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ANNUAL REPORT OF THE CHIEF OF THE BUREAU OF AGRICULTURAL ECONOMICS

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF AGRICULTURAL ECONOMICS,
Washington, D. C., October 13, 1932.

SIR: I transmit herewith a report of the work of the Bureau of Agricultural Economics for the fiscal year ended June 30, 1932.

Respectfully,

NILS A. OLSEN,
Chief of Bureau.

Hon. ARTHUR M. HYDE,
Secretary of Agriculture.

This is a time of drastic readjustment in agriculture. The industry has been overtaken by two sets of economic forces, either of which would have brought violent disturbance. The first has its origin in such revolutionary developments as the change from horses to motors, the sudden advent of large-scale machinery, and an almost wholly new pattern of production and trade. On top of all this came the world-wide depression and collapse of prices. The present result is a farm community bewildered, hit by low prices and contracting markets, burdened with heavy taxes, debts, and costs.

The last 15 or 20 years have witnessed an ever-growing struggle on the part of farmers to adjust their industry to these rapidly changing conditions. The development of this bureau's activities during recent years is an outgrowth of the needs of that struggle. The work of our organization in gathering and disseminating the facts on production, markets, foreign conditions, and innumerable basic problems represents public services which the times have gradually forced agriculture to require.

Thus, in reporting the bureau's activities during the year past, this background fact should be conveyed—that not only is our work directed toward helping in the present acute situation; it is a program rounded out in response to the modern requirements for a continuing economic service which will help agriculture to chart its course, to reach and maintain a profitable basis amid the changing circumstances of the times.

The services of this bureau now reach into every State. Scarcely a newspaper, a farm periodical, a day's radio program, an important market place, an avenue of communication, that does not carry the agricultural information gathered by the bureau's staff from all over the world. Crops are planned and planted, hundreds of millions of dollars worth of products are marketed, farms are bought and sold, contracts are made, money is loaned, educational programs are established, legislation is enacted and a thousand and one activities relating to agriculture are carried out in the light of facts presented by this bureau. Directly and indirectly, its services touch practically every farm home.

Scarcely an economic phase of agriculture is not comprehended to some degree in the bureau's service, regulatory, and research work. These activities are essential to effective planning of adjustments by farmers, distributors, and consumers, whether working individually or collectively, and by the Government itself.

COLLECTING AND DISTRIBUTING CURRENT ECONOMIC
INFORMATION

The production and market-reporting services of the bureau provide a moving picture of current conditions, and furnish many of the materials for economic research. Without current, unbiased estimates of crop and

livestock production, producers, distributors, and consumers can not be informed adequately on prospective supplies and their probable bearing upon income. Without comprehensive and timely market reports, they would lack the day-to-day information required for the best distribution of supplies. Without production and marketing information from the major competing and consuming countries of the world, they could not have an adequate conception of the competition that American agriculture must meet nor of opportunities for marketing American products abroad. Such information must be collected currently, otherwise it is lost and not available for comparing conditions of to-day with those of the past. Such data constitute the basic facts of research.

ESTIMATING THE PRODUCTION OF CROPS AND LIVESTOCK

The crop-reporting service of the bureau was inaugurated in 1862, at the demand of farmers and handlers of agricultural products. Its expansion and development in the last decade have been in response to the demands of producers and other agricultural interests. An expanded livestock program, begun in 1923, grew out of recommendations made by the National Agricultural Conference. The improved service now rendered for fruit, truck, and canning crops grew out of the demands of vegetable growers, distributors, and canners for more information on these crops. The expanded program of dairy-production reports was developed to meet the needs of the industry as expressed by the dairy associations of the country.

This service provides information on the acreage, yield, and production of more than 80 crops, all the principal classes of livestock, monthly reports of farm prices; periodical estimates of stocks of important commodities on farms and in secondary hands, reports on intentions to plant and breed, and other regular and special releases. In addition to the collection and maintenance of statistical records, monthly forecasts of production are made in advance of harvest for 61 crops, and semiannual forecasts are made of hog production. Current information on land values, rents, taxes, changes in farm population, etc., is also collected.

The service extends to every State. Recent developments have taken the form of reports on new items, and in the improvement of estimating technic. Special effort has been made to give timely service by means of regular releases, quick distribution through every available channel, and the issuance of special reports at frequent intervals whenever a crop emergency seems to require such action. The Wisconsin canning-pea crop encountered conditions during the last three seasons that caused such action to be requested—the May freeze in 1930, the drought in 1931, and a combination of heat and insect damage in 1932. As a further service to the canning industry, the reports on planted or intended acreage have included an interpretation of the production possibilities indicated by the current acreage and condition reports of the canners. This interpretation has been helpful in making desirable adjustments in contract acreage. With the aid of detailed reports, monthly reports of numbers of cows milked and milk produced, as supplied by crop correspondents, records of milk cows on representative farms, and the current changes in milk production and utilization on farms can now be measured quite accurately. The information now being secured also makes it possible to estimate fairly closely the extent to which a material change in commercial deliveries of milk and cream has been due to a change in the number of milk cows and to what extent it reflects transient factors.

There is some misunderstanding about the nature of these reports. Many persons overlook the fact that they are not actual enumerations of acreage and production but are estimates based on the best available sample data. In the main these estimates are surprisingly accurate. This accuracy is attributable to the intensive research conducted by the bureau to improve estimating technic. The forecasts of cotton production in the last five years, for example, have been so accurate as to astonish the cotton industry of the world, and are now universally accepted as representing the closest possible approximation of the facts in advance of actual ginnings.

The August cotton forecasts of the Department of Agriculture have been within 5 per cent of the final outturn in each of the last five years, with the exception of 1931, when the forecast was 8.8 per cent below final ginnings. However, the department's August estimate, although below the final outturn, was about 1,500,000 bales above the estimates of private agencies of approximately the same date. Conditions after August 1 were extremely favorable in

1931. Forecasts for subsequent months during the last five years have been much closer to the final ginnings than has the August forecast.

These reports furnish information on prospective and actual supplies, which have an important influence on the level of prices. While the crop and livestock estimates are issued primarily to aid farmers, they are used extensively by distributors and processors of agricultural products, and are of general interest to many other classes of people. Large business concerns use crop and livestock estimates, price reports, and other reports in planning their programs of production and marketing, as such data, when analyzed, indicate the probable agricultural income of various sections of the country. Such facts enable industrial concerns to effect a more economical distribution of their products and aid in formulating credit policies. The crop and livestock reports furnish the railroads valuable aids in distributing cars for the movement of crops. The railroads also use such data to calculate the income to be derived from the movement of agricultural products. The reports are extensively used in freight-rate hearings. Federal Reserve and other banks use the estimates in formulating credit policies in the light of present and prospective agricultural production and prices. In fact, the depression has materially increased the demand for current information on agricultural production from all interests of the country. All students of economic conditions utilize these data.

ESTIMATING THE QUALITY OF COTTON AND TOBACCO

For many years this department has made estimates of the cotton crop expressed in numbers of bales, and the Bureau of the Census has obtained reports of the number of bales ginned and the size of the annual carry-over. These data are of vital importance in appraising the supply situation. But quantitative data gives us only part of the picture. Information on the quality of crops produced also has great market and production value. Quality is recognized as one of the most important factors influencing cotton consumption and price. Because of the wide range in grades and staple lengths of cotton, it is almost as important to know the number of bales of each kind as to know the total number of bales produced and carried over. An important forward step, therefore, was taken when Congress directed by the act of March 3, 1927, that estimates of the grade and staple of cotton be made. The reports issued include estimates of the grade and staple of the carry-over as of August 1, as reported by the Bureau of the Census, as well as several reports of the crop, as ginned, and an estimate of the percentage tenderable and untenderable on futures contracts.

Estimates of the grade and staple of the carry-over are based on returns made by owners of cotton, including growers, merchants, warehousemen, and manufacturers. Representative samples are then checked by classers of the bureau. Estimates of the current crop are based on contracts with about 900 gins, carefully selected as representative of types and soil areas in order to obtain a sample that is representative of the crop. The gins selected furnish a sample of each bale ginned during the season. These samples are carefully classed by expert classers of the bureau and the findings of these classers form the basis of the estimates issued.

Estimates covering four crop years have been made. They reveal considerable variation in the quality of the crop from year to year. They also seem to indicate that there has been a slight gradual improvement in the quality of the crop during these years. Great interest is shown in these data by experiment stations, extension directors, State officials, and others, because the information is fundamental to local, regional, and national planning of production and cotton-improvement programs. Information on the quality of the cotton ginned, itemized according to important soil types and communities, coupled with information on prices that producers receive for the various qualities of cotton and with information on variety yields and production costs, is essential to determining what quality of cotton can be produced with a maximum net profit. The information is furnished by States and by areas within the States so that in a measure it is possible to relate variations in quality to variations in soil and other conditions.

Marketing is facilitated by producing cotton having those qualities most in demand and by making it possible for producers, distributors, and manufacturers to know, individually and in groups, the relative scarcity or abundance of particular grades and staples. Data such as contained in these reports will have increasing value in merchandising the cotton crop both in the United States and abroad. On the average, over 50 per cent of American cotton

seeks foreign outlets. American cotton is facing unusual competition during this period of business and agricultural depression. To an increasing degree, it is facing the competition of that grown in foreign countries. It must meet this competition, on the basis of both quality and price. Statistics on grade and staple supplies are indispensable, therefore, to a proper understanding of the competition encountered in foreign markets by cotton produced in the United States and it becomes increasingly important to develop those data that will indicate the trends and the quality of the American cotton crop and will serve as a basis for crop-improvement and production programs.

During the past cotton year five reports of the current crop were issued at different intervals. Each report contained an estimate expressed in bales for the country as a whole, based on the ginnings as of the date for which the report was issued. These data have both statistical and current value. In order, however, to bring the service closer to the actual merchandising transactions, the bureau has recently undertaken the issuance of a weekly report that has met with appreciation. It can not, of course, be based on reports of ginnings for the whole country. It shows, in percentages, the grade and staple of the samples classed by the bureau's classers during the preceding week. These percentages are not cumulative, but the reports apply to the country as a whole and to States and important soil areas. They provide information at least a month in advance of the regular reports and, while less complete, furnish a moving indication of the quality of the crop as the season progresses.

Qualitative data of somewhat similar character on tobacco are made available by the bureau. Responding to the wishes of producers for information on the quality of stocks of tobacco carried from year to year, Congress directed, by the act of January 14, 1929, that quarterly reports be issued showing stocks of leaf tobacco in all forms in the United States in the hands of dealers, manufacturers, growers, etc. Reports to the bureau are mandatory. They must include information by types and groups of grades, and state whether the tobacco is stemmed or unstemmed.

The data are published by the bureau in a form to afford analysis of leaf-tobacco holdings as to quality and manufacturing use. Statistics showing the total quantity of leaf-tobacco stocks had been available for years, but the character of the tobacco had not been disclosed except as indicated by the type name. Prices paid to growers are influenced by the quantity and character of the stocks on hand and available for use. Any single type includes tobacco of different characteristics and different possible uses. The reports showing stocks by groups of grades, therefore, permit a detailed analysis of the qualities available and, as in the case of the grade and staple estimates for cotton, afford a more dependable basis for production and marketing programs. These qualitative data, when analyzed in conjunction with past records of production, stocks, export and domestic consumption, and the net effects of these variable factors as expressed in prices to growers, assist in anticipating probable market trends with greater accuracy.

MARKET-NEWS SERVICE

As the crop-reporting service furnishes the data on production and current estimates of crop and livestock prospects, so the market-news service of the bureau supplies needed information on current market conditions. Daily reports of car-lot shipments, receipts and unloads in the markets, supplies on hand, storage movement, prices, etc., provide information of particular value in the most advantageous distribution and disposition of farm products.

Started in a small way in March, 1915, for a few of the highly perishable fruits and vegetables, the service, in response to demands for more and more unbiased market information, has become nation wide in scope and now furnishes information on 42 fruit and vegetable products. The purpose of the service is to provide all buyers and sellers, including individual farmers and their cooperative associations, with reliable information on car-lot shipments, prices prevailing at both shipping points and important receiving markets, car-lot arrivals and supplies on hand in the large terminal markets, with general comments on supply and demand conditions, and comment on the quality and condition of the products being offered for sale. Before this service was developed, market information on these commodities in sufficient detail and of a reliable character was not publicly available. This was especially true in the shipping districts. Only the large distributors could afford to be fully informed. Small shippers and individual growers were dependent upon larger dealers for prompt information on prices and conditions in distant markets and

competing shipping districts. This resulted in the buyer, especially the large buyer, having more information than the seller. Even the large distributors could not obtain the car-lot shipment records which are now published daily by the bureau. A merchandising situation which requires the seller to rely upon the buyer for market information does not establish confidence. It is more likely to encourage misrepresentation and arouse suspicion. The service that has been developed for these and other important farm products takes much of the guess out of market information. It discourages false rumors and the circulation of fictitious quotations. It enables the small grower to know what the market is when he decides to ship or sell locally. It enables both the buyers and sellers to operate more nearly on a basis of equality.

The underlying purpose of the service is the same for all commodities. Its form and scope, however, differ according to the needs of the commodity reported or the industry served. The service has been most extensively developed for fruits and vegetables, and for livestock and meats. It is not limited to those commodities, however, but also includes dairy and poultry products, grains, hay, feeds, seeds, rice, beans, peanuts, honey, wool, cotton, and tobacco. It is one of the most widely used services rendered by the bureau. Reports are furnished to individuals only on request. The extensive mailing lists are circularized frequently to keep their size to a minimum. Hundreds of letters have been received from growers, distributors, and others, asking for a continuance of the service.

Interest in the market-news services has grown apace. During the past year a new service was inaugurated, covering direct and contract sales of sheep and lambs in the producing areas of the far western range States of California, Idaho, Montana, Nevada, Oregon, Utah, and Wyoming. These seven States have nearly 38 per cent of the total number of sheep and lambs in the United States, and it is estimated that more than 85 per cent of the sheep and lambs marketed from this area are sold by producers before shipment. In normal years a large percentage of the crop is contracted for weeks or months in advance of delivery. This service is quite similar to that inaugurated a year earlier in central Iowa and southern Minnesota covering movements, market conditions, and price of hogs sold in those areas direct to packers, and represents a new type of market reporting for those commodities.

Although tobacco is a major crop, and growers greatly need information on tobacco-market conditions, the market-news service did not include that commodity until recently. During the past year a limited market-news service for tobacco was started. It is being developed largely in conjunction with the tobacco-grading service, to which reference is made elsewhere. The most direct use of the tobacco-market reports is made by the farmers themselves, who offer tobacco for sale on the auction floors. The market reports, to be of most value, should contain quotations by grades. It then serves not only to inform the grower on market prices but to emphasize the differences paid for ranges in quality.

Tobacco growers are showing an increasing interest in the new service. If they have information on the selling prices by type and grade, farmers whose tobacco has been graded and offered for sale can readily ascertain whether the selling price is reasonably in line with the market average, and therefore have an intelligent basis for accepting or rejecting an offered price.

The type of service rendered varies with the commodity. If the reports are to be of value for the more highly perishable commodities, they must be assembled and distributed in time for the persons concerned to make use of them. On some commodities information is distributed not only daily but several times a day. Reports for other commodities are issued weekly and monthly and may consist largely of statistics and information of a more general character. As a rule, however, the two important essentials in the development of the service have been speed and accuracy. The bureau maintains a leased-wire system of approximately 10,000 miles, connecting important receiving markets and distributing centers. Branch offices to collect and distribute information are maintained in 68 cities and about 40 temporary offices are operated in important fruit and vegetable shipping sections for periods ranging from six weeks to six months. These facilities are maintained for the rapid collection and dissemination of the market information needed. The market reports of the bureau reach hundreds of thousands of farmers, distributors, consumers, and others interested in the current situation. The success of the service has been enhanced in no small measure by the cooperation of railroads and other transportation agencies in furnishing information on shipments, receipts, and unloads; by the newspapers, agricultural papers, and trade jour-

nals in extensively circulating the reports and reviews; by approximately 140 radio stations which devote time daily to the distribution of market information without cost to the Government; and by bankers, merchants, telegraph companies, and numerous others who assist either by supplying information to the bureau or by cooperating in disseminating the reports. For example, the Weekly Review of Grain Markets is used by nearly 2,000 newspapers and 165 farm or trade journals, and is posted at more than 4,000 country banks and country elevators. Several of the States and agricultural colleges cooperate with the bureau not only in distributing the information but in supplementing the service so as to make it of greater local value to the communities they serve.

The value of a comprehensive market-reporting service of this character to producers, distributors, consumers, and others is at once apparent. Daily market statistics, coupled with weekly and monthly reviews, keep market conditions currently before the public. Market reports showing quotations by grades encourage the marketing of farm products according to uniform standards of quality and description. The widespread availability of reliable market information discourages the circulation of fictitious reports by those who may seek to take advantage of uninformed sellers. After their current publication, the reports provide a reservoir of statistics for use in the outlook service of the bureau and in its general economic-research work. While producers lean heavily upon these reports in marketing their crops, it is probably safe to say that an even greater use is made of them by cooperative marketing associations and independent distributors. For some of the commodities the service has become an integral part of the marketing machinery. It is needed even more when prices are low and margins are narrow. Its rapid growth since it was started 15 years ago has been possible only because it served a real need.

CROP AND MARKET INFORMATION COVERING FOREIGN COUNTRIES

The world depression has demonstrated how intimately American agriculture is influenced by production and market conditions abroad. Practically all products grown in the United States feel the impact of foreign competition. On the other hand the producers of many of our major commodities must seek outlets abroad for a considerable part of their products. The tendency toward increasing production in competing countries and the tendency to restrict foreign outlets for our products through tariffs and other barriers have made it increasingly important to have reliable reports from both competing and importing foreign countries.

Under the authority provided in the foreign agricultural service act of June 5, 1930, eight agricultural-reporting outposts have been established in important sections of the world. These representatives of this department, working in close cooperation with the representatives of other Federal departments stationed abroad, provide current estimates on production in important competing countries and report on market conditions. The crop and market reporting services of most foreign countries have not been sufficiently developed to supply timely and accurate estimates on production and market conditions. Through the foreign representatives of the bureau it has been possible to obtain reasonably accurate estimates of production, often long in advance of less satisfactory estimates made by official agencies.

The United Kingdom constitutes the largest single market for American agricultural products, taking on an average about one-fourth of the total agricultural exports of the United States. The trends in the consumption of specific agricultural products in this market and trends in the sources of supply are of vital concern to American agriculture, especially to producers of cotton, wheat, tobacco, fruit, and hogs. The abandonment of the gold standard and the adoption of a tariff policy were outstanding developments in the British demand situation during the past year. Through its London representative this bureau has kept the American producer informed currently of important developments and their significance to our producers.

Through its fruit specialist stationed at London the bureau has built up a current market reporting service on fresh fruit covering all the principal markets in Great Britain and northwestern Europe. These reports provide American fruit growers and shippers with prompt and dependable information on the prices received for American and competing fruit at European auctions. Price quotations are related definitely to particular varieties, sizes, and grades, so that the shipper in this country may be able to make direct comparisons with his own lots of fruit.

North and central Europe produces less agricultural products than it consumes. Agriculture, however, is a leading industry in practically every country in that area, and the changes in domestic production from season to season and over a period of years greatly modify the requirements for American products. Regular monthly reports by the bureau's Berlin representative supply information on the continental European demand for wheat and cotton, and quarterly reports furnish information on the European hog situation in relation to the demand for American pork. During the growing season frequent reports on European crops such as apples and pears are also supplied. Reliable and timely data on Russian agricultural developments are difficult to obtain. The sources of information which the bureau's Berlin representative has been able to develop are making possible more accurate appraisals of the current and prospective competitive position of Russian wheat and other products in the world market. During the past three years it has been possible to estimate with a reasonable degree of accuracy the size of the Russian wheat crop in advance of reports from other sources.

The tobacco specialist stationed at Berlin has built up a current reporting service on European tobacco markets which for the first time provides information on the production of tobacco in Europe competing with particular American types and describes current demand conditions for these types in the European markets.

The Danube Basin is the only wheat-surplus producing area of Europe, except Russia. Information on crop and export prospects for wheat in this area has long been inadequate. The bureau's representatives at Belgrade have made marked progress in filling this gap in the world wheat picture. In addition, the reports from Belgrade cover other crops, such as feed grains, dry beans, fresh deciduous fruits, and dried fruits and nuts.

The Mediterranean Basin produces large quantities of fruits and nuts which compete with our products in both foreign and domestic markets. Timely official information on these crops is almost wholly lacking, while the few reports from trade sources on which reliance can be placed cover only a segment of the total production of the basin. In the two years since the representative has been stationed at Marseilles, the reporting service on these crops has been placed on a dependable basis. Through this service it has been possible to supply cooperative marketing associations on the Pacific coast and others with information needed in establishing opening prices for the season's crops. This service has also inaugurated regular monthly reports on durum wheat production in the Mediterranean Basin. France and Italy are the principal importers of durum wheat from the United States, and Italy and North African countries produce a large part of the durum wheat which competes with our product in these markets.

The increase in the demand in the Orient for American products, especially cotton and tobacco, has been great during the last two decades. However, very little authentic information, on the production of competing supplies or the demand for agricultural products there has been available. In the absence of reports by the Chinese Government and by trade agencies, there was special need for the development of a reporting service by a representative of this department. The pioneer work in this area has been completed, and basic surveys of the cotton, tobacco, wheat, and other agricultural industries of China and Japan have supplied the needed background for regular reports covering markets in the Orient.

Representatives of the foreign agricultural service were stationed in Australia, Argentina, and South Africa in the closing months of 1930. The agricultural output of the Temperate Zone of the Southern Hemisphere has increased markedly during the last 20 or 30 years, but the potentialities of such production have by no means been exhausted. In these countries the crops of major significance to American agriculture are wheat and other grains, wool, fruit, dairy products, and beef.

Wheat is the commodity of greatest interest to American producers. Both Argentina and Australia are among the world's leading wheat exporters. During the latter part of the wheat-marketing season, prices of wheat in the United States are influenced more by the outturn of the Southern Hemisphere crops than by any other one factor in the world wheat situation. In order to formulate a sound marketing program for the season as a whole, the American wheat grower must have early and dependable knowledge of Southern Hemisphere crop conditions. This information is now being provided by the bureau's

representatives in those countries. In 1931, for instance, the representative in Sydney indicated in July a probable decrease of 25 per cent in the Australian wheat acreage, and this early estimate was substantially confirmed by official reports more than two months later.

Wool exports from Australia, Argentina, New Zealand, and South Africa must be considered in appraising the wool-price situation in the United States. Distance and irregularity of trade and official reports have made it difficult in the past to keep abreast of the wool situation in the Southern Hemisphere. This difficulty has been overcome in large measure by having representatives stationed in those countries. In appraising the wool outlook in January, 1932, it was important to know what could be expected in the output of Australia. There was much uncertainty as to whether the prevailing extremely low prices would cause Australian growers to decrease their output. The bureau's representative made a special investigation of the Australian wool-production situation and reported that there was reason to believe that the next year or two would see wool production in Australia up to the average of recent years if not above. Recent reports on the 1932-33 clip tend to confirm this estimate.

In South Africa, wool, fruit, and tobacco are of particular interest. The bureau's representative in that country has completed basic investigations of the position of the agricultural industries of South Africa. These investigations show what may be expected in the next few years in the competition of South African products with American products in world markets. Special interest attaches to the developments in exports of fresh and dried fruit. No country has made greater progress in ocean transportation of soft fruits than has South Africa. The bureau's representative at Pretoria has made excellent progress in developing current reporting services on citrus fruit, dried fruit, grain, tobacco, wool, mohair, and beef cattle.

The current reports on crop and market conditions in foreign countries are cabled by the foreign representatives and are widely distributed in this country as a part of the bureau's extensive domestic market-reporting service. These basic data on competition and demand in foreign countries are woven into similar data on the domestic situation in order to present a world-wide review of the situation of several commodities. The development of this service has made it possible to keep currently abreast of significant developments in the foreign competition with which our producers must reckon, as well as developments in the foreign outlets for their products.

THE INSPECTION AND CERTIFICATION OF FARM PRODUCTS

One of the major activities of the bureau is developing and promoting the use of definite and uniform standards and grades of quality in marketing farm products. In a decade and a half, national standardization and certification of farm products have become integral parts of our agricultural marketing structure. The advantages of uniform and reasonably definite national standards over the maze of vague and conflicting local grades, standards, and brands are apparent, and producers, distributors, and consumers are recognizing to an increasing degree the benefits accruing from their use.

The value of national standards for farm products and their use in the merchandising of such products is revealed in the records of the inspection and certification service conducted by the bureau. The purposes of the inspection service are concrete and practical. It is a natural outgrowth of the development of uniform standards. It is through this service that the standards are subjected to the practical test of commercial transactions. Except on grain and cotton, the use of the standards formulated by the bureau is optional. Federal standards must be used for grain and cotton when these products are sold in interstate commerce by grade. In the case of all other commodities, the bureau formulates standards designed to meet the needs of the industry and recommends their use.

The purpose of the inspection and certification service of the bureau is to furnish a certificate which is evidence of the grade or condition of the products represented at the time of inspection. When buyer and seller are widely separated, the certificate provides a basis for contract and for settling disputes or misunderstandings over quality or condition. The value of such a certificate, based on an inspection made by a wholly disinterested person, is obvious. The use of the service is optional. The certificate is made only upon request of a financially interested party and fees are charged for the service. The service

has great educational value, as it amounts to a practical demonstration of the standards and how growers can improve their quality or pack to meet them.

Despite the general business decline, low prices, and losses generally, a steady demand for the service continued during the past year. It was first made available in a small way in 1918, when about 6,000 cars of fruits and vegetables were inspected in terminal markets. A few years later authority was provided to extend the service to shipping points and it is now available for these commodities in all parts of the country. Due to generally adverse business conditions and fewer car-lot shipments, the number of inspections of fruits and vegetables made in the past year declined for the first time in seven years. However, a total of 335,649 carloads was inspected, or about 30 per cent of the car-lot shipments of these commodities for the United States. Inspections were made in 350 receiving markets and at shipping points in cooperation with 44 States. In addition, 257,000 tons of tomatoes were inspected in 9 States, when delivered by growers to canning plants. This phase of the service is steadily growing. In the 1932 appropriation act, Congress extended the service to include canned fruits and vegetables and work in that field is now being organized. Two years earlier, the service was extended to include tobacco and is gradually being developed—approximately 134,000,000 pounds being graded during the past year, as compared with about 48,000,000 pounds in the preceding year.

In addition to fruits and vegetables the service covers meats, butter, eggs, cheese, poultry, hay, beans, soybeans, broomcorn, rice, tobacco, and the certification of origin or place where grown of alfalfa and clover seed. The inspection and certification work on grain and cotton, which is conducted under specific legislation, is covered in the discussion of the administration of the grain standards act and the cotton standards act.

For most of these commodities, the inspection and certification service is used in connection with wholesale transactions. So far as practicable, however, evidence of quality, as expressed in terms of standards, should be carried through to the consumer. This is being done in a limited way for meats and butter and eggs. The bureau's grading and stamping service for meats, begun in 1927, has grown steadily, on a fee basis. During the past year about 184,000,000 pounds were graded as compared with 104,000,000 pounds the preceding year. Carcasses are graded and stamped so as to show the consumer the grade of the product at the time of purchase. Evidence of the grade of more than 190,000,000 pounds of butter was available to the consumer at the time of purchase in the form of certificates of quality placed in the cartons at the time of packing.

For some commodities, the inspection and certification service of the bureau has become thoroughly integrated with the marketing process. It provides a basis for settling disputes over quality and condition and is the medium for interpreting official standards. The certificates issued are receivable in all courts of the United States as prima facie evidence of the truth of the statements made therein and are also accepted as prima facie evidence in hearings of complaints filed with the department under the perishable agricultural commodities act. It has become apparent that the standardization and inspection service is indispensable in the administration of that act and in the correction of abuses in the marketing of perishable agricultural products.

Numerous regulations have been put into effect in our most important European fruit markets in recent years which require special certificates before entry is permitted. With a fruit specialist on the ground qualified to make inspections it has been possible to secure the entry of numerous lots of American fruit which would otherwise have been refused. This work is supplemented by individual letters to growers and shippers of fruit in the United States describing the condition of their particular lots and making suggestions as to improved handling practices.

REGULATORY MEASURES AND ACTIVITIES

As economic life in the United States has become more complex, as the distance between producer and consumer has increased, and as the steps in distribution have multiplied, opportunities for misunderstandings and abuses have also increased. Difficulties of various kinds have developed to the point at which Congress has from time to time enacted legislation providing for the regulation of specific activities. The bureau administers a number of such measures, such as the United States grain standards act, the United States

cotton standards act, the United States cotton futures act, the United States warehouse act, the United States standard container and hamper acts, the perishable agricultural commodities act, and the produce agency act.

Some of these acts are mandatory; others are permissive. Certain provisions in all of them, however, place them in the class of regulatory measures. The bureau's attitude in their administration is one of service and education and not of rigid policing. The disciplinary provisions of all of these measures, however, are invoked when necessary to correct the abuses at which the legislation is directed.

THE UNITED STATES GRAIN STANDARDS ACT

In that part of this report dealing with standards for farm products, reference was made to the standards for grain. The authority for establishing standards for grain is found in the United States grain standards act which was passed in 1916. As Congress has made the standards established by this department under that act the official grain standards of the United States and required their use whenever grain is sold in interstate commerce by grade, the act is mandatory in character and therefore a regulatory measure. Its enactment was the result of conditions that obtained in the grain industry.

The enactment of State laws providing for grain grades and inspection preceded action by Congress by more than 30 years. The purpose of this act is to facilitate the merchandising and handling of grain in the channels of commerce. It is essentially a service statute, although mandatory in character. Prior to its enactment, grain moving in the channels of trade was subject to inspection under varying State laws and requirements. In addition to providing the authority to establish uniform standards, the United States grain standards act requires that grain sold, offered for sale, or consigned for sale by grade in interstate commerce shall be inspected when moving from or to points at which an inspector licensed under this act is located.

The law requires that the original inspection shall be made by inspectors licensed by the Secretary of Agriculture. There are 442 such licensed inspectors, mostly employed by States and boards of trade. These inspectors are located at 164 inspection points in 33 States. All grain sold on grade in interstate commerce is therefore inspected under a single set of Federal standards. To-day this country and Canada are the only grain-export countries in the world whose citizens can sell grain in foreign commerce on the basis of a "certificate final."

Although the original inspections are made by persons licensed by the department, the act contemplates that the work of the licensed inspector shall be carefully supervised by this department, and the Secretary of Agriculture is authorized to suspend or revoke the licenses of inspectors upon a showing of incompetency or for certain other causes enumerated in the act. Constant supervision of the work of licensees is required and, during the past year, the bureau's supervisors, located in 45 field offices, graded nearly 205,000 samples of grain which had previously been inspected by licensed inspectors.

In addition to authorizing this supervisory work, the act provides that appeals from the findings of licensed inspectors may be taken to this department and that the grade, as determined by the department, shall be final. During the last fiscal year, 75,947 such appeals were handled as against 86,608 the year before. While the number of appeals handled last year was smaller, the amount of grain represented by them was larger. Federal-appeal certificates were requested in connection with several large export transactions. For example, 967 appeals represented 80,000,000 bushels of grain. The findings of the licensed inspectors were sustained in 84 per cent of the appeals. Fees collected from appeals are returned to the Federal Treasury.

The Federal grain standards and certification service provided by the grain standards act have now become so well established as to form an integral part of the grain-marketing system of the United States. The grades form the basis of futures contracts and play an important part in financial and warehousing operations. Federal-appeal certification on export shipments during the past year was used to a greater extent than ever before and reports from foreign countries indicate a general satisfaction with the quality of United States grain moving under Federal certification. The act is administered as a service to the grain industry and in only a relatively small number of cases it is necessary to take disciplinary action either against licensed inspectors or against shippers for violations of the act.

THE UNITED STATES COTTON FUTURES ACT

In 1914 Congress first enacted the United States cotton futures act. This was reenacted in 1916. Its essential purpose is to require the classification, according to fixed and uniform standards, of cotton delivered in settlement of futures contracts; to require that the price differentials at which cotton above and below the basis grade might be delivered shall be the actual commercial differences prevailing in the spot-cotton markets; to prevent the delivery of inferior or unmerchantable cotton; and to prohibit delays in the fulfillment of contracts by delivery beyond the month of maturity.

The public, especially that part of it whose fortunes are in any way associated with cotton prices, is interested in the futures markets in four major respects. It wants the prices, registered and quoted in these markets, to result from a fair and unobstructed interplay of world forces of supply and demand so that they may be accepted as trustworthy indices of spot cotton values. It wants a sufficiently constant parity maintained between the prices of future contracts and of spot cotton that the futures markets will afford reasonable hedge protection to holders of spot cotton against losses from price fluctuations. It wants this hedge protection to make possible a narrowing of marketing costs by reducing the risks of ownership and increasing the safety of credit available to marketing agencies and to increase the ease with which cotton can be exchanged for cash. Finally, it wants a market which will distribute the weight of the supply to the shoulders of those throughout the world who are willing to help in carrying it, and which will absorb the impact of the crop in the months of heavy movement and spread it over an entire year.

For many years before the cotton futures act was passed, cotton growers had been dissatisfied with the price-making machinery of their markets. Over considerable periods prices in futures markets were below the prices of spot cotton in the principal central spot markets, a condition generally considered harmful to the interests of cotton growers.

Investigation by the Government showed that the discounts on futures contracts were due to a number of causes, each of which tended to make the use of futures contracts undesirable to the buying parties. Among these conditions were:

(1) The multiplicity of standards and classifications which made the buyer uncertain of the quality and value of the cotton which he was obligated to receive, and consequently inclined him to close out his contracts by sale before maturity rather than to accept delivery; (2) a system of fixed price differences between the value of the basis grade and the values of other grades which might be delivered to him in settlement of his contract, a provision that was found at times to obligate buyers to receive grades other than the basis grade at discounts or premiums out of line with those with which the cotton could be merchandised, with the consequence that buyers would sell out their contracts, discounting the basis price, rather than take delivery of other grades thus overvalued; (3) the possibility that under the rules of the exchanges, a buyer might find himself obligated to receive on futures contracts cotton of low grade or inferior quality which could not in turn be readily merchandised; (4) the so-called *pro forma* delivery, under which sellers, obligated to deliver cotton in a particular month, might delay for a considerable period of time the actual delivery of the cotton, although the buyer had been forced to pay for it at the time fixed for delivery.

The duties essential to the administration of the legislation are of three kinds: The establishment of standards of classification and the preparation and distribution of practical forms or copies of the standards for the use of the public; the designation of the bona fide spot-cotton markets and the supervision of their quotations; and the classification and certification of cotton intended for delivery in settlement of contracts. Fees are collected for services rendered under this act.

In discharging these responsibilities, the bureau has diligently addressed itself to the attendant problems falling within the scope of its authority. Classification service has been provided at all futures-contract delivery points and careful supervision has been maintained over the sampling and storage of certificated stocks.

While the cotton futures act has operated satisfactorily to correct such specific conditions as the lack of standards, the use of fixed differences, and the delivery of cotton of unmerchantable qualities, and over the period of its existence has tended to hold futures prices higher in relation to central-market spot prices than before, the legislation can not be said to have been wholly

successful in maintaining the degree of constancy in the spot and future price parities essential to the greatest usefulness of the futures markets. An increasing dissatisfaction with the hedging facilities of the futures markets as a result of recurrent wide fluctuations in the future and spot-price parities was evident in the 10 years following the World War. It was concluded that these fluctuations were due in large part to the making and receiving of New York contract deliveries in the port of New York, a point no longer in the line of normal movement of the crop. Naming other delivery points from among possible alternatives offered a difficult problem, but after long consideration the exchange voluntarily amended its contract to permit deliveries to be made at seven widely separated seaports of the cotton-producing States.

Forces influencing the markets since that amendment was made have made it impossible to form satisfactory conclusions on the effectiveness of the southern delivery measure, taken by itself, or of the possibility of bringing about satisfactory futures-market conditions solely through measures dealing with the terms of futures contracts, unless, as in the case of the grain-futures markets, there is authority at the same time to obtain reliable information on the trading operations carried on in the futures markets. This question has been brought to the fore particularly during the past year by the widespread discussion of cotton prices, which from 1929 trended slightly downward, reaching desperately low levels in the past season. While the price debacle is associated in great part with the world-wide financial and industrial depression, the question has been raised whether short selling may at times have accentuated the decline and helped to disintegrate confidence in values. The cotton futures act gives no authority to obtain information sufficiently complete to answer this question.

THE UNITED STATES COTTON STANDARDS ACT

Although the United States cotton futures act provided authority for establishing fixed and uniform standards for the commercial classification of cotton, its provisions did not go far enough to bring about a wide application of these standards. For many years before its passage, there had been an obvious need both for a single series of standards and for the application of these standards in market transactions all the way from the grower to the manufacturer. Numerous schemes and systems of classification existed, all using to a greater or lesser degree the same nomenclature and terminology but with different meanings.

Because of the importance of the American export markets, classification of cotton in the United States was affected to a considerable extent by the systems in use in other countries. For example, the Liverpool market had a series of standards for cotton shipped from Atlantic coast ports different from that used for cotton shipped from Texas ports, each of which in turn differed from the series used for cotton shipped from New Orleans and Mobile. Most, if not all, of the overseas markets for cotton gave their own special meanings to the terms commonly used for the description of staple length. Under pressure of competition, American exporters naturally endeavored to accommodate the wishes of their overseas customers and, in turn, sought frequently to buy cotton in domestic markets with which to fill their foreign orders, employing the descriptions and meanings of the foreign markets. Confusion and misunderstandings in the markets frequently resulted. The position of the cotton grower, however, was even less satisfactory. Rarely did the prices which he received for his cotton correspond closely with its quality. As a rule, growers' cotton of whatever quality was bought in a given market on a given day at a flat price representing roughly the average value of all qualities sold in the market on that day. The producer of good cotton seldom received more than the producer of inferior cotton. Thus not only did the lack of standards and the failure to recognize quality in the primary markets do palpable injustice to the producer of superior cotton and unfairly reward the grower of inferior cotton, but in so doing it also tended definitely to discourage producers who sought to improve the quality or to prevent its deterioration. Even at that time the danger of such methods of buying and the lack of standard classification to the general quality level, which had commended American cotton to the spinners of the world, began to be realized. It was obviously impossible, however, to deal with the agricultural aspects of the problem without the cooperation of the distributing and consuming agencies throughout the world.

These conditions were continuing to prevail in 1923 when Congress passed the United States cotton standards act, which in effect requires that whenever American cotton sold, shipped, or quoted in interstate or foreign commerce is

described according to any standard or system of classification, the official cotton standards of the United States shall be used. To aid the public in its use of the official cotton standards, the act goes further and makes it the privilege of the owner or holder of the cotton to submit it to the Department of Agriculture and to obtain a certificate of the true classification of the cotton in accordance with the official standards. Further to extend the facilities of the act and to make it possible for cotton growers and the marketing public to know upon what cotton classers they may depend for a classification of cotton in accordance with the standards and to obtain certificates of classification, the act authorized the licensing of cotton classers not in Government employ, upon examination and a sufficient showing of competence.

Following the approval of the cotton standards act in 1923, the leading cotton exchanges and associations of Europe adopted the universal standards for grade and color as the basis for all their contracts in which grades are specified for the purchase and sale of American cotton. At the same time agreements were entered into between the Department of Agriculture and these exchanges and associations to provide for the use of standards in foreign commerce. These agreements are still in effect, and the universal standards are to-day more widely used than ever before. In fact, these standards as well as the staple types and other official standards which are not covered by the universal standards agreements are now in use throughout the world wherever American cotton is bought and sold.

The standards now in effect embrace 37 grades and colors of upland cotton, 5 grades and 4 half grades of American Egyptian, 20 staple-length types for American upland cotton and 4 for American Egyptian, 9 tentative standard boxes for the preparation of upland long-staple cotton, and 7 grades of American cotton linters. These standards cover the range of grade and staple ordinarily found in the American crop. Most of them are represented by practical forms, 2,847 boxes illustrative of grades and 6,829 staple-length types being prepared and sold by the bureau in the past fiscal year.

The licensing provision has been found by a number of the cotton cooperative associations to be useful to them in establishing the fairness of the classification upon which settlements are made with their members, and about 140 licensees are now employed by the associations. The total number of licensed classers increased from 56 in 1928 to 259 in 1931-32, with a considerable number of new applications receiving attention at the close of the season. Present holders of licenses are employed at widely distributed points throughout the cotton-growing States and in manufacturing centers. Approximately 3,500,000 bales of the 1931 crop were graded and stapled by them.

The extent to which reliance has come to be placed both in the certificates of the department and in the work of licensed classers has given importance to the problem of supervision. To meet this problem and to coordinate and maintain as high a degree of uniformity of classification as possible throughout the service, a board of supervising cotton examiners was established at Memphis, Tenn., in 1930. This board endeavors to carry into the field a uniform application of the official standards and to supervise all classification work performed by the various boards, committees, and licensees working under both the cotton standards act and the cotton futures act as well as the classing committees employed in connection with the estimates of grade and staple. The results of closer supervision have been effective, and uniformity and consistency of classification of a satisfactory character have been generally obtained.

THE UNITED STATES WAREHOUSE ACT

The warehouse act was passed in August, 1916, to aid producers and merchandisers of agricultural products in borrowing on such products. Because of inadequate storage facilities at home and the frequent inability to move the products to market when desirable, it was the custom of many farmers to store their products in public warehouses. However, because of the frequent losses in public warehouses many others did not so store their products. Furthermore, because of the financial standing of many warehousemen, the kind of buildings used, the methods of storage practiced, and the character of warehouse receipt issued, farmers and merchandisers were limited to local banking facilities. Such bankers loaned largely on their regard for the borrower. Invariably the local bank's ability to loan was limited. Its funds were soon exhausted. Its capacity to borrow from metropolitan banks was restricted because it had little collateral that would be acceptable to correspondents or to Federal Reserve banks. Sometimes, even if warehouse receipts were offered as

collateral, they were not acceptable because of the form of the receipts, the limited liability assumed by the warehouseman, and the lack of information available to the distant bank on the responsibility of the warehouseman. The United States warehouse act aimed to correct these conditions by authorizing the Secretary of Agriculture to license warehousemen whom he considered responsible, by directing him to prescribe certain standards and make regulations governing licensed warehousemen, by prescribing the form of warehouse receipt that that should be issued, and by supervising the operation of licensed warehouses. In short, the warehouse act aimed to make it possible for agricultural producers to tap the reservoirs of credit in the financial centers. This is accomplished by requiring the issuance of a warehouse receipt that will command the confidence of rediscounting banks. During the past 10 years metropolitan bankers have been seeking such loans.

That the act is meeting a need is indicated by Table 1.

TABLE 1.—Number and capacities of licensed warehouses, by commodities, April 1, 1920, and October 10, 1932

Commodity	April 1, 1920		October 10, 1932	
	Licensed warehouses	Licensed capacity	Licensed warehouses	Licensed capacity
	<i>Number</i>		<i>Number</i>	
Cotton.....	23	43,250 bales.....	389	5,289,367 bales.
Grain.....	5	146,000 bushels.....	383	86,099,495 bushels.
Wool.....			14	23,348,280 pounds.
Tobacco.....			26	281,253,000 pounds.
Nuts.....			9	11,635 tons.
Broomcorn.....			1	4,000 bales.
Dry beans.....			14	1,017,951 hundredweight.
Sirup.....			6	614,000 gallons.
Dried fruit.....			6	10,811,000 pounds.
Canned foods.....			68	3,733,500 cases.
Cottonseed.....			6	3,890 tons.
Cold-packed fruit.....			5	7,737,000 pounds.
Seeds.....			11	710,080 hundredweight.
Cherries in brine.....			1	2,125,000 pounds.

When the act was first passed it applied only to cotton, grain, wool, and tobacco. The additional commodities appearing in Table 1 were added to meet demands from producers, distributors, and bankers. Congress recognized these demands by amending the act in 1923 so as to authorize the Secretary to add additional products from time to time.

In the agricultural crisis of 1921-22 the warehouse act was especially useful. Bankers recognized in the Federal warehouse receipt a new type of collateral. Individual growers, growers' organizations, and merchandisers of agricultural products who sought loans were advised to secure Federal warehouse receipts. During this period such receipts supported loans aggregating hundreds of millions of dollars. In the present depression the Federal warehouse receipt is being used to an even greater degree. It has enabled local banks to avail themselves of private and governmental rediscounting facilities.

The warehouse receipt has also led to reduced interest charges in all sections of the country. Where rates of 8 and 10 per cent were previously not uncommon, loans secured by Federal warehouse receipts have been obtained at from $4\frac{1}{2}$ to 6 per cent. Growers' cooperative associations and handlers of agricultural products who had been paying 5 and 6 per cent for money have been able to finance themselves on an acceptance basis at rates as low as $1\frac{1}{8}$ and $2\frac{1}{8}$ per cent.

STANDARD CONTAINER ACTS

The bureau is responsible for the administration of two acts regulating the use of containers in marketing fruits and vegetables. The act of August 31, 1916, standardizes the dimensions for the 2, 4, and 12 quart Climax baskets and provides that the standard basket or other container of small fruits, berries, and vegetables shall be the dry $\frac{1}{2}$ -quart, or multiple of the dry quart. The act of May 21, 1928, provides that the standard sizes for hampers and round stave baskets, including straight-side baskets, shall be $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, and 1 bushel; $1\frac{1}{4}$, $1\frac{1}{2}$, and 2 bushels; and for splint baskets, 4, 8, 12, 16, 24, and 32 quarts.

The main objectives of these two acts are: (1) To afford protection to the buying public by outlawing short-measure containers; (2) to reduce the cost of manufacturing containers by eliminating numerous odd sizes and shapes; and (3) to facilitate the handling of packed containers in transit and storage by standardizing dimensions. They also provide standard units of sale which make market reports applicable and intelligible throughout the country.

The bureau's enforcement of these acts has reduced the number of sizes of berry boxes from approximately 18 to 3, till baskets from 30 to 5, Climax baskets from 31 to 3, hampers from 42 to 9, splint baskets from 25 to 6, and round-stave baskets from 20 to 9. The fruit and vegetable markets are no longer burdened with a multiplicity of odd sizes and shapes of containers which led to confusion and deception before the passage of these acts.

The work of administration consists primarily of checking specifications submitted for approval by manufacturers as required by the act of 1928. This requirement makes it mandatory for the manufacturer to give some study to the dimensions of his container, to make some decision as to what dimensions he will use, and to adhere to the dimensions approved by the Secretary of Agriculture, unless change is authorized. The second important task in administering these acts is testing containers to bring about a compliance with these laws. During the last fiscal year 10,968 containers were tested by the bureau for capacity. Of this number 6,846 were tested under the act of 1916 and 4,041 under the 1928 act and 81 were of the miscellaneous type. In addition, 5,492 containers were measured.

The rapid expansion of the fruit and vegetable industry in the last decade has made these acts of increasing importance. There is intense competition in the manufacture of containers, production having about doubled since 1920. At the close of the year there were 807 manufacturers located in 33 States. Most of them make several sizes of each type of container and some make several styles of the same type. This competition results in much experimentation with new designs. This requires consultation with manufacturers, tests, and vigilance to prevent the manufacture of deceptive containers and illegal sizes.

In general the cooperation of manufacturers with the bureau has been good. Relatively few prosecutions have been necessary. There were no new prosecutions during the last year. Three cases filed were withdrawn as the manufacturer agreed to conform to the law. Two convictions were obtained in cases filed in the preceding year.

THE PRODUCE AGENCY ACT AND THE PERISHABLE AGRICULTURAL COMMODITIES ACT

The produce agency act was passed in March, 1927. Its purpose was to provide penalties for some unlawful practices in connection with the interstate handling of certain perishable agricultural commodities. It makes it a misdemeanor punishable by fine and imprisonment for agents of growers or shippers to fail truly and correctly to account for the products which they handle; to make false and misleading statements concerning the quantity, quality, condition of the market for, or disposition of the products received by them; or without sufficient cause, to dump or destroy any products in their custody. The act applies only to agency transactions.

In five years the act has been helpful in correcting these abuses. During the last fiscal year 189 complaints were received alleging violation of this act, as compared with 296 during the previous fiscal year. Some complaints which could be made the basis of prosecution under this act are now more expeditiously and effectively handled under the more recently enacted perishable agricultural commodities act. The more aggravated cases are prosecuted in the Federal courts. Seventeen convictions were obtained during the past fiscal year and sixteen during the preceding year.

The enforcement of this act is handled concurrently with that of the perishable agricultural commodities act. Investigations of complaints under both acts are handled by the same men on the same official trips. In actual practice the produce agency act is now a valuable adjunct to the perishable agricultural commodities act and has a salutary effect on the practices of the trade since it provides the severer penalties of fine and imprisonment for those aggravated cases in which adequate punishment can not be meted out by this department under the perishable agricultural commodities act. Furthermore, the produce agency act is the only means of inflicting proper penalties for violations of trust in handling poultry products and other perishable farm products aside from fruits and vegetables.

Largely at the instigation of the industry itself, Congress in June, 1930, enacted the perishable agricultural commodities act. The demand for this legislation arose from the fact that other laws governing contracts of purchase and sale and the discharge of agency obligations did not effectively restrain certain dishonest tendencies and practices that were developing in the fruit and vegetable industries. These were: The rejection of purchased goods without reasonable cause and to the great injury of the distant shipper; the failure to deliver without reasonable cause in accordance with the terms of the contract, especially when market prices had advanced after the date of the contract; failure to account truly and promptly for goods handled on commission; giving false and misleading information as to the quantity, quality, disposition, or the price obtained for goods received; and the failure to keep adequate records fully to disclose the facts as to all these transactions.

Under this act those who receive fresh fruits and vegetables on consignment in interstate commerce in any quantity, and those who buy or sell these products in interstate commerce in carload quantities, including retailers who buy 20 or more carload lots per year, are required to obtain licenses from the Secretary of Agriculture which are renewable annually at a fee of \$10 per year. A civil penalty is provided for conducting such a business without a license. The Secretary of Agriculture may, upon complaint and after the facts have been determined at a public hearing, suspend for not more than 90 days, and in flagrant cases may revoke, any license upon a showing of sufficient cause. The Secretary may issue reparation orders in favor of the injured parties for such amounts as he shall find that they have suffered through violations of the act. At the close of the last fiscal year 15,327 commission merchants, dealers, or brokers were licensed under the act, and the license fees collected have wholly met the costs of administering the act to date.

The industry has shown a growing inclination to avail itself of the provisions of this act. During the past year an average of 48 complaints a week, or a total of 2,482, were received—an increase of 62 per cent over the previous year. Each complaint requires investigation either to effect an amicable settlement or to determine whether the merits of the complaint warrant a public hearing and, if so, whether a decision should involve only monetary reparation or whether disciplinary action should result. Of the complaints filed, 52 per cent alleged failure truly and correctly to account either on consignments or for the purchase price; 33 per cent alleged rejection without reasonable cause; and 13 per cent alleged failure to deliver in accordance with the terms of sale.

Of the total of 4,009 complaints received during the two years this act has been in effect, 2,977 have been closed, leaving 1,032 cases to receive further consideration. Amicable settlement has been reached in about one-fourth of the cases closed. Another one-fourth of the complaints were dropped because the complainants failed to furnish any evidence or take such further steps as were necessary to complete the case. In about 40 per cent of the cases there were insufficient grounds for complaint. Cases requiring formal action materialized from only about 16 per cent of the complaints filed. Hearings have been held in 176 cases during the closing year as compared with only 13 in the previous year, and 80 decisions have been rendered by the Secretary as compared with 4 during the preceding fiscal year.

In view of the large number of complaints received, the bureau endeavors to effect their settlement by informal procedure and, in cooperation with the solicitor of the department, is constantly trying to shorten and simplify the handling of those complaints which require formal proceedings. Only such procedure is required as is necessary to protect the rights of all parties and provide an opportunity for a determination of all the facts. All decisions, findings, or orders of the Secretary of Agriculture under this act are reviewable by the courts and therefore must be based upon as complete a record of the facts as can be obtained. During the past year the regulations for enforcing the act were amended to provide definitions of trade terms to apply to the construction of contracts of sale of fresh fruits and vegetables under the act when not otherwise defined, and to provide a shortened procedure for handling complaints on waiver or formal hearing by both parties concerned where the damage claimed does not exceed \$2,000.

There are indications that the act is having a wholesome influence throughout the fresh-fruit and vegetable industry. The prompt settlement of complaints by informal action has been helpful and appreciated. There are indications that rejections without reasonable cause have been reduced because of the remedies afforded shippers by this act. It is apparent that more care is being used in the wording of contracts and that many disputes are being settled by

the parties themselves in accordance with the precedents already established by the decisions or findings of the department in like cases. The bureau's experience thus far, however, has disclosed certain weaknesses in the act itself. No penalty is provided for a licensee who ignores a reparation order of the Secretary of Agriculture. It merely provides that the Secretary's order shall be considered as prima facie evidence and the holder thereof must collect through civil action in the courts. There are many who believe that the act should be strengthened in this respect and that the Secretary of Agriculture should be given authority to enforce his reparation orders. The act now provides that civil proceedings may be instituted against persons whose business is subject to the act but who fail or refuse to obtain licenses from the department. A more direct and simple procedure for handling such violations is needed.

ECONOMIC RESEARCH IN THE PRODUCTION OF FARM PRODUCTS AND IN RELATED PROBLEMS

Economic research underlies all services of the bureau. Without research it would be impossible to adequately estimate the production of crops and livestock, to standardize and certify the quality and condition of farm products, to effectively administer regulatory measures, to supply the information needed by producers and distributors in planning their production and marketing, and to assist consumers in the purchase and use of farm products. Without research the required facts would not be available for formulating National and State policies and measuring their influence upon agriculture and in bringing about helpful readjustments.

ADEQUACY AND ACCURACY OF CURRENT FACTS COLLECTED

It is no simple matter to collect accurate and dependable facts. Limitations of time and resources prevent a complete enumeration, and current reports therefore must be made on the basis of sample data. Increasing emphasis has been placed on the development of improved technic in reporting current facts. The purpose of the bureau's research in this field is to determine what items of information have most value, the frequency with which they should be reported, and the manner in which they can be reported most accurately. The value of this work is indicated by the increased accuracy with which it is now possible to estimate the current cotton crop. As a result of intensive studies covering the effect of boll-weevil damage on cotton yields it has been possible early in the season to forecast with relatively great accuracy the final outturn of the crop. Studies of the relation between climatic conditions and yield have provided a new technic for satisfactorily estimating, early in the season, the outturn of the potato crop. Similar studies have made it possible to provide, early in the season, new items of current information such as the probable average size of apples grown in certain producing areas. Much effort has been placed, in recent years, on rounding out the current statistical services for various commodities.

Much the same type of research underlies the market-news service reports. Price quotations in particular must be based upon sample data. Because of changes in the distributing machinery and shifts in the movement of commodities it has become increasingly difficult to obtain adequate sample data, and continuous research is therefore required in order to assure relative accuracy in the reporting of markets. The growing tendency to move products to market by motor truck has multiplied the problems considerably. Investigations, however, have made it possible now to report the truck receipts for certain markets with satisfactory results.

Estimating the grade and staple of the cotton carry-over as well as of the current crop presents similar difficulties. The size and the distribution of the sample may have a material bearing on the accuracy of the estimate. Much study also is given to methods of collecting, currently, information on items of operating costs, taxes, mortgages, debt, credit, and similar facts. In general it may be said that investigations of this nature have resulted in gradually strengthening the current economic-information services of the bureau.

STATISTICAL ANALYSIS

The large body of current data available, while helpful in itself, assumes its greatest value when adequately interpreted. Statistics alone may confuse, but when carefully analyzed they help in formulating intelligent plans of action

and policies. Analysis and interpretation, therefore, must be provided by a public-service institution.

Large drafts are made upon the great reservoir of current and historical data built up in the bureau to meet the continuous demands for analysis of special situations. In short, the service research activities of the bureau have assumed large proportions and levy heavily upon its personnel and resources. They are activities, however, which minister to a wide range of interests.

Of equally great value is the more intensive research devoted to special problems. Long-time series of data, frequently presented in the form of index numbers, are being developed and improved as quickly as possible to indicate significant trends and to provide materials for further research.

Farm income revolves around price. Much effort, therefore, has been expended in measuring the influences that determine the course of prices. Demand conditions influence prices, and the basic factors that shape the course of business activity and consumer buying power are being studied. From these studies it was possible in 1929 to warn farmers of an impending depression in domestic demand conditions. In fact the bureau was among the first to foresee the impending collapse and to direct the attention of farmers and agricultural institutions to that prospect and thus provided producers with information for use in adjusting their plans.

Another powerful influence affecting price is supply. While climatic and other conditions over which farmers have no control exert a material influence upon prices, acreages planted and livestock bred have also a material influence. The bureau's studies throw considerable light on farmers' response to price and other influences upon their programs of production. Trends in production in the United States, as well as in competing countries, and the factors influencing those trends, are being carefully examined to determine the prospective output of agricultural supplies and their effect upon prices.

Price analysis is the very foundation of the bureau's outlook reports. In preparing these reports the bureau mobilizes its entire research staff to interpret all available current and historical data to indicate probable trends in supplies, demand, and price. This work has been pushed with vigor during the past year. The purpose of these reports is to assist producers in adjusting their production and marketing to probable future rather than past conditions. Initiated in 1923, the outlook-report service has now expanded to include all important agricultural products. During the year considerable progress has been made in organizing the presentation of this service throughout the country. A small economic-extension unit has been located in the bureau by the Extension Service, which unit largely devotes itself to the efficient dissemination of this service. During the year regional outlook meetings were held in the far West, South, Corn Belt, and in the Northeast, in cooperation with the State agricultural colleges. These meetings were in the nature of training schools for extension men and economic workers and have led to a more effective spreading of this important information. This whole outlook program is regarded as one of the most important and practical undertakings in economic education ever made. It is being rapidly supplemented by the State colleges and it is the bureau's purpose to contribute everything possible to further it. While this work is essentially educational and is not spectacular, it is difficult to conceive of any more sound, democratic, and ultimately effective means of keeping agricultural production in this country in reasonably profitable adjustment to market requirements.

FARM CREDIT, TAXATION, AND INSURANCE

With the collapse of the rural-credit structure in many sections of the country, research in that field has assumed great importance. Such research is conducted to determine the credit needs of farmers practicing various systems of agriculture, the risks and various factors of costs involved in satisfying these needs, the practices and policies of institutions that finance producers, and the causes of failure among rural-credit institutions.

SHORT-TERM AND INTERMEDIATE FARM CREDIT

A comparative study of banks in Iowa and on the Eastern Shore of Virginia reveals, for example, the extreme differences in country banking practice, which are necessitated by the various systems of agricultural production. Iowa agriculture combines crop and livestock production in a manner that distributes both expense and income throughout the year, so that Iowa farmers have sufficient current income to meet a large part of their expense of production.

The Eastern Shore of Virginia specializes in the production of early potatoes and a few other perishables. This type of agriculture requires heavy outlays for materials and labor before the short marketing season when virtually the producer's whole income is received. Such producers must either accumulate large amounts of cash before production begins or borrow extensively to meet production expenses. As a result Iowa banks have relatively small demands for production credit as compared with Eastern Shore banks and can use a large part of their funds for intermediate and long-term advances. Moreover the deposits of Iowa banks show small seasonal variations, while in Eastern Shore banks the deposits have a wide seasonal sweep. This makes it necessary for Eastern Shore banks to maintain a position of much greater liquidity than is needed by Iowa banks to give the same protection to depositors and equally good service to farmer borrowers.

Until last year bank failures were almost exclusively a country-bank problem. To the end of 1930 about 60 per cent of the suspended banks were located in towns of less than 1,000 population and about 80 per cent in towns of less than 2,500 population. Only 6 per cent were in cities of 25,000 population or more. Most of the suspended banks, furthermore, have been located in agricultural districts. Although agricultural depression is perhaps the first cause of bank failures, it is becoming evident that the loan policies of country banks have not been well adapted to the character of their liabilities.

It is yet too early for the results of this type of research to yield the fullest value. Further work must be done before it can be determined how far the information now at hand is applicable to other regions and what specific problems are yet undiscovered. But this type of analysis is fundamental to any well-developed system of banking reform and promises to yield the type of information which will serve as a basis for improvement in both legislation and practice.

Since 1920 about 8,000 banks serving small agricultural communities have failed, thereby seriously restricting the credit facilities of farmers. Moreover, solvent country banks have suffered severe declines in their deposits during the last three years and this has added further to the demoralization of farm-credit facilities.

To fill the gap created by bank failures and declining deposits in solvent banks a large number of credit corporations and livestock-loan companies have been organized. More than 400 of these institutions are now in operation, transferring funds supplied by the Federal intermediate credit banks to farmers and livestock producers. The number of such corporations has been greatly increased in the last two years.

Since the establishment of the Federal intermediate credit banks in 1923 many of the corporations which have been organized to take advantage of the rediscount privileges offered by these banks have failed. The high mortality rate has been due in large measure to agricultural difficulties but, in addition, there have been other important sources of trouble, such as unfamiliarity of managements with sound operating principles, and practical limitations fixed by law and regulation.

From studies already made it appears that those who finance crop production are at a great disadvantage compared with those engaged in livestock financing. On a given capital stock the livestock-loan companies can rediscount a larger volume of loans at Federal intermediate credit banks than can crop-financing corporations and their business is subject to less fluctuation from seasonal influences. Moreover their loans are of larger average size and the risks of conducting business are smaller. Since both types of organization operate under a 3 per cent spread or interest margin, it is obvious that corporations financing crop production are in an unfavorable position as compared with livestock-loan companies.

In fact there is very serious question whether the regulations governing the interest charges of corporations financing crop production are well adapted to the conditions under which they must operate. Our studies of corporations affiliated with cotton cooperative marketing associations show that generally these organizations have had very doubtful success. In view of the large number of credit corporations established in recent years and their importance as a source of farm credit a further study of their problems is of first importance. It is rendered all the more important by the fact that the Reconstruction Finance Corporation is now charged with the organization of regional agricultural corporations which will operate on a large scale.

FARM-MORTGAGE CREDIT

Dependable data on the volume and trend of farm-mortgage credit and their relation to land value are provided. Information on volume, sources, costs, and conditions of loans is currently supplied.

Approximately 60 per cent of the farms of the country are free from mortgage, as indicated by the 1930 census data for owner-operated farms and by the bureau's investigations of debt frequency on other farms. A recent survey shows that as of January 1, 1932, 25.4 per cent of the mortgaged farms were mortgaged from 1 to 25 per cent of their value; 37.9 per cent, for between 25 per cent and 50 per cent of their value; 21 per cent, for between 50 per cent and 75 per cent of their value; 10.7 per cent, for between 75 per cent and 100 per cent of their value; and 5 per cent were mortgaged for more than 100 per cent of their value. The above distribution is essentially the same as that reported for earlier years, despite intervening changes in the value of farm real estate. This study has been helpful in correcting erroneous impressions regarding the indebtedness of agriculture.

A further study of farm-mortgage loans by life-insurance companies shows that the volume of new funds currently invested in farm mortgages had declined to only one-third of the amount so invested in 1928. However, a comparison of farm-mortgage investments with total investments indicated that the percentage had changed but little. In other words the decline was due to a reduction in total funds available, caused by the depression, and did not reflect discrimination against agricultural loans.

The bureau's current reports on operations of mortgage bankers have further indicated that terms of mortgages are being adjusted to facilitate handling such obligations under the more difficult conditions that have prevailed in recent years. There was also a pronounced increase in the proportion of loans made with some provision for payment on the principal during the life of the loan. more than half of the loans reported providing for payments prior to the expiration of the loans.

FARM TAXATION

One of the most serious problems facing agriculture to-day is the farm-tax situation. During the past year farm-tax research has been organized in an effort to discover the amount and trend of farm taxes since 1913 for each State, for groups of States, and for the United States as a whole; the reasons for increased taxes since 1913; the possibility of farm-tax reduction through changes in the revenue system and by reorganization of local government in rural areas.

After ascertaining the amounts and trend of farm taxes, the influence of State revenue systems on farm taxes in individual States will be studied. The purpose of such a study is to provide a part of the information needed for determining the possibilities of farm-tax reduction through revision of the public-revenue system. This study, furthermore, contemplates more detailed analysis of the amount and trend of farm taxes according to tax-levying jurisdictions, both since 1913 and for a longer period. Special attention as to the effect of farm taxes on land use and the effects of such improvements as irrigation and drainage upon farm taxes, is also needed.

FARM INSURANCE

The hazards in agriculture are numerous and insurance should be provided wherever possible. The researches of the bureau have done much to place mutual fire insurance on a thoroughly sound basis. At the present time nearly 2,000 farmers' mutual fire-insurance companies are carrying risks of \$11,378,732,000. In fact there is probably no better illustration of successful cooperation in this country than is provided by these companies. The depression, however, has brought them increased difficulties in hazards and in the collection of customary charges. The researches, therefore, have been directed at such problems as the inspection and classification of risks, adequate safeguards against the moral hazards, and well-considered application and policy forms. Through better inspection and careful appraisal of property and insistence upon reasonable standards for risks accepted, many companies are removing needless fire hazards from insured farm property. Such improvement in risks is further encouraged by a classification of insured property with rates adjusted to the probability of loss. Classification of farm fire risks as recommended by the bureau also give a more equitable distribution of insurance costs. It is estimated that if all of the existing farmers' mutual fire-insurance companies

could be persuaded to apply suitable safeguards and other proper inducements toward the prevention of losses the relatively low average cost of insurance in these companies on the total farm property in the country that they now insure might well be further reduced by \$10,000,000 or more annually.

Similar studies of farmers' mutual cooperative livestock insurance, automobile insurance, and employers' liability insurance for farmers, are in progress.

FARM MANAGEMENT AND FARM PRACTICE

In research in farm management and costs the bureau attempts to find ways and means of making farming more successful. In doing this, it studies the internal financial and technical organization of farms, farm practices and efficiency, and farm costs. It also studies the external factors affecting the medium in which the individual farmer carries on his business.

The bureau goes directly to the farmer's problem of determining what combination of crops and livestock and what methods of production will provide the best use of his farm, his equipment, his labor, and his management. It studies not only the physical but the financial organization of individual farms through information gathered directly from farmers.

During the past year the bureau pursued farm-organization projects in various parts of the United States in cooperation with about 30 States. The work yielded important information and conclusions. For example, in a study of the Twin Falls irrigation project in Idaho it was determined that under the price conditions existing up to 1930 farmers who were specializing in the production of beans were making more money than those specializing in sugar beets. It was found also that with small exception the production of intensive crops was more profitable than specialization on livestock. With the recent change in the price situation, sugar-beet prices receded less than did those of other farm commodities, which gives beet growing a present advantage over the other intensive crop enterprises.

In a project on the Eastern Shore of Virginia it was ascertained that relatively high specialization in producing early potatoes was the best production program. Only limited opportunities for producing and marketing other commodities exist there and the farmers' problem lies mainly in efficient production and in guarding against extreme variations in the acreage planted.

A study in the dry-land cotton area of western Texas shows that during the period of low prices cotton farmers may best meet the situation not by abandoning cotton as an enterprise but by turning their attention to reducing production costs. Many of the cost-reducing measures which may be resorted to in an emergency, however, can not be adopted as permanent elements in production methods.

COST OF PRODUCTION

In early farm-management work considerable effort was devoted to determining the specific cost of producing various farm commodities, with the idea of discovering the relative profitableness of enterprises and the efficiency with which certain operations were performed. As the work progressed, and it was realized that specific cost figures for the various commodities produced would not reveal what combination of products to grow and how much of each, more emphasis was placed on the cost of operating the entire farm. This did not mean that studies of the production costs of single commodities were discontinued but rather that they were supplemented with additional information that would make possible a detailed study of the organization and operation of different systems of farming. The bureau, in cooperation with State agencies, conducted during the past year approximately 50 projects in which cost analysis was an important objective.

In addition to these projects concerning costs as related to farm organization and efficiency, the bureau has collected by mail annually from farmers throughout the country, since 1922, figures on the cost of producing corn, wheat, oats, and cotton. These figures include charges for the labor of the farmer and his family and a charge for the use of his land on a cash-rental basis. As they represent not only current cash outlay but also overhead costs and family labor, these cost figures do not show the minimum price at which farmers will continue to produce for a time, in some cases for several years. They must be interpreted as representing approximately the price at which the farmer would be compensated for his labor and that of his family at going wages and the use of his investment at current rates and valuations.

The purpose of the cost work is not merely to determine a cost figure but rather to determine why costs are what they are and what they mean in terms

of returns, and how they may be advantageously modified by the individual farmer. Therefore, the farm-cost problem of a particular group of farmers at a particular time may be entirely different from that of some other group at the same time. For this reason the projects involving costs deal in some instances with the detailed cost of producing a particular commodity or the cost of performing some operation or the cost of raising livestock, livestock products, or as indicated before, the cost of operating the entire farm. As a measure of the economy and efficiency of any cost consideration, returns are determined. In the cost study, physical cost elements as well as money considerations are determined and analyzed in connection with returns; for example, the amounts of labor required to plow an acre of land with plows of various size or to harvest wheat with the combine and with the binder, are compared.

In the Cumberland-Shenandoah district of Virginia, West Virginia, and Pennsylvania, in cooperation with the agricultural experiment stations of these States, a study is under way to determine the cost of producing apples, and the cost of operating orchards of different sizes and types. The cost figures obtained are in terms of physical quantities and money considerations and they are determined primarily for the purpose of indicating what constitutes a desirable orchard in the district, and how it can be operated efficiently. Details of pruning, fertilizing, spraying and harvesting practices, put in terms of cost and returns, are determined for the guidance of farmers operating under a wide variety of conditions.

In the cotton States, studies are being conducted in Georgia, representing the Old South; in the high-plains area of Texas; in Oklahoma, representing western extensive-cultural practices; and in the important deltas of Mississippi and Arkansas, representing the plantation system. These studies are likewise devoted to a determination of the cost and returns of cotton growers in the different areas and of the factors that make for a more successful operation of these entirely different types of cotton farms.

In cooperation with 10 State agricultural experiment stations in the Corn Belt and cotton States, this bureau and the Bureaus of Animal Industry and of Agricultural Engineering are conducting a study of the cost and utilization of different forms of farm power. The extent to which horses and tractors are being used as a source of power on different sized farms for various operations is being determined.

A cooperative study in Kansas illustrates a type of work being carried on for the purpose of determining the efficient utilization of horse and tractor power under different price conditions. With wheat at \$1 per bushel, a man with a large farm and highly mechanized practice received a return for his labor, management, and capital more than double that realized by another man using horse power. When the price of wheat was reduced to 60 cents per bushel, the figures indicated that the advantage of the large farm with its mechanized production was only slightly above that of the smaller farm, and that when the price was reduced to 40 cents per bushel and below, the large mechanized farm in that area lost considerably more than the smaller farm operated with horses and simple machinery.

Investigational work in farm management and costs is of the utmost importance under present conditions. If prices of farm products continue at relatively low levels, it will be increasingly important for farmers to effect every economy through better organization and management of their farms, since competition at home and abroad is not likely to diminish.

LAND UTILIZATION

The effective utilization of the land resources of the country as a whole is of utmost importance. Under the land policy which the United States has pursued, lands have been brought into use without due consideration of their fitness for specific uses. The result is that farmers in many areas are operating under serious physical and economic handicaps that could have been avoided under a better land policy.

In the past year interest in the fundamental question of a national land policy which has been advocated by this bureau for some time, has been crystallized. The necessity for revising inadequate land policies has gradually gained public acceptance, especially in these years of agricultural depression. As other more spectacular remedies are considered and tried there has come a greater realization of the importance of the use that is made of the land. Public opinion has come to recognize that for generations there has been a rapid

transfer of public lands to private ownership with little regard to the uses to which the land was best adapted or the demand for its products.

The lower rate of population increase in the leading countries of the Occident, including the United States, shows that the influence of this primary force in agricultural expansion in the past, is now on the wane. This trend affects the prospective land requirements and emphasizes the need for revised land policies, both Federal and State. The depression has emphasized this need. Widespread foreclosures, large areas of tax-delinquent land, hundreds of defunct drainage and irrigation enterprises, point to this defect in the economic structure of the United States.

The growing realization that a national land policy is needed found expression in a national conference on land utilization, called by the Secretary of Agriculture and the Association of Land Grant Colleges and Universities, at Chicago in the fall of 1931. This conference was attended by more than 300 national leaders in agriculture, forestry, and other fields of activity concerned with land use. The conference adopted principles and made recommendations covering the use of land, and created the national land use planning committee and the national advisory and legislative committee on land use, to mobilize the forces of Federal, State, and local agencies in effecting far-reaching adjustments required in the use of land.

During the past several months these committees have functioned actively, drawing heavily on the results of studies in this bureau, particularly in the field of land economics.

LOCAL LAND-UTILIZATION AND REGIONAL-PLANNING STUDIES

In land-utilization research special emphasis is placed upon those areas where the level of farm income is relatively low and where fiscal and social conditions require drastic reorganization. What shall be done with the many communities in the so-called marginal and submarginal areas that are now in a precarious economic situation? Some have suggested evacuating such areas and permitting the land to revert to forest. Others have advocated farm reorganization and the development of alternative opportunities. Still others have advocated modified tax laws that will enable the communities to support a satisfactory economic and social life. No single formula will suffice. The type of solution will differ from community to community and must embrace many complex factors. The essential facts must be ascertained through the local land-utilization survey. Such surveys provide a complete inventory and critical analysis of the present land use and the conditions affecting it, an appraisal of what the future appears to promise for that community, and recommendations for constructive action. A small beginning has been made in surveying areas in various parts of the country. The need for prompt and far-reaching adjustment in large areas calls for a broad expansion of this program.

Closely associated with these studies are the land-settlement studies. These investigations deal with public and privately owned land available for settlement. They seek to provide the information that will enable prospective settlers to avoid the pitfalls so prevalent in the occupancy of unsettled lands.

DISPOSAL OF THE PUBLIC DOMAIN

The proper disposal of the remaining public domain is a national problem of long standing. Recently interest in the public domain has taken a new turn. During the last year, especially, many proposals have sought to utilize the vast area of remaining unallotted and unreserved land for the back-to-the-land movement of urban unemployed.

The agricultural possibilities of the public domain are generally overestimated. From 20,000,000 to 40,000,000 acres of it are absolute desert or mountainous country not adaptable to any agricultural use. The remaining 150,000,000 acres can never be used for crops because of insufficient water supply, and its only known use is as arid grazing land. The productivity is so low that many thousands of acres are necessary to make a business unit. Our present homestead law, however, limits the amount of land that can be taken to only 640 acres, an area quite inadequate to support a family. The lands that supply the necessary water are, for the most part, appropriated.

During the year the bureau brought to completion two investigations of the complex relationship of public to private lands, one in Nevada and the other in Colorado. Both studies point to the need of reorganization and regulation in the use of lands in the public-domain States.

LAND TENURE

The increase in farm tenancy reflects the accumulated difficulties farmers have experienced in recent years. Despite a decrease in the total number of farms between 1920 and 1930, the percentage of farms operated by tenants increased to 42.4 per cent in 1930, as compared with 38.6 per cent in 1925, 38.1 per cent in 1920, and 37 per cent in 1910. In 1930 there were 3,321,000 farmers who rented from others part or all of the land they farmed.

All of these farmers must make some leasing arrangement to obtain the use of the land they operate. To provide helpful information on the farm-lease contract the bureau has undertaken a systematic collection and analysis of farm leases. More than 600 lease forms have already been analyzed.

What are the implications of this renewed drift toward tenancy? Is it likely to be permanent? What forces are responsible? What kinds of policy and legislation, if any, should be followed? These and similar questions bearing on the broader aspects of tenancy are now under investigation.

LAND VALUES AND LAND APPRAISAL

The continued sharp decline in farm-realty values has intensified the difficulties of farmers and mortgage-credit institutions. This has increased the demands upon the facilities of the bureau devoted to the study of farm-land values and valuation.

The fifth annual nation-wide survey and analysis of the farm real-estate situation for the year ended March, 1931, disclosed a further decline in farm-land values, a substantial increase in distress sales and a substantial decrease in the number of voluntary transfers of land, a well-defined tendency for farms in strong hands to be withheld from the market, and an apparent increase in the demand for farms to rent. The decrease in the average value per acre for farm real estate for the year was the greatest since 1922 and brought the bureau's index of land values from 115 per cent of pre-war to 106 per cent. The number of forced sales registered a 25 per cent increase from an average of 20.8 to 26.1 per thousand farms, the highest rate recorded in the six years for which data are available. The reported voluntary sales dropped from an average of 23.7 to 19 per thousand farms, the lowest in the 6-year record. Most of the unfavorable elements of the year were the result of drastically reduced farm income.

The preliminary findings of the sixth annual survey, covering the year ended March, 1932, showed that average farm real-estate values dropped from 6 per cent above pre-war to 11 per cent below pre-war levels. Values in two-thirds of the States were shown to be below pre-war levels. This further severe drop reflects the continued drastic decline in agricultural income. The study shows that foreclosure and tax-delinquent problems were intensified and that forced sales were increased in number.

Perhaps at no time in the history of the Nation has dependable and adequate information on the value and turnover of farm real estate been more necessary. The bureau is making substantial progress in providing that information.

MINERAL RESOURCES UNDERLYING FARM LANDS

Investigations in land utilization this year took a new direction as a result of Senate Resolution No. 377, calling upon the bureau to investigate mineral resources underlying farm lands. The report made to Congress (S. Doc. No. 93) brought out the fact that in the mineral resources underlying their farm lands farmers have valuable assets on which they all too often do not realize. The study further brought out the fact that experience had shown that the cooperative pooling of farmers' mineral rights would materially assist farmers in realizing on these assets.

FARM POPULATION MOVEMENTS AND RURAL SOCIAL CONDITIONS

The efforts of the bureau are directed to a large degree toward strengthening the economic foundations of agriculture. Adequate income is essential in building a prosperous agriculture, but the real objective in the efforts of the bureau is to build and maintain a high type of rural civilization. Rural life can not be measured solely in terms of money incomes but must be appraised in terms of the social and other satisfactions which life in the country provide.

The standard-of-living studies of the bureau have brought out significant differences in the level of living enjoyed by farmers in various parts of our agriculture. These differences in living conditions trace in part to differences in income and in part to the conceptions and ideals which farmers may hold.

The striving for a higher level of living is a force which drives farmers to seek better opportunities and better returns.

Recent studies by the bureau emphasize the degree to which farmers in areas handicapped by lack of natural advantages supplement their meager farm income by other means, such as part-time employment by the farm operator, nonfarm employment by other members of the household, and funds sent home by sons or daughters working elsewhere. Many farmers or members of their families are employed more or less continuously in industrial pursuits. A recent study embracing 100 different industrial units located in rural areas in different States shows that approximately 15 to 20 per cent of all the employes were living on farms. Their annual earnings constituted a significant addition to the income from the farm. Moreover a considerable number of these factories purchased some of their materials from the local farmers, including wool, cotton, livestock, wood, and other products. In short, the movement of small industries into rural areas affords additional opportunities for employment and income, and contains real possibilities of improving rural conditions.

The depression has reinforced the nonprofit considerations in farming. Subsistence farming has become more prevalent. Farming as a means of achieving greater security than obtains in many lines of urban employment is commanding attention in many quarters. This is due largely to a realization that the farm contributes directly a great deal to the farmer's living.

The movement of population between country and city reflects differences in opportunities for employment and living. This movement is a balance wheel in our economic life and helps maintain a desirable equilibrium between rural and urban industries. Under the relatively high level of urban prosperity that has obtained, approximately 6,000,000 more persons have gone from farms to live in cities since 1920 than have moved in the opposite direction. During the last year, however, the movement has turned in the opposite direction, so that for the first time since 1920 there was a net countryward movement of 214,000. During the period 1920 to 1930 the movement of persons from farm to city involved a very large number of young folks going to urban employment. High wages in towns and lack of opportunity on the farm were major inducements. In the reverse movement from city to farms there was a greater proportion of families, including middle-aged couples, who were evidently unable to obtain urban employment.

This back-to-the-land movement also has its dangers. Many persons erroneously assume that much good land is available for settlement. Such investigations as have been made indicate that the opportunities are, after all, relatively limited and those who seek permanent occupation and homes in the country should be guided by the information now available.

The studies of the bureau on the attitude of farmers toward cooperative associations have yielded significant results. High-pressure membership drives, the circulation by the organization of propaganda instead of accurate information, and lack of contact between members and management tend to produce dissatisfied members of cooperatives. The studies show that membership contracts requiring specific performance are no substitute for intelligent loyalty built on mutual confidence between directors, management, and members. No adequate substitute for local meetings as a means of developing loyalty and a spirit of democratic control has been found. Generally speaking, farmers with more than average schooling are locally conceded to be more successful as farm operators, and farmers evincing an active interest in community work are also better-than-average membership material for practically any type of farmer organization.

ECONOMIC RESEARCH IN THE MARKETING OF FARM PRODUCTS AND IN RELATED PROBLEMS

The depression has uncovered many weaknesses in American marketing structure and processes. The bureau's research in this field, therefore, has taken on added importance. The major purpose in marketing research is to provide information to aid in securing better handling and distributing practices. Moreover, marketing studies in a broad sense deal with trends in competition and supplies, business conditions and their effect upon consumption and purchasing power, tariffs and other barriers to trade, financial and currency problems, and money and credit influence on prices of farm products, all of which are vitally related to consumption, the buying power of markets, and prices realized by producers. The field of marketing, therefore, is broadly conceived and those factors which exert major influences on markets and marketing are singled out for special attention.

MARKETS FOR AGRICULTURAL PRODUCTS

Since 1929 the volume of agricultural production in the United States has remained reasonably constant, while agricultural prices have dropped to very low levels. This demonstrates that much of the difficulty lies on the side of demand.

Foreign markets, although they now absorb less than 10 per cent of our total agricultural output, are indispensable to large segments of American agriculture, but these markets have been seriously impaired by economic dislocations growing out of war and post-war conditions, increased competing supplies from other exporting countries, and the breakdown in the delicate mechanism of international trade.

The bureau is making extensive studies of tendencies in the production of farm products both in the United States and abroad, and of tariffs and other price-maintenance measures adopted by various foreign countries that stimulate production and contract our markets. Recognizing the seriousness of the contraction of foreign markets for agricultural commodities, the Senate, by Resolution 280, Seventy-second Congress, requested a study of trade barriers and other measures in aid of agriculture in foreign countries and their influence upon American agriculture.

Shifts and trends in our foreign markets are of vital concern to the American farmer. A case in point is the rise of Japan to a place among the leading markets for our cotton. American cotton that before the war went to Great Britain to be manufactured into textiles and shipped to the Orient is now shipped directly to Japan and China. This has increased the impact of competition of oriental cottons with the American product. Oriental cotton manufacturers follow closely the prices of Indian, Chinese, and American cotton and take immediate advantage of changes in price relationships. A representative of the bureau is now conducting an intensive study of the competition and demand factors affecting the market for American cotton in Japan. Preliminary results of this study indicate that American cotton does not encounter severe competition from short staple in the spinning of yarns above 20 count, but in the spinning of yarns of 20 count or less, price competition from short-staple Indian cotton is a major factor in determining variations in the annual consumption of American cotton by the Japanese industry. There is, moreover, a tendency toward the spinning of a larger proportion of higher-count yarns involving the use of increasing quantities of American cotton.

The trends of foreign production are factors affecting the foreign markets for our products. An investigation has recently been completed of Egyptian cotton production in order to determine the probable future competition to be expected by American cotton from Egyptian cotton in the world markets. This study shows clearly the distinct limitations to an expansion of the cotton acreage inherent in reclamation developments and in the competition of food crops for the cultivated area. On the other hand, cotton occupies a firmly established place as practically the only cash crop, and no important reduction in cotton growing in Egypt is, therefore, to be expected. This is the sort of information that is needed in regard to foreign production of all the principal competing foreign products in order that there may be a sound basis upon which to formulate a long-time program for American agriculture.

Tobacco is one of our leading export crops. Important shifts are taking place at present in the consumption of different types of tobacco in the important European importing countries. These shifts are due, in part, to European taxation policies and, in part, to consumer habits. These and other factors affecting the demand for American tobacco have been investigated by the tobacco specialist stationed at Berlin. Special attention has been given to the effect of these changes on the demand for particular types. European tobacco production is increasing, and a special study has been made of the quantity, quality, and utilization of European tobacco in relation to the demand for particular types of American tobacco. These studies are revealing facts of practical significance to American tobacco growers. For example, the tobacco specialist has pointed out that the nicotine content of tobacco is being given increasing attention in Europe. Tobacco of low nicotine content appears to be desirable, and this development indicates that American producers might well give consideration to the selection and development of tobacco varieties low in nicotine.

Primary dependence must be placed on the home market, but this, too, has been seriously impaired by the economic depression.

Studies of the influence of changing demand on agriculture have provided a better understanding of the different ways in which curtailed purchasing power affects individual farm products. While changes in consumer income cause changes in the general level of farm-commodity prices, the effect of depressed buying power may register in a reduction in consumption or in prices, or in both. Our studies show that in periods of depression farmers producing industrial raw material face declining prices resulting from curtailed demand and the accumulation of stocks. The studies likewise permit a clearer understanding of the complex effects of agricultural conditions on business conditions. It is now evident that a large agricultural output does not affect all related industries alike. Some, such as transportation agencies, derive large benefits from surplus farm production; others, such as implement and fertilizer manufacturers, suffer with farmers from the resulting low prices and low cash returns.

The American national policy of protection materially assists in bolstering the market for many American farm products. It is now evident that the tariff does not operate with equal effectiveness on all commodities. In view of the importance of the tariff policy in the national economy and the effect which it has on agriculture, the studies in this field have been prosecuted with increasing vigor. These studies supplement the investigations of the Tariff Commission.

Gradual changes in food habits and in the long-time trends of consumption are taking place. Some progress has been made in measuring these trends for some commodities. The car-lot and shipment data of the bureau provide basic information for measuring the consumption of foodstuffs in the more important consuming areas. On the basis of these and other data considerable progress has been made in measuring consumer preference according to income and age groups.

Similar studies are being made for fibers. The need for information on the utilization of American cotton became increasingly apparent as stocks of cotton mounted and the general business depression continued. The demand for raw cotton is dependent on consumer demand for cotton goods. The quantity of cotton used by the various branches of the textile industry increased from about 4,000,000 bales, or almost 26 pounds per capita, in 1899 to about 7,500,000 bales, or almost 30 pounds per capita, in 1929. Of the 30 pounds of cotton used in 1929 slightly over 20 pounds was used in the manufacture of woven goods, 2 pounds in knit goods, about 1 pound in cordage and twine, almost 1 pound in woolen manufactures, and the remaining 6 pounds in miscellaneous products including batting, wadding, mattress felts, waste, lace goods, thread cotton, small wares, and silk manufactures. Roughly, 36 per cent of the cotton was devoted primarily to industrial use, and about 41 per cent to clothing, and 23 per cent for household uses. Apparently the trend has been upward in cotton devoted to industrial and household use and downward in that used for clothing.

ADAPTATION OF COTTON TO NEW AND EXTENDED USES

The existing supply of American cotton is the largest on record. This supply and the present low price have given the new-uses work of the bureau special timeliness. A study just completed shows that cotton bags are used as containers for packaging approximately 68 per cent of the flour, burlap bags for 21½ per cent, paper bags for 10½ per cent, and wooden barrels for packaging less than one-half per cent. New cotton bags for packaging flour, wheat offal, and corn meal accounted for the consumption of more than 146,000 bales of cotton.

Experiments with cotton fabric for use in curing concrete have continued and a suitable cotton cloth developed for this purpose is now being manufactured and sold commercially. Cotton cloth has a longer life of service than other fabrics employed for this purpose. Although its initial cost is somewhat greater than that of burlap, its greater durability renders it more economical.

An economical fabric for use as barrel-top covers has also been developed in cooperation with the North Carolina State College of Agriculture and Engineering. Shipping tests show that the lightest-weight cotton fabric used was as satisfactory as the burlap covers and that printing or branding showed up to much better advantage.

The use of cotton bags for the consumer package of farm products has increased materially during the past year. The duplex cotton bag developed by this bureau for packaging potatoes and onions continued to increase in popu-

larity. Potatoes were shipped in this type of cotton bag from California, Idaho, Maine, and New York. The number of cotton bags used as consumer packages for potatoes increased from approximately 3,500,000 in 1930 to over 10,000,000 in 1931, an increase of about 300 per cent. An adjustment in the freight rate on consumer cotton bags for citrus fruit during the past year resulted in the use of over 1,250,000 open-mesh bags for handling oranges, and the practice of shipping oranges in retail-size packages continues to grow in favor.

STANDARDIZATION OF FARM PRODUCTS

Research in the standardization of farm products is a major activity of the bureau. Without uniform and universal yardsticks with which to measure variations in the quality of farm products it would be difficult for minds of buyer and seller to meet. The standardization service helps to eliminate disputes in handling farm products, assists in obtaining for the grower prices that reflect the quality of his product, and supplies measures of quality as a basis for market quotations and other market information on farm products. Without standards it would be impossible to make adequate price comparisons between markets or between periods. With the provision for a market-information service, the development of standards became imperative. Even to-day, in the case of some commodities, standards are used primarily as a basis for market reporting rather than for certifying grades.

Since 1914 standards for most agricultural commodities have been developed. For one commodity there may be several classes or types for which separate sets of standards have been provided. In many cases these standards have been adopted as official by States, exchanges, and associations. Ten years ago, for example, 13 States had their own grades for barreled apples; to-day only 5 have such grades. Under a special agreement with the European cotton exchanges, reached in 1923, the grade standards for cotton were recognized as universal. The Federal standards for grain and other commodities are also recognized in many foreign countries. These standards need modification from time to time as conditions of production change, as the knowledge of commodities and the technic of standardization are broadened, and as their increased use indicates the need for more quality specifications. An extensive investigation of the Federal grain standards has been in process for some time, yielding information which points to the need of revision in those standards.

Studies in the field of cotton fiber, cotton spinning, and cotton ginning illustrate research on the more technical phases of standardization. The major purpose of the cotton-fiber studies is to lay a foundation of information on cotton quality on which to improve and develop cotton-quality standards. It determines the fundamental factors involved in cotton-fiber qualities, the nature, degree, and extent of their variations, and the contribution which each element of fibers individually and in combination makes to manufacturing efficiency and to the qualities of yarns and other products of cotton. The characteristic properties and attributes of cotton and their importance in the manufacture and use of cotton products are studied in the cotton-fiber laboratory under standardized and controlled conditions. Special fiber and classing studies are also made under a wide range of atmospheric conditions, particularly relative humidity, to determine the comparability of fibers under given conditions and to discover principles that govern their behavior under the different conditions obtained in the ginning, spinning, and finishing processes. The stability of quality elements—chiefly color, length, and strength—are being studied over a considerable range of time and weather conditions and under controlled laboratory environment.

SPINNING STUDIES

The spinning studies which are conducted in cooperation with the Clemson Agricultural College of South Carolina, are performed for the purpose of determining, through detailed spinning test on especially selected and prepared materials, the relationships between certain fiber characteristics and their manufacturing behavior and efficiency and the properties of the products manufactured from them.

In cooperation with the Bureau of Plant Industry and a commercial spinning plant, tests have been conducted to obtain information on the comparative spinning qualities of five different cottons of very long staple.

Spinning tests on 25 lots of Acala cotton produced under southwestern irrigated conditions were completed last year. The results in general show

that, in the factor of grade alone, waste removed from such cottons does not differ materially from wastes in nonirrigated cottons. There was considerable variation in the average strengths of yarn spun from the different lots, although it was difficult to attribute these differences to any particular soil type, degree of irrigation, or period of exposure. When possible, assistance is given on other products, by spinning cottons of different varieties or produced under different growth conditions.

The relationship of yarn strength to the staple length has been studied, and the results indicate that on an average a 1/16-inch increase in staple length is accompanied by an increase of 4 to 5 per cent in strength of 22's carded yarn. For gradations in staple lengths ranging from 13/16 to 1 and 1/16 inches the average yarn strength was quite uniform. This and similar information is essential in determining the length of gradations most desirable in the staple standards.

COTTON-GINNING STUDIES

The studies in cotton ginning are carried on jointly with the Bureau of Agricultural Engineering in the ginning and fiber laboratory at Stoneville, Miss., established in accordance with the act of April 19, 1930. Such studies concern improvement of the quality of American cotton and conserve for growers the values of cotton now being lost through improper ginning. While there are no official figures and no testing basis of computation, estimates of total ginning damage to the American cotton crop, made by responsible workers in the South, range upward from \$25,000,000 a year.

Studies of gin design, machine organization, and methods of operation, made in cooperation between fiber analysts and agricultural engineers, are laying the foundation for substantial improvement not only in the ginning processes proper but also in the processes of conditioning, extracting, and cleaning. Wide variations in the nature and condition of seed cotton require careful studies of this factor as well as of the qualities of the ginned lint in order to find basic principles of good ginning organization and practice. Engineering phases, including gin organization, are being handled by the Bureau of Agricultural Engineering; the Bureau of Agricultural Economics selects the cotton for experimentation and makes analyses of the samples secured during investigations.

An important achievement at the new laboratory is the development of a vertical drier which is now being produced and sold widely by commercial gin manufacturers. Studies of the effects of moisture content on the quality of ginned lint indicate that the vertical drier, when used under the conditions recommended, preserve the length of the cotton fiber, often improves the grade, and usually raises the preparation from a very rough type to that of normal or sometimes superior type. Preliminary results from tests on a limited number of samples reveal that the strength of cotton may be preserved and probably improved by drying the seed cotton before ginning.

Results have further indicated that temperature is one of the most important factors in the drying process and that there is a close relationship between moisture in the seed cotton and the temperature to be applied in the drying process.

Studies to determine the effects of saw speeds on fiber quality show that variations in saw speed, which have been popularly regarded as one of the most prolific sources of gin cutting of lint, are not so important as those produced by variations in seed-roll density or rate of feed. In other words, that in an effort to increase capacity or rate of output it is unwise to greatly increase the rate of feeding.

COTTONSEED GRADING STUDIES

The oil content of different lots of cottonseed has been found to vary by more than 180 pounds and the protein content by more than 200 pounds per ton of seed, representing variations in value of more than 40 per cent. Seed values are further affected by spoilage.

Efforts to find a method for satisfactorily appraising and evaluating the content of cottonseed marketed for crushing purposes have been more or less continuous since cottonseed began to be important, but the variation both of quality and condition of the constituents has presented obstacles. In 1925 this bureau undertook to develop such a grading system. Studies of the nature and uses of cottonseed and of the grading requirements of the industry were made and a grading system based upon the chemical composition of seed was devised.

To complete the establishment of the standard grading method it was necessary to perfect and standardize methods of chemical analysis. In 1928, a sub-project headed by an interbureau committee was organized. In collaboration with practically all of the commercial and private laboratories interested in the analysis of cottonseed, and the American Oil Chemists' Society, the bureau has now established grades, and methods of sampling, analyzing, and grading cottonseed for crushing purposes. These grades had been used in a tentative way in actual market practice last year, when approximately one-third of the purchase of cottonseed for crushing purposes was bought on these grades.

RELATION OF PRICE TO QUALITY

The bureau's program of standardization provides a common language with which to express gradations in the quality of farm products. For some commodities it assists in making the farmer's market world-wide. It reduces the merchandising risks incident to undesirable or fraudulent deliveries on contracts. It facilitates future trading in agricultural commodities. In order to determine how much the differences in prices based on differences in quality in terminal markets are reflected back to the growers, a series of studies on cotton have been made. As a basis for this study, data for approximately 30,000 bales in 45 local markets were collected during the 1931-32 season. It was found that prices received by growers varied so irregularly during the period studied that some farmers received considerably higher prices for the lower grades and shorter staples than other farmers received for the higher grades and longer staples in the same markets on the same days.

The average premiums received by growers in selected local markets for grades above middling amounted to only about 39 per cent of those paid in central markets. The average discounts made to growers in local markets for grades below middling during the season amounted to 72 per cent of those paid in central markets.

The average premiums for the higher grades and the average discounts for the lower grades received in the selected local markets were small compared with the variations in prices received for cotton of the same grade and staple length sold in the same local markets on the same days.

It has been recommended that producers have competent and reliable persons classify the cotton according to uniform standards and issue a certificate showing the grade, staple length, and character of each bale before it is sold; and that every effort be made to produce cotton of more uniform grade and staple length, so that the volume of each grade and staple length produced in each community will be large enough to be handled economically.

MARKETING METHODS AND PRACTICES

Various methods and practices of marketing are covered in the bureau's research designed to effect improved distribution and economies in marketing. The study of direct buying of hogs will serve as an illustration of this work. During the past few years there has been a marked increase in the direct buying of hogs. In 1925 packers in the United States purchased 24 per cent of their hogs direct, while in 1931 this proportion had increased to 42 per cent. Of the total hogs received at Chicago the proportion purchased direct increased from 4 to 34 per cent in that period. Iowa, the heaviest hog-producing State, sold 37 per cent of its hogs direct in 1925 and 60 per cent in 1931. The trend toward direct buying has extended to other classes of livestock, and this trend is also being studied.

These developments have adversely affected some individuals and groups and caused much uncertainty among producers, marketing agencies and packers as to the economic advantage of marketing livestock direct. From the standpoint of both producers and packers the chief difficulty in appraising the different methods of marketing hogs lies in establishing a satisfactory basis for price comparisons. A knowledge of differences in shrinkage and carcass yield is essential in pricing hogs.

COSTS IN MARKETING AND DISTRIBUTION

There is now much criticism of the high cost of marketing. The margins between prices received by producers and those paid by consumers are pointed to as examples of waste and inefficiency. These margins are often wide, and the adjustments of wholesale and retail prices to prices received by producers are often slow, but frequently the criticisms are not based on adequate facts.

During the last few years the bureau has received many inquiries as to whether the heavy reduction in livestock prices was being reflected in the retail prices paid by consumers for meat. The opinion was quite generally expressed by the public that the reductions were not proportionately passed on to the consumer. The bureau undertook a study to discover the relation between the declines in the price of the live animal, the wholesale price of the carcass, and the retail price of meat cuts.

The facts brought out in this analysis show that livestock values at Chicago and wholesale and retail meat values in New York moved downward together during the three years from July, 1929, to July, 1932, and that the reductions taken by producers and by wholesale and retail meat distributors were not greatly different. The reduction in the market value of a 1,000-pound steer during the 3-year period was about \$64; the decline in the wholesale value of the carcass of this steer was \$55, and that in the retail value of the cuts obtained from the carcass was \$66. The reduction in the wholesale value of the carcass was less than that in the value of the steer; but if allowance is made for the relatively greater reductions in the value of the by-products from the steer, it is found that the total wholesale value of all the products from the steer dropped fully as much as the live value of the steer. Similar studies on pork and lamb have been made.

On the other hand, margins also represent actual costs of performing functions and services in marketing. Many of these costs are inescapable and yield only stubbornly to reduction. Many of them, however, can be reduced by more efficient ways of using labor or by improved physical facilities. Studies of this bureau show that it is possible to reduce by more than one-half the amount of labor required in harvesting, grading, and packaging specific commodities. Transportation costs are very burdensome to agriculture and require drastic overhauling unless prices of agricultural products recover. This is the problem of the Interstate Commerce Commission, but the investigations of this bureau have already been helpful to that body in the consideration of this problem. The physical facilities for marketing can in many cases be so modified as to reduce costs. Already research has led to increased efficiency in handling milk at country points. Studies in New York State have thrown light on improved location, design, and operation of handling facilities in terminal markets with a view to avoiding congestion and reducing costs. Other studies have pointed the way to reducing margins and wastage in retail distribution.

Since the transfer in 1929 of the Division of Cooperative Marketing from this bureau to the Federal Farm Board this bureau has not engaged upon cooperative marketing research. However, the bureau's studies of marketing functions and practices supply valuable information both to independent distributing agencies and to cooperative marketing associations. Both types of distributing agencies are now functioning in distribution and the position that each will occupy in the future will depend upon their relative efficiency.

Some attention also has been given to such marketing institutions as futures exchanges, and auctions, particularly the auction method of selling fruits and vegetables. The volume of fruit sold at auction in city markets increased 23 per cent from 1924 to 1930, while the car-lot shipments increased 9 per cent during this period. In 13 city markets in 1930, 26 per cent of the car-lot unload shipments, excluding bananas, were sold at auction. This method is used to some extent in selling fruits and vegetables at shipping points in certain producing areas. A special study covering such auctions has just been completed and provides useful information on principles and practices under the auction method of selling these products.

ECONOMIC PLANNING FOR AGRICULTURE

Economic planning for agriculture has taken on increased importance as the result of the depression. It is variously conceived. On the one hand it means planning and action on the basis of the best available information but predicated in the main on individual and cooperative initiative. On the other hand, it is conceived of as positive action to accomplish desirable adjustments, by producers and distributors acting in their collective capacity, when feasible, and when not, then by the Government. This approach to the solution of the problems of marketing raises some very fundamental questions to which the bureau is giving increasing attention. The importance of broadening the researches in this field is emphasized by Senate Resolution No. 281, passed in the Seventy-second Congress, calling upon the department, in co-

operation with the Federal Farm Loan Board, to investigate and report to Congress the salient facts with reference to world hog production and the manner in which special farm-relief proposals will influence hog prices and the interests of hog producers.

ORGANIZING AND DISSEMINATING ECONOMIC INFORMATION

The timely nature of the information gathered by the bureau makes it necessary that it be distributed widely and promptly to be of the greatest use to farmers, to agricultural tradesmen, and others. The bureau provides a large part of the information distributed through the department Press Service, the Radio Service, and in the form of exhibits, motion pictures, and printed publications. Through these media of publicity economic facts are combined with other information of the department in order to present a complete record having the greatest value to those who receive the information.

The permanent records of economic changes are made available in printed bulletins, reports, and in monthly periodicals such as Crops and Markets and The Agricultural Situation, in the annual Yearbook of the department, and in the form of charts and other statistical records. The underlying objective in preparing these several types of informational material is to make the facts readily available.

The larger part of the information handled by the bureau, however, requires special distributing facilities which are closely coordinated with the collection facilities. More than 50 market-news offices connected with the leased-wire system constitute points for the distribution of crop and market information, both domestic and world-wide, as well as collection points. Each local office receives reports from other offices; from these it prepares press and radio releases particularly adapted to the needs of its locality. This service operates like a large news service in that it gathers and distributes the information from hour to hour with a speed equal to that of any news agency.

The crop and livestock estimate information is distributed in every State in a form closely adapted to State needs, through the medium of the State statisticians, whose offices operate effectively as distribution agencies. They in turn utilize press, radio, and direct mail as means of placing facts before farmers and others.

Through the quick services afforded by the mimeograph, crop and market reports and many other forms of statistical releases aggregating an annual total of many millions of copies are mailed directly to those whose business requires such information. The scope of this activity is indicated by the fact that during the year millions of readers were reached through the press and reports were made available to practically all the 2,000,000 farmers who have radio receivers. More than 15,000,000 mimeographed reports were mailed. More than 700 different reports were handed to press representatives to be made the basis of press dispatches, and several hundred thousand printed bulletins were sent directly to individuals in response to requests.

The economic-extension work among farmers, conducted by the Extension Service is based on information provided in considerable part by this bureau. Since the development of such extension work during the last five years a force of nearly 6,000 extension workers and over 4,000 teachers of vocational agriculture have been carrying economic facts to farmers through field work and teaching in rural high schools and agricultural colleges. This extension service and teaching work has carried economic information to more than 1,000,000 adult farmers in the past year in addition to more than 154,000 students in high schools and agricultural colleges. Numerous reports have been prepared by the bureau especially for the use of these groups. An economic-chart service, largely on a cost-price basis, which presents graphically the more essential facts of agricultural changes has been used to place such material in the hands of over 10,000 workers. These aids to teaching farm adjustment have been presented in over 12,000 farmers' meetings for adult farmers during the year.

In the economic library of the bureau, the printed sources of information in the field of agricultural economics are organized for permanent purposes and for quick and ready use. To aid in effective use of this material the library makes special searches in special problems and prepares selected lists and comprehensive bibliographies which are widely used by bureau workers and by workers in the universities and research staffs in both this and foreign countries.