YEARBOOK

OF THE

UNITED STATES DEPARTMENT OF AGRICULTURE.

1909.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1910.

[CHAPTER 23, Stat. at L., 1895.]

[AN ACT Providing for the public printing and binding and the distribution of public documents.]

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Section 73, paragraph 2:

The Annual Report of the Secretary of Agriculture shall hereafter be submitted and printed in two parts, as follows: Part One, which shall contain purely business and executive matter which it is necessary for the Secretary to submit to the President and Congress; Part Two, which shall contain such reports from the different Bureaus and Divisions, and such papers prepared by their special agents, accompanied by suitable illustrations, as shall, in the opinion of the Secretary, be specially suited to interest and instruct the farmers of the country, and to include a general report of the operations of the Department for their information. There shall be printed of Part One, one thousand copies for the Senate, two thousand copies for the House, and three thousand copies for the Department of Agriculture; and of Part Two, one hundred and ten thousand copies for the use of the Senate, three hundred and sixty thousand copies for the use of the House of Representatives, and thirty thousand copies for the use of the Department of Agriculture, the illustrations for the same to be executed under the supervision of the Public Printer, in accordance with directions of the Joint Committee on Printing, said illustrations to be subject to the approval of the Secretary of Agriculture; and the title of each of the said parts shall be such as to show that such part is complete in itself.

PREFACE.

The present volume is the sixteenth Yearbook of the Department of Agriculture. It does not differ materially from the preceding ones except in the number of pages it contains, this volume being shorter by 166 pages than that for 1908. This reduction in size was not accomplished without considerable difficulty, since it involved the exclusion of some valuable papers and the elimination of some interesting features of the Appendix. The reasons for reducing the size were: (1) To secure a less bulky book, which can be handled and transmitted through the mails more conveniently; (2) a smaller volume can be more securely bound and therefore presents a better appearance; (3) to insure publication at an early date, it being the expectation and earnest desire of the Secretary that this Yearbook be issued and made available for distribution on or before May 1 instead of in July or August, as heretofore; and (4) the urgent necessity for economy in expenditures from the printing fund.

The decrease in size has been effected not only by including fewer articles but by condensing them, and by eliminating the less important features of the Appendix, which this year occupies but 202 pages. The statistics of production, values, exports, and imports of agricultural products are given with even greater fullness than usual. The tables showing domestic production of crops and farm animals by States have been improved by grouping the States in conformity with the methods of the Federal Census. In the tables for world's production of wheat, corn, oats, rye, barley, and flaxseed, this year for the first time acreages are given as well as yields. Two special tables are presented which are of great value and represent a large amount of research—"Rice crops of the United States, 1712–1909," and "Hop crops of the United States, 1790–1909." The tables of transportation rates are fuller than usual. There is one new table showing ocean freight rates on grain and cotton from several leading ports of the United States to Europe, and another showing average receipts per ton per mile for freight transportation on the railroads of the United States, divided into ten groups.

The preparation of the statistical tables is a work of considerable magnitude. Most of the reports upon which they are based can not be received until after the close of the year; then the figures have to be carefully tabulated, and the accuracy of the work must be verified by mathematical tests and by comparing the figures with

the originals. Such work requires considerable time. This year the statistical matter was prepared with more expedition and furnished for publication earlier than ever before, a fact which has contributed largely to the early issue of the Yearbook.

The directory of officials of various agricultural and kindred associations has been omitted because it was impossible to allot sufficient space to accommodate all organizations of this class, and because of the delay experienced in securing accurate information in regard to such organizations.

The usual review of the weather conditions for the year 1909, greatly condensed, and the lists of officials of agricultural colleges and experiment stations and State officials in charge of agriculture have been retained.

In compliance with the law requiring that the Yearbook shall contain a "general report of the operations of the Department," the Secretary's report has been included, and as usual has first place. The twenty-three papers which follow it are all new and here published for the first time. The list given in the table of contents shows a variety of interesting topics treated by the experts of the Department. Most of these papers are of permanent value, making the volume well worth preservation. In fact, the series of Yearbooks make up an excellent farm library, and such a library may be found in many farm homes throughout the United States.

As a matter of information, it may be stated that it is customary to reprint these papers in separate form for free distribution as a convenient and economical method for making the information in them available for dissemination after the supply of the Yearbook is exhausted.

The illustrations in this volume comprise thirty-six text figures and thirty-six full-page plates, eleven of which are colored.

It is now very generally known that the Yearbook is distributed principally by Senators, Representatives, and Delegates in Congress, and that the Department's quota is used to supply its correspondents, whose only compensation for the valuable service they render is the publications they receive.

It is earnestly hoped by the Secretary that the Yearbook for 1909 may fully sustain the reputation which this annual—the most important publication of the Department—has achieved.

JOS. A. ARNOLD,
Department Editor.

WASHINGTON, D. C., *April 1, 1910.*

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YEARBOOK

OF THE

U. S. DEPARTMENT OF AGRICULTURE.

REPORT OF THE SECRETARY.

Mr. PRESIDENT:

I respectfully present my Thirteenth Annual Report, covering the work of the Department of Agriculture for the year 1909.

A review of the agricultural production of 1909 is first given. Next, the results of a careful study of the prices of meat are offered, and this discussion is followed by a consideration of the extent to which the farmer has shared in the benefits of generally rising prices. The remainder of the report is taken up with an account, in greater or less detail, of the Department's work during the year.

AGRICULTURAL PRODUCTION OF 1909.

VALUE MUCH HIGHER THAN FOR ANY PREVIOUS YEAR.

MOST PROSPEROUS OF ALL YEARS.

Most prosperous of all years is the place to which 1909 is entitled in agriculture. The yield has been bountiful with most crops, and prices have been high. Advantageously situated as he is in most respects, the farmer is less and less generally compelled to dump his crops on the market at time of harvest. He does not need to work for his board and clothes, as he often did in the former time when prices were so low as to be unprofitable.

VALUE OF ALL PRODUCTS.

The value of the farm products is so incomprehensibly large that it has become merely a row of figures. For this year it is $8,760,000,000; the gain of this year over the preceding one is $869,000,000.

Ten years ago the value of the products of the farm was only five and one-half times the mere gain of this year over 1908; it was little more than one-half of the total value of this year. The value of the products has nearly doubled in ten years.

If the total value of the farm products in 1899, as established by the census, is placed at 100, the value for 1903 is represented by 125,

for 1904 by 130, for 1905 by 133, for 1906 by 143, for 1907 by 159, for 1908 by 167, and for 1909 by 186.

Eleven years of agriculture, beginning with a production of $4,417,000,000 and ending with $8,760,000,000! A sum of $70,000,000,000 for the period!

It has paid off mortgages, it has established banks, it has made better homes, it has helped to make the farmer a citizen of the world, it has provided him with means for improving his soil and making it more productive.

CHIEF CROPS.

In the statement that follows concerning the crop quantities and values for 1909 no figures should be accepted as anticipating the final estimates of this Department to be made later. Only approximations can be adopted, such as could be made by any competent person outside of this Department.

CORN.

The most striking fact in the world's agriculture is the value of the corn crop of 1909 in this country. It is about $1,720,000,000.

It nearly equals the value of the clothing and personal adornments of 76,000,000 people, according to the census of 1900. The gold and silver coin and bullion of the United States are not of greater value.

This corn came up from the soil and out of the air in one hundred and twenty days—$14,000,000 a day for one crop, nearly enough for two dreadnoughts daily, for peace or war.

The value of this corn crop is the highest of record and it is greater than the average of the five preceding years by 36 per cent, while the farm price per bushel is greater by 32 per cent. The price per bushel on November 1, 62.2 cents, has been exceeded in only two years in the records of the Department of Agriculture, beginning with 1866.

In quantity of production this year's corn crop stands second, with 2,767,000,000 bushels, being exceeded by the crop of 1906, but it is greater than the average crop of the five preceding years by 3.5 per cent.

COTTON.

Cotton is now by far the second crop in value, and this year's crop is easily the most valuable one to the farmer that has been produced. With cotton lint selling at 13.7 cents at the farm November 1, and cotton seed selling for about $25 per ton, the lint and seed of this crop are worth about $850,000,000 to the farmer. No other cotton crop since 1873 has been sold by farmers for as high a price per pound as this one.

There have been three cotton crops of more than 13,500,000 bales of 500 pounds gross weight, the first one being in 1904, and commercial

expectations are that the crop of this year will be below the average of the five years preceding.

WHEAT.

Third in order of value among the crops is wheat, worth about $725,000,000 at the farm, and this exceeds all previous values by a large amount. The November farm price was almost an even $1 per bushel, and its equal can not be found until as long ago as 1881. The total value of this year's crop is greater than the five-year average by 34.6 per cent.

In 1901 and in 1906 slightly larger crops of wheat were produced, so that the yield of this year, 725,000,000 bushels, is third in size.

HAY.

For years hay and wheat disputed with each other the honor of the place next after cotton in value, but this year the separation is distinct, and hay, with its value of about $665,000,000, is considerably below wheat and far below cotton. Only in one year, 1907, has its value been overtopped, and it is 10 per cent above the five-year average. The quantity of the hay crop, 64,000,000 tons, has several times been greater than it is this year, although it is now 2.6 per cent above the average of five years preceding.

OATS.

The fifth crop in order of value is oats, worth this year at the farm about $400,000,000, which is considerably above high-water mark, and is greater than the five-year average by 28 per cent. The price of November 1, 41 cents, is high, and only in 1907 and 1908 has it been higher since 1890. In production this crop is very nearly a leader, with its 984,000,000 bushels, and would have been a leader had not the crop of 1902 been about 4,000,000 bushels larger. It is greater than the five-year average by over 12 per cent.

POTATOES.

This year's crop of potatoes is more valuable than any one before produced and is worth about $212,000,000. It is above the five-year average by 25 per cent. The November price, 57.8 cents per bushel, has often been exceeded.

The large production is what makes the crop so valuable, a production that has not been equaled; it is 367,000,000 bushels, or 24 per cent above the five-year average.

TOBACCO.

Tobacco is now marketed under circumstances that secure a higher price per pound than farmers have received since 1865, except in two

or three years. Since 1905 the farm price has been 10 cents or better. The farm value of this year's crop is a little under $100,000,000 and has not been equaled. It is nearly 50 per cent above the five-year average. This great value is principally due to the fact that the crop is the largest ever raised, with about 900,000,000 pounds, or one-third greater than the average of five years.

SUGAR.

It is too early to foresee the amount of the beet sugar of this year's campaign, but the indications are about 500,000 short tons, or a greater crop than any before produced. The value of the sugar and of the beet pulp for feeding purposes is about $47,000,000, an amount that has not been reached in any earlier year.

If the commercial estimate of 364,000 short tons for raw cane sugar is accepted, it is a little below the record of half a dozen years. The value of the cane sugar, molasses, and sirup is placed at $40,000,000.

With fulfillment of expectations, the entire sugar crop will be about 864,000 tons (refined beet sugar and raw cane sugar), and the value of all sugar, molasses, and sirup, from farm and factory, will reach about $95,000,000, so that for quantity of total sugar and value of total sugar, molasses, and sirup, this year is a leading one.

BARLEY.

Barley has receded from its very high price of 1907, but still has a price, 53.3 cents per bushel November 1, which has not been equaled since 1890, except in 1907 and 1908. The farm value of this year's crop is nearly $88,000,000, which has been exceeded only twice, and is 15 per cent over the average of the previous five years.

The production, 165,000,000 bushels, is third in quantity, although, compared with five years before, it is 6 per cent higher.

FLAXSEED.

The production of flaxseed seems to be declining, and the crop of this year is estimated at 25,767,000 bushels, a trifle under the five-year average. But the value of the seed per bushel, $1.398, is the highest since the Bureau of Statistics began to ascertain the farm price in 1902, and the crop is worth $36,000,000, or considerably more than ever before, and 40 per cent over the average of the previous five years.

RICE.

The estimate of rough rice production this year is a little over 1,000,000,000 pounds, an amount considerably above the highest pre-

vious crop. It is 21 per cent over the five-year average. The lead of the value is even more pronounced, since the price is high, and the total for the crop is about $25,000,000.

RYE.

Rye is a crop that remains at almost constant production, about 31,000,000 bushels, and the value this year is about $23,000,000, which has often been exceeded.

HOPS.

A shortage in the world's crop of hops this year raised the price to a high figure, about 33 cents for New York and about 24 cents for the Pacific Northwest. It happened, however, that a large proportion of the Pacific coast crop had been contracted for last year at about 9 cents, so that the average price paid for the whole crop is not as high as market prices indicate. The quantity of the hop crop this year is below the five-year average, but the value is about $8,000,000, or next to the highest year.

ALL CEREALS.

Although a bushel of oats weighs less than a bushel of other cereals, yet there is considerable significance in comparing the total quantity of all cereals in recent years. The total for 1909 is 4,711,000,000 bushels, an amount considerably greater than that for any other year except 1906, when the total was 4,872,000,000 bushels. The average of five years is exceeded in 1909 by 6.5 per cent.

The farm value of all cereals in 1909 has never been equaled in a previous year. It is almost exactly $3,000,000,000, or 34 per cent above the five-year average.

SUMMARY OF COMPARISONS.

Compared with the average of the preceding five years, every one of the crops particularized in the foregoing was larger, except cotton, flaxseed, hops, and cane sugar. Without exception every crop was worth more to the farmer than the five-year average.

This is the year of highest production for potatoes, tobacco, beet sugar, all sugar, and rice; a year of next to the highest production for corn, oats, and all cereals; the crop third in size for wheat.

For value, the amount has not been equaled in the case of corn, cotton, wheat, oats, all cereals, potatoes, beet sugar, all sugar, flaxseed, and rice; the year is next to the highest for hay, cane sugar, and hops; and the barley crop is third in value.

Compared with 1908, this year's gains in value of farm products are found all along the line, the exceptions being barley, buckwheat,

rye, and milk. The increase for cotton—lint and seed—is $208,000,000; wheat, $107,000,000; corn, $105,000,000; hay, $29,000,000; oats, $22,000,000; tobacco, $18,000,000; potatoes, $15,000,000.

There were substantial gains in value of dairy and poultry products and of animals sold and slaughtered. The price of butter has not been so high in many years, and the same is true for eggs and dressed poultry, and, except for the higher price of last year, is also true for milk.

In the grand total, the farm products of 1909 are greater in value than those of 1908 by $869,000,000, or by enough to buy a new equipment of farm machinery for over 6,000,000 farms.

All cereal crops of 1909 are worth $3,000,000,000 to the farmer, an amount that would pay for all of the machinery, tools, and implements of the entire manufacturing industry in this country.

All crops are worth $5,700,000,000, which would make a half payment on the value of all steam railroads, according to the valuation of 1904. All animal products are worth over $3,000,000,000.

The total of all items is $8,760,000,000. In eleven years of application of mind, muscle, and machine to this basic industry of mankind, the wealth produced by farmers, estimated as previously described, is valued at $70,000,000,000.

FOREIGN TRADE IN AGRICULTURAL PRODUCTS.

The value of the agricultural exports of domestic products for the year ending June 30, 1909, has been exceeded in four years—in 1901, 1906, 1907, and 1908. The value for 1909 is $903,000,000, or $151,000,000 below the highest record in 1907, and $114,000,000 below the next highest in 1908.

Compared with 1908, the prominent decreases were $11,500,000 for live animals, $26,000,000 for packing-house products, $20,000,000 for cotton, $55,000,000 for grain and grain products, and $3,800,000 for tobacco. On the other hand, there was an increase of over $7,000,000 in exports of oil cake, oil-cake meal, and vegetable oils.

The domestic exports of beef and beef products declined from 579,000,000 pounds in 1908 to 419,000,000 pounds in 1909; of pork and pork products, from 1,237,000,000 to 1,053,000,000 pounds; of wheat, from 100,000,000 to 67,000,000 bushels; of wheat flour, from 14,000,000 to 10,500,000 barrels; of wheat and wheat flour in terms of wheat, from 163,000,000 bushels in 1908 to 114,000,000 bushels in 1909.

The imports of agricultural products were never so high in value as they were in 1909, the amount being $637,000,000. Principal gains were $15,000,000 in silk, $21,500,000 in wool, $25,600,000 in packing-house products, mostly hides, $11,400,000 in coffee, and $16,500,000 in sugar.

After allowing for the $10,000,000 in exports of foreign origin, the net balance of foreign trade in agricultural products in favor of this country is $256,000,000, the lowest amount since 1896. This was more because of increased imports than of decreased domestic exports. The balance of trade in favor of this country in products other than agricultural for 1909 is $46,000,000.

In foreign trade in forest products the exports of domestic origin were valued at $72,000,000, an amount that has been exceeded in only three years; compared with 1908, there was a loss in all prominent items. The imports of forest products had a value of $124,000,000 and were never before so large in value. India rubber gained $25,000,000, compared with 1908. With respect to the balance of trade in forest products, it was against this country by about $47,000,000.

The agricultural production of 1909 must add much to the prosperity of farmers. The record is unexampled in wealth produced and tells of abundance in quantity. Year by year the farmer is better and better prepared to provide the capital and make the expenditures needed to improve his agriculture and to educate his children for farm life and work.

PRICES OF MEAT.

INCREASE OF RETAIL PRICE OVER WHOLESALE.

SPECIAL INVESTIGATION.

High prices of fresh meats and of their products are of such concern to nearly every family that an examination of the subject is timely. With over two-fifths of the expenditures of the families of medium income devoted to food and with one-third of the national dietary composed of meat, the present situation is felt by the incomes of 19,000,000 families.

The higher prices of meat in recent years do not bear the less heavily on the consumer because its purveyors at various points along the line of distribution may not have raised the price in a larger degree than the price of the animal has increased. There may be too large a net profit or gross profit, or the distributive processes may be too costly at some point. Little definite information has heretofore been extracted from the retail meat business concerning its cheapness or costliness in comparison with the amount of business done, and an acquaintance with the facts has become desirable.

Through employees of the Bureau of Animal Industry inquiries were made in 50 cities—large, medium, and small—in all parts of the country. A schedule was provided to record the actual experience

of retailers in buying and selling the carcass or half carcass of beef. Among the facts ascertained were the weight and wholesale cost of a certain piece of beef, usually a half carcass. Then followed the weight and retail price of every cut for which a uniform price was charged by the dealer. Thus it became possible not only to compare high and low priced cuts, from the point of view of expense to consumer, but also to compute accurately the total retail price per pound and the total retail cost of the beef piece for which the wholesale price per pound and the total wholesale cost had been reported.

FACTS DISCOVERED IN FIFTY CITIES.

In the North Atlantic States the retail price of beef is 31.4 per cent higher than the wholesale price; and the percentage is usually lower in the larger cities than in the smaller ones, and higher in the case of beef that is cheap at wholesale than of high-priced beef.

In Allentown, Pa., there is an immediate gross profit of 50 per cent—that is, the total amount charged at retail is 50 per cent above the wholesale cost. Such gross profits are noticed for the smaller places as 46 per cent for Canajoharie, N. Y.; 50 per cent for Cortland, N. Y.; 47 per cent for Holyoke, Mass., and for Harrisburg, Pa. But for Olean, N. Y., the percentage is only 23 and for Springfield, Mass., 19, the low price being in strong contrast with the 47 per cent for Holyoke, its near neighbor, with a different sort of inhabitants.

A gross profit of 20 per cent was found in New York, N. Y., and Philadelphia, Pa.; 28 per cent in Buffalo, N. Y., and 36 per cent in Boston, Mass.

Everywhere appears the general fact that the lower the grade of beef the greater the percentage of gross profit. Allentown's high percentage is based on wholesale prices of 7½ and 8½ cents. In Boston the rate of gross profit is twice as great for 8-cent beef as for beef costing 11 and 11½ cents. Indeed, the rule is quite general that low-priced beef is marked up twice as much relatively as high-priced beef is. In other words, perhaps it is a safe inference that the poorer people pay nearly twice the gross profit that the more well-to-do people pay.

Baltimore, Md., in the South Atlantic States, is another large city with a low rate of gross profit, 17 per cent; but Washington, D. C., has a much higher rate, 42 per cent, and Takoma Park, D. C., 44 per cent. Richmond, Va., has the low rate of 21 per cent, and Augusta, Ga., the high one of 61 per cent. The amount for the South Atlantic States is 38 per cent.

In the North Central States the mean is 38 per cent, and the foregoing observations apply concerning the higher rate of gross profit for cheap beef. The Chicago, Ill., returns are for cheap beef, and the

gross retail profit is 46 per cent, but in Cincinnati, Ohio, it is only 25 per cent; Omaha, Nebr., 23 per cent; South Omaha, Nebr., 25 per cent. Kansas City, Kans., has a cheap-beef gross profit of 50 per cent, while Kansas City, Mo., reports only 28 per cent.

For the twin cities, Minneapolis and St. Paul, Minn., the gross profit is reported at 27 and 35 per cent, respectively; for Detroit, Mich., and Milwaukee, Wis., 40 per cent; and for St. Louis, Mo., 39 per cent. In the smaller places the rates of gross profit in selling beef are 52 per cent for Alton, Ill.; 53 per cent for Cedar Rapids, Iowa; 43 per cent for East Liverpool, Ohio; 31 per cent for Port Huron, Mich.; 49 per cent for Wichita, Kans.; and 27 per cent for Winona, Minn.

No other division of States stands as high in gross profit as the South Central States, with 54 per cent. The places with rates above this mean are Fort Smith, Ark., 57 per cent; Mobile, Ala., 64 per cent; Nashville, Tenn., 63 per cent; Natchez, Miss., 56 per cent; and Shreveport, La., 68 per cent. On the other hand, Fort Worth, Tex., reports only 38 per cent; Louisville, Ky., 52 per cent; and Memphis, Tenn., 32 per cent.

The mean of 39.4 per cent of gross profit is derived from reports from the Western States. The highest rate is 62 per cent for Lewiston, Idaho; next, is 58 per cent for Spokane, Wash.; 50 per cent for Ogden, Utah; 39 per cent for San Francisco, Cal., and Cheyenne, Wyo.; 37 per cent for Denver, Colo.; 24 per cent for Seattle, Wash.; and 16 per cent for Tacoma, Wash.

For the 50 cities throughout the United States for which reports were received, the mean gross profit in selling beef, that is, the total retail cost charged to consumers above the wholesale cost paid by the retailers, is 38 per cent. In 5 cities the rate of increase is 20 per cent or under; in 10 cities, 21 to 30 per cent; in 12 cities, 31 to 40 per cent; in 12 cities, 41 to 50 per cent; and in 11 cities over 50 per cent.

RETAIL COSTS.

There are some services connected with a retail meat or meat and grocery business in a city that customers desire for their accommodation which are costly to them. They want delivery of goods, perhaps by special trip, and this requires at least one man, horse, and wagon. They want the market man also to send a man to their dwellings to take orders.

Much more productive of costliness to the retail distribution of meat is the overdoing of the retail business. The multiplication of small shops is a burden to consumers and no source of riches to the small shopkeepers. When twenty or more small shops divide the retail business within the area that could be served by one large shop,