permit an appraisal of the effects of the trade-agreements program upon agriculture.

DEVELOPMENTS IN FOREIGN FIELD OFFICES

The principal developments in the work of the foreign offices of the Foreign Agricultural Service have been (1) a start at concentration of reporting on a commodity basis in the European offices; (2) a marked increase in participation by Foreign Agricultural Service officers at international conferences; and (3) a considerable extension in the activities of the agricultural attachés as advisers to the heads of the embassies or legations to which they are accredited. Much of the work of the foreign offices of the Foreign Agricultural Service Division in the past has been in the field of current reporting on foreign crops and foreign-market conditions. Although this activity has a definite place in the work, it has been felt that more attention should be paid to economic studies and appraisals of a broader and more fundamental nature, particularly in the field of foreign governmental policies affecting agriculture.

The outstanding instance of the marked increase in the attendance of Foreign Agricultural Service officers at international meetings is found in the continued participation of the officer in charge of the Berlin office in the meetings of the Wheat Advisory Committee set up under the International Wheat Agreement of August 1933. During the year this officer was made a delegate for the United States, whereas previously he had served as an adviser to the American delegate. Members of the Berlin staff also attended the international meeting of agricultural economists at Bad Eilsen in July 1934. The officer in charge of the Belgrade office attended the meeting of the Sixteenth International Agricultural Congress at Budapest in June 1934. The officer in charge of the Paris office attended, as an observer for the United States, an international meeting on wine held at the International Institute of Agriculture in April 1934. The Paris and Belgrade representatives attended the general assembly of the International Institute of Agriculture held in Rome in October 1934, as official delegates of the United States. The officer in charge of the Buenos Aires office

was selected as an adviser to the American delegation to the Pan American Commercial Conference held in Buenos Aires during May 1935.

Arrangements were made during the latter part of the fiscal year for the attendance of a number of the officers of the Foreign Agriculture Service as observers or representatives of the United States at international meetings to be held during the coming fiscal year.

AMERICAN-GROWN COTTON IN JAPAN

Findings of the cotton specialist of the Foreign Agricultural Service, who was stationed in Japan for more than 2 years, formed the basis of a preliminary report issued on the subject of the consumption of American and other growths of cotton in Japan. Rapid growth in the importance of the Japanese market for American cotton is shown, and the report indicates as definitely as possible the competition encountered by American cotton from growths of other countries.

The study reveals the great importance of the relative price between American and other cotton in determining the quantity of the former that will be consumed by Japan, although American cotton must be used for certain of the finer counts of yarn. The study attempts to show, as nearly as possible, the price at which different classes of American cotton will be substituted for Indian or Chinese cotton and vice versa.

In general it is concluded that American cotton is especially desired for use in the manufacture of cotton goods for export, and that the continued expansion of the Japanese market for American cotton will depend to a very large extent upon Japan's ability to maintain or increase its large cotton-textile trade. But even though Japan's exports should continue to expand, this would not necessarily mean larger total exports of American cotton, since to a considerable extent Japanese goods would be replacing goods from other countries which have been made from American cotton.

BRAZILIAN COMPETITION IN COTTON

A field investigation has been made of cotton production in Brazil. The resulting report on cotton production in southern Brazil shows that so far as land and climate are concerned southern Brazil has great potentialities for cotton production. But there are numerous disadvantages, such as the relative shortage of labor and inadequate facilities for physical handling of cotton, and wide-spread plant diseases and insect infestation are considerable handicaps. Certain of these disadvantages, such as the facilities for handling cotton, are being overcome rapidly, but other problems have still to be faced. The report brings out the great importance of the competition between coffee and cotton in determining the quantity of the cotton that may be raised in southern Brazil in the years immediately ahead. It seems clear that there is insufficient labor to take care of the production of both cotton and coffee on a large scale. Moreover, if returns were at all adequate, most of the agriculturists would prefer to raise coffee, as it is the established industry of the region. Coffee prices, however, continue at extremely depressed levels.

STUDIES OF FOREIGN AGRICULTURAL POLICIES

The trend toward increased intervention by governments in the field of agriculture continued during the period under review. There were a number of instances of changes in governmental measures, in accordance with experience accumulated during recent years. The Foreign Agricultural Service Division has endeavored to follow the more significant developments in this field and in certain cases has made special studies, the findings of which have been published in the weekly publication, *Foreign Crops and Markets*.

During the year a comprehensive report, *Agriculture in Southern Africa*, was published. This bulletin embodies the results of studies and investigations made by the representative of the Foreign Agricultural Service stationed in Pretoria as agricultural attaché during 1931 to 1933. It gives as complete a picture as is possible from available information as to the present situation with respect to various lines of agricultural production in the African countries south of the Equator and attempts to indicate the lines along which it seems most probable that future developments will move. In general, the following conclusions are reached as to probable agricultural developments in this

region: A decrease in the production of wool, mohair, and exportable corn; an increase in the production of cattle, citrus fruit, deciduous fruit, and sugar; a probable increase in the production of cotton and tobacco, especially by natives in countries south of the Equator, with the exception of the Union of South Africa. Of the most direct significance to the United States are the probable increases in the production of fruit and tobacco, as these products now compete actively with similar American products in European markets.

REPORT ON THE CHINESE MARKET

The Shanghai office has prepared a number of special reports analyzing the factors affecting agricultural exports to China. Most of these studies have been on an individual commodity basis, but one report, Tendencies in China's Agricultural Exports and Imports and Effect on American Products, has endeavored to bring together the fundamental factors that are influencing the Chinese outlet for our products.

STANDARDIZATION AND INSPECTION OF FARM PRODUCTS

A significant phase of the standardization and grading work this year has been the increased interest on the part of consumers and consumer organizations. Recognizing this trend and its importance in the success of our work, the Bureau this year, for the first time, sent an exhibit showing the use of quality standards in the labeling of products for consumer use to the annual meeting of the American Home Economics Association, and received an immediate request for a similar exhibit at the forthcoming meeting of the American Dietetic Association. Work on standards which will be of practical use to consumers, and evidence of which can be carried through to them by means of some device or label, is being pushed more effectively than heretofore.

USE OF OFFICIAL COTTON STANDARDS

A total of 2,214 boxes of the standards for grade, including 146 boxes of the tentative preparation standards, were distributed during the year. The number of staple types distributed was 6,953, an increase over the number last year.

Thirty-four copies of the official standards for American cotton linters and 66 expositor types were issued. The Board of Cotton Linters Examiners passed on 867 samples, representing approximately 200,000 bales. In the verification of the weekly prices reported by other cooperating agencies with a production of more than 200,000 bales, 326 samples were classified. Questions as to the quality of the filling used in contracts for more than 1,000,000 mattresses, contracted for by various branches of the Federal Government and State agencies, were referred to the board for settlement.

Cotton-standards demonstration schools were held throughout the Cotton Belt, as during recent years, in cooperation with colleges, State and county agencies, and cooperative associations. The purpose is primarily to demonstrate to cotton growers the application of the official cotton standards in the classing of the grades and staples grown in the greatest abundance in their communities, but much interest is evidenced by students, teachers, county agents, and others of varying experience—some hoping to qualify as licensed classers, others wishing to obtain a general knowledge of cotton classing.

CHANGES IN STANDARDS FOR GRADES OF COTTON

The annual color survey of the American cotton crop was made again. Data for four seasons have now been accumulated. Thousands of samples from the Cotton Belt have been checked by careful color analysis and by extensive classification studies. Combined results showed definitely that changes in the color of the crop during recent years have been toward White cotton and that most of the cotton crop now falls in the White and Extra White, Strict Middling, Middling, and Strict Low Middling grades, with the highest grades tending toward Extra White and away from the creamy or "buttery" color.

On a basis of the accumulated data from precision measurements in the color laboratory, supported by classification data and other considerations, a revision of the official standards of the United States for grades of cotton was proposed by the Bureau for consideration under the Universal Standards

agreement, and the proposed standards were displayed to representatives of the principal cotton associations, American and foreign, operating under and/or affected by the agreement. The revised standards were promulgated by the Secretary of Agriculture on August 20, 1935, effective August 20, 1936. They will be used in the preparation of key sets for consideration at the international Universal Cotton Standards Conference to be held in Washington in March 1936.

In brief the changes make the White grades more representative of the cotton crop; they eliminate grades for types of cotton that have become scarce; they provide for so arranging the samples within the grade boxes as to facilitate better use of the standards; and they so affect the Yellow Tinged and Stained grades that the Tinged grades no longer carry so deep a color as formerly, and the Yellow Stained grades cover all cottons that are deeper in color than Tinged.

NEW GRAIN STANDARDS IN EFFECT

The new and revised official grain standards of the United States, which became effective July 1, 1934, have now been given a year of steady use in commercial life and are proving to be generally satisfactory. Certain minor amendments have been promulgated, designed primarily to improve and facilitate the inspection practice of the licensed inspectors and grain supervisors.

Research aimed to devise an automatic mechanical sieving device that would improve the accuracy and uniformity of grain inspection by determining the quantity of dockage and foreign material in grain was concluded, the usefulness and accuracy of a model device was conclusively proven, and a contract was awarded to a manufacturer for a sufficient number for the purposes of Federal grain supervision.

Research for the purpose of improving equipment and methods of procedure for quick and accurate determination of the oil content of flaxseed was begun in cooperation with several State agricultural colleges, linseed-oil crushers, and paint or glass manufacturers. Preliminary work indicates material variations in the equipment, methods of procedure, and results obtained in such determinations, and shows the need for a standardization of methods and equipment used in such determinations.

CONSERVATION OF GOOD SEED GRAIN

To combat the devastating effects of the drought, the Commodities Purchase Section of the Agricultural Adjustment Administration undertook to conserve seed-grain stocks for future use in the areas most afflicted. Cooperating in this work, the sampling, inspecting, and grading of stocks of grain to be procured and conserved as seed was done by this Bureau. A total of about 20,000,000 bushels of grain was inspected and graded, and official certificates were issued later and used as a basis of commercial transactions in the negotiations for the purchase and warehousing of these seed grains. Later, the Bureau supervised the cleaning and preparation of these seed stocks for distribution.

HAY, FEED, AND SEED INSPECTION SERVICES

The hay-inspection service was chiefly directed toward assisting in meeting the emergency feed situation created by the unprecedented drought of 1934, which extended over almost the entire hay-producing and hay-consuming territory of the central part of the United States.

Effort was made to have all the hay shipped into drought areas inspected. Ten emergency inspectors, employed in cooperation with the Agricultural Adjustment Administration, were placed in emergency drought States and at surplus shipping points, as needed, to inspect hay to be shipped to or received by drought-stricken States as emergency feed. Hundreds of thousands of tons of hay and other roughage were thus informally inspected by emergency inspectors.

In connection with the forage-conservation campaign conducted by the Agricultural Adjustment Administration, inspectors' training schools were conducted in Iowa, Illinois, and Tennessee to qualify emergency inspectors to inspect corn fodder, soybean hay, and lespedeza hay. More than a hundred men so trained were licensed.

For the second consecutive fiscal year the seed-verification service broke previous records for the number of dealers enrolled, the quantity of seed verified as to origin, the number of inspection certificates handled, and the total amount of fees collected. The service continued to be on a self-supporting basis.

PROGRESS IN STANDARDS FOR LIVESTOCK

Definite progress has been made in standardization work with livestock. Standards for the grades of hogs, drawn by the Bureau in cooperation with leaders in the industry are now used by a large number of packers and others who buy direct from producers in the hog-producing areas, and a revision of these standards based on practical experience is under way. Market classes and grades of sheep and lambs are outlined, defined, and illustrated in a manuscript prepared during the year. Definitions and illustrations of the market classes and grades of stocker and feeder cattle were issued tentatively, together with colored posters illustrating the six grades of feeder and stocker cattle, and submitted to those directly interested in such cattle, with the request that they offer criticisms and suggestions. The grade descriptions for slaughter barrows and gilts have been prepared and those for sows are being written.

INCREASE IN QUANTITY OF MEAT GRADED

As usual, beef comprised the major portion of all meats graded, and totaled 252,351,000 pounds. The quantities of veal and calf, lamb and mutton, fresh pork, cured beef, sausage products, and other miscellaneous meats graded increased. The total of all meats graded was approximately 8,000,000 pounds more than in the previous year. The grading and labeling of sausage and related prepared meat products in such a way that the consumer can ascertain the grade was begun this year. Through an extension of the cooperative agreement with the National Live Stock and Meat Board it was possible to employ more graders than previously.

An interesting development of the year was the enactment of a city ordinance in Seattle making it mandatory that all beef, lamb, and mutton sold in that city be graded according to the standards of this Bureau under the immediate supervision of a Bureau grader.

IMPROVEMENT OF WOOL STANDARDS AND GRADING

Research pertaining to standardization of wool is directed toward improvement and extension of the present standards. Investigations of the diameter distribution in the grades and further studies of the length factor were made.

A comprehensive program of measurement of fibers of carefully selected samples of wool and wool top is being attempted with the objective of developing a key for grade determination, based on the distribution of fiber diameters in the grades. The microprojector is used in connection with wedge rulers. The image of the fiber is projected, magnified 500 times, onto the scale, thus permitting a calculation of the diameter value at the points of tangency of the image on the wedge rulers. Devices have lately been obtained for the projection of cross-sectioned groups of fibers that photomicrographs may be made for auxiliary study and cross-section and fiber-width measurements.

The auction-sale method of marketing wool long used in other countries has not been considered suitable to conditions in this country. An organization that is attempting to introduce the auction-sale method into the United States launched a broad-scale plan this year for auctions at Ogden, Utah, and obtained the cooperation of this Bureau in the supervision of the grading of the wool. Indications are that the accumulation for the auction sales this season will approach or exceed 3,000,000 pounds of wool.

In four important wool-producing States, educational work through lectures and demonstrations was conducted at a series of 43 county or district meetings held under the auspices of the wool-marketing organizations, and there were requests for assistance from several other States.

INSPECTION OF FRUITS AND VEGETABLES

During the fiscal year 306,441 cars of fruits and vegetables were inspected at shipping points and 53,443 cars in receiving markets, a total of 359,884 cars.

This represented an increase in cars at destination markets but a decline in cars at shipping points, caused chiefly by the smaller number of inspections in Florida under the marketing agreement which was in effect during a portion of the shipping season and by the reduced potato production in Colorado, Idaho, and Minnesota on account of the drought.

Practically all of the inspections under the Export Apple and Pear Act is done at shipping points. As usual, an inspector was stationed at Montreal from July 15 to November 10 in order to issue the clearance certificates required by the special British import act which forbids the entry during that period of barreled apples that are not U. S. Fancy or No. 1 or boxed apples that are not Extra Fancy or Fancy.

The standards for several fruits and vegetables were revised in accordance with further study and experience.

GRADING OF CANNED FRUITS AND VEGETABLES

The total volume of canned fruits and vegetables graded during the year was well over 5,000,000 dozen cans, calculated as no. 2 size.

This quantity includes commercial gradings for State, county, and city governments and for Government departments, but does not include stocks of merchandise stored in warehouses licensed under the United States Warehouse Act, samples from which are forwarded to this Bureau so that the accuracy of the licensed inspectors may be checked. The licensed capacity at the close of the fiscal year for such warehouses was more than 3,000,000 dozen cans.

In addition, samples drawn from nearly 3,000,000 gallons of cider vinegar were inspected.

Standardization research studies have included the development of methods for determining turbidity of liquor in certain vegetables, determining color standards for certain products by means of the improved color analyzer, and developing practicable instruments for determining the maturity of certain canned products, such as canned corn.

In cooperation with the National Recovery Administration, a brief study was made of the official labeling of canned goods under the Canadian Meat and Canned Foods Act of 1927. A joint report covering the findings was published by the Consumers Advisory Board.

Practical endorsement of the work of establishing official grades for canned fruits and vegetables occurred in the announcement by one of the largest food-distributing firms in the country that it would use the officially promulgated grades of this Bureau on some of their labels experimentally. This was done in January, and the experiment has been considerably extended during this year's pack. Another large food organization, through its committee on standards and labels, recommended the adoption of the standards for grades officially promulgated by this Bureau for several canned commodities and suggested amending the code of fair competition for the grocery industry in such manner as to make mandatory the labeling in the terms of Federal grades. The largest food broker on the eastern seaboard has advised the canned-foods trade that his sales henceforth would be made on the basis of Federal grades and that the practice of submitting samples to prospective buyers would cease.

GRADING SERVICE ON BUTTER AND EGGS

The work of grading and inspecting dairy and poultry products expanded somewhat during the year. The grading service on turkeys was extended to a larger number of shipping points in the Northwestern States and to several points in Texas.

An increase was shown in the volume of butter and eggs packed under certificates of quality and in the number of firms that applied for this use of the grading service.

Tentative grades for churning cream were formulated and issued as a basis of discussion and suggestion and have been put into limited use. Complete tentative revision was made of the United States standards and grades for butter; this revision will be made available for criticisms and suggestions.

Revision has been made of the United States standards for American cheese and will soon be issued for discussion.

INSPECTION OF TOBACCO AND SORTING DEMONSTRATIONS

Tobacco-inspection operations this year involved the largest total of tobacco inspected in any year except the fiscal year 1934. During the fiscal year 1935, 160,532,000 pounds of farmer-owned tobacco were inspected and 39,825,000 pounds of hogshead tobacco in storage, more than 200,000,000 pounds in all.

Tobacco-sorting demonstrations were given at 74 meetings in an effort to bring about greater uniformity of sorting tobacco before it is offered for sale. As progress made in eradicating the mixing of grades should be reflected in improved prices paid to growers and as there is a demand for this activity, the work should be established on a wider basis in the future.

THE MARKET NEWS SERVICE

The unusual and frequent change of prices of farm products during the year has maintained the demand for current market-news reports. The Bureau's Nation-wide service was continued on about the same scale as in 1934. The leased-wire system covered about 9,000 miles, giving instant communication between about 50 offices in the principal market centers and a large number of short-time field stations. The number and variety of releases issued by the various offices were maintained and, with some commodities, slightly increased. The cooperation with States having active bureaus of markets was continued, as in New York, Pennsylvania, Virginia, Wisconsin, Oklahoma, Texas, California, Florida, and North Carolina. It is to be noted, however, that State bureaus of markets are not increasing in number and that the activities of those in several States have been restricted in recent years.

The outstanding example of regional cooperation in market news is the New England radio news service at Boston. On this project the departments of agriculture of each of the six New England States and the local radio station WBZ cooperated with this Bureau to provide a working budget and maintain a local broadcast program of market news and other economic information, especially prepared for New England farmers and the trade, and broadcast twice daily. This program has been in operation for 7 years and is vigorously supported by New England States. As a demonstration of their interest, this year when increased support was needed, the several New England States increased their contributions from \$1,275 to \$2,450.

The Bureau continued its cooperation with the Iowa Agricultural College at Ames, Iowa, which broadcasts a complete program of market news secured from a drop on the leased wire. The Oregon Agricultural College performed a similar service for that State. The San Francisco market news is included in the program of the Western Farm and Home Hour, which is broadcast over a number of Pacific Coast stations. Economic information used on the Farm and Home Hour over the National Broadcasting System chain was somewhat increased during the year as the amount of emergency broadcasting tended to decline.

LIVESTOCK, MEATS, AND WOOL NEWS

Full-time livestock-market reporting offices have been maintained at 23 important public livestock markets, meat-market reporting offices have been operated at five market centers, and the wool-market reporting service has continued at Boston.

Among newer lines of work, the Des Moines office is maintained primarily to collect and disseminate information relating to the direct marketing of hogs in interior Iowa and southern Minnesota. Purchases of hogs at 9 interior meat-packing plants and sales at 22 hog-concentration yards are included in the reports compiled and released daily by that office. Leased-wire service for more general market news at Nashville was extended from 3 months to 6 months, and arrangements were made for extending the wire service at San Antonio to cover the entire year and for increasing the number of reports to be issued at Buffalo.

Development of the radio-broadcasting service at Cincinnati over station WLW, the most powerful in the country, necessitated the appointment of a marketing specialist to assist in the twice-daily market reporting and other work at that office, and the leased wire was installed in the Bureau's office. Approximately 100 radio stations, in all sections of the country, regularly broadcast market-news programs prepared by the Bureau.

All newspapers that are affiliated with or subscribe to the telegraphic services rendered by the Associated Press, the United Press, and the International News Service, received daily and weekly livestock- and wool-market reports prepared by the Bureau, especially for distribution by such agencies. More detailed market reports were prepared daily, especially for the use of a number of metropolitan newspapers published at important market centers, and weekly and periodical reports were prepared for numerous trade and agricultural publications. Several market-reporting offices also maintained mailing lists of country newspapers not served with current market news by press associations. Such publications were served regularly with weekly or semiweekly market reports usually prepared especially for such news-distributing agencies.

The Western Union and Postal Telegraph Cos. used the Bureau's market reports for dissemination to subscribers to their livestock commercial news dispatch services at all livestock markets reported by the Bureau.

THE NEWS OF FRUIT AND VEGETABLE MARKETS

The market-news service on fruits and vegetables was continued along the usual lines through the twentieth consecutive year of operation.

From Washington and the 21 market stations and 42 field offices more than 11,000,000 mimeographed market-news reports and other special reports were issued during the calendar year 1934. This decrease of about 92,000 from the figure of the preceding year was due to curtailment of the service by the elimination of the market station at Salt Lake City. The total number of names on all mailing lists on June 30, 1935, was 38,004 for market stations and 37,425 for field stations, or a total of 75,429.

The transportation companies continued their valuable cooperation in furnishing daily telegraphic reports of car-lot shipments, in addition to monthly mail reports on the basis of billing stations. About 834,592 cars of 46 leading fruits and vegetables were reported shipped during 1934, which was an increase of approximately 35,984 cars from the figures of the year 1933, or an increase of about 4 percent.

About 42 products were reported telegraphically by the carriers in 1934, and 4 additional products were reported by mail. Daily shipment reports were published on all of the 46 products reported telegraphically by the carriers.

The cooperative arrangement relating to shipments and destinations, in effect with the California grape industry for 8 years, was continued, as was a more modified arrangement on citrus fruits for Florida interests, in effect for the last 4 years.

The Bureau's 9,000 or more miles of leased telegraph wires continued to be used for rapid collection and dissemination. In addition to the year-round offices, the field station at Waupaca, Wis., and certain State offices in the southern part of the country were given leased-wire service during the period of their operation as market-news offices. This service is discontinued at certain stations during seasons when it is not needed.

An important source of fruit- and vegetable-market information has been the unload reports now received from 66 cities. The railroad agents and boat and express companies continue to cooperate in making these reports. Records of motor-truck receipts are obtained whenever possible and included in the summaries.

COTTON MARKET NEWS SERVICE

Field offices have been maintained at Atlanta and Memphis in connection with the cotton market-news service. The Atlanta office served North Carolina, South Carolina, Virginia, Florida, Georgia, and Alabama. The Memphis office served Tennessee, Mississippi, Arkansas, Louisiana, Missouri, the small cotton-producing areas in Kentucky and Illinois, and in a limited way the States of Texas and Oklahoma. The distribution from both offices increased considerably. Mail, radio, and the public press were used.

The weekly cotton-market review, prepared at Washington and based on information assembled at Washington from six field offices in the South and a correspondent in New England, was telegraphed as usual from Washington every Saturday morning, and was mimeographed in Atlanta and Memphis and mailed so that it reached readers by early Monday morning.

GRAIN, HAY, AND FEED MARKET NEWS

The grain- and feed-news services are Nation-wide. The rice-news service is confined principally to the southern belt and the Pacific Coast, a market-news service on hops serves principally the west-coast area including Washington, Oregon, and California; the service on beans is confined chiefly to California and is conducted in cooperation with the State Department of Agriculture, and a news service on alfalfa covers the Central and South-western States and the Pacific coast.

INFORMATION ON THE SEED SITUATION

Short seed crops caused largely by the severe drought stimulated great interest in the reports of the seed-reporting service. Urgent requests for information were made earlier and in larger number than ever before.

During the fiscal year 65 reports on 25 kinds of seed were issued, as compared with 42 reports the preceding year. Approximately 39,000 copies of these reports were sent to farmers, country seed shippers, wholesale and retail seedsmen, banks, railroads, seed-trade and farm papers, colleges, State departments of agriculture, etc. The Press and Radio Services of the Department disseminated more of the information in those reports than usual.

The price and movement reports, discontinued temporarily last year, were restored. They enabled seed growers, country shippers, and seedsmen to keep in close touch with the seed situation in important producing districts while the various kinds of seeds were moving from the hands of the growers.

The acute shortages of a number of seeds were made known in the situation reports before many growers had sold their seed, and in the cases of a few kinds of seed that information was furnished in advance of harvest so that the growers might save as much as possible. Even fortified with this information, growers were unable to produce nearly enough of certain kinds of seed (particularly timothy, Sudan grass, and millet), to take care of the normal planting requirements of this country. The larger seedsmen, relying upon the information disseminated by this service, met the situation by importing the largest quantities of these seeds on record.

MARKET NEWS REGARDING DAIRY AND POULTRY PRODUCTS

Considerable quantities of butter were received in domestic markets from foreign countries during the first half of the calendar year because of a more favorable price situation in this country. Arrangements were made to provide periodic reports on prospective shipments of butter to the United States from New Zealand and from European countries. This information was available by cable once each week, and information was also provided regarding foreign wholesale prices for butter. Wide interest in this type of information was noted.

The usual information services regarding statistics of production, stocks, prices, and consumption of dairy and poultry products continued to be used in connection with Federal emergency activities as well as by the regular trade.

REGULATORY SERVICES**COTTON FUTURES ACT AND COTTON STANDARDS ACT**

In general, the work under the United States Cotton Futures Act continues to include the grading and stapling of all cotton delivered in settlement of futures contracts, the supervision of the determination of spot quotations and commercial differences in markets designated by the Secretary of Agriculture as bona fide spot markets for the purposes of the act, the cotton-standardization work, and the cotton market-news service.

The classifying of cotton under the Cotton Futures Act is done in accordance with section 5 of the act, which requires that all cotton intended for delivery on futures contracts entered into in accordance therewith shall be classified and certificated by officers of the Department.

It has not been profitable during the fiscal year for trade members to deliver any considerable quantity of cotton in the settlement of futures contracts. The total number of bales certificated on original classification was only 6,362. Reviews numbered 11,239 bales.

A feature of the work under the Cotton Futures Act was the demand upon the boards incident to the withdrawal and cancellation of 167,605 bales of certificated cotton. Whereas on July 1, 1934, the total of the certificated stocks at the various future-contract delivery points numbered 208,998 bales, on June 30, 1935, this figure had been reduced to 43,282 bales, and according to information at hand the Cotton Producers' Pool had acquired almost 30,000 bales of this remaining total with the intention of de-certificating it.

GRAIN STANDARDS ACT

Nineteen years of administration and enforcement of the Grain Standards Act have now been completed. This legislation has remained in force since 1916 without amendment. Its administration involves both service and regulatory activities, and under its terms the Secretary of Agriculture has established uniform grain standards and inspection for use in domestic and export commerce.

At the close of the fiscal year 395 grain inspectors were licensed under the act, and inspection service was available at 176 points in 33 States. The sampling, inspection, and grading work of these licensees was supervised by the Bureau through 45 field offices located at the important grain markets and through two boards of review located at Chicago, Ill., and Portland, Oreg. Licensed inspectors, operating under the supervision of Federal district supervisors, performed official inspections during the year on approximately 1,185,062,000 bushels of market grain of all kinds in railroad cars and vessels. Federal grain supervisors handled a total of 30,004 appeal inspections, which covered approximately 6½ percent of the total volume of grain inspected. In addition, 185 appeal inspections, covering 1,500,000 bushels of grain, were handled under the Warehouse Act. For the purpose of maintaining accurate and uniform application of the grain standards among Federal district supervisors and licensed inspectors, the boards of review at Chicago and Portland passed upon 45,497 samples of all kinds of grain which presented difficult problems in the interpretation and application of the standards.

WAREHOUSE ACT

The administration of the United States Warehouse Act consists primarily of licensing warehousemen, storing agricultural products, and supervising their operations after they have been licensed. By the close of the year approximately 961 warehousemen had been licensed, some of whom may operate several warehouses at the same point.

The Department plans to make four inspections of each warehouse annually; this now means at least 3.844 inspections each year. The inspections are complete audits of stocks in warehouses as compared with outstanding receipts, and examinations are made on each inspection to determine that all receipts that may have been issued or surrendered have been properly satisfied.

During the year steps were taken to prohibit the excessive and repeated sampling of cotton in warehouses licensed under the act. This action has received the support of growers, warehousemen, insurance interests, and merchants. In the work with underwriters further progress has been made toward securing a policy for federally licensed cotton warehousemen that will automatically give licensed warehousemen full insurance coverage as long as they have any legal liability. In April examiners of the Division of Warehousing made an inventory of stocks of rice in warehouses and mills in Arkansas, Louisiana, and Texas, at the request of the Agricultural Adjustment Administration, and in other ways assistance has been rendered in warehouse matters in connection with the work of the Agricultural Adjustment Administration and the National Recovery Administration.

PRODUCE AGENCY ACT AND PERISHABLE COMMODITIES ACT

The Perishable Agricultural Commodities Act has been in effect since 1930. Certain amendments became effective in April 1934. The Produce Agency Act has been in effect since 1927. These two acts are administered by the same organization unit since they both relate primarily to the suppression of unfair practices in the handling of fresh fruits and vegetables in interstate commerce.

The outstanding features of the year's work are the increase of about 5 percent in the number of complaints filed under the Perishable Agricultural

Commodities Act; the closing of approximately 62 percent of all cases as a result of action taken by the Bureau, fully one-half of them being amicable settlements; known payments of \$172,196.52, resulting from amicable settlements since April 13, 1934; and the reduction of the number of formal hearings held to less than one-half of the number held the previous year and the consequent increase in the number of decisions rendered without formal hearings. The number of licenses issued and the number of licenses terminated have increased considerably, but the net increase in the number of licenses in effect is small. The number of cases handled under the Produce Agency Act has been considerably reduced.

STANDARD CONTAINER ACTS

Fruit and vegetable containers that are subject to the provisions of the Standard Container Acts are manufactured by 398 manufacturers located in 32 States. As in many instances manufacturers make more than one type and more than one size of each type, and occasionally more than one style of the same type, the number of separate items with which this Bureau has to deal is several times larger than the number of manufacturers.

The routine effort of the Bureau has continued to be directed largely toward maintaining an accurate index of manufacturers, following up delinquents, securing the necessary corrections in containers, and obtaining approval of specifications where this factor is involved. Special effort has been made this year to clear up cases of delinquency and pending specifications.

GENERAL ECONOMIC RESEARCH

The regular research of the Bureau was continued practically unabated throughout the year notwithstanding the claims of the acute special and current problems which necessarily demanded much immediate attention. Emergency conditions have prompted a review and replanning of a not inconsiderable part of the Bureau's research program to align it with changing conditions.

A NATIONAL PROGRAM OF COTTON RESEARCH

The cotton research being done by various bureaus of the Department of Agriculture and in cooperation with the State experiment stations in the cotton States was reviewed during the year. This Bureau, with others in the Department, prepared a detailed outline of various projects, specifying the objectives, research completed or in progress, and results. Special consideration was given to the need for further research in the field of cotton research. This survey served to show the scope of present cotton research, which covers a large number of different projects, ranging from problems of breeding and production through harvesting, ginning, marketing, spinning, finance, etc.

Following the preparation of the outline of cotton research, conferences were held with representatives of the agricultural experiment stations of the cotton States, and plans were laid for closer coordination of future research. It is believed that steps have been taken which will lead to a more productive program in this field in the near future.

PACKAGING COTTON

A study of baggings used to cover cotton bales and the cost to growers of baling and wrapping cotton was completed during the year, and the results have been published.

The results of this study show that in the season 1933-34 approximately 61 percent of all American cotton bales were covered with new and re woven jute baggings, about 26 percent with sugar-bag cloth, less than 8 percent with second-hand baggings, less than 5 percent with baggings made wholly or in part of sisal; a negligible number were covered with baggings made wholly or in part of cotton.

The type of bagging used depends somewhat upon regional customs and situations. New and re woven jute baggings found their most important use as a covering for cotton bales in the central and western parts of the cotton-producing areas of the United States. The southeastern and central States of the Cotton Belt were the principal users of sugar-bag cloth. The use of second-hand and miscellaneous types of bagging was confined chiefly to the

Southeast. Baggings made wholly or in part of sisal were used to a limited extent throughout practically the entire Cotton Belt.

Progress is being attained in the microanalytical studies conducted in informal cooperation with many institutions. These studies are outlined with respect to properties of importance in the marketing of raw cotton, as well as in the manufacturing of yarns and fabrics. Microscopic, ultramicroscopic, microchemical, and X-ray methods reveal previously unknown phases of the properties, characteristics, and structure of cotton fibers that contribute to the character and spinning utility of cotton.

Ginning and spinning studies conducted in cooperation with the Bureau of Agricultural Engineering and other agencies are bringing concrete results. For example, the effects of gin-saw speed and seed-roll density on cotton lint and on gin-stand operation have been formulated and are now in press, and the same is true of the effect of artificially drying seed cotton before ginning on certain quality elements of the lint and seed and on the operation of the gin stand. The experimental cotton gin at Stoneville, Miss., is visited by farmers and ginners who are interested in this work and who are the ones to put the result into practical operation.

The research on which many of our newer cotton studies are based has been made possible through special technics and devices developed in the Bureau. They include an instrument for the determination of the strength of fiber attachment to the seed, an apparatus for the reading of single-strand strength determinations recorded on charts, an instrument for the elimination of foreign matter from small samples of seed cotton, an apparatus for the elimination and fractionation of foreign matter from small samples of ginned lint, a special electric-lamp housing for use in laboratories with conditioned air, a scheme and specifications for the classification of notes; and refined and special technic in the handling of samples for microscopic and X-ray analysis.

Work on the utilization of cotton in this and other countries includes studies of the comparative life of various articles made of cotton and of other fabrics.

Research studies are being prosecuted in connection with the grade and staple estimating work, including such projects as the measurement of variation in staple-length distribution as shown by samples used in this work and by samples classed for the annual carry-over report.

REPORT ON THE WORLD COTTON SITUATION

A comprehensive survey of the world cotton situation was begun early in the year. A section of the study dealing with production in foreign countries was released in a preliminary report. Other sections dealing with production in the United States, factors affecting demand, income, and prices are in preparation.

THE REGIONAL-ADJUSTMENT SURVEY

The project on regional adjustment in farming claimed much of the attention of the research personnel in the Division of Farm Management and Costs. This project, conducted in cooperation with the agricultural experiment stations of all the States and with the Agricultural Adjustment Administration, aimed to secure a more definite basis for agricultural adjustment in accordance with conditions prevailing in the different types of farming areas. It has been recognized that adjustments in acreage and production in all areas, by a given percentage from a base period, present certain difficulties, although as a basis for an emergency program, such adjustments proved markedly successful in meeting the acute surplus problem confronting the Agricultural Adjustment Administration at its inception. The difficulty was that the same degree of change in production in different areas failed to take into account those fundamental differences in farming.

Research workers in the Department and in the experiment stations, in the economic fields, as well as in the more technological fields, such as animal husbandry and agronomy, have accumulated a large fund of information and in most parts of the country have formulated certain recommendations for adjustment and improvement in farming. It was thought that if this information and the judgment of these specialists were brought together and analyzed, the results would indicate in a general way the quantitative adjustments, if the changes indicated by these data and by the judgment of these specialists were actually made.

Consequently, the project set out to determine what would be the resulting approximate acreage and production in the different States and sections if those changes in farming were made which are indicated as desirable in the light of good farm management and soil conservation. By using the results of the Bureau's previous farm-management research and the Bureau's personnel available for this type of investigation, in cooperation with the personnel of the Planning Division of the Agricultural Adjustment Administration, it was possible to conduct the study on a Nation-wide scale. At the time of the writing of this report, the results are being summarized separately in the main agricultural regions of the country, and the results thus far brought together indicate that the adjustments shown to be desirable in the light of good farm management and soil conservation are, to a substantial degree, in general harmony with the adjustments sought by the agricultural-adjustment program, except that the adjustments in the changes indicated as desirable by this study would not be brought about in the same degree in all sections, but would provide for adjustments more nearly in accordance with the regional differences in agriculture.

This body of data, when supplemented by the results of further research, it is hoped, will afford a basis for a relatively permanent and more satisfactory agricultural-adjustment program.

Thus the research in farm management carried on by the Bureau in cooperation with the experiment stations and independent studies conducted by the stations in this field and in regard to the technological aspects of agriculture, have been focused for the first time on a national scale upon the problem of agricultural adjustment in line with the national policy embodied in the Agricultural Adjustment Act. This is an example of the way in which present and past research may be coordinated with and used as a basis for an administrative program to effectuate a national policy embodied in an act of Congress.

RESEARCH IN TYPES OF FARMING

The line of research in types of farming as it has developed and gone forward has both descriptive and analytical phases. Its objectives are (1) to depict the agriculture of the United States as it varies from region to region and area to area throughout the country and to characterize the farming thus geographically differentiated in terms of selection of enterprise, size of operating units, sources of income, and methods of operation; and (2) to analyze the relations between the farming thus described and the forces and conditions that have shaped it. These conditions consist of the peculiarities of soil, surface, climate, and other physical conditions, on the one hand, and the economic forces that tend to influence agriculture primarily through prices of products and the prices of cost goods and services, on the other.

At the end of the fiscal year such projects had been completed in the following 17 States: Washington, Idaho, Colorado, Wisconsin, North Dakota, South Dakota, Nebraska, Kansas, Missouri, Oklahoma, Texas, Minnesota, Michigan, Indiana, Illinois, Pennsylvania, and Kentucky. Projects in operation in 1935 but not completed included those in Montana, Utah, Wyoming, Oregon, California, West Virginia, Tennessee, Mississippi, and Iowa. Thus at the end of the fiscal year such type-of-farming projects had been completed or were in progress in 26 States.

Results of these type-of-farming studies have already proved of value through the use that has been made of them by workers in the land-use planning project, in studies on farm reorganization, in the regional agricultural-adjustment project now in progress, and as a basis for orientating other research projects and extension work.

A DETAILED STUDY OF WHEAT FARMING

A study of organization and practice in all of the areas of the wheat region from the Pacific Northwest eastward to North Dakota and southward through the specialized spring and winter wheat belts to Texas and New Mexico was undertaken in the fall of 1933. Field work was completed a year ago, and work on tabulation and analysis of the data has been in progress during this fiscal year. Sample records were taken on from 40 to 60 farms in each of 65 areas. It is hoped that the study will show the nature of farm organization and production methods in the specialized wheat areas and ascertain what are normal yields and the frequency of different rates of yields in order to determine the basis of successful wheat production, the

chances for success or failure, and the need for readjustment area by area throughout the entire Wheat Belt.

The cost of using tractors, motor trucks, and combined harvester-threshers is another phase of the study of the economics of wheat farming in the Great Plains and northwest wheat country.

The maintenance cost of such machines is largely cash outlay, including depreciation. The system of farm operation provides little room for any immediate displacement of this cash outlay with animal power, which to a large extent could be provided by the farmer's own producing unit. Obviously such a change would mean a greater cash outlay for hired labor and less wheat to sell or more feed to buy, with a given acreage.

The development of machinery for the wheat country has been one of the strong forces in the expansion in wheat production into areas of irregular and low average yields. The mechanized system of production developed has merit in areas of relatively large-scale operation in years of good production and good prices for wheat, but the heavy cash outlays incident to such a system make it difficult for highly mechanized farms to survive periods of unusually low yields or low wheat prices.

In 1933 farmers reported that the original cost of a 16-foot combine, a 23-horsepower track-laying type of tractor, and a 1½-ton motor truck, was about \$6,300. The annual cost of maintaining these three machines including repairs, depreciation, fuel, oil, taxes, and interest, was about \$1,700. In 1934 about 3 bushels of wheat per acre was required to pay the operating costs of these three machines in the Northwest, but in 1932, when wheat prices were low, about 5.5 bushels was required.

COST OF PRODUCING CORN, WHEAT, OATS, MILK, AND COTTON

The annual mailed questionnaire inquiry into the cost of producing corn, wheat, oats, and cotton was carried on again this year. The 1934 costs are now being computed.

This year the Bureau cooperated with the New Jersey Agricultural Experiment Station in a study of the cost of producing milk from 176 dairy herds containing 4,089 milk cows in 8 cow-testing areas in New Jersey. A summary of the results was published.

LOCALIZED STUDIES IN FARM MANAGEMENT

A study of farm organization and practice in the High Plains cotton area of Texas, located in Lubbock County, is being made in cooperation with the Texas Agricultural Experiment Station. It aims to ascertain the economic and technical factors involved in the production of cotton under the semiarid conditions characteristic of the portion of the Cotton Belt in which notable expansion in cotton production took place during the decade 1920-29.

A somewhat similar study of plantation organization in the Delta area of Mississippi is under way. Three years of field work have now been completed.

At the request of the Kansas Agricultural Experiment Station the Bureau is collaborating with that station in a special study of conditions in southwest Kansas, where damage to land from soil blowing was most acute, to determine among other things, whether a submarginal-land-buying project should be established. This survey of agricultural conditions in that part of southwestern Kansas lying south of the Cimarron River shows a need for—(1) Some means of reestablishing permanent grass cover on the light, sandy, cultivated soils of the area; (2) a program to rehabilitate a number of the better farms in the area by giving immediate financial assistance and aiding adjustment in size of the farm unit and system of farming, and (3) a program under which farmers on land of low productivity, or on too small an acreage may be given an opportunity to reestablish themselves in other areas.

FARM TAXES

The Bureau's index of farm real-estate taxes per acre has been carried through 1933 and 1934. The trend is still downward from the peak of 241 in 1929 (1913=100), but the 1934 levy still averaged 151 percent of the 1913 level.

The decrease has become much less rapid, however, several State averages showing increases from 1933 to 1934. As related to real-estate values an average decrease did not begin until 1932.

Extensive tabulations of rural tax-delinquency data were made with Federal Emergency Relief Administration funds. These data represented about 600 counties of the 2,300 counties for which data were obtained with Civil Works Administration funds during the preceding year. A preliminary summary was issued covering 1,536 counties (out of 3,071 in the country), and detailed State reports are now being issued as rapidly as they can be prepared; 20 were published during the year.

Public interest in the subject has been keen. The agricultural experiment stations of all 48 States cooperated in the field work on the project, and the study has had a wide influence in stimulating and directing thought on the problem. Continuation of work on some phase of the subject is reported from 34 States; publications have been issued or are in process of being issued in 22 States; 10 States report the use of the information by State legislatures or legislative committees; 15 report its use by State officers, and 13 by local officers; in 30 States it has been used by land policy boards or similar organizations; 13 States have mapped delinquent properties; and 9 report the use of the material in classes or other regular college work.

Realization of the benefits of this project are illustrated by the head of a State college department who judges the project to be "among the most valuable accomplishments of the C. W. A." He continues:

Letters from county officials and interested citizens tell us that the study in this State could be justified on the basis of increased collection of taxes alone. * * * Figures which were released in this State have been quoted freely in the State legislature and there is a possibility that they may result in the appointment of assessors on a full time and scientific basis.

With rising taxes and declining land values, farm real-estate tax delinquency rose rapidly after 1928. Present estimates indicate a 200-percent increase both in area and in amount of delinquency between 1928 and 1932. In 1,536 counties 200,000,000 acres were reported delinquent on the 1932 levies. A decreasing number of tax liens have been purchased by individuals, the remainder of necessity being held by taxing jurisdictions.

Much of the delinquency is short-term but chronic. Owners repeatedly fall into arrears, and pay their taxes when a few months or a year or two overdue. In this respect necessary delinquency should be distinguished from "wilful" or "voluntary" or "accidental" delinquency. Relatively few cases of actual dispossession or alienation of title are shown by the tabulation. By 1932, owing largely to increased farm incomes, the crest of new delinquencies probably was reached. This appears to be true despite the probable increase in amount of delinquency by accumulation on properties already in arrears.

BANK LOANS IN AGRICULTURE

The wide-spread difficulties of country banks since 1920 have greatly curtailed the credit available to farmers from this source. The number of banks in the United States decreased from 30,560 in 1921 to 15,835 in 1934, a large proportion of the decrease occurring in agricultural areas. To measure the decline in bank loans to farmers and the present amount of bank credit extended to farmers, a survey was conducted as of the end of 1934. With the cooperation of the Federal Deposit Insurance Corporation, the Comptroller of the Currency, and the Federal Reserve Board, schedules were enclosed with the year-end call for report of condition.

NET DEMAND DEPOSITS IN AGRICULTURAL AREAS

The Bureau's indexes of net demand deposits of country banks has had increasing usefulness and is supplied monthly to the Treasury Department, Farm Credit Administration, and the Agricultural Adjustment Administration. The last-named organization has frequently presented the data as legal evidence, and two new indexes, covering two wheat-growing areas, have been prepared for this purpose.

Tabulation of returns from 99 percent of all commercial banks showed \$1,306,000,000 outstanding bank loans to farmers, a reduction of \$4,000,000,000 from the estimated total for December 31, 1920. Of the 1934 amount, 38 percent was secured by real estate; 20 percent by livestock, crops, or both; 11 percent by warehouse receipts, etc.; 5 percent by miscellaneous means; and 26 percent unsecured.

FARM PROPERTIES ACQUIRED THROUGH FORECLOSURES

As a result of reduced farm income and the consequent rapid increase in foreclosures lending agencies are now substantial holders of farm properties. Information from banks, life-insurance companies, and land banks has made possible the following estimates of the market value of the farm real estate held by corporations as compared with the market value of that they held in 1930: 174 percent in 1932 and 262 percent in 1933. Substantial additions have been made since 1933. Refinement of the figures is desirable, and tabulations are being made showing distribution by counties and by lending agencies at the end of 1934. Further data are being obtained and similarly classified, as an aid in preparing debt estimates.

A report of considerable usefulness has been issued summarizing and analyzing data issued annually by the Bureau under the title "Farmer Bankruptcies, 1894-1934."

COUNTRY-BANK POLICY

A study of country-bank policy as related to the availability of credit to farmers was made in Arkansas in cooperation with the State agricultural experiment station, at the request of the State bankers association. The following two reports have been published as bulletins of the Arkansas Experiment Station: Bulletin 298, General Indicators of the Condition of Arkansas Banks, and Bulletin 315, Bank Failures in Arkansas. These publications have aroused considerable interest in other States, and cooperative field work on similar studies is now under way in Wisconsin and Utah.

PRODUCTION-CREDIT LOAN POLICIES

A study has been made of problems met by the Federal Intermediate Credit Bank of St. Louis in rediscounting paper for agricultural-credit corporations and livestock-loan companies. Analyses of 500 cotton-production loans and 500 livestock loans were made, and the policies followed in making available this type of credit were evaluated. A preliminary report giving an experimental analysis of factors affecting the collectibility of cotton-production loans was issued.

SEED LOAN BORROWINGS

Seed-loan data regularly compiled show that these loans continue to be of importance from the standpoint of number of borrowers. Despite 2 years of operation of the new production-credit system, the number of seed loans has been large in some areas where farm income has shown marked recovery, particularly in the Southern States. For example, in Virginia, North Carolina, South Carolina, and Georgia there were 117,016 seed-loan borrowers in 1934 and 90,193 in 1935. This continued borrowing has an important bearing upon the development of agricultural-rehabilitation policies, and the experience gained in extending seed-loan credit offers a wealth of pertinent data. A preliminary analysis of seed-loan financing since 1921, with particular reference to four southeastern cotton States, is now being prepared.

AGRICULTURAL INSURANCE

Special attention was given to further improvement in insurance forms and practices of farmers' mutual fire-insurance companies, and notable progress is observed in their use. The computation of summaries of farmers' mutual company business was continued. The tabulations show remarkably good records and substantial growth for these companies.

FACTORS AFFECTING THE PRICES OF INTERNATIONAL AGRICULTURAL COMMODITIES

An index of world industrial production has been prepared to afford a measure of changes in world demand. This index and its component, an index of industrial production outside the United States, were used in an analysis of cotton price and cotton consumption included in the Bureau's report on the cotton situation.

PROBLEM OF DETERMINING CURRENT FARM INCOME

In response to pressing demands, the Bureau undertook to estimate receipts from the sale of farm products monthly, by States. A fairly satisfactory basis of estimating receipts from the sale or income from farm products, monthly, within about 20 days of the close of the month, has been developed. For comparison, estimates have been extended backward, monthly, through 1929. These estimates are being widely circulated and extensively used in keeping up to date with changes in farm income in different parts of the country, and in observing factors important in determining the level of, or changes in, income from agriculture in the several States.

COST OF TRANSPORTATION

Transportation research has included the collection of a large volume of data in regard to the effect of freight rates upon the shift in the transportation of agricultural products from railroads to trucks. Considerable attention has been given to the effects upon the movement of agricultural products and the returns to farmers of maintaining freight rates with little or no change, in the face of declining prices for farm products. Data and the results of analysis have been furnished to representatives of the Department for use in hearings before the Interstate Commerce Commission in cases involving freight rates upon specific agricultural commodities and the relations between agriculture and transportation.

COMPLETION OF THE REPORT ON THE DIRECT MARKETING OF HOGS

The study of the direct marketing of hogs which had been carried on during the previous spring and early summer was completed and published early in 1935. Considerable work had been done on this project over a period of several years, but an expansion of the study was made necessary in late 1933 as a result of increased demands on the Department from producers and trade agencies for a complete investigation of this method of marketing. The finished work provides the most comprehensive study of the subject yet completed.

DATA ON SHRINKAGE OF HOGS

In the research studies dealing with the direct marketing of hogs, special emphasis was given to dressing yields and shrinkage in transit of hogs purchased direct and at public markets. The ratio of dressed carcass weight to purchased live weight is one of the major factors that slaughterers must take into consideration in making their bids for hogs. Basic information on dressing yields of hogs and the amount that hogs shrink in transit is needed, therefore, by hog producers, livestock marketing agencies, and packers in arriving at fair prices for hogs bought under varying conditions.

Analyses were made of yield and shrinkage data on more than 6,000,000 hogs purchased both direct and at public markets. The data were obtained from the records of representative packers (national, regional, and local) who cooperated in furnishing the information. The results are being prepared for publication.

STUDY OF THE PACKERS' MARGIN

To ascertain the changes in the gross margins taken by hog slaughterers over a long period of years, the monthly and yearly combined wholesale values in Chicago of all the products obtained from hogs were computed for the period 1905 to date. These values were compared with the concurrent average prices of the better grades of hogs, and the margin or spread between the hog price and the combined product value was computed. It was found that this spread widened greatly during and immediately following the World War period and that it continued relatively wide until about 1932, when it was reduced somewhat. The study also revealed that there is a marked seasonal change in the margin each year. The information developed through these price studies has been used also by the Agricultural Adjustment Administration in connection with studies and problems with which they are dealing.

THE LOUISIANA STRAWBERRY SITUATION

After the unsatisfactory strawberry-marketing season in Louisiana in the spring of 1934, following a series of unsatisfactory seasons, the Bureau was asked to make a study of the production and marketing of this crop. The results were issued as a mimeographed report. A few of the conclusions from the study are: Returns to Louisiana strawberry growers after deducting cash expenses averaged only about \$500,000 in the 3-year period 1932-34, as compared with about \$2,600,000 in the previous 3 years. Since the average grower in the Louisiana district has only 3 or 4 acres in strawberries, the average returns in the last 3 years have not been sufficient for adequate maintenance of a family. The margin of gross profit for wholesale handlers of these berries in recent years has been small; any large increase in the price per crate to the growers is apparently dependent on higher retail prices. A greater production of vegetables and other crops for home use is desirable. The report includes detailed data on costs of production, yields, distribution, prices, and marketing methods, which will be useful in planning and making adjustments in the Louisiana strawberry industry.

ESTIMATE OF MARKET MOVEMENT BY MOTOR TRUCK

The use of the motor truck in marketing fruits and vegetables is causing more discussion and bringing about greater changes than any other recent development in the marketing field. Handlers of carlot shipments in the markets with established places of business find it difficult to compete with truckers in handling commodities produced within a radius of 500 miles. The advent of the motor truck has introduced new problems in relation to such phases as grading, regularity of supplies, and price movements. A report is being prepared which shows approximate quantities and percentages of each of 33 fruits and vegetables moving to consuming markets by truck in each of the years 1933 and 1934.

An analysis is being made of other phases of motor-truck marketing. The report of quantities moved by motor truck is based on all available sources of information within the Bureau, such as truck receipts at certain cities, market-news field-station reports, and reports from supervising inspectors. State agencies familiar with this subject have been consulted. In 1934 carlot and boat shipments of fruits and vegetables in the United States exceeded 800,000 cars. Estimated motor-truck shipments amounted to slightly less than 500,000 cars, or about 38 percent of the total market movement.

Every effort is being exerted in terminal-market offices of the Bureau to get as complete information as possible on current motor-truck receipts of dairy and poultry products. Local wholesalers, jobbers, chain stores, and others who receive dairy and poultry products by motor truck supply information regarding quantities received and States in which shipments originated. During the year a special check was made on motor-truck receipts at Chicago, New York, and Boston. A similar check is now being made at other markets.

NEW RESEARCH IN THE FIELD OF MARKETING

A new Division of Marketing Research was established in January to furnish bases for the study of both new and old problems of distribution and consumption. The high marketing costs and low prices which have obtained for many years have emphasized the need for a vigorous program of marketing research to help reduce the spreads between producer and consumer, which in many cases indicate inefficiencies in the marketing system rather than excessive profits in distribution.

Price spreads in foreign countries are frequently narrower than in the United States. Accurate and detailed facts about price spreads and reasons for them are necessary as a basis for measuring changes in marketing efficiency and for determining the extent to which costs such as wages, materials, and processing taxes are passed on to consumers or passed back to farmers.

Many present marketing facilities and methods are uneconomic and inadequate. Rapid development of motor-truck distribution, large-scale retailing, and direct marketing, as well as the recovery measures, have brought about great changes in distribution, without corresponding changes in many marketing facilities, costs, and methods. Investigations looking toward reorganization

of physical facilities of marketing are being projected as part of the general program of readjustment.

Farmers and consumers are vitally interested in these developments. If agricultural recovery is to be complete and lasting there must be better service to the consumer, reduction of waste, and increased efficiency in the marketing process, to accomplish better distribution and greater consumption, as well as to raise incomes of growers. Provisions of the recovery legislation can be used for these purposes, but a broad research program is needed to lay the basis for policies that will promote the best interests of farmers and not be a burden to the consuming public. Several lines of work carried on by this new division can be reported.

ECONOMIC EFFECTS OF A. A. A. MARKETING AGREEMENTS AND PROCESSING TAXES

The marketing-agreement section of the Agricultural Adjustment Act makes possible a new kind of cooperation among farmers, dealers, and processors for the purpose of improving marketing conditions and raising the incomes of certain groups of farmers, partly through regulating the flow of farm products to the market, regulating the qualities and grades sold, standardizing charges for processing and handling, and deciding on minimum prices paid to the farmers.

Realizing the importance of careful research as a basis for such a long-time program, the Agricultural Adjustment Administration requested that this Division undertake a series of studies of the problems encountered in the administration of marketing agreements. Intensive studies have been made of the agreements covering California cling peaches and California asparagus, and northwestern fruit, walnuts, and citrus fruit, and some attention has been given to most of the other agreements.

Studies of the effects of processing taxes have been made, particularly in relation to wheat, cotton, and hogs. Briefly the findings are that processors in general have not absorbed the taxes, but that they have been passed on to the consumer or have tended to lower prices to farmers below what these prices would be if some means other than processing taxes were available for financing the program. If the effects of the taxes are considered, along with benefit payments to farmers and with price increases due to the control of production, it is evident that the income of wheat producers, cotton producers, and hog producers has been raised.

PRICE SPREAD BETWEEN PRODUCERS AND CONSUMERS

The importance of the margin between prices received by farmers and prices paid by consumers for food and other farm products has increased since 1934 because of increased wages and increased costs of materials used in the transportation, processing, and marketing of farm products, because of processing taxes which have added to processors' costs, and because of changes in marketing methods (including the adoption of marketing agreements in several industries) which have affected costs and charges for the services needed in getting foods and other agricultural products from the farm to the consumer.

A series of studies is now under way analyzing the relationship between the prices received by farmers and the prices paid by consumers for about 50 agricultural products. A report has been issued summarizing from 1910 to date the month-to-month changes in the total price spread between the farm and the city retail store for the following 10 foods: Beef, pork, hens, eggs, milk, butter, cheese, potatoes, flour, and bread.

RESEARCH IN THE FIELD OF LAND ECONOMICS

During the year, steps were taken by the Federal Government to effectuate a definite, unified land policy. The Agricultural Adjustment Administration established in its Division of Program Planning a Land Policy Section, the general function of which is to develop and carry out, as a phase of the Administration's agricultural adjustment program, a coordinated national program for the better use of our land resources. The Public Works Administration allotted to the Federal Emergency Relief Administration an initial sum of \$25,000,000 for the purchase of submarginal lands. The President requested the preparation, by the newly created National Resources Board, of a comprehensive

national report, with recommendations for appropriate action, on land utilization and land policy. This Bureau contributed substantially to the preparation of this report.

Studies in the changes in land utilization, both intensive and extensive, were heavily drawn on in connection with the report of the National Resources Board, and certain of the sections of that report embody the findings of years of intensive investigation by the Bureau. The general survey of "distress areas" in the utilization of land was incorporated in the section of the report that deals with maladjustments in land use and proposed lines of action.

This study showed that the annual cash income of farmers in the areas from which it is desirable to encourage withdrawal of arable farming was less than \$250 and for many was less than \$100 even during the relatively prosperous conditions existing in 1929. The living available on land yielding such low incomes is wholly inadequate. Many of the families are undernourished. Educational and cultural opportunities are meager, and governmental services are at a minimum, or, if at all adequate, are provided at high unit cost to the local community and the general public. It also indicated that during the depression probably 30 percent of the farmers in such areas were on relief.

The total area which it is estimated should be withdrawn from farming is 75,000,000 acres, of which 20,000,000 acres is crop land and 35,000,000 acres pasture land.

LAND PROBLEMS IN THE GEORGIA PIEDMONT

In its investigation of land-use problems, the Bureau selected as a major region for study the old-plantation piedmont cotton belt of Georgia. The general objective has been to ascertain facts on which may be developed public and private programs of action to bring about the profitable utilization of land and to improve the economic and social conditions of the rural population. On the basis of the facts developed in the study, the Federal Government has initiated a submarginal land-purchase project in the State.

Generally speaking, the decline in agricultural development started in the old-plantation piedmont cotton belt and progressed northward and southward. The decline, in large part, is the result of a detrimental land-use cycle practiced mainly by cotton farmers. Allowing land to revert to forest or other vegetative cover is merely one step in that cycle. Land was cultivated until erosion gullied the fields or washed the surface away. Forest or other natural vegetative cover tended to check erosion and gradually build a new topsoil.

Approximately 85 percent of the land in the 35 counties (covering about 25,000 square miles), representing the old-plantation piedmont cotton belt, has been used for cultivated crops one or more times in the course of years. At present only 24 percent of that area is being used for cultivated crops. The system of farming practiced, which does not include adequate protection against erosion or leave the steeper slopes permanently in woodland, has not changed.

IMPROVEMENT IN THE FARM REAL-ESTATE SITUATION

The ninth annual report on the farm real-estate situation was issued during the year. The report showed that the year ended in March 1934 brought the first general upturn in farm real-estate values in more than a decade, a reduced frequency of distress sales, increased frequency of voluntary transfers, expansion of the farm-mortgage credit facilities of the Farm Credit Administration, and the compromising, refinancing, or other adjustment of a large amount of mortgage indebtedness. These developments were traced in large part to the upturn in farm prices and in income from farm production, and to the expanded activity of the Farm Credit Administration, together with a growing recognition on the part of mortgage holders generally that the interests of both creditors and debtors would be served best by reasonable compromising of unmanageable debt.

The report stated that for the country as a whole for the year ended March 1934 farm real-estate values increased from 73 to 76 percent of those for the 1912-14 period taken as representing pre-war values, that the frequency of voluntary sales increased from 16.8 to 17.8 farms per 1,000 of all farms, that frequency of forced sales and related defaults as a result of delinquency on mortgage debt declined from 38.8 to 28.0 farms per 1,000 of all farms, and that similar transfers as a result of delinquency on taxes decreased from 15.3 to 11.1 farms per 1,000 of all farms.

FARM POPULATION FACTS AND ESTIMATES

The usual estimate of change in the number of persons living on farms and migrations to and from farm and town was made as of January 1, 1935, applying to the calendar year 1934. A new feature in the report included data on farm acreage and the number of occupied dwellings for the farms covered by the schedules. These data have been tabulated by counties and will be compared with 1935 census data on the same items as evidences of the reliability of the sample.

Completion of the study, begun several years ago, of the interstate migrations of the native white population as revealed by census data from 1870 to 1930 made it possible to prepare and issue a series of chart maps indicating a significant part of the movement from State to State. These constitute valuable base material for more intensive studies.

LOCAL GOVERNMENT UNDER STUDY

Interest in local government and in the possibilities of making it less expensive and more efficient grows daily. In response, the Bureau has aided several States in the study of local governmental problems.

Farm taxation and local government in Noble and Putnam Counties, Ohio, were studied on the invitation of the Governor's Commission on the Reorganization of Local Government. Other research agencies are making studies of several Ohio cities and urban counties. As a recent State constitutional amendment permitting alternative forms of local government was adopted last year, it is expected that all of these studies will assist in the working out of effective forms of reorganization.

Results of studies of farm taxation and local government in Crittenden and Livingston Counties, Ky., concluded late last year, were published this year and are already bringing encouraging results. In addition to the major conclusions, some of which recognized the impracticability of attempting certain plans, concrete suggestions were made for the purpose of balancing the budget and effecting needed changes in organization and functioning on a permanent long-time program, as well as several suggestions of an emergency character needed to break the existing circle of mounting deficits and debt-service costs. A number of these suggestions have since been incorporated in State laws, and recent reports from both counties indicate substantial progress toward financial stability and greater efficiency in the operation of local government.

ECONOMIC LIBRARY AIDS RESEARCH

That the work of the Bureau library is closely correlated with the activities of the Bureau is clearly indicated in the extensive bibliographic material on subjects of pressing importance which the library makes available in both printed and mimeographed form. Other activities of the library include immediate reference work on a wide variety of economic questions, the indexing of pending and enacted economic Federal legislation, the circulation of much current economic material, and the preparation of the monthly mimeographed publication entitled "Agricultural Economics Literature."

During the year the bibliography, *Land Settlement, With Particular Reference to Small Holdings and Subsistence Homesteads*, was printed. It has been of great service to those who are working on land problems in the United States Department of Agriculture and elsewhere. This bibliography was submitted in competition for the Oberly Memorial Prize and won the award. The prize is offered every 2 years by the American Library Association for the best bibliography in the field of agriculture and related sciences. This was the fourth time this national award has been won by members of the staff of the library of the Bureau of Agricultural Economics.

The titles of a few of the more significant bibliographies or lists of references compiled during the year are as follows:

Agricultural Credit in Foreign Countries; Frazier-Lemke Farm-Mortgage Act; Supplement to Foreign Competition with American Cotton; Cotton in China; The Southern Share Cropper; Some Notes on Granaries and Storehouses in the Past; Social Insurance in the United States and Foreign Countries; Measures of Major Importance enacted by the 73d Congress March 9 to June 16, 1933, and January 3 to June 18, 1934; The Marketing of Agricultural Products; A Selected list of hearings of the 73d Congress on marketing and related

subjects; Land Policy—Cuba; Land Settlement in Brazil; Wheat Policies of Foreign Countries; References to Tax Studies in the States; Export Bounties on Butter and Cheese Granted by Foreign Governments since 1927; Selected References on the Marketing of Vegetables; Commercial Canning of Fruits and Vegetables, June 1929 to June 1934; and Statistics of the Consumption of Milk in the United States.

There has been a steadily growing use of the library by the Agricultural Adjustment Administration, by other economic agencies within the Department, and by most of the newer agencies of the Government.

PUBLICATIONS AND INFORMATION EXTENSION

The printed publications issued during the year were somewhat fewer in number than in recent years, but the total page content was slightly increased. Several unusual publications were among those issued. Those that should be mentioned for their size and comprehensiveness are Miscellaneous Publication 205, Economic and Social Problems and Conditions of the Southern Appalachians, Miscellaneous Publication 222, The Direct Marketing of Hogs, and Technical Bulletin 466, Agriculture in Southern Africa. Two manuscripts which were prepared in this Bureau were issued as Congressional Documents, House Document 405, Cotton Classing and Market News Service for Farmers, and House Document 406, The Farmers' Tax Problem.

In the current and emergency work of the Bureau, mimeographed and multi-graphed publications were used in greater numbers and in larger editions than ever before. Much of the current statistics and analyses of economic problems was issued in this form. The total number of various reports and titles issued currently by the Bureau now mounts into the thousands. The principle of distribution has been to prepare a special report or mimeographed release whenever the requests for the information amount to 100 or more, since this form of distribution saves expense by reducing correspondence and makes it possible for technical workers and others to list and identify the various sources of Bureau information.

Large editions of many publications were distributed in cooperation with the Extension Service and the field organization of the Agricultural Adjustment Administration. In general, the use of economic information by all agricultural educational agencies has shown steady growth.

