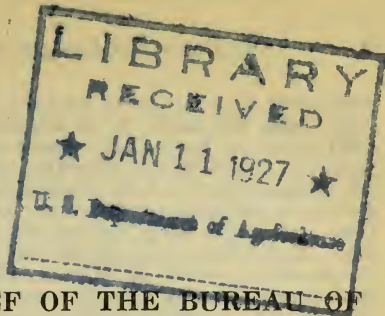


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REPORT OF THE ACTING CHIEF OF THE BUREAU OF AGRICULTURAL ECONOMICS

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF AGRICULTURAL ECONOMICS,
Washington, D. C., August 31, 1926.

SIR: I have the honor to transmit herewith a report of the work of the Bureau of Agricultural Economics for the fiscal year ended June 30, 1926.

Respectfully,

LLOYD S. TENNY,
Acting Chief of Bureau.

HON. W. M. JARDINE,
Secretary of Agriculture.

The Bureau of Agricultural Economics was organized for the express purpose of rendering assistance in solving the economic problems connected with the production and marketing of farm products. These problems grow out of the characteristics of the industry itself as well as from developments that take place within the industry. The business of farming is influenced by climatic and other hazards and by the individualistic character of the industry. While the manufacturer can shape and control his output in line with the requirements of the market, the farmer can exercise such control only within limits. Agriculture, furthermore, is a highly competitive industry. Every farmer in this country competes with more than 6,000,000 other farmers. Perhaps no less severe is the competition he has to meet from farmers in foreign countries.

Some of the more difficult problems confronting the industry have grown out of the specialization and commercialization of farming. As agriculture has spread over the Nation and as specialized forms of farming have developed in regions especially adapted to them, the distance between producer and consumer has greatly increased. This widening gulf between

producer and consumer has made it more difficult for the farmer to appraise the needs of consumers and has materially increased the cost of distribution.

In addition to the economic problems within the agricultural industry, there is another group of farm problems which are influenced by public policies. The farmer's welfare is influenced, for example, by State and National policies bearing on taxation and credit, land utilization, and transportation. These and other phases of the situation have been greatly aggravated by the depression following the World War. The impairment of the purchasing power of European peoples, the maladjustment in production in relation to demand, as well as the heavy debts that were contracted during and immediately after the war, have given rise to problems of a serious nature.

The Bureau of Agricultural Economics is rendering several types of service for the benefit of those who are engaged in or interested in agriculture. One of its most important services is to provide information of current interest and immediate value to the farmers in planning their production and marketing programs. The estimates of domestic crop production

have been made for many decades and have been developed to a relatively high degree of perfection. These statistics on production recently have been supplemented with detailed statistics on production in foreign countries which are compiled in cooperation with other departments of the Government, as well as in cooperation with governmental agencies abroad. In addition to this statistical service on crop and livestock production, a companion market news service has been spread over the entire country, providing timely information on supplies on hand, prices, and movement of various commodities. These production and marketing statistics are given wide distribution through all available channels and are widely used by producers, dealers, and consumers.

In addition to providing this current information on the production, prices, and movement of agricultural commodities, a more specialized service has been developed through which the bureau seeks to aid in analyzing the facts which have a bearing on the production and marketing of agricultural products. This service is given through the agricultural outlook reports which summarize and interpret all available information which may serve the farmer in determining how much and what to produce, on the basis of the price which will probably prevail at the time his products are ready for the market. Every year surveys are made by the bureau covering the intentions of the farmers as to plans for planting and livestock breeding. The results of these surveys are published in time to permit farmers to alter their plans so as to help eliminate serious overproduction or underproduction. These reports have been very helpful to farmers in meeting changing conditions.

Another service which has grown to large proportions is the bureau's work in the standardization and inspection of farm products. As the distance between producer and consumer has widened it has become increasingly necessary to establish standardized grades for the various commodities in order to facilitate transactions between seller and buyer. The bureau has established grades for a large number of the most important agricultural commodities, and farmers are now in position to know the grade and quality of many of the products they produce and the current price they should command in the market. The inspection service of the bureau is proving very helpful in ironing out

difficulties that arise between buyer and seller.

Fundamental to and underlying the service work of the bureau are the analytical studies of various problems. These studies afford the basis for adjustment in production and farm organization and should provide also the basis for sound policies for the future development of agriculture. The farmer, just like any other business man, must fully reckon with competition both at home and abroad. Many of the studies now made by the bureau aim to point out, as one of their primary objectives, how farmers may effectually meet this competition. It frequently happens, also, that the agriculture of a certain region may be badly adjusted. Unsatisfactory conditions such as these are being studied to lay the foundation for sound readjustments.

Careful studies of prices are being made to ascertain as nearly as possible the various factors that influence prices for farm products. The results of price studies are of fundamental importance in developing the most effective production and marketing programs. Studies are made of the manner in which farms are now being operated in various parts of the country, for the purpose of ascertaining the most efficient farm organization and farm practices. The bureau's studies of land utilization and land values are proving helpful in determining sound policies for the development of our lands. Studies of credit are uncovering weaknesses in our present credit structure and suggesting ways in which both Federal and commercial credit agencies may serve agriculture more effectively. Studies of farm insurance aim to show how the hazards of farming may be reduced. More recently studies have been made in taxation to determine to what extent farmers are carrying an undue share of the tax burden and how this burden may be more equitably distributed.

Undoubtedly some of the most important problems of the bureau are in the field of marketing. Intensive research covering the physical and biological problems of production has been carried on for many years by the department, but it is only recently that the economic problems of production and marketing have been given the attention they deserve. Some studies are now under way to ascertain the effect of marketing policies, gluts, and the adequacy of terminal facilities upon prices received by farmers. Other studies are being made to ascer-

tain the efficiency of existing marketing agencies.

Perhaps the most outstanding work of the bureau in the field of marketing is in the field of cooperation. The work of the bureau in this field will be greatly enlarged during the current year in carrying out the provisions of the cooperative marketing act, approved July 2, 1926, which provides for the organization of a division of cooperative marketing in the Bureau of Agricultural Economics. Through this division critical studies will be made of existing cooperatives to determine how they may function more effectively. Closer contacts will be maintained between the 12,000 cooperative organizations and this department, and all information bearing on the problem of cooperative marketing, as well as all statistical and economic information obtained by the bureau which may be of practical value to these organizations, will be furnished them.

The various regulatory acts administered by the bureau which provide for the regulation of the marketing of various commodities, such as cotton and grain, supplement the research work of the bureau in making possible the more efficient marketing of products and in eliminating many uneconomic practices and much waste. The activities under the United States warehouse act have increased manyfold in the last five years and are becoming increasingly useful. This act makes possible the safe storage of farm products and provides the farmer with collateral for loans with which he can carry his product and market it in an orderly way.

Each year more cooperation is being received from the various States in carrying on the work of this bureau. Thirty-one States are now cooperating in preparing the crop and livestock estimates and in distributing statistical and economic information to producers in the various States. Many State agencies and local organizations assist the bureau in maintaining temporary market news field stations which keep the producers informed in regard to supplies and prices in the principal cities, thus enabling them to ship to the most favorable markets. The shipping-point inspection service, which enables any shipper to obtain a certificate which is prima facie evidence in the courts of the United States as to the quality and condition of his shipments, is carried on very largely through the cooperation of State and local agencies.

The various lines of the work of this bureau, in short, are very closely coordinated and cooperation is maintained with other bureaus of this department and other departments of the Government in bringing to bear on the farmer's problems united effort and all available information.

DIVISION OF FARM MANAGEMENT AND COSTS

H. R. TOLLEY, *in charge*

The work of this division centers attention upon the individual farmer's effort to obtain a greater return by utilizing all available information concerning profitable farming systems, production costs, and practices, present or prospective market conditions and prices, and good farm-management principles. In this work particular attention is given to regional problems which involve one or more States where a similar type of farming is followed. In this way the results of investigations in a particular locality are made useful to farmers operating under similar conditions in other localities of the same region.

By means of careful studies of local problems farmers are rendered assistance in keeping their production programs in line with changing market conditions. In these studies the information assembled in connection with the bureau's work in estimating crops and livestock, market-price analysis, and in connection with the agricultural outlook are utilized and interpreted in the light of local conditions affecting their application.

STATE AGRICULTURAL PROGRAMS

Studies have been conducted in Louisiana, southern Mississippi, New Hampshire, Kansas, and Idaho with a view to providing local farmers with a more adequate basis upon which to plan their production and marketing programs. Attention has been given to adjusting production to meet the needs of local markets, where this can be done with profit. Markets outside the area studied are also considered and the necessity of keeping production in line with market requirements as to quality and quantity is pointed out.

A study of Louisiana and southern Mississippi showed that the agriculture of the New Orleans trade territory is breaking away from highly specialized cotton, cane, and rice plantations. The survey indicated that a

profitable increase of cotton production would result from a greater use of the richer delta and bottom lands for this crop and the use of some of the worn-out hill lands of the State for reforestation and grazing purposes. The need for improvement in cotton-marketing methods was emphasized. It was pointed out that the market facilities for handling fruits and vegetables produced on near-by farms were totally inadequate and that this situation, together with insufficient market news service, was responsible in part for the failure of local farmers to produce a larger portion of the food products consumed in New Orleans. Dairy production was found to be on an inefficient basis, the production per cow being low, and little if any attention being given to the feeding of balanced rations.

In New Hampshire an analysis of the home-market demand for farm products that can be produced in the State was made. The estimated yearly purchases of farm products from local farmers and from outside the State were obtained. In the case of some commodities analysis showed that farmers were already supplying their local market during the local harvest season, although large quantities were being shipped into the State during the remainder of the year. The study indicated the possibility of expanding the production of some commodities, such as potatoes, provided they were grown in acreages sufficiently large to make the use of efficient machinery and production methods possible.

Studies in other localities brought out facts which were helpful in improving farm-production programs. In all cases the results of the surveys were given immediate publicity in the locality studied and it has been noted that the suggestions of the bureau have been very generally followed.

ADJUSTMENT IN WHEAT-PRODUCING REGIONS

Work was begun on a study designed to ascertain the conditions under which it will pay wheat producers of specific areas to increase or decrease their wheat acreage. In each type of farming area studied the combination of crop and animal enterprises is worked out which is likely to prove most profitable under varying conditions of production and with different prices for wheat, and for alternative enterprises.

Relative costs of harvesting and threshing wheat by different methods

are being considered, as well as the merits of different varieties of grain and their adaptability to combine harvesting and the grade and keeping quality when harvested by different methods. This work is being done in cooperation with the Bureaus of Public Roads and Plant Industry and the State agricultural experiment stations.

A review of the agriculture of the Big Bend Country, a wheat-producing region in eastern Washington, was prepared in cooperation with State agencies. This review emphasized the fact that the area is subject to periods of high and low annual precipitation. During years of high yields and good prices thousands of acres of land that was best adapted to grazing were brought into cultivation. Subsequent years of low yields and poor prices have in turn forced the abandonment of much of this land. A bulletin setting forth the methods used by the most successful farmers in the area has been prepared.

ADJUSTMENTS ON VIRGINIA TOBACCO FARMS

In cooperation with the Virginia Polytechnic Institute a representative of the division has assisted farmers in Charlotte County, Va., who have followed the suggestions and recommendations growing out of a study of profitable methods and practices in the area.

THE FRESH PEACH INDUSTRY

During the past year this bureau, in cooperation with a number of State agricultural institutions and other agencies, undertook to assemble available data and to collect other data which would be of value to growers and agricultural workers in planning future programs of peach production and marketing. This study included 26 different States, and reports as to the age and variety of nearly 43,000,000 peach trees in commercial orchards were received from about 21,700 growers located in all the important producing sections.

A report dealing with production areas, consumption, marketing, competition, and prices has been issued. Additional reports having to do with the cost of developing and operating peach orchards in the leading producing areas, and the distribution of trees by age and variety, will soon be issued. This study brings out conclusively the necessity for peach producers to make preparations for dis-

posing of an increased production of peaches during the next few years.

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

A study of the cost of producing corn, wheat, oats, cotton, and potatoes was continued along lines pursued during previous years and the results were published in the June, 1926, Supplement to Crops and Markets. Comparisons with the years 1922, 1923, and 1924 have also been worked out and published. In arriving at these costs reports from over 17,000 farmers were received and analyzed. Bulletins on the cost of producing wheat and the cost of using tractors, horses, and combines under dry-farming conditions in the Pacific Northwest have been prepared.

RANGE-CATTLE PRODUCTION

Studies embracing the important range cattle producing areas of the United States are being carried on in cooperation with the Bureau of Animal Industry and State experiment stations and extension services. In addition to determining the practices and costs of beef production, the studies are designed to show the comparative advantages and disadvantages of different types of livestock in the different areas and the probable market demand for them. Studies under way will give information on the extent to which the present system of ranch and general farm organization should be modified to meet inherent weather risks and present and prospective economic conditions. These studies cover the northern Great Plains and the range area in the Southwest, including New Mexico, Nevada, Utah, and part of Texas.

LIVESTOCK IN THE COASTAL PLAINS REGION

A study of the place of livestock in the southern coastal plains region was started to determine the methods of management and the organization under which dairy cows, beef cattle, and hogs can be profitably included in the systems of farming in the southern coastal plains region.

BEEF CATTLE IN THE APPALACHIAN REGION

In this area a general survey of the methods and practices in producing grass-finished beef and of the influence of various methods of production on the market value of the animals is being followed by a detailed study of

methods of fattening cattle and the organization of beef-cattle farms. The study of the influence of production methods on the market value of the animals and of the factors which influence the quality and palatability of meat is being continued in cooperation with other agencies.

CATTLE AND HOG PRODUCTION IN THE CORN BELT

Reports dealing with the most profitable methods and practices of cattle feeding in different sections of the Corn Belt have been prepared. Studies of the most profitable methods of pork production on Corn Belt farms were continued during the year, and timely reports issued to cooperating farmers and to other farmers in the area. These reports summarized the results of the investigations and indicated ways and means of increasing returns from pork production.

HOG PRICES AND SUPPLIES

A detailed statistical study of variations in the supply and price of hogs has been made which should aid farmers in their efforts to keep hog production adjusted to market demand. The adjustments made by successful farmers are contrasted with those made by less successful farmers who base their plans entirely on present prices without attempting to analyze the situation as to probable changes in market conditions when future supplies are ready for market. The study demonstrates the necessity for farmers to keep in touch with market developments, production trends, forecasts, and outlook reports as a means of keeping their production properly adjusted and of obtaining the largest net returns.

DAIRY PRODUCTION

Economic studies of the dairy industry have been continued in cooperation with State agencies. In Wisconsin an analysis of farm records to show the relation between feeding and production was made. This study shows very clearly the significant factors responsible for variations in milk production, and indicates ways in which Wisconsin milk producers can reduce their costs of milk production. It also points out the ways in which production practices should be modified to meet changing costs and prices. Certain weaknesses in present dairy-feeding standards were brought out by the study. Similar studies were made in other States and information is being

prepared which will be of value to farmers in forecasting the future trends in dairy production.

POULTRY PRODUCTION

Information bearing upon all phases of the poultry industry has been compiled. The census data relative to poultry and egg production for typical counties in every State have been tabulated according to the size of flocks on each farm, which will provide a better basis for a description of commercial and farm-poultry production than has been available heretofore. Near the close of the year arrangements were completed for a detailed survey of methods and practices in poultry production in important producing areas in New York State.

TYPES OF FARMING

Studies of the geographical distribution of types of farming were continued and data obtained from the 1924 census are being analyzed and compared with similar data for 1919 and 1909. Maps showing the relative importance of different crops and kinds of livestock in each county in each State are being prepared, which are of value in studying the factors that control types of farming, since a careful study of the localities in which a given change in type of farming is occurring often reveals the causes of such change. The maps thus far made indicate a more or less general return to the types of farming prevailing at the time of the 1909 census. The great extension of the wheat acreage which occurred in 1919, and which seriously unbalanced the agriculture of many sections, has for the most part disappeared and wheat appears to be gradually assuming a position in American agriculture more in keeping with present economic conditions.

FARM-BUSINESS SURVEYS

The results of 71,516 farm-business records from 450 localities in 45 States were summarized and prepared for publication in the 1925 Yearbook. Frequency tables showing the number of farmers having incomes of different amounts have been prepared for different localities. These are based upon 46,748 labor-income records and will be made available for different localities and for different periods before and since the war.

STUDIES IN SOUTHERN STATES

The field route work in connection with the study of sugar-cane production in Louisiana carried on in cooperation with the office of sugar plant

investigations of the Bureau of Plant Industry and the Louisiana experiment station was completed at the close of the crop year. A report being prepared includes a detailed analysis of methods and practices in sugar-cane production in the area and of the organization of the farms studied.

In Mississippi a study of the combination of enterprises and methods and practices in production has formed the basis for recommendations as to changes in practices and management. The farmers of the area petitioned for the continuance of this work which in addition to its immediate benefit to the farmers is an important experiment and demonstration in farm-management work.

In South Carolina a farm-management survey was made of a community in Greenville County. A new farm-business record book, farm-labor record book, and a book for keeping an account with cotton have been prepared for the use of South Carolina farmers.

In Arkansas the work in cooperation with farmers and farmers' wives in keeping farm and household accounts has been continued. In connection with the study of livestock production in the coastal plains region of South Carolina, Georgia, Florida, Alabama, and Mississippi a great deal of statistical and historical information relative to the agriculture of this region has been assembled and analyzed and will be presented as a part of this general study.

FARM RETURNS

Reports on the general results of farming in 1925 submitted by farmers were tabulated. A return of \$1,297 to the owner-operator for the use of \$17,149 of capital and the labor of the farmer and his family is the average shown by 15,330 farms for 1925, compared with \$1,205 by 15,103 farms for 1924, \$1,020 by 16,183 for 1923, and \$917 by 6,094 farms for 1922.

The return of \$1,297 per farm in 1925 includes \$1,074 cash, the excess of cash receipts over cash outlay for current operating expenses, and an increase of \$223 in the inventory of crops, livestock, machinery, and farm supplies from January 1, 1925, to January 1, 1926.

In addition, the farm family had food produced and consumed on the farm, the estimated value of which on the 13,494 farms reporting the item was \$283, and fuel from the farm and use of house, the values of which were not reported. On the other hand, in-

terest averaging \$225 paid on indebtedness, and outlays for improvements averaging \$127, were not included in the computation of current cash operating expenses.

Although the averages of the reports indicate real improvement in farm returns for the country as a whole, distribution of the reports by geographical divisions shows that the improvement over 1924 was largely in the North Atlantic, East North Central, and Western States, the West North Central States showing practically no net change, and the Southern States showing less favorable results.

FARM RECORDS AND ACCOUNTS

Studies of farm organization and management problems by means of farm records and accounts were continued in selected types of farming areas during the year in cooperation with the different State agricultural experiment stations. The data made available by these studies are presented to farmers in connection with market outlook information and experimental data, and since follow-up work is necessary in getting the records an opportunity is given to observe carefully the particular form in which farm-management data of this kind is most likely to stimulate action.

After a study of this kind has been continued in an area for a time many of the cooperating farmers become outstanding examples illustrating the possibilities of improvement in the farm-organization plans and practices of the area through a careful study of the business and an application of good farm-management principles. The farm tour is used extensively in carrying results of this kind to large numbers of other farmers.

The reports carry data showing the variations in the production requirements and financial returns on different farms in the area. The reasons for these variations are pointed out and illustrations of particularly effective methods and practices and systems of farming are shown in detail. Outlines showing systems of farming that the route data and other available information point to as being well adapted to the conditions and different sets of resources found in the area are presented.

DIVISION OF CROP AND LIVESTOCK ESTIMATES

W. F. CALLANDER, *in charge*

The ever-increasing demand by public and private agencies for the basic

data concerning acreage, production, and value of crops; numbers of livestock on farms, farm prices, stocks and movement of livestock products, etc., and the growing realization of the important part that such information must play in any program for the improvement of agricultural conditions has been extremely stimulating and gratifying to the division. It has resulted in a marked increase not only in the volume but in the quality of the statistics gathered and published.

In addition to the technical staff of 73 statisticians and assistant statisticians in Washington and the field there are now on the lists of the division over 350,000 voluntary correspondents. These correspondents are about equally divided between the Washington and field-office mailing lists. During the year approximately 9,000,000 schedules were sent out through the Washington and field offices. Over 225 different kinds of schedules were used, covering all phases of crop and livestock production and growth, prices, land values, wages, population changes, stocks, crop varieties, etc. In 31 States the work is carried on in cooperation with the State department of agriculture or other State agency, Oregon and West Virginia being added to the lists of States cooperating during the past year. Forty-one field offices have been maintained.

LIVESTOCK STATISTICS EXPANDED

The livestock work is being expanded so as to furnish producers more complete information as to the amount of livestock produced each year as well as to changing numbers. At a conference held recently in Topeka, Kans., it was decided to undertake the estimation of the actual annual production of the various species of livestock and the value of this production by States and to publish such estimates next year.

A beginning was made in 1925 in estimating the size of the lamb crop. This year an estimate is being made of the actual number of lambs saved to June 1 in both 1925 and 1926, together with the number of breeding ewes as of January 1 each year and the percentage of ewe lambs being kept for breeding ewes. These estimates are based largely upon returns obtained through the rural carriers of the Post Office. Through these reports sheep producers can be kept as completely informed as to trends and changes in sheep production as are

hog producers through the pig surveys, which were started in 1922. It is planned to furnish more detailed information as to changing cattle numbers from year to year by separating the January 1 estimates of total numbers by States into various classes, such as cows, heifers, steers, bulls, and calves.

Statistics with respect to dairy animals, milk production, and poultry are less developed than for most other classes of agricultural products. Recently an effort has been made to develop a program of statistics for these classes of products. The demand for this information has increased greatly during the last two years with the development of extensive dairy and poultry organizations.

FARM PRICES PUBLISHED

After several years' work, farm-price data have been assembled and prepared for publication as a statistical bulletin in order to meet the increasing demand for better information on farm prices. These price data have been organized by States and include the monthly prices of crops beginning with 1908, monthly prices of livestock and livestock products beginning with 1910, the December 1 prices of crops, the January 1 values of livestock, wage rates since 1866, land values beginning with 1912, and in addition the values of crops and livestock for the 1925 Federal census by crop-reporting districts.

Experiments have been conducted in collecting the prices paid producers in commercial producing areas as distinct from the regular farm prices. As a result the schedule has been shortened and a special service to the price reporters has been developed. This service is in the form of a "special news letter to price reporters" which contains a digest of crop and live-stock reports and an abstract of the price and business situation material.

MORE ACCURATE ACREAGE ESTIMATES

Heretofore the acreage of spring wheat, oats, barley, and hay was estimated on June 1. In 1926 the estimates of acreage of all spring-sown crops and hay as well as the revision of fall-sown acreages were issued as of July 1. This change was made in the interest of accuracy. The principal source of information as to acreage changes is found in the individual farm-acreage reports, which are obtained from a large number of unselected individual farms showing

acreage in each crop the current year and the past year, from which the changes are computed. The crop meter is also becoming a valuable aid in determining acreage in States and areas which are reasonably level or gently rolling.

NEW QUARTERLY REPORTS OF STOCKS

Quarterly reports of stocks of wheat, corn, and oats in interior mills and elevators and on farms were inaugurated during the year. It will require two or three years, however, to develop a complete system of reports.

RECOMMENDATIONS OF STATISTICAL COMMITTEE

In February the advisory statistical committee, which is made up of a number of the leading statisticians of the United States, was called to Washington to review the work of this division. A number of recommendations were made, a part of which are shown below:

That the objective methods of ascertaining acreage such as motor meters, pole counts, etc., should be still further developed and utilized.

That an additional research statistician should be employed and afforded every facility for making further investigations, * * *

That crop estimates based upon reports of condition be continued, but that such estimates of probable yield be more carefully safeguarded from possible misinterpretation by explanations or warnings or by stating the upper and lower limits which a subsequent combination of favorable or unfavorable changes in weather and infestation conditions may render possible.

That the estimation of dairy and poultry products be developed and continued as a regular feature of the work * * *

The committee is impressed with the improvements and progress in the livestock work of the bureau, such as the pig surveys, investigations of beef cattle and lambs on feed, milk and egg production, and it approves of the plan to estimate production of livestock as to numbers on specific dates. The committee, therefore, recommends that this work be pushed with vigor and that every effort be made to obtain accurate information and to extend the scope of the work with a view to affording a guide to farmers in their future production.

The committee approves the plan of omitting earlier reports of acreage of spring crops and the concentration on securing the most accurate data possible for such a report on July 1.

The committee believes that the biweekly estimates and reports on the condition of the cotton crop are unnecessary and unwise. If such reports must be made because of statutory requirements, they should be so made as to emphasize the monthly reports which are comparable with those of previous years and to indicate that the midmonthly reports are merely indicative of changing conditions * * *

The committee approves the plan of undertaking an annual census of agricultural townships or smaller areas. The committee believes that the results of such

a census will be of great value as a check on the returns obtained by the Bureau of the Census in its quinquennial enumeration and upon the other sources of information utilized by your bureau in its estimates.

The committee has been impressed most favorably by the monographic studies and compilations of statistical data covering periods of years that have been prepared in your bureau, and it is of the opinion that there is still much that might be done along this line. * * *

DIVISION OF COTTON MARKETING

ARTHUR W. PALMER, *in charge*

STANDARDS FOR EXTRA WHITE COTTON PROMULGATED

No changes or modifications of existing standards for grade for American upland cotton were made during the fiscal year, but five standards for upland cotton of extra white color were promulgated at the urgent request of producers and handlers in the irrigated sections of the Southwest whose cotton was not readily classified on existing standards. These standards become effective August 1, 1927, but prior to that date they may be used as tentative or permissive standards.

REVISED STAPLE STANDARDS

Although the purpose of the order of the Secretary of Agriculture, dated August 25, 1918, establishing staple standards was to make the inch rule the standard of staple length, it has been apparent from time to time that differences in character of cotton used in the preparation of official types to illustrate staple lengths tended to occasion certain difficulties in the application of the staple standards.

To remove the possibility of such difficulties the department invited leading organizations of cotton growers, merchants, and spinners to send representatives to Washington July 27, 1925, to collaborate in a decision as to the proper character of the cotton to be used throughout the range of the length standards. Cotton of normal, uniform character and medium body was selected and this character is to be maintained in all issues of the new length types. Following this meeting the Secretary signed an order, to become effective August 1, 1926, officially recognizing the types selected as "original representations of the official cotton standards of the United States for length of staple."

DEMONSTRATION OF STANDARDS

Demonstrations of the standards in European markets have been continued. The bureau's technical repre-

sentative, through contact with European trade organizations, has aided materially in bringing about the successful and satisfactory use of the standards in all of the larger consuming countries in accordance with the universal-standards agreement. In the conduct of demonstrations and in meeting requests for explanations of the standards many questions of a technical nature affecting this work of the department have arisen. The services of the representative in these matters have been most valuable.

Through cooperation with various colleges throughout the Cotton Belt very helpful demonstration work has been done also, and the Federal standards are becoming much better understood.

CLASSIFICATION OF COTTON

In accordance with the United States cotton futures act, all cotton intended for delivery on future contracts is classified by officers of the Department of Agriculture. The total number of bales classed in the regular and preliminary work amounted to 344,764 for the fiscal year 1926. A feature of the year was the large increase in classifications for delivery at Houston and Galveston, the total bales involved in the regular and preliminary work being 123,319, compared with 23,314 during the previous year. Houston and Galveston are the delivery points for cotton tendered on futures contracts entered into on the Chicago Board of Trade.

The classification work continued to be self-supporting. Collections during the year amounted to \$133,556.91, disbursements \$124,992.05. Fees are increased or decreased as the condition of the funds warrants.

Section 4 of the United States cotton standards act provides that any person who has custody of or a financial interest in any cotton may submit the same to the department for classification. The boards of cotton examiners at New York, New Orleans, and Houston which classify cotton intended for delivery on future contracts have been designated to perform this service also, and the board previously established in Washington for the purpose continued to hear appeals. Total collections for this service amounted to \$14,224.10, including the fees collected for licenses issued to classify cotton.

LICENSING OF COTTON CLASSERS

The purpose of the licensing of classers is to make it possible for

producers to obtain a fair classification of their cotton by men of recognized competence. The employment of licensed classers by the shipping associations and the trade generally will encourage the full use of the universal standards wherever trading in American cotton is carried on.

The practical tests thus far have shown that the variation in the judgment between classers of established reputations not familiar with the universal standards is greater even than the department had believed to be the case. To pass the test the applicant must be a competent judge of cotton and have thorough understanding of the universal standards. Many applicants who failed in the test have attended the classing schools conducted at the agricultural colleges throughout the Cotton Belt during the year and after two or three weeks of intensive study of the standards were able to qualify.

CLASSING "SNAP COTTON"

An important problem developed in connection with the eligibility for tender on future contracts of so-called "snap cotton" under section 5 of the cotton futures act, due to uncertainty as to the value of such cotton in comparison with picked cotton of like grade. To insure a just and careful final classification of all cotton of this character submitted for certification the chairmen of the various boards of cotton examiners were instructed to refer to Washington all requests for the review of the classification of any cotton believed by them to have been snapped.

NEW INSPECTION OFFICES OPENED

An office was opened in Savannah, Ga., at the urgent request of the members of the Savannah Cotton Exchange, which had established an inspection bureau intended to function in accordance with the regulations under the cotton standards act. A similar office was opened in Little Rock, Ark., at the request of the members of the Little Rock Cotton Exchange. Samples drawn under official supervision at these points from cotton stored in approved and bonded warehouses are submitted for classification to the boards of cotton examiners in New York and New Orleans, respectively.

SPOT MARKET QUOTATIONS

Supervision is maintained over the quotations of designated spot markets

under authority of the United States cotton futures act. During a part of the past year, when inactivity prevailed in the spot markets, new problems developed in the making and verification of these quotations. In March, 1926, a committee of the department visited a number of the designated markets and obtained data of actual sales. A further study of methods employed in these markets is under way.

COTTON NEWS SERVICE EXPANDED

The cotton price quotation service has been maintained in five districts of the Cotton Belt. Reports of purchases and sales of cotton are gathered from country merchants, country buyers, dealers, brokers, commission merchants, factories, mills, and others who buy or sell cotton in important markets and concentration points.

Weekly bulletins are prepared and published at the five southern offices showing the prices at which various grades of cotton were actually purchased and sold. The information can be obtained by telephone and telegraph by anyone who requests the service and pays the transmission expense involved. The bulletins are mailed free of charge to anyone requesting them. In addition to cotton price information there were included cottonseed and cottonseed products price data, such as for linters, hulls, cake, meal, and oil. Newspapers and periodicals continue to publish the price data and other information furnished them from Washington and the field offices, thus making the service available to a large number of interested persons who would not otherwise be reached. The facilities for disseminating cotton prices by radio were increased.

SPINNING TESTS

Spinning tests were conducted to determine the relative intrinsic value of each of the nine white grades of American upland cotton. The average percentage of visible waste varied from 5.5 per cent on grade No. 1 to 14.44 per cent on grade No. 9. The higher grades consistently produced the stronger yarns and bleached yarns of all the grades were weaker than the corresponding gray yarns, while the mercerized yarns were stronger. The lower grades produced less bright yarns than the higher grades. The

effect of finishing was practically the same for eastern and western yarns.

The results of the 1924 Texas test tend to substantiate the findings of the 1923 test; that is, for breaking strength the varieties ranked as follows: Lone Star, Acala, Kekchi, Rowden, Mebane, Hoground, Kasch; and for waste content, Lone Star, Mebane, Kasch, Kekchi, Hoground, Acala, Rowden. A third test is being made of the 1925 crop.

Although South Carolina varieties for 1925 were grown under drought conditions, adverse to the production of cotton possessing high spinning quality, nevertheless satisfactory yarn was spun from these varieties when the yarn numbers were adapted to the staple length of the particular variety.

A test of picked and snapped cottons from Texas and Oklahoma, although not presented as conclusive, indicates that snapping as a method of harvesting lowers the grade of cotton by about two grades; that when efficient boll-extracting equipment is used the spinning quality of the cotton is not noticeably affected; that the percentage of visible waste in snapped cotton is not materially greater than in picked cotton of equal grade; and that, taking these results as typical, the snapping of cotton under the prices and conditions which prevailed in 1925 resulted in material loss to the grower when compared with the amounts that might have been realized had the cotton been picked. The loss was heavier when the snapped cotton was sold in the seed.

Technical studies were made of fiber length and strength in an effort to correlate these characteristics with yarn strength. Samples were tested for strength by the bulk method, whereby from 6,000 to 8,000 fibers were broken simultaneously. A report covering this bulk method of determining fiber strength will be published.

The practical advantage of such a method is that it would afford a measure of staple quality without resorting to spinning tests. This is of importance both in the development of standards and in cotton breeding. Under the present system State experiment stations and plant breeders are forced to increase a particular variety from four to six years before an amount of fiber sufficient for a spinning test is produced. Under the bulk method of testing the fiber from a

single stalk of cotton will provide a sample large enough for the test.

COTTON MARKETING STUDIED

During the year studies of several important phases of cotton marketing have been completed, and a number of publications covering the marketing of cotton, both in the United States and various European countries, are now available. In cooperation with Clemson College, in South Carolina, a study was made of marketing practices and of the relation of price and quality in typical producing areas of South Carolina. The series of analytical statistical studies, begun during the previous year, have been completed and have been submitted for publication under the title "Factors Making the Price of Cotton." Studies of the distribution and use of the American crop and the nature of the demand for the various qualities are in progress.

COTTON-HANDLING INVESTIGATION

Work on the tare problem has made good progress. A wide assortment of materials customarily used for covering baled cotton had been collected, and tests of breaking strength, and practical tests of the serviceability of the materials, when put to high density compression, have been made.

Other studies include the economies to be had from the use of a lighter tie, the factors governing the price of bale coverings and the practicability of plan for standardizing bagging, ties, and patches.

In the testing of patching material it was found that a durable patch 24 inches wide and 48 inches long weighing 2½ pounds was the minimum size patch which would both withstand high density compression and cover the sample holes.

THE STANDARDIZATION OF COTTON-SEED AND COTTONSEED PRODUCTS

Further studies of cotton-seed have been made with a view to devising a method of grading and evaluating the supplies for oil-mill purposes.

The foreign-matter content has been found to vary from less than 1 per cent to as much as 40 per cent, the moisture content from below a normal of 10 per cent to above 25 per cent, the kernel or meats content of clean seed from below 48 to above 62 per cent. A combination of these variables, in round numbers, makes the kernel content of the gross ton to vary

from about 40 to 60 per cent. Seven tentative grades based on the kernel content have been proposed.

A much greater variation in the intrinsic value of different lots of cottonseed was found than had been supposed. The kernels or meats contain the oil and the residue of the meats constitute the cake. The oil forms approximately 53 per cent of the value of all the products of cottonseed and the prepared cake or meal approximately 35 per cent. The oil content of the meats was found to vary from about 25 to 40 per cent, or from 250 pounds of oil per ton to 400 pounds per ton in the proposed grade No. 4. The protein content of the cake was found to be in approximately a reverse ratio to the oil content.

The oil content has been found to be approximately correlated with growing conditions, so that the value of any lot of cottonseed can be fairly accurately estimated for the basis grade when the oil-in-meats factor of the place of origin of the seed is known.

The results of these studies have been reported to the conventions of the interstate and several State associations of cottonseed crushers and have been favorably received.

DIVISION OF FRUITS AND VEGETABLES

WELLS A. SHERMAN, *in charge*

MARKET NEWS SERVICE

Ten years of experience have served to standardize to a large extent the methods of gathering and disseminating reports on supply, demand, movement, and prices of fruits and vegetables and other current market information, although readjustments and minor changes must constantly be made. The bureau's 7,500 miles of leased telegraph wires continue to be the chief means of transmitting information between the various branch offices and Washington and from one branch office to another. This information includes shipment reports, arrival and price data, and statements regarding local conditions in producing sections and terminal markets, etc.

The information is compiled and given wide publicity from Washington and the branch offices and field stations by means of mimeographed reports, radio, telegraph, telephone, bulletin boards, and the press. The products covered by daily telegraphic reports include 34 of the most important fruit and vegetable crops of the United States. The total number of

mimeographed market reports distributed during the year from Washington and the branch offices was approximately 12,150,000—an increase of 12 per cent over the preceding year, and concrete evidence of an increased realization of their value. A constantly augmented demand for these reports as a basis of settling railroad claims testifies to their accuracy. The mimeographed reports also furnish the basis for statistical studies and research work. Many dealers and shippers maintain complete files of the reports for reference.

Development of new contacts and outlets for the reports through the press and by radio has continued.

COOPERATION OF TRANSPORTATION LINES

The volume of carload shipments reported each year has gradually increased. Wire reports cover 34 products and several additional commodities are reported by mail. The total of 978,927 cars of 38 products reported last year represents a net increase of about 10,000 over the year 1924.

Daily telegraphic reports on selected perishable products are received at Washington from several hundred transportation lines, these reports showing the number of cars originating in each division superintendent's territory. About 73 of these reports are "consolidated wires," each covering an important railroad system or major portion of a system. Approximately 400 individual division superintendents or other reporting officials, chiefly of smaller transportation lines, send daily wires.

About 15,000 local freight and express agents are held accountable for monthly (station) reports by mail covering a greater number of products than those in daily wires.

Effective June, 1926, an arrangement was perfected with the Canadian railroads to furnish a monthly statement of shipments of all car-lot perishable freight originating in Canada and destined to points in the United States. It is hoped that the information to be furnished will give a more complete picture of perishable commodities imported into the United States from Canada.

COOPERATION IN MAINTAINING FIELD OFFICES

The bureau receives the cooperation of State and local agencies in maintaining temporary field stations dur-

ing the heavy movement of important crops. In many cases these agencies have defrayed the major part of the expenses of such stations. Without such assistance it would not be possible to maintain the present program of service. In all, 36 field stations have been opened during the past year, in addition to the 17 permanent branch offices. At a number of points on the leased-wire system various States have established offices for the distribution of crop and market information which they obtain from the leased wire.

MARKET REPORTS ON PEANUTS

Quotations are obtained covering prices paid for farmers' grade stock and selling prices for shelled and unshelled peanuts, peanut oil, and at times peanut meal or cake. Supplementary information on prevailing prices in the producing areas is obtained from peanut brokers in the large consuming centers.

Weekly telegrams are received from bureau representatives in receiving centers which include car-lot arrivals and boat receipts, market conditions, and selling prices, or quotations in large lots of both cleaned and shelled peanuts and brokers' statements mentioned above. This information is supplemented by reports from the carriers and by information from foreign countries. Reports are issued weekly.

REPORTS ON HONEY AND BEESWAX

The market news service on honey and beeswax has been continued successfully. At present about 130 large beekeepers and honey shippers, scattered throughout the country from Vermont to Florida in the east to California and Washington in the west, furnish reports of market prices, conditions of colonies and honey plants, etc., that are combined for publication in the honey market news reports. Several times a year returns from thousands of reports of beekeepers, dealing with yield, condition of bees, etc., are tabulated by the division of crop and livestock estimates. Information is obtained by representatives of the bureau in large markets and import and export figures are obtained from the Department of Commerce. Mimeographed reports are issued twice a month.

UNLOAD REPORTS FROM PRINCIPAL MARKETS

Arrangements were made effective April 1 to obtain unload reports from 30 additional cities. It is of interest

that this proposed expansion—requested by many important dealers and shippers—received the practically unanimous approval of the subcommittees of the regional advisory board to whom it was submitted. These additional reports, when perfected, will give a country-wide picture of distribution of much value to those engaged in the marketing of perishables. The 66 cities now covered include the principal markets having 100,000 or more population.

In 25 cities, the bureau's own men obtain the unload information regularly. These reports of unloads of car-lot shipments are obtained each day from the railroads and express companies. Similar reports are received from important boat lines. Reports are submitted at the close of each month by railroad agents in 41 additional cities.

These data are of great value because they show the monthly and annual receipts of various products in large consuming centers, as well as the sources of supply. The bureau's representatives in various markets frequently prepare press releases for public distribution on the basis of these figures, and mimeographed summaries are issued regularly.

REVIEWS AND SPECIAL REPORTS

The Weekly Market Review of Fruits and Vegetables analyzes and compares the market movement and prices of the week, as compiled from the daily market reports and the Weekly Summary of Car-lot Shipments.

Each Tuesday the Weekly Summary of Car-lot Shipments is mimeographed and distributed. This publication is statistical in nature and summarizes in comparative columns the car-lot shipments of the principal fruits and vegetables as reported telegraphically by the carriers each day. It affords a valuable comparison of the past week's shipments with those of the preceding week and with the corresponding period of the year before. Totals are given for this season and last season to date, as well as grand totals for the past season—all on the basis of products and by originating States.

Great developments have been made in the line of special monthly or weekly reviews for particular papers, chiefly farm journals, in different parts of the country. A monthly market review tells of market trends during the preceding four weeks, in addition to outlining future prospects. An-

other review is prepared on the first of each month for the special benefit of seven papers that go to press early, and another on the 10th of the month.

The fruit and vegetable section of the weekly Marketgram is prepared for the daily editions of that special report, distributed through the Division of Information. These summaries of the latest developments of the preceding seven-day period describe important changes in market prices and conditions. The day's prices are abstracted from this report and published in the Daily Digest of the department. Special telegrams are prepared for certain newspapers and farm journals that have requested this service. These wires, some of them daily and others weekly, summarize the market situation on selected products and are published by the respective papers or other subscribers.

Summaries of the marketing of specific crops in important producing sections, including price, shipment, and production statistics continue popular. They command much attention and commendation and are being used by many as a basis for planning marketing operations for the succeeding year. The manager of one successful cooperative association refused to contribute toward the cost of issuing daily reports from a producing section office until he was assured of the prompt release of the summary following the close of the deal.

HEALTHY GROWTH IN INSPECTION SERVICE

The service covering the inspection of fruits and vegetables and the certification as to their quality and condition has made satisfactory progress both at shipping points and at the receiving markets. The total number of inspections made at receiving points was 32,531, an increase of 197 cars over the preceding year. The total number at shipping points was 165,529, or an increase of 34,442 cars. In addition to the inspections made for commercial interests, 38,889,636 pounds of fruits and vegetables were inspected for the Navy Department, 2,608,363 pounds for the Marine Corps, and approximately 8,600,000 pounds for the laid-up fleet and for various steamship lines. Very substantial savings are effected for the Federal Government through the inspection service.

RECEIVING POINT INSPECTIONS A BENEFIT TO EXPORTERS

There has been a material increase in the number of export inspections of

boxed and barreled apples in New York City. Exporters are depending more and more upon the Federal certificates as an aid in closing their financial transactions at the time the fruit is delivered to the steamship companies.

RAILROAD COMPANIES USE INSPECTION SERVICE

Under special contract with a large railroad company, arrangements were made for the preliminary inspection of all cars arriving in Cleveland over that line and for the complete inspection and certification of those cars which showed broken packages or off-condition products. It is expected that approximately 4,500 cars will be inspected during the year. This work is yet in an experimental stage but seems to be progressing favorably in accordance with original plans. Many inspections are made for other railroad companies throughout the United States.

SHIPPING POINT INSPECTIONS

The greatest increase in number of inspections made was in California, this being due largely to the very great increase in the number of grape inspections, 36,069 cars having been inspected in 1925-26, compared to 18,783 in 1924-25.

An increased willingness has been shown in practically all sections to accept certificates on cars which failed to meet the grade requirements. Shippers are finding that they can sell cars which are slightly under grade at only a slight reduction if they support their statements of the quality of such cars by Federal-State certificates. Reductions in price on slightly off-grade cars are usually much less if made at shipping point than if made after the product has passed into the hands of the buyer.

The shipping-point inspection work is practically all done under cooperative agreements between the department and the various State agencies. Fees are collected from the applicants for inspection making the service practically self-supporting.

Of the total 165,529 cars inspected at shipping points, there were 225 re-inspections made at receiving markets, 106 of which sustained the original inspection. To reduce the number of re-inspections and reversals to as low a figure as possible, special efforts have been made to call errors at shipping point more quickly to the attention of supervisors so that they may be cor-

rected before the same error can be made on other cars. In order to prevent errors in reinspections in receiving markets, it was required that the Washington office be advised of the findings and secure approval before reversal certificates were issued.

It is felt that the number of reinspections and reversals where inconsistencies have been found has a very salutary influence upon inspectors at shipping point. Supervisors report that the threat of reinspections is the strongest weapon in their hands to aid in obtaining thorough work. The number of reinspections, therefore, is not believed to be injurious to the service, nor is it higher than is to be expected in such a volume of work.

INSPECTION ENCOURAGES BETTER GRADING

Great progress has been made during the four years that the shipping point inspection service has been in operation in securing the adoption of recognized standards for fruits and vegetables. Supervising inspectors have reported better knowledge on the part of shippers of established standards and more effort to comply with the best grading practices. Insistence by several organizations on the shipment of graded products only, has kept on the farms products of low quality which otherwise would have gone on the market in competition with the higher quality offered by the better growers and shippers. The inspection service has helped cooperative associations in dealing fairly with their members.

STANDARDIZATION WORK

Rapid progress has been made in the standardization of grades for fruits and vegetables during the fiscal year. Grades have now been recommended for 35 different commodities. The use of national grades for fruits and vegetables has been extended through their adoption as official standards by the States. Thirty States have now officially adopted one or more of the United States grades. In many cases the use of these grades is compulsory for those crops standardized under the provisions of the State law.

Research relating to standardization has been conducted for two purposes—(1) to obtain data on which to base grades for new commodities and (2) to obtain data necessary to the clarification of existing grade specifications. Grades were recommended for 9 additional products during the past year,

and revisions were made in the grades for 19 products.

In addition to the grades published, an extensive study of the grading of walnuts was made in connection with the California State Department of Agriculture and a tentative grade formulated which it is expected may be released for use during the next shipping season.

A similar study of the grading of comb and extracted honey was made in cooperation with the bee-culture laboratory of the Bureau of Entomology and grades for both types of honey will be recommended in the near future. Publications have been prepared from data obtained from surveys and research work covering the preparation of various commodities for market, economic problems involved in the marketing of various crops, methods employed by American fruit and produce auctions, and other phases of the marketing of fruits and vegetables.

IMPROVED METHODS PREVENT REJECTION OF SHIPMENTS

A three-year study of the extent and causes of the rejection by buyers in the various markets of Northwestern boxed apples purchased f. o. b. shipping point has been completed except for the final analysis of the data. A report on this subject will be available by September, 1926.

This study, based on an examination of the sales records of representative shippers, discloses the fact that during the last three years there has been a progressive reduction in the percentage of cars rejected by the buyers. The rejections totaled 15 per cent of the sales of 1922-23 but fell to 6 per cent in 1924-25. These reductions are in a large degree attributable to improved handling and selling practices.

STATISTICS OF POTATO INDUSTRY STUDIED

A statistical study of the commercial potato industry has been made which includes statistics on the distribution of the crop from 16 important areas of commercial production to various States and to 14 principal city markets. The extent of competition between the various districts is also shown by the volume of weekly car-lot shipments. This material has been prepared for a bulletin which presents a picture of the potato industry that should be valuable to growers

in adjusting production to market demand.

SURVEY OF FRUIT TREES

One of the most difficult problems in adjusting agricultural production is involved in planting fruit trees. To put before producers of the country the facts regarding bearing and nonbearing trees, commercial varieties, competitive districts, price trends, and costs of production, several divisions of this bureau have cooperated with State agencies to make a survey of the commercial fresh peach industry of the United States. The fruit and vegetable division cooperated in this study and obtained data relating to distribution, prices, methods of sale, and selling costs. A preliminary report covering the various phases of this survey is available.

STANDARD TRADING RULES RECOMMENDED

A plan for Federal cooperation with the fresh fruit and vegetable industry was formally submitted to members of the trade in December, 1925, for comments and suggestions. The plan proposed was that the department would promulgate standard trading rules for use in the fresh fruit and vegetable industry, that the Secretary of Agriculture would enter into an agreement with any car-lot handler of fresh fruits and vegetables whereby such handler would be governed by the rules, and that the Secretary of Agriculture would provide a board of arbitration for the consideration of disputes referred to it by the parties concerned, would publish the names and addresses of those who signed the agreement, and would furnish such parties a number and symbol which they might use on their business stationery. The proposed plan was published in Service and Regulatory Announcements No. 97.

The responses received by the department to the request for comments concerning the proposed agreement and standard trading rules showed very little opposition, and a great many favorable replies and comments were received. Certain dealers, however, appealed to Congress for legislation to prevent the operation of the plan. Hearings were held by the Senate Committee on Agriculture and Forestry, but no action was taken, and the Senate Committee advised the Secretary that it would not interfere with the plan. Certain interests, however, filed a bill of complaint in the Supreme Court of the District of Colum-

bia, asking that the Secretary of Agriculture be enjoined from making the rules effective. The court held that the plan was not a compulsory regulation and that any possible injury to the plaintiffs was indirect and remote and therefore dismissed the bill.

ENFORCEMENT UNITED STATES STANDARD CONTAINER ACT

The provisions of the standard container act are carried out through educational work and conferences with manufacturers of containers and through the testing of samples submitted by manufacturers to determine whether or not they are standard. More than 2,500 samples were tested during the year, and the manufacturers notified as to what changes should be made in order to meet legal specifications.

Field trips have been made, conferences attended, and lectures given for the purpose of bringing about the use of uniform standards for containers which are not yet covered by legislation. Much progress has been made in the effort to eliminate irregular and deceptive types of containers. Bills were introduced during the last session of Congress which provided standards for hampers and baskets, but none reached final passage.

COLLECTION AND DISTRIBUTION OF 1918 EXCESS WOOL PROFITS

Activity in the collection of 1918 excess wool profits has diminished during the past fiscal year as a result of the policy of the department not to press pending court cases until a Supreme Court decision shall have been obtained in the W. A. McFarland case as to the validity of the 1918 Government wool regulations and as to the meaning of the term "gross profits," as used in the regulations. The McFarland case presents the first opportunity of the Government to take an appeal to the higher courts, that case having been decided adversely to the Government in Baltimore, Md., in February, 1925. This case was argued before the Circuit Court of Appeals on January 20, 1926, but the decision of that court has not yet been rendered.

Collections of excess profits during the year amounted to \$1,797.16. Refunds amounting to \$2,090.04 were forwarded to woolgrowers. The total amount of excess profits made on wool in 1918 now stands at \$1,512,040.76; the amount collected to date \$756,519.42 and the amount distributed to growers \$451,231.60. There remain 32

cases to be disposed of, involving \$714,738.64.

DIVISION OF LIVESTOCK, MEATS, AND WOOL

CHARLES V. WHALIN, *in charge*

The response on the part of the public to the livestock work of the bureau, has been most gratifying, but the demands for greater service have increased beyond its facilities and resources. To meet a part of these increased demands, the last Congress made appropriations to expand the livestock market news service so as to serve six additional markets. Notwithstanding that facilities for handling the meat-grading service have been enlarged recently it will be necessary to make still further provision for handling the increased demands from the trade.

The information service of this bureau is now accepted by producers and distributors as a part of the marketing machinery. Rapid adjustment of supply and demand forces is necessary to insure economic stability and this adjustment can be accomplished only through the rapid dissemination of accurate information. Production and demand can be balanced when producers and consumers are in immediate and constant touch with each other and can make their wants and needs immediately known.

STANDARDIZATION WORK

LIVESTOCK

After extensive study, numerous conferences with the trade, and a thorough test in market reporting, grade descriptions for market classes and grades of slaughter, feeder, and stocker cattle were prepared for publication. Tentative grade standards for these classes were formulated and submitted in connection with the proposed standards for beef grades at public hearings held at Portland, Oreg., Chicago, and New York City. Progress was made also in drafting specifications for grades of calves and vealers and sheep and lambs.

Department Bulletin No. 1360, Market Classes and Grades of Livestock, was published. This contains a complete schedule of the market groups into which livestock is customarily sorted for purposes of trade. It also outlines in some detail a basis for grading livestock and the principles on which the system used by the division is founded.

Under authority of the Purnell Act and in cooperation with the Bureau

of Animal Industry and Home Economics, and several of the State agricultural experiment stations, a study was begun, having for one of its objects the determination of what makes quality in beef. Approximately 1,000 cattle fed by the experiment stations were graded as feeders, later as slaughter cattle, afterward as carcasses of beef, and finally cooking tests were made and the cooked meat graded by experts. In connection with these experiments standard grading charts were devised by which it is possible to apply a mathematical weighting to each grade factor, thereby facilitating scoring and making more accurate grade comparisons. The results so far indicate a rather close correlation between the grade of the live animal and the grade of the carcass.

MEATS

After eight years' practical use in market reporting and three years' use as suggested standards in commercial transactions, the standards for grades of carcass beef were formally promulgated by the Secretary June 3 as official United States standards, effective July 1, 1926. These standards provide for seven grades each of steer and heifer beef, and six grades each of cow, stag, and bull beef. Attention also was given to the preparation of grade descriptions and specifications for other classes of meat.

WOOL

The establishment and promulgation, effective July 1, 1926, of official standards for grades of wool and wool top based on the numerical system as used in the manufacturing branch of the wool industry was one of the outstanding accomplishments of the year.

The fact that wool is one of the important commodities entering into international trade makes it necessary to have standards which are acceptable to and recognized by trade interests in the leading producing and manufacturing countries. Leaders in the manufacturing branch of the industry in this country recognized this, and at their request in 1923 negotiations were begun with representatives of the British industry. After several conferences held in this country and in England, an agreement was reached on representative types of wool. The Bradford (England) Chamber of Commerce approved and indorsed the selection, thus giving them semiofficial recognition in England. Grades were

developed also for wool tops which correspond to those established for grease wool.

The standards were submitted to various branches of the industry at a public hearing on April 29, 1926, and generally approved and indorsed. The president of one of the leading organizations of worsted and woolen spinners stated in a public address that "the recent adoption of the United States wool grade standards by our growers and industries and those of Great Britain to the end of international standards is an accomplishment of the Department of Agriculture that should merit our utmost praise and backing. The wool grade standardization is an achievement that has been looked forward to for many years."

The numerical standards as finally developed are based on diameter of fiber only. Within the range from the finest grade, 80's, to the coarsest grade, 36's, are 12 gradations of diameter of fiber. The differences in diameter between adjacent grades are almost imperceptible to the inexperienced eye, yet the recognition of them is one of the important requisites in wool manufacture.

WOOL-SCOURING STUDIES

Wool-scouring studies have been continued and tests have been made of many samples submitted. Shrinkage of wool is a vital factor in determining its value, and effort is being made to develop reliable methods of determining amount of shrinkage.

METHODS AND PRACTICES OF MARKETING

Changing conditions, increased competition, and the necessity for greater efficiency in marketing and distribution have necessitated study of the advantages and disadvantages of different marketing methods and practices.

At the request of the Oregon Cattle and Horse Raisers' Association, study was given to a marketing plan, devised to bring about a more orderly movement of their livestock to market. Information was obtained on the efficiency of direct marketing of western feeder cattle from the viewpoint of eastern feeders. Farmers' Bulletin 1502, "Cooperative Livestock Shipping Associations," was published and a manuscript dealing with the handling and marketing of the California spring lamb crop was prepared, and manuscripts on various phases of the mar-

keting of livestock and meats were submitted for publication.

Marketing of hogs direct to packers has attracted much attention recently and because of the rather broad interest in the subject on the part of producers and distributors considerable time has been devoted to the study of all available information pertaining thereto. This material has been summarized and while it may not be published because of the confidential nature of some of the information it is expected to be of much value in connection with any future treatment of this subject.

The retail meat marketing study which was begun in July, 1924, was completed and the results summarized in a final report which has been sent to the printer. This study went into the various problems of retail-meat marketing, including methods, practices, costs, and consumer demand. Two preliminary reports of the study were given wide distribution and were met with active interest on the part of the dealers. The contacts established with retail dealers in connection with this study are proving very helpful in the development of the meat grade standardization program and in other studies which the bureau is making.

STATISTICAL RESEARCH

The compilation, analysis, and interpretation of statistics of market prices, supplies, receipts, movements, and demand as related to livestock, meats, and wool is being given more attention as the demand for economic information increases. The results of the statistical research were made available to the public in the form of a large volume of reports, press articles, addresses, summaries, and reviews, all of which served to give more complete information regarding the economic situation in the livestock, meats, and wool industries. The bureau's livestock outlook reports are based on the statistical studies made by this division and the division of crop and livestock estimates.

Assistance was rendered to the Packers and Stockyards Administration in the study of several marketing problems. These included the factors causing sharp daily fluctuations in hog prices during certain periods, the competitive relations between livestock markets, and the trend toward direct buying of hogs by packers.

Attention was given to the study of available material which could be

helpful in ascertaining the seasonal movement of beef cattle to market by grades. As part of this project an analysis was made of all data pertaining to New York's meat supply.

PUREBRED LIVESTOCK PRICE SURVEY

The purebred livestock price survey was extended to include a larger number of breeders so as to make the report more representative of actual price conditions. Printed schedules were sent to 35,000 breeders with the request that they report on the number of purebred animals sold at auction and private sales according to breed, sex, and age. The last survey showed that conditions in the purebred industry were improving and that a better demand existed for breeding stock. The publication of price information based on a large percentage of the total transactions serves as a reliable guide to actual values of purebred stock and is an important factor in stabilizing the industry.

WOOL REPORTS

The quarterly wool stock report showing stocks of domestic and foreign wool by condition, class, and grade in the hands of dealers in the United States was continued as a regular feature of the division's service, being released jointly with the reports of the Department of Commerce on stocks of wool held by manufacturers.

Steps were taken to work out plans which would enable the International Institute of Agriculture at Rome to compile and release periodically statistics on wool stocks and consumption of wool. The bureau's wool specialist conferred with representatives of the wool industry in England, France, Belgium, Germany, and Italy and found that sentiment was in favor of the development of such a plan.

MARKET NEWS

The primary purpose of the market news service is to supply producers, distributors, and others with complete and accurate current information regarding supplies, demand, prices, and general developments in the various market centers.

As the service is now firmly established, no material change in its fundamental features was necessary during the year. Sixteen branch offices were maintained, and at the close of the year preliminary arrangements had been made for opening the six new offices, made possible by an increase in the appropriations at the last ses-

sion of Congress. These offices will be located at Buffalo, Cleveland, Pittsburgh, Cincinnati, Indianapolis, and St. Joseph, and they will enable the division to serve a large group which heretofore has been served only partially and indirectly.

Approximately 5,000,000 mimeographed reports were distributed during the year to subscribers in all parts of the United States and in a number of foreign countries. This represents a material increase over the distribution of such reports in the preceding year despite the fact that market reports broadcast by radio and disseminated by other agencies, and everything was done to keep the mailing lists at the minimum. The distribution of the daily wool market reports is now limited largely to the press, and to cooperative associations and other interests which give the reports distribution through their own publications.

An important news service feature developed during the year was the inauguration of a special mimeographed market report service for the trade at South St. Paul. It was designed primarily to keep the commission men advised of developments locally and at other markets in order that they might reply promptly and accurately to requests by telephone and telegraph for market information. Several of the offices prepared weekly mimeographed reports for distribution to country bankers.

With one exception all offices of the division furnished market reports to one or more radio stations for broadcasting. This radio service is very popular in all parts of the country. The installation of a leased wire drop at Hastings, Nebr., for the broadcasting of reports through the powerful radio station located there met with marked favor as this station serves a large livestock producing area.

All of the national press associations and some of those covering a more restricted territory utilized the regular and special reports of the division for their livestock, meats, and wool market reports.

In addition, increased use has been made of telephones, commercial telegraphs, bulletin boards, and other means of dissemination.

Of considerable importance to the sheep producers of the Pacific coast was the arrangement for reporting sales of California dressed lambs at the three eastern markets. These reports, though necessarily brief, enabled shippers on the west coast to

keep in close touch with conditions at Boston, New York, and Philadelphia and regulate their purchases and shipments of live lambs accordingly.

MEAT-GRADING SERVICE

Coincident with the promulgation of the beef grades, increased interest in the meat-grading service developed and from indications at the close of the fiscal year demands for the service will necessitate material expansion at an early date. The service has been available during the year at Boston, New York City, Philadelphia, Washington, Baltimore, Norfolk, Chicago, and San Francisco. Certifications for grade were made for the United States Shipping Board and for steamship lines and commercial concerns.

Rules and regulations covering the meat-grading service were promulgated April 24, to become effective July 1, 1926. These regulations are based on the experience of the division in grading meat and meat products for the United States Lines, the *d-up* fleet, and several other steamship lines and large commercial concerns during the last three years.

Listed among the commercial concerns for whom grading was done are several large packers, numerous small packers, and one Canadian packer. The service has also been in demand by some of the more important railroad lines, particularly during the summer months, when shipments of fresh meats are likely to deteriorate in transit. The service has become a regular feature of many restaurants and recently hotels have made inquiries concerning it. Several large railroad companies have requested the service for their dining cars and station restaurants.

One of the leading livestock journals started a campaign recently having for its object the labeling of various grades of meat so the consumer could be certain of getting the quality of meats he desired. The main object of this campaign was to increase the consuming demand for better grades of beef and thereby improve the market for high-grade cattle.

LIVESTOCK DEMONSTRATIONS

Interest in standardization among livestock producers is very active. Livestock grading demonstrations have been held before gatherings of farmers, ranchers, and agricultural college students. Demonstrations and ad-

dressess were given before approximately 150 gatherings of farmers and business men representing an attendance of 15,000 people. The work was carried on in seven western range States and in Virginia and West Virginia. In this work practical demonstrations were made by grading miscellaneous lots of cattle and sheep gathered on the farms and ranches. In each instance the demonstrator called attention to the points of excellence and deficiency in each animal, giving specific reasons for placing it in one grade rather than some other.

OPERATION OF CENTER MARKET

C. W. KITCHEN, *Superintendent*

The operation of Center Market, Washington, D. C., and the supervision of the general conduct of tenants have been carried on in accordance with the rules and regulations established by the Secretary under existing laws.

RESEARCH WORK

Studies of retail prices and margins were continued particularly for comparison with prices prevailing generally throughout the country and especially with similar institutions locally. The three refrigerated stands installed during 1925 were observed as to their efficiency of type and operation. The total of sales for the last year aggregated \$9,526,779.38 (exclusive of the farmers line and wholesale row), an increase of nearly \$500,000 over 1925.

The outstanding feature of the work during the past year has been the large amount of repairs and alterations made. Old and obsolete stands are being replaced as fast as possible with modern refrigerated equipment. Every economy consistent with satisfactory service has been exercised, and the regular employees of the market have been utilized in making alterations in so far as possible.

During the past year the United States Court of Claims had under consideration a petition of the Washington Market Co., setting forth claim for \$200,000 alleged "going concern" value of the buildings and improvements on Reservation No. 7 (Center Market). The Department of Justice filed a demurrer which was sustained by the Court of Claims. The Washington Market Co. then attempted to obtain a writ of certiorari from the Supreme Court of the United States but this was denied, thus ending the litigation with respect to the pur-

chase of this property by the Government.

GRAIN DIVISION

H. J. BESLEY, *in charge*

The work in the field under general supervision from Washington was directed by general field headquarters, Chicago, and Pacific coast field headquarters, Portland, Oreg., through 5 division supervisors and 32 district offices of Federal grain supervision.

ADDITIONAL STANDARDS ISSUED

Official standards for shelled corn, wheat, oats, rye, and grain sorghums were in effect during the entire fiscal year. Official standards for feed oats and mixed feed oats became effective on September 1, 1925. In addition official standards for barley were promulgated on May 26, 1926, to become effective August 24, 1926.

MEMORANDUM OF AGREEMENT WITH GRAIN EXCHANGES

The standards for feed oats and mixed feed oats were designed to classify grain mixtures consisting principally of cultivated and wild oats with varying percentages of other grains. Considerable difficulty had been encountered by the department in administering the United States grain standards act, and also the food and drugs act, (1) because of the lack of definite official trading terms, and (2) the adulteration of such products by the addition of water to make weight, or of worthless foreign material.

With official standards in effect and licensed inspection and appeal service available, this bureau undertook the responsibility of administering in the field the regulatory features of not only the grain standards act but also the food and drugs act as it applies to grain. Meetings were held with representatives of 19 grain exchanges, boards of trade, and chambers of commerce, 1 national association and 1 shippers' organization at which these organizations were urged to take steps through control of their memberships to avoid infractions of the laws rather than to permit them to occur with resulting prosecution, involving expense to the defendants and the department. Each of the 21 organizations signed a memorandum of agreement, subscribing to the plan of correcting illegal practices by prevention rather than by prosecution.

BARLEY STANDARDS

The preparation and establishment of standards for barley presented a

difficult problem by reason of the difference in conditions obtaining in the Middle West as compared with the Pacific coast area. Public hearings were held at several of the important barley markets, at which producers, dealers, and all other branches of the industry were afforded opportunity to present their views. Following this, official standards were established, divided into classes on the basis of the section where grown. While these standards will not become effective officially until August 24, 1926, it is believed that they will work out satisfactorily to all parties interested.

CONFERENCE AT MONTREAL

A condition has existed at Montreal, Canada, under which grain of United States production moving in bond in foreign commerce through Montreal, was not inspected on the same basis as grain moving in foreign commerce through ports of the United States. This department took up the matter with the Department of State and a conference between inspection authorities of the United States Department of Agriculture and the Dominion Government of Canada was arranged, which was held at Montreal, March 31, 1926. It was agreed by the conferees that the standard on which United States grain is inspected and graded at Montreal en route through that port in bond to foreign countries, should be on the same basis as the standards used in the United States.

Following the conference the Canadian Government requested the United States Government to assist it through preparation of type samples in bringing about the use of same standards at Montreal as in ports of this country.

INSPECTION AND APPEAL SERVICE

On June 30, 1926, there were 127 regular inspection points and 24 additional designated points, and 452 licensed inspectors. It was necessary to take disciplinary action against five licensee on charges of misgrading grain or other violations.

A total of 42,350 appeals from the grades assigned by licensed inspectors were filed and 20,680 appeals were sustained. Fees amounting to \$41,872.67 from appeals which were not sustained were covered into the Treasury as miscellaneous receipts.

TYPE TRAYS DISTRIBUTED

Type trays illustrating classes, subclasses, and grading factors of corn,

wheat, and oats have been sent to additional agricultural institutions. One set has been sent to Germany. A special set of 11 trays was furnished for the department's exhibit at the Sesqui-centennial Exposition at Philadelphia, and a special set furnished to the Field Museum of Natural History at Chicago.

Various institutions which are teaching grain grading are requesting more information and assistance. Approximately 500 samples of the different grains have been sent out during the past year. Samples were furnished and assistance given to the International Grain and Hay Exposition.

PROGRESS IN STANDARDIZATION WORK

Flaxseed standardization investigations were continued and progress was made in the development of standards for this commodity.

Rice standardization investigations for the purpose of perfecting the United States grades for milled rice and for rough rice were continued and progress was made in the development of improved standards for these commodities. A detailed study of California rice and of the grading, handling, and marketing conditions is now being made in that section.

In cooperation with extension leaders in the Southern States rice-grading schools were conducted in the principal rice centers of Arkansas and Louisiana. At these schools rice-grading demonstrations were made and moving pictures and lantern-slide lectures pertaining to rice grading and to improved methods of handling rice were given. As a result of these schools and demonstrations the Arkansas Cooperative Rice Growers' Association installed a complete rice-inspection laboratory and several rice mills installed new rice-testing equipment. Assistance was rendered to commercial rice inspection departments in the proper interpretation of the United States grades for both milled rice and rough rice.

SHELLING DEVICE PERFECTED

A mechanical device known commercially as the Smith shelling device for removing the hulls from samples of rough rice for testing and grading purposes was perfected. A public-service patent was granted to W. D. Smith, project leader in rice investigations. By use of this device it is now possible to determine the mill-

ing yields and qualities of rough rice and also to determine the percentage amounts of red rice and damaged and chalky kernels in rough rice, which makes uniform and accurate grading of rough rice possible. This device is now in regular use for commercial inspection purposes by one of the principal rice growers' cooperative associations.

MILLING TESTS OF RICE

Experiments were conducted to determine what effect commercial drying has on the milling quality of rice. These experiments demonstrated that when properly done commercial drying improves the rice for milling purposes, makes it possible to dry damp or wet rough rice in order to meet the commercial grades for milled rice, and prevents spoilage through heating in storage and transportation. A mimeographed report, "Handling, Grading, and Uses of Rice," was issued, and a number of articles and press stories on various phases of rice grading, handling, and marketing were published in the rice trade and farm journals.

TREATING OF SMUTTY WHEAT STUDIED

The prevalence in the 1926 crop of an unusually large quantity of smutty wheat in the hard-wheat belt of the Great Plains area led to certain treating and mixing practices among the terminal elevators which caused some serious grain-grading problems. To get reliable information on these practices, an investigation was made of the practices employed by terminal elevators and mills. Studies were made to determine the effect of the various kinds of treatment on the physical, chemical, milling, and baking characteristics of the wheat.

BAKING QUALITIES OF WHEAT TESTED

The milling, baking, and chemical results from 237 samples of wheat received from the principal grain markets of the country were compiled and studied. With respect to the relative baking qualities of the four principal bread-making classes of wheat, hard red spring ranked first, hard red winter a close second, white third, and soft red winter fourth.

A study was begun of the particular type or quality of flour best adapted to certain uses. Information of this kind is valuable in indicating to the plant breeder the desirable qualities toward which to breed, to the farmer in the selection of the proper seed, and

to the miller in the marketing of his product to the best advantage.

The effect on baking quality of various bread improvers used in commercial bread making were studied and the results were prepared in a report on the subject.

A study of the relation of kernel texture of wheat to its physical characteristics, milling and baking qualities, and chemical composition was completed and a manuscript giving the results of the study was prepared for publication as a department bulletin.

A study was made of the gross, net, and curvilinear correlations of protein content, kernel texture, and test weight per bushel of wheat to each of the milling and baking qualities.

Studies were made to determine the extent of weight losses occurring during the various steps in the process of making bread and in the baked loaf in order that a closer relationship may be established between laboratory and commercial baking practices. The results of this study were written up in report form.

A very large number of milling, baking, and chemical tests have been made in connection with a large number of scientific problems.

TEST FOR OIL CONTENT DEVELOPED

The method for making a quick determination of the oil content of flaxseed and linseed meal developed last year was further developed so as to make the test applicable for testing the oil content of peanuts, flaxseed screenings, cocoa, sesame, chocolate liquor, chip liquor, and cottonseed meal. The oil test was demonstrated at the tenth annual exposition of chemical industries held at New York City, where it created widespread interest and comment and resulted in the adoption of the test by several commercial organizations. A report describing the test was published in mimeographed form.

TECHNIC OF LABORATORY TESTS IMPROVED

Progress was made in simplifying the technic and methods for making moisture tests on rice and rice products. The Bidwell-Sterling method was found to be applicable for determining the moisture content of rice bran. Progress was made in developing a new type of retort for determining the moisture content of brewers' rice and screenings. Due to the demand of the milling industry for shorter methods for ascertaining the moisture content of flour, to effect more

efficient plant control, a new type of oven was tested and recommendations as to its use given out. As an aid to the Navy Department the proper temperature for operating the Brown-Duvel moisture tester for determining the moisture content of navy beans was determined. This was found to be 175° C. Department Bulletin No. 1375, "The Brown-Duvel Moisture Tester and How to Operate It," was issued.

GRAIN SMUT PREVENTION WORK

Assistance was given extension service of the department and the Northwest grain smut prevention committee in conducting a wheat smut control campaign in the spring wheat area of the Central Northwest. As a result of this campaign a very large proportion of the spring wheat farmers treated their seed wheat to prevent smut and this should result in a material saving of grain in the field and also a material saving in the market discounts in price for smutty wheat. During the previous crop year spring wheat farmers lost over \$5,000,000 through growing and marketing smutty wheat. Laboratory work has been carried on also covering the milling value of smutty and treated wheat.

WHEAT PROTEIN STUDIES

At the request of the Railroad and Warehouse Commission of the State of Minnesota, aid was given to the Minnesota State Grain Inspection Department in installing protein-testing laboratories at Minneapolis and Duluth. Frequent protein check tests were made for the Minnesota laboratories and aid was given to them in the matter of standardizing their tests solutions. Similar aid was given to other States and commercial interests.

A comprehensive study was made to determine the accuracy with which car lots of grain could be sampled for protein tests and it was found that over 95 per cent of the shipments and receipts tested could be sampled more than once and the results from a protein standpoint be duplicated within 0.25 per cent. Several hundred protein determinations were made for the office of cereal investigations to aid them in their wheat-breeding work.

This department has received requests from many sources, including a joint appeal from the governors of the States of North Dakota, South Dakota, Montana, and Minnesota, for a complete Federal service in testing

of wheat for protein content. Further legislative authority and additional funds will be necessary, however, before these requests can be met.

DIVISION OF DAIRY AND POULTRY PRODUCTS

Roy C. Potts, *in charge*

DAIRY MARKETING INVESTIGATIONS

A survey of the marketing problems confronting Oregon creameries was made, in cooperation with the Oregon Agricultural Experiment Station. The results of this study were published in Oregon Experiment Station Circular No. 74. In the report, the investigators pointed out that "the future success of Oregon's dairy industry depends upon united action within the industry in improving the quality of butter and the elimination of present evils existing in the purchase of raw material, also on group action in the marketing of the manufactured product." The formation of a creamery federation for the purpose of improving methods of manufacture, elimination of unfair and unsound practices in the purchase of cream and the sale of butter, was recommended.

POULTRY AND EGG MARKETING INVESTIGATIONS

A study of the methods and practices employed in marketing eggs in Texas was made, in cooperation with the agricultural extension service of the Texas Agricultural and Mechanical College. The study showed that the marketing facilities were not well developed and that the care and handling of eggs, both on the farm and in the channels of distribution, were not such as to insure delivery of a satisfactory quality product to consumers. Suggestions were offered for improvement of existing conditions.

In cooperation with the agricultural extension department of the Oklahoma Agricultural and Mechanical College, a three-months demonstration was undertaken at Tulsa, Okla., on the marketing of eggs on a quality or graded basis. Results of this study were published in a mimeographed circular, which "showed producers, as well as dealers, that when Oklahoma eggs are properly produced, handled, and marketed, a larger return can be obtained."

COOPERATIVES ADOPT FEDERAL GRADES

At the request of producers' cooperative egg marketing associations in

Ohio and Nebraska, assistance was rendered these associations in establishing grades for their market eggs. In each association the United States standards and grades for eggs were adopted. The results obtained indicate that the Federal grades are practical and especially well adapted for use by cooperative organizations in handling and marketing producers' eggs on a graded basis.

EGG GRADES DEMONSTRATED

The Federal grades for eggs were demonstrated in a number of States. In each State they were received with favor and accepted by the extension departments of the colleges as the basis for extension work in egg standardization.

CHART OF STANDARDS AND GRADES FOR EGGS

A chart was prepared, showing the seven standards of quality for individual eggs and various types of inedible eggs, and presenting the requirements of the standards of quality for individual eggs and for the buying, wholesale and retail grades. Each of the seven standards of quality for individual eggs and the various types of inedible eggs are lithographed in colors, reproducing the conditions observed in these eggs when viewed before the candle.

INSPECTION SERVICES EXTENDED

In cooperation with the Philadelphia Produce Exchange, an egg-inspection service was established on the Philadelphia market, the exchange officially adopting the service in lieu of an inspection service which it previously maintained. A Federal-State inspection service was established at San Francisco and Petaluma, Calif., in cooperation with the California State Department of Agriculture. The service in San Francisco was adopted as the official egg-inspection service of the San Francisco Mercantile Exchange. A Federal-State inspection service on eggs was also established in Missouri, in cooperation with the Missouri State Marketing Bureau.

BOSTON TRADE OFFICIALLY ADOPT BUREAU BUTTER AND CHEESE INSPECTION SERVICE

The butter and cheese inspection service maintained at Boston was adopted by the Boston Fruit and Produce Exchange as its official service.

NEWS SERVICE REPORTS

An outstanding development in connection with the market news service work on dairy and poultry products during the year was the adoption by the San Francisco Mercantile Exchange of the price reports issued by the bureau as the official price reports of the exchange. Coincident with the adoption of the price reports, the exchange also adopted the butter, cheese, and egg inspection service of the bureau as its official service.

The Boston butter prices as reported by this bureau were also adopted by the Vermont Creameries Association and the New England Milk Producers' Association as the official prices for the basis of contracts in marketing their dairy product.

WISCONSIN CHEESE OFFICE MOVED TO PLYMOUTH

The Wisconsin cheese office of the bureau, which had been maintained at Fond du Lac, was moved to Plymouth, as the latter city is a more important cheese market and it was found possible to maintain closer contacts with the cheese trade.

DAIRY STATISTICAL WORK EXTENDED

Arrangements were made with the bureau of dairying in Michigan, the department of agriculture in Minnesota, and the dairy and food department in Colorado for cooperation in compiling the quarterly report of dairy products manufactured in these States. The monthly statistical statement on the dairy situation was extended to include information on the monthly trade output of butter, cheese, and condensed milk and a monthly balance sheet statement for the entire dairy industry, expressed in terms of milk equivalent for each class of dairy products.

COLD-STORAGE REPORTS

WILLIAM BROXTON, *in charge*

The monthly cold-storage reports of various classes of food commodities such as fruits, dairy products and eggs, frozen dressed poultry, meats, and lard; and the report of livestock slaughter, costs, and yields have been continued. These reports are given publicity through the use of the leased-wire system and branch offices of the bureau and by other means. Information is gathered with respect to the cold-storage holdings of fish by variety,

and this information is furnished to the Bureau of Fisheries for release.

During the year a biennial survey of refrigerated warehouse space was made. Material was prepared for a statistical bulletin on cold-storage holdings and for use in the Department Yearbook. Special tabulations were furnished to the Port of New York Authority for use in economic studies, and special assistance was given to various State and municipal organizations for use in studying local food supply problems.

DIVISION OF HAY, FEED, AND SEED

W. A. WHEELER, *in charge*

ADOPTION OF HAY STANDARDS BY STATES

Seventeen States in which hay production or consumption is of importance had adopted United States hay standards as official State standards at the close of the year. Other important hay States are now giving serious consideration to the adoption of the standards.

In 39 States agricultural colleges are employing United States hay standards in the teaching of hay grading and field crops to students of agriculture. During the past year a number of State extension service leaders have conducted hay-grading demonstrations among the producers of hay, notably in Nebraska, Kansas, Alabama, Arizona, and New Mexico.

Educational and demonstrational work with reference to United States hay standards among State departments of agriculture, commercial exchanges, shippers' organizations, etc., has been given major attention the past year. Conferences have been held and demonstrations have been made at farmers' meetings and other gatherings.

PRAIRIE HAY INVESTIGATIONS

In cooperation with the Nebraska Agricultural Experiment Station, field studies are being made with respect to the distribution and identification of midland hay, upland hay, and grass hay in Nebraska. The chief objective sought is to provide additional knowledge about the classification for grading purposes of wild hay, also to determine practical methods for teaching inspectors to identify midland hay, upland hay, and grass hay when baled. Similar work is being done at Washington with hay from Colorado, Wyoming, and Washington.

eration with grain exchanges at Richmond, Va., and Chattanooga, Tenn. These inspectors have issued certificates of inspection for 57,923 bushels of soy beans.

GRAIN, HAY, AND FEED MARKET NEWS SERVICE

Further development of the grain, hay, and feed market news service was made during the year and its effectiveness was increased greatly. Demands for the information supplied by the service also increased materially, necessitating additional personnel in the Washington office and in the field offices at Chicago and Kansas City. Reports giving comprehensive reviews and analyses of developments in the grain, hay, and feed markets have been issued weekly throughout the year and numerous testimonials indicate that they have rendered an important service in providing an authentic and unbiased market news service for the agricultural interests of the country.

The feed market news service was improved and the scope of the work was broadened. Price, production, and stock figures were compiled to provide a more accurate statistical basis for the interpretation and analysis of market developments for the principal commercial feeds. Additional contacts were established in the principal feed markets from which reports on current market developments are forwarded regularly by telegraph or mail as often as required by the service.

The distribution of the feed-market information has been developed principally in cooperation with State marketing agencies, although special feed-market reviews are furnished weekly to several farm papers and to two important radio broadcasting stations. There is a growing demand for this feed-market information, particularly in important consuming territories, and an effort is being made to meet it as rapidly as facilities are available.

The grain and hay market news service has been made more effective by timely compilation of the market statistics necessary for the proper understanding and interpretation of the constantly changing conditions in the grain and hay markets. Contacts for the collection of market information have been extended so as to cover all of the important United States markets. Probably the most important reports received are those giving a summary of the week's developments in the grain and hay markets which

are forwarded from all markets by telegraph on Friday and used in the preparation of the weekly grain and hay market reviews issued each Saturday morning. At the close of the fiscal year more than 300 newspapers, with a total circulation of over 5,000,000, were publishing the reviews regularly.

TENTATIVE STANDARDS FOR BEANS ISSUED

A preliminary report on the standardization of beans was issued in August, 1925, in which is included the tentative United States standards for beans. Studies were made over a period of two years for the purpose of obtaining the essential facts relating to actual conditions of production, marketing practices, and consumers requirements in the dry edible bean industry as they relate to standardization.

Following the distribution of this report and the tentative standards, special effort was made to acquaint producers, dealers, and commercial consumers with the practical application of the standards. More intimate contact was established with canners, wholesale grocers, shippers, and producers. This was done through travel and an announcement that the bureau would analyze and grade in terms of the tentative United States standards without charge any sample of beans submitted by any one interested, which would give the sender a check on the quality of the sample and illustrate the application of the standards.

In response to this announcement 1,200 samples representing as many cars were submitted. These were analyzed and graded and the senders advised of the results. The bureau's findings on these samples were received favorably by the trade and in many cases were used as a basis for adjusting disputes as to quality.

SOY BEAN STANDARDS RECOMMENDED

United States standards for soy beans were issued in September, 1925, and recommended for use in the grading and marketing of this commodity for which no standards had been available. The application of these standards under a joint Federal-State inspection service in North Carolina proved their practicability and value.

STUDY OF SEED STOCK RECORDS MADE

The seed business is undergoing changes that have far-reaching effects. Years ago seedsmen paid little atten-

tion to any factors except color and size. About 15 years ago more interest began to be taken in purity and germination and a few States passed seed laws. It was not possible, however, by mechanical means to evaluate seeds readily from a purity or germination standpoint. A new interest in origin of seeds sprang up and during the last few years has overshadowed the interest in purity and germination with respect to certain kinds of seeds in particular sections of the country.

This bureau saw the necessity for a system of stock records that would preserve the identity of seeds from the time they leave the grower until they reach the ultimate consumer and thus afford a solution to the origin problem. It was found that many dealers were already keeping stock records.

A set of stock records, including in-tickets, dump or milling cards, invoices, shipping orders, etc., incorporating the best features of the 150 forms or more that have been collected will be prepared. It is hoped that the issuance of these forms will bring about greater uniformity and completeness in the records kept by seedsmen.

REPORTS ON VETCH SEED ISSUED

A new service on vetch seed to the growers in Oregon and Michigan and to consumers mainly in the Southern States was inaugurated. In recent years the demand for hairy vetch seed in Alabama, Georgia, and one of two other States has increased considerably. The reports on vetch seed issued by this bureau have tended to stimulate production in this country and at the same time keep prices of imported seed from soaring disproportionately.

SEED TRADE DEPENDENT UPON BUREAU'S REPORTS

With the discontinuance of the only commercial seed-reporting service during the year, the seed trade is dependent upon the bureau's seed service for comprehensive reports on prospective production, carry-over, movement, and prices of field seeds.

Information regarding carry-over, prospective production, prices, and demand for seeds in European countries is received by cable. This information supplements that received from regular correspondents in Europe and in this country, and is disseminated by mimeographed reports.

The three main kinds of reports issued during the summer and fall for

each of the important kinds of seeds were outlook, movement, and price, and shipment. In addition weekly seed reviews from January 20 to May 26, a prospective seed demand report on March 1, monthly retail seed prices for March, April, and May, and a retail seed sales summary on July 16, were issued.

ADMINISTRATION OF THE UNITED STATES WAREHOUSE ACT

H. S. YOHE, *in charge*

The warehouse act continues to play an important part in the marketing and financing of farm products. There was no phenomenal increase in licensed storage capacity for any one product such as the last several years witnessed, but the total licensed storage capacity for most of the products storable showed a normal increase. The largest increase for any commodity was for grain, due to the licensing of a number of large grain elevators, as well as a chain of elevators and warehouses operated by one warehouseman in Idaho. It is encouraging that as a general rule the desirable licensees who became licensed during the last five years or more continue to operate under the law and are stronger supporters of it than ever. The work under the warehouse act consists chiefly of licensing warehousemen, inspectors, graders and weighers, and supervising such licensees to see that they are meeting the requirements of the law.

SPECIAL SUPERVISION OF RECEIPTS

The plan which was inaugurated over two years ago to supervise more closely the printing of warehouse receipts for cotton warehousemen so as to guard against fraudulent issuance of warehouse receipts proved such a success that it was extended this year to all commodities with the exception of grain. Many of the grain warehousemen, however, have requested that their receipts be printed under the same supervision and on the same specially prepared paper. It has been exceedingly gratifying to note the various reports received from various warehousemen indicating that this supervision in the printing of receipts and the character of receipt which is issued under the plan have created a greater respect for the receipts. They are regarded very much like "paper money." Bankers are also enthusiastic about this new form of receipt, and it has already taken a distinct position as collateral in the credit field.

AMENDMENTS TO REGULATIONS

The cotton warehouse regulations were amended by increasing the inspection fees from \$1 per 1,000 bales licensed storage capacity to \$5 per 1,000 bales. This will increase the revenue to the Government without hardship on either the warehousemen or their patrons. An amendment to the sirup warehouse regulations provides for the storage of extracted honey under the terms of the Federal warehouse act. An amendment to the peanut warehouse regulations effective October 1, 1925, extending the period of storage from July 1 following the year in which the peanuts were harvested to the following March 31, resulted in a distinct service to the peanut growers, particularly to those who were marketing their crop through farmers' cooperative marketing associations, and to the banks loaning to these associations. That this action resulted in real service is apparent from the following taken from a letter received from the president of one of the largest growers' associations:

I am sure you will be pleased to know that we have at last disposed of the balance of the 1924 stock of peanuts and will soon be able to make final settlement for that crop. The fact that you so kindly extended the licenses of our warehouses in which the stock was stored, giving us time to dispose of it in an orderly manner, has enabled us to make a far better settlement than would have been possible under any other conditions.

TOBACCO STANDARDIZATION WORK

Work in developing standards for tobacco has been continued. A classification by types of all American-grown tobacco was made and published in pamphlet form as Miscellaneous Circular No. 55. This classification has met a distinct need not only of the producer but of the tobacco trade.

Under this departmental classification there are 29 distinct types of American tobacco. Grades have been prepared for all the leading types with the exception of Burley. Study was given to this type, however, and at an early date tentative grades for Burley tobacco will be issued.

A special report has been prepared on the sizing of tobacco. Charts are included to show how to divide a sizing board for determining lengths of tobacco. Lengths are expressed in both inches and centimeters. It is hoped this report may finally result in the use of a common sizing system for American-grown tobacco, not only in

the United States but in foreign countries.

WAREHOUSING OF ADDITIONAL PRODUCTS

During the last two years the department has received a number of requests to place canned fruits and vegetables on the eligible list for storage. Considerable study has been given to this subject and an effort is now being made to draft suitable regulations to govern the storage of such products under the law.

Organizations representing growers of various field seeds have indicated a desire to have such seeds placed on the eligible list. Much thought was given to these requests but because warehousemen were not able to make certain determinations which the law imposes upon them as positive duties, which determinations are essential to the giving of warehouse receipts collateral value, the department has abandoned the idea of placing seeds on the storable list at present.

At various times during the last five years requests have been received to license warehouses for the storage of cottonseed. During the past year requests were filed by various interests which indicated that a substantial use would be made of the law if cottonseed were declared eligible.

As a result, extended field investigations were made to determine the behavior of cottonseed while in storage, what elements tend to cause it to deteriorate, what the maximum moisture content might be for keeping purposes, what standards and grades may be in use, and to what extent bankers loan on cottonseed while in storage. These investigations developed some very interesting data which will be used as a basis for drafting regulations for the storage of this product. This information will be prepared for publication also as it will undoubtedly prove valuable to the farmers, buyers of cottonseed, warehousemen, and bankers.

WORK ON THE PACIFIC COAST STRENGTHENED

Prior to this year the work in Utah, Idaho, Nevada, California, Oregon, and Washington was conducted through a field office at Portland. On September 1, 1926, through cooperative agreements with State departments administering warehouse work, a field office was opened at Sacramento to handle the work in California and another at Boise for handling work

in Idaho and Utah. Through these three offices on the Pacific coast better service is given in this territory.

BANKER SUPPORT OF THE WAREHOUSE ACT

During the year a number of prominent bankers and various bankers' organizations have again lent their indorsement to the warehouse act and to receipts issued under its provisions. Numerous resolutions have been adopted which indorse the work under this act.

On June 10, 1926, the Washington Bankers' Association in the following resolution took action which should have a far-reaching influence:

Be it resolved by the bankers of Washington at Walla Walla in their thirty-first annual convention assembled:

That we commend all warehousemen in this State who are operating under the United States warehouse act and we urge upon warehousemen who are not doing so to qualify under the provisions of the act. We recommend that in the interest of agriculture in the Northwest and as a means of protection to farmers who store their products with public warehousemen that our members discriminate between applications for loans supported by warehouse receipts issued under the United States warehouse act and applications supported by other forms of receipts, and that we each counsel with our farmer and dealer clients with a view of educating them in the advantages of the Federal warehouse act.

DIVISION OF AGRICULTURAL FINANCE

NILS A. OLSEN, *in charge*

Major emphasis has been placed on farm credit and farm taxation during the past year.

STUDIES OF RURAL CREDIT CONDITIONS

In the credit work of the division attention has been given to regions confronted with special credit problems. A reconnaissance survey made of the range cattle industry in the northern Great Plains uncovered the fact that ranchmen were not making adequate returns, in part because they were operating on too small a scale. It developed that inadequate credit resources were an obstacle to the reorganization of the business. A study was therefore begun in Montana to ascertain the credit needs of ranchmen in that region and the ability of existing credit institutions to satisfactorily meet those needs. Though the study has not been completed the findings to date indicate that present credit facilities should be reinforced, perhaps by the introduction of agri-

cultural credit corporations through which to tap the resources of the Federal intermediate credit system.

Another study was made in Arkansas, where high costs characterized general credit conditions. In this study, which has been published as a bulletin of the Arkansas College of Agriculture, the volume and cost of credit used by farmers in various parts of the State and their relation to various types of farming were developed. Some light was also thrown on the factors affecting costs of farm loans in that State.

Still another credit study was launched in Oklahoma, with the purpose of ascertaining the relation between production credit and the development of cooperative marketing. This investigation has not reached the point where conclusions can be drawn, but it is expected that it will throw considerable light on the influence which conditions surrounding production credit have on the development of cooperatives.

A general survey dealing with agricultural credit corporations organized under the agricultural credits act was also initiated. The purpose of this study is to ascertain the factors which make for success and failure in this type of credit agency.

STUDIES IN FARM TAXATION

Cooperative studies of farm taxation problems in Missouri and North Dakota were completed and are now in process of publication. These studies analyze existing systems of taxation in those States and present the effects of these systems upon the farmer. Suggestions are made as to the kind of revisions in present laws which would tend toward a more equitable distribution of the farm tax burden.

In Texas a bulletin has been issued by the State agricultural college, based on a study of farm taxation conducted in cooperation with this division. This study, which presents a statistical analysis of increased taxation in recent years, is one of a series of projected studies covering farm taxation in Texas.

A study of State and local government revenues has been under way in Massachusetts during the year, and will soon be ready for distribution. Progress also has been made on cooperative studies in South Dakota, Oklahoma, and Colorado. The last two studies were inaugurated during the fiscal year.

The methods and immediate objectives of these studies necessarily have been varied, owing to the variation in conditions between States and to the lack of uniformity in the public records available for study. The purpose of the studies has been to discover how present methods of taxation lead to unduly heavy farm taxation. Where such conditions have been found suggestions have been made for revisions in existing laws which would be most likely to eliminate discriminations against agriculture.

The division has begun the preparation of a dependable annual estimate of the volume of farm taxes throughout the country, and has received the cooperation of county and town officials in almost every State. This study when completed will provide a current picture of farm tax burdens, together with considerable information as to reasons for recent changes in tax levels in various sections.

Further efforts have been made to develop new sources of information in farm taxation. On the basis of a suggestion made by the division, the Treasury publication "Statistics of Income, 1924" will contain a special tabulation of farm income reported on personal returns.

AGRICULTURAL INSURANCE

Research work in the field of agricultural insurance during the year has been considerably hampered owing to inadequate personnel, but statistical data on the business of farmers' mutual fire insurance companies during recent years were gathered. The study covers annual losses incurred by these companies in the various States, the expenses of operation, the amount of risks in force, the annual cost of insurance to members, and the relative importance of this movement as measured by the percentage of insurable farm property which is actually covered by this form of insurance protection.

Information and advice were extended through correspondence and personal interviews to the officers and managers of a number of farmers' insurance enterprises of various types.

Although insurance on the mutual, or cooperative, plan among farmers is most common and best established in the field of fire insurance, protection against loss by windstorm and by hail, as well as against death of livestock from various causes, is also provided in many sections of the country. A special study of livestock insurance has been started.

DIVISION OF STATISTICAL AND HISTORICAL RESEARCH

O. C. STINE, *in charge*

FOREIGN COMPETITION AND DEMAND

Foreign competition and demand must be taken into account both in planning production and in marketing farm products in the United States and abroad. In recent years approximately 13 per cent of the net product of the agriculture of the United States has been marketed in foreign countries. Considering only that part of the production that is sold off the farm, over 16 per cent has been sent to foreign countries.

Foreign markets are much more significant to producers of certain crops than to the United States as a whole. Approximately 50 per cent of the cotton crop must find annually a market abroad, facing increasing competition from Brazil, India, China, and new cotton-growing regions in both South America and Africa. Nearly one-third of the wheat crop of 1924 was sold in foreign markets. Producers of pork, tobacco, and apples, three other great industries, have to depend to a considerable extent upon foreign markets for an outlet. Prices received by farmers for all these products depend not only upon the production in foreign countries, but also upon foreign market requirements as to quality, quantity, and purchasing power of foreign consumers.

The producers of many farm products have to meet foreign competition in our own markets. The United States imported agricultural products, exclusive of forest products, valued at \$1,818,000,000 in the year ended June 30, 1925. More than one-half of these imports were in direct competition with American-grown products, for example: Sugar, \$294,000,000; wool and mohair, \$128,000,000; hides and skins, \$88,000,000; tobacco, \$78,000,000; dairy products, \$31,000,000, and flaxseed and flaxseed oil, \$33,000,000. The farmers who have to market their products against these imports are vitally concerned with production and prospects of production of these products in foreign countries as well as the foreign demand which is an important factor in determining at what price these products will be offered in the United States.

A well-balanced program of production and marketing requires up-to-the-minute knowledge of present and prospective supplies of all farm products and the demand for these products in

all available markets, giving the farmer currently a picture of the world situation.

WORLD CROP AND MARKET REPORTING SERVICE

This bureau is developing a world crop and market reporting service that is furnishing producers with timely and helpful information. With the assistance of the international institute, American consuls, commercial agents, and representatives of this department in Berlin, Vienna, and London, information is being collected as to production in all parts of the world and a beginning has been made in reporting market conditions in foreign countries.

The Berlin office has furnished the following reports:

Monthly economic report on economic conditions in Germany, Denmark, Holland, Poland, Norway, and Sweden, and developments affecting the market for agricultural products in those countries during the month, with special emphasis on cotton, pork, grain, and fruits.

A weekly pork and butter cable showing receipts and prices of hogs in Germany and prices of pork products and butter.

A monthly pork, fruit, and butter cable showing receipts and slaughtering of hogs in Germany, imports of pork products, detailed information on imports of apples, citrus fruits, and of dried fruits competitive with American products, and also imports of butter by chief countries of origin.

Special written and cabled reports dealing with the situation with regard to specific crops and with current economic and political developments affecting the market for our products.

The London office dispatches weekly cables covering barley prices, apple prices and condition of market, butter market condition, and condition of bacon market. Reports are cabled of wool auctions as they occur, of the almond crop in the Mediterranean region, and of important changes in British markets for agricultural products. The office keeps the department informed of important Government rulings affecting our products such as tariffs, quarantines, and other import restrictions and furnishes other information of agricultural interest.

Vienna is a strategic point for observing the progress of grain and fruit crops of the Danubian and Balkan countries. During the past summer

the office has effectively supplemented the official reports transmitted by the institute with special reports based upon observations and intimate local contacts. The Bosnian prune crop has been more frequently and accurately reported by the Vienna office than it ever has been possible to do through other agencies. The commercial apple crop of Czechoslovakia, Switzerland, and the Italian Tyrol has been adequately covered this season.

The Vienna office has cooperated with the Berlin office in reporting on Russian crop production, enabling this bureau to keep fairly well informed in the absence of official data. The office reports currently on conditions in the flour-milling and cotton-manufacturing industries and the bearing of these industries on the market for American raw products.

Direct cable exchange is maintained with the Governments of India, Norway, and Canada. Cable information from Argentina is received through the Argentine Embassy.

FOREIGN MARKET REPORTING

The reporting of foreign markets and marketing conditions and trends of prices have been continued and expanded. In addition to the reports forwarded by the bureau representatives a continuous flow of agricultural information is received from the consular offices, from foreign Governments, from the International Institute of Agriculture at Rome and from other sources.

For example, cables on wool prices for various grades, sales, clip, stocks, etc., are received from consuls at Melbourne, Montevideo, Uruguay, Buenos Aires, and Wellington, New Zealand; the consul stationed at Progreso, Yucatan, cables on the hemp situation near the first of each month; consuls in China and Japan cable reports on peanuts in January and November of each year; consuls in Spain and Egypt report on onion shipments to United States ports; and the consul in Sicily reports on lemons destined for the United States.

Wide publicity is given to the information obtained from foreign countries, through the leased-wire service, through various department publications, through the press, and through reports to interested persons on the mailing lists of the bureau.

A survey of European fruit markets has brought to the attention of producers and shippers in this country many ways in which the European market

requirements might be better met. Reports on these markets should result in avoiding much waste from shipping the fruit too green, not suitably packed for the ocean voyage, not put up in a manner to attract foreign buyers, varieties not suited to the market, sizes too large or too small, and in such great quantities as to overload weak markets.

The production of apples both in the countries in which apples are shipped from the United States and in other countries which produce for the same markets was studied and information is being furnished which may be helpful to fruit growers in this country in deciding what varieties and how much they should produce for the foreign market and what are the possibilities for expanding the market. Similar work on a smaller scale has been done for citrus producers.

TRANSPORTATION STUDIES

Economic material has been prepared for presentation to the Interstate Commerce Commission in freight rate cases. In this class of work material has been supplied in the fertilizer case involving the readjustment of the entire freight rate structure on fertilizer throughout the South; in the North Dakota grain case involving rates on grain from the Dakotas and Minnesota to Minneapolis and Duluth; and in the general freight rate investigation covering the investigation and possible increase in all rates applying in the territory west of the Mississippi River.

Studies have been made of the freight rates on specific agricultural commodities and rates on other commodities as they affect agriculture. This work includes a study of the comparative cost of the transportation of wheat from the various producing areas to the world market in Liverpool; a study of the historical development of rates on meat and livestock; a study of the rates and transit privileges on cotton; and a freight rate index on wheat showing the comparative level of rates now as compared with 1913.

ECONOMIC ANALYSIS

Statistical and historical analytical work was continued through the year along various lines. Indices of farm prices and exports of agricultural products were maintained. Estimates of agricultural income annually since 1919, were revised and brought up to date. A review and analysis of the

price situation for several agricultural products was made monthly throughout the year.

Attention has been given to the agricultural situation. A study has been made of agricultural income and the relation of fluctuation in business conditions to prices farmers received for what they produced and for income from agriculture. It was found that during the last five years fluctuation in farm income and farm prices have had a direct relation to changes in general business conditions and indicates clearly that the domestic demand for farm products is a very important factor in determining agricultural income.

Some progress was made in the study of the trend of foreign competition and demand in relation to the agricultural situation. Historically, experiments of foreign countries in attempts to control production, marketings, or prices of agricultural products have been studied to find the causes of success or failure and to learn what might be of interest or useful in dealing with the agricultural surplus situation in the United States. In cooperation with the Agricultural College of Montana, a historical study of the development of the cattle industry in eastern Montana is in progress.

Price analyses were continued along several lines. In cooperation with the cotton division, a study was made of cotton prices and a bulletin prepared dealing with factors which determine the price of cotton. In cooperation with the division of farm management, work was continued in analyzing the factors that determine the price of hogs and other livestock. Some progress has been made in analyzing the factors determining the prices of wheat and corn. The effect of the tariff upon the agricultural products has also received some attention. The object of all these studies is to assist the producers and handlers of agricultural products to understand better the economic law under which they operate and to make better adjustments in the production and marketing of agricultural products to meet consumers' demands and to obtain for themselves a fair return for their efforts.

DIVISION OF COOPERATIVE MARKETING

CHRIS L. CHRISTENSEN, *in charge*

COOPERATIVE MARKETING ACT PASSED

The cooperative marketing act, approved July 2, 1926, which provides

for the creation within the Bureau of Agricultural Economics of a division of cooperative marketing, has made possible a very material expansion of the work of the bureau in agricultural cooperation. While a certain amount of work has been carried on for a number of years, it is felt that agricultural cooperation should be studied systematically and comprehensively, and that businesslike assistance should be given to cooperatives in meeting their problems. Prior to the close of the fiscal year steps had been taken toward obtaining the services of a number of experts in cooperative marketing who will work with the various types of associations.

INCREASED ATTENTION TO COOPERATIVE MARKETING PROBLEMS

The outstanding development in agricultural cooperation during the year is the attention directed by the cooperatives toward increased business efficiency, to cooperation between organized groups, and to a consideration of the broader problems of marketing. Many large-scale organizations have passed the experimental stage and their business practices have become highly efficient. It is apparent, also, that many are considering the assumption of new functions, or an enlargement of their present functions.

The division's contacts with the problems of the cooperatives have been closer than ever before. It has been possible to present data which have been helpful in determining the policies of large cooperative groups. The service work has served the dual purpose of keeping the division in touch with the practical problems of organization, business management, finance and merchandising, and of informing cooperative associations of the assistance to be obtained from the bureau.

At the same time, because of its widespread contacts, the division is able to be of assistance in considering broader problems which concern whole regions and industries. The division renders valuable assistance to cooperative associations in arriving at unified policies in cooperative marketing, and in developing research work which will serve to guide the cooperatives in expanding their activities.

RESEARCH STUDIES

This division studies the marketing problems within cooperative business groups. Much of the work is concerned with the marketing of particu-

lar commodities, but studies of such functions as membership relations, financing and selling which have a general application are also undertaken. In addition, the problems of individual cooperatives are studied as a part of the project in cooperative business analysis.

COMMODITY MARKETING STUDIES

A general study of the cooperative marketing of cotton was completed, the results being published. This publication discusses the conditions leading up to the organization of the present, large-scale cotton marketing associations, and includes a description of their organization and marketing methods. The first edition of this bulletin was practically exhausted in a few weeks and a second edition was printed.

The relation of volume of business to operating costs and profits of cotton gins is brought out by a study of cotton gins in selected areas. This study was undertaken because of the growing interest in the possibilities of the local gin as a unit of the cotton-marketing associations. The results of an intensive study of the practices and costs of 74 gins in north-central Texas have been prepared for publication, and a manuscript, relating to the development, extent, and operation of cooperatively owned cotton gins is being prepared. Data have been taken from the records of about 80 cotton gins in southwestern Oklahoma, and in cooperation with the North Carolina State College of Agriculture and Engineering, a study was made of the costs and practices of about 75 cotton gins in that State.

One of the important problems in the cooperative marketing of spring wheat is the equitable payment to producers of premiums received for wheat of high protein content. A study of cooperative elevators operating in western Minnesota, North Dakota, and eastern Montana shows that variations in the protein content of wheat grown in the same community are sufficiently great to make an average of the station unreliable as a guide to the market value (from the standpoint of protein content) of wheat shipped by elevators at that point. In the same study, data were obtained regarding the hedging operations, storage practices, and costs of typical cooperative elevators in the area.

The problems of managers of fruit and vegetable cooperatives have been

analysed, and a bulletin prepared which discusses financing, accounting and pooling, and describes in detail the various agencies of distribution and the extent to which they may be used by fruit and vegetable associations.

The cooperative marketing of livestock has undergone material changes during the last three or four years. The development of cooperative commission agencies, the consolidation of country shipping associations into county or regional units, and the development of direct shipping and selling to packers by cooperative associations have created special problems. The division has undertaken studies of the organization, operating methods, and problems of cooperative livestock associations, including both the local shipping associations and the terminal cooperative commission firms. Schedules requesting detailed information have been sent to managers and directors of the various associations. The data thus collected will be analysed and the results published.

MEMBERSHIP PROBLEMS

In cooperation with the Kentucky Agricultural Experiment Station, a study has been made of the membership problems of centralized cooperative marketing associations, particularly the cooperative handling of cotton and tobacco. The objects of this study are: (1) To determine the fundamental facts responsible for the existence of such problems, (2) to analyse the methods and practices that are being used to meet these problems, and (3) to develop plans or suggestions for more effectively handling membership problems by educational methods.

COOPERATIVE BUSINESS ANALYSIS

A project dealing with organization, operating, financial, and selling problems of individual cooperatives has been developed. The need for this work is evidenced by the heavy demand which has been made by associations for studies of their special problems. During the year a study of the Staple Cotton Cooperative Association, Greenwood, Miss., was concluded, and a comprehensive report made to the board of directors. A study of the financial, operating, and merchandising problems of the Vermont Maple Products Cooperative Exchange, Essex Junction, Vt., was completed and a report made to the directors of the exchange. Late in the year a study of some phases of the sales policies of the California Fruit Growers' Ex-

change was begun at the request of the directors of the organization. The object of this study is to determine whether the policy of the California Fruit Growers' Exchange in acting as sales agent for the California Fruit Exchange, a cooperative organization handling deciduous fruit, affects the efficiency of the service which it renders its members. Preliminary work was begun in connection with a study of the poultry producers of central California which will be carried on during the coming year.

The object in conducting analyses of the business of individual associations is primarily to accumulate a sufficient number of cases to set up operating ratios and standards for cooperatives handling various commodities, and to study by a case system the economics of cooperative marketing. The development of methods that will enable the cooperatives to study their own problems is also a valuable service.

STATISTICS OF COOPERATION

Records of approximately 11,000 active cooperative organizations are available in the division files and contain, in the majority of instances, full information as to form of organization, management, membership, volume of business, financial status, and methods of marketing. With the help of this source library, the division is able to furnish cooperative organizations, as well as groups of unorganized producers, with reliable information regarding the possibilities and limitations of cooperation, which will enable them to organize and operate efficient and successful cooperative associations.

A large number of bulletins, reports, and bibliographies were issued during the year dealing with many phases of agricultural cooperation.

LEGAL PHASES OF COOPERATION

Department Bulletin No. 1106 entitled "Legal Phases of Cooperative Associations," is being enlarged and revised. Owing to the great increase in the number of cases involving cooperative associations which have been passed upon by the courts, an enlargement and revision of the bulletin is necessary in order to put interpretation of the law in available form.

COOPERATION WITH RESEARCH AND EDUCATIONAL AGENCIES

A study of the operation of cooperative elevators in North Dakota has been carried on in cooperation with

the North Dakota Agricultural College. A survey of cooperative organizations was completed during the year by the University of California in cooperation with the division. The division has cooperated with the University of Minnesota in a study of the possibility of forming a federation of farmers' elevators in that State. Cooperative projects with the University of Illinois and the University of Kansas in connection with research work in the cooperative marketing of grain were also undertaken.

Members of the bureau assisted in preparing the programs and took part in the proceedings of the first and second sessions of the American Institute of Cooperation, an educational institution the membership of which is made up largely of cooperative associations. Assistance was also given several State agricultural colleges in developing and conducting short courses for members and employees of cooperative associations.

EDUCATIONAL AND SERVICE ACTIVITIES

As part of the educational program of the division, the development of a series of motion pictures illustrating the cooperative marketing of important farm products has been continued. A series of glass and film-strip slides are being developed for the purpose of illustrating lectures on cooperative marketing.

Special assistance has been given to cooperative associations planning changes in their organization or methods and to groups of producers contemplating organization. Members of the division have worked with committees representing groups of cooperatives in considering such questions as membership relations, education, and management problems. In its service activities the division has attempted to bring to the cooperatives the results of research work and the services available in other divisions of the bureau.

Agricultural Cooperation, a mimeographed publication, has been improved in form and subject matter during the year. There is an increasing tendency among successful cooperative organizations to make public reports of their activities, and this publication furnishes a medium for disseminating current information of importance regarding the cooperative movement.

DIVISION OF FARM POPULATION AND RURAL LIFE

C. J. GALPIN, *in charge*

This division comprises a very small working force in Washington, and a large number of cooperative employees located at State colleges and departments of agriculture throughout the United States who receive only a nominal salary from the Federal Government but who work in close cooperation with this department on problems connected with the farm population factor in their own States but which also have a national significance.

The various States are showing a marked interest in the study of their own population problems, and this bureau is making every effort to assist in this work and to help to coordinate the work of the various State and Federal agencies.

STATISTICS OF FARM POPULATION BY COUNTIES

The division has made demonstration tabulations of the farm population of several counties and has furnished these statistics to university laboratories for study and use in carrying out similar work. Attention has been called to the need of county statistics of farm population. Farm population statistics by States and by counties are now regarded as invaluable by many industrial firms and by the great railroads like the Great Northern, the Union Pacific, and the Southern Pacific.

THE MOVEMENT OF POPULATION FROM FARMS

An extensive inquiry has been made over the Nation, county by county, as to the movement of population to and from farms during the calendar year 1925. The results of this inquiry were tabulated and released during April, 1926. This report, as well as the two similar reports issued previously, have been in great demand. The year 1922 saw a net loss on farms of 460,000 persons. The net loss of persons from farms was 182,000 during 1924 and 479,000 during 1925.

THE FARMER'S STANDARD OF LIVING

This set of studies has engaged about half the energies and resources of the division during the current year in an effort to complete the first stage of a national study of this sub-

ject. The tabulation of 3,000 schedules obtained during the last two years has been completed and a bulletin, "The Farmer's Standard of Living" is in press. From the results of these tabulations, six preliminary reports on "living conditions and family living" in farm homes of selected localities of different States were issued. From the results of a more detailed tabulation of the data from four States, in cooperation with the Farmer's Wife and the Bureau of Home Economics, four additional preliminary reports on food, clothing, fuel and other household supplies, and furnishings and equipment were issued.

A second stage of study work will attempt to relate State by State the standard of living on farms in each State with the income of the farm families in that State, for the purpose of reaching national indices of both living and income. A subproject of analysis of standard of living data from farm management cost account records available from North Dakota and Minnesota is well under way.

ECONOMICS LIBRARY

MARY G. LACY, *librarian*

The outstanding feature of the year's work in the economics library has been the inauguration of definite cooperation with the State agricultural college libraries in the compiling of bibliographies and indexes of common interest. An arrangement was recently consummated with Oklahoma by which an assistant from the library of the Oklahoma Agricultural and Mechanical College is to come to this library for an aggregate period of two months' work during the summer of 1926 to compile an index of official sources of the agricultural statistics of that State. Several other States are considering similar arrangements.

The demand for reference work for bureau workers has been constantly growing. In addition requests for bibliographies come in daily from other Government agencies, from institutions and individuals throughout the country, and from foreign countries. Fifty-two bibliographies and reading lists have been compiled during the year. The library is thus serving a wide range of agricultural interests. Letters of commendation are received continuously from agricultural leaders who make use of this library.

DIVISION OF LAND ECONOMICS

L. C. GRAY, *in charge*

LAND RESOURCES AND UTILIZATION

The work during the year has consisted principally of (1) the study of the census returns on land utilization and preparation of a report showing regional changes in land utilization since 1920, (2) the preparation of maps and other material relating to the classification and utilization of land in the Great Plains region, (3) surveys of settlers' progress and land utilization in sample areas of the southern Great Plains, (4) the completion of a statistical study of the trend of yield per acre of the crops in the United States, (5) preparation of a manuscript dealing with the agricultural utilization of land in the cut-over portion of the Great Lakes States, (6) studies of the trend of consumption of agricultural products in relation to the probable future need for crop land, and (7) editorial revision and submission for publication of the temperature section of the Atlas of American Agriculture prepared by the Weather Bureau.

The 1925 Census of Agriculture secured statistics for the first time relating to land utilization. These statistics have been compiled by regions and a study is being made of the relation of crop, pasture, and forest land to the climatic, soil, and economic conditions.

Maps showing the classification of the land in the Great Plains region have been completed during the year by the land classification board of the Geological Survey, which has been cooperating with this department in the study of the Great Plains region. These maps with accompanying text, in conjunction with climatic maps and text completed in cooperation with the Weather Bureau, soil maps under preparation by the Bureau of Soils, and vegetation and carrying capacity maps and text being prepared in cooperation with the Bureau of Plant Industry and the Forest Service, are nearly ready for publication.

Maps showing the utilization of the land in the northern plains region, based on the tabulation of the census returns on land utilization for 1920 by enumeration districts, have been completed during the year and will be issued in a bulletin dealing with the problems of land utilization in this

region. Similar maps have been completed also for the Great Lakes States.

LAND RECLAMATION

Field studies to determine the economic limits of the cost of water for irrigation, begun in the preceding year, were completed in this fiscal year. Ten preliminary reports of the studies of the several projects covered have been issued.

Field work on a study of the extent to which land in drainage enterprises has been brought into cultivation and is producing the means of meeting the obligations undertaken to cover cost of its reclamation has been begun in cooperation with the Bureau of Public Roads.

LAND SETTLEMENT

An important phase of this work deals with methods used by States and private individuals and agencies in inducing settlement on lands that have not been used for agriculture. A bulletin has been submitted for publication entitled "State Policies in Selling and Settling Vacant Lands." Studies have been made of the methods used by private land settlement agencies in classifying the land offered for sale. This work also has for its purpose the development of methods that will promote definite policies of utilization for lands now unused or misused.

LAND TENURE

The agricultural census for 1925 has afforded an especially good opportunity to study the changes since 1920. In order to supplement census data, however, questionnaires on the changes in occupancy of farms were sent out both in 1925 and 1926. A preliminary report on change in occupancy of farms, 1924 to 1925, was issued. Field studies were carried on during the year.

The results of a study of white farmers in Gwinnett County, Ga., will soon be ready for publication. This was undertaken to provide a picture of the economic status and tenure and financial progress of white croppers, tenants, and small owner cotton farmers, who are so numerous in the Piedmont section of Georgia and in adjacent States. It is now planned to make this a part of a more comprehensive study of white croppers and white tenants in the Cotton Belt.

At the request of the extension service of the College of Agriculture in Maryland, a preliminary survey of the landlord-tenant relationships in Kent and Queen Annes Counties have been made.

The study of income as it affects land tenure has been started as well as a study of the effects of the landlord's lien. A study of large-scale farming in the United States based on census schedules for farms exceeding 1,000 acres in size was begun and is now well under way.

LAND APPRAISAL AND LAND VALUES

Studies of the effects of various local factors influencing farm land values have been continued in cooperation with the Bureau of Public Roads with the object of developing methods of appraising land values as a guide to purchase and sale, assessment for taxation, and credit policies.

Preliminary analysis of long-time records of land prices from county sales records and other sources is nearing completion. In these studies an attempt is made to measure the influence of various factors in the trend of such prices in selected farming areas. A preliminary report on the changes in farm real estate values as shown by the 1925 agricultural census was made.

Current collection of new data on the turnover in farms classified by type of transfer was undertaken, together with improvement of existing sources of current land value and land income data, with the object of issuing an annual report on the farm land situation.

A study of the effect of various local factors on, and of the relation of income to, land values in the cut-over counties of the three Lake States is in progress in cooperation with the Minnesota Agricultural Experiment Station.

FARM LABOR

A questionnaire calling for information concerning the nature and value of perquisites and allowances given to noncasual hired farm labor was sent out and the data thus obtained are being tabulated.

Studies now in progress include (1) monthly variation of amounts of family and hired labor on farms, (2) a statistical tabulation showing proportion of farm population engaged as hired labor and the relation between the agriculturally employed population and area of land and value of farm property by census enumeration districts, (3) the agencies of distribution of farm labor in 12 Northeastern States, farm labor supply and demand, farmers' methods of handling labor, and general farm labor conditions in those States, and (4) expenditures for

farm labor and the part of production that goes to meet labor expense.

DIVISION OF ECONOMIC INFORMATION

J. CLYDE MARQUIS, *in charge*

The work of this division, which consists primarily of services to facilitate the distribution of the results of lines of bureau work, has grown steadily during the year. This is the result of the rapidly increasing use of market news and other economic information by producers, the trade, and industrial agencies. This increasing demand has necessitated the preparation of our material in a wider variety of forms to meet the requirements of specific groups. The tendency is definitely toward more specialization in forms of publication to avoid duplication and waste and to bring each class of information promptly to the class of people who wish it.

There has been an increased call from agricultural trade organizations. For example, representatives of the American Dairy Federation met with the bureau to study its work. This has resulted in a greatly increased call for various kinds of information necessitating the preparation of special mimeographs and releases. Several other organizations have developed similar contacts with the bureau.

Use of market news economic information by extension workers continues to grow rapidly. More than a dozen States now have well-organized economic services in connection with their extension work to which the bureau supplies a large volume of fundamental information. The demand from the news press, farm papers, farm organizations, and radio broadcasting has likewise called for more special preparation.

The material bearing on agricultural economics for an extension workers' handbook has been completed and that project will probably necessitate annual attention. The economic chart service has been continued with growing demand for charts made by the bureau.

SERVICE TO THE PRESS

The distribution of bureau information through general press releases has been conducted along conservative lines in conformity to the general department policy to hold releases to short form, yet the work of the year has produced over 300 releases ranging from 100 to 1,000 words in length for general distribution.

Closer relations have been developed with Washington correspondents and representatives of trade journals and other papers so that a large volume of information concerning bureau work has been handled as special stories to these representatives. Several of the trade papers maintain representatives who visit the bureau daily to collect material. One daily business journal maintains a special reporter in the Department of Agriculture. The news associations have also maintained much closer contacts with the bureau than formerly, thereby facilitating the release of much material.

The regular press reviews, which include weekly reviews of grain, hay, livestock, fruits and vegetables, dairy products, etc., have been distributed to an increasing list. The daily marketgram which is sent over the leased wire and distributed to country weeklies now reaches a total circulation of several million.

The preparation of special articles for magazines and newspapers has been expanded by encouragement of technical workers in all lines to prepare such articles whenever possible.

The editors have read critically over a hundred such special articles prepared by members of the staff for publication in general, economic trade, and textile journals. Of these, 26 were written by the bureau editor.

RADIO NEWS SERVICE

Services through the various offices of the bureau to radio broadcasting stations have been maintained and expanded in spite of the fact that radio broadcasting has been in an unstable state. The outstanding extension of the radio market news service of the year was the extension of our leased wire at Hastings, Nebr., where the large station, KFKX, was made available. This station has great power and has distributed our information from the Great Plains States into many areas not heretofore reached by radio.

Congress provided for extensions of leased wire through the agricultural college at Ames, where reports are broadcasted by the college station, and a drop has been opened at Oklahoma City where, through cooperation with the State board of agriculture, our reports are broadcasted for the Southwest. With the development of more college and university radio stations contacts have been made for the use of market material, and such information is now being used by sta-

tions at Ohio State University, Columbus; Purdue University, Lafayette, Ind.; and the South Dakota station at Brookings.

ECONOMIC PUBLICATIONS

Contributions to the regular bulletin series of the department have included 45 manuscripts published during the fiscal year. About 50 other manuscripts are either in press or receiving editorial attention. This represents an increase in publications of about 25 per cent over last year. Some of the new publications are statistical bulletins and carry matter of historical value not heretofore available to the public. When once this series is completed, only new data will be issued from year to year.

As preliminary reports, issued in mimeographed form, the bureau has prepared and distributed 46 reports during the year in addition to many special reports. This method of publication which greatly expedites distribution of information has proved exceedingly popular with extension workers and others who wish early information on the results of research.

ECONOMIC PERIODICALS

The regular economic publications of the bureau have been continued without radical change. "Crops and Markets" and the "Monthly Supplement" have been expanded slightly as the volume of statistics has increased. The weekly now has an edition of about 17,000, while the monthly supplement goes to a list of 125,000. The monthly economic review, "The Agricultural Situation," has been expanded slightly and continued in mimeographed form. "Agricultural Cooperation," the semi-monthly review activities in this field, has been improved by the addition of more charts and plates. "State and Federal Marketing Activities" in its expanded form has proved to be very useful to economic workers in the States and now comprises the most complete review of work in this field available in a single periodical. "Foreign Crops and Markets" has expanded slightly in size because of the increased volume of information gathered by the foreign section.

EXHIBITS AND DEMONSTRATIONS

The division has handled the preparation of three large exhibits this year and considerable material for smaller demonstrations. The principal exhibit activity was the designing and preparation of the bureau's part of the Government exhibit at the Sesqui-centennial Exposition in Philadelphia. All major lines of work of the bureau were represented in a manner which created much favorable comment at the exposition.

Earlier in the year the bureau prepared part of the displays shown at the National Dairy Show and the International Livestock Exposition. Representatives of the bureau assisted in the department exhibit work at some of the State fairs.

MOTION PICTURES

Two new motion pictures have been completed. "The Magic In It," presents the story of the value of farm accounting and was made by the Division of Farm Management and Costs in cooperation with the extension service. "Cooperative Marketing of Eggs," showing the method of handling Pacific coast eggs, was completed by the Division of Cooperative Marketing.

PUBLIC RELATIONS

A large part of the time the head of the division is occupied in conferences with visiting representatives of organizations, editors, writers, foreign visitors, and others seeking specific information. The call upon the bureau for information for members of Congress has increased because of the vigorous agitation of agricultural questions. Preparation of information in response to such calls has added materially to the duties of the information workers.

A beginning has been made on the project of correlating and systematizing the statistical materials issued by the bureau. Plans for a system of related publications, from the daily information running through the weekly, monthly, and annual summaries, have been made so that the material may be published in a form more readily usable. Attention has been directed to the simplifying of statistical forms to avoid duplication and to place facts in the most useful and effective form.