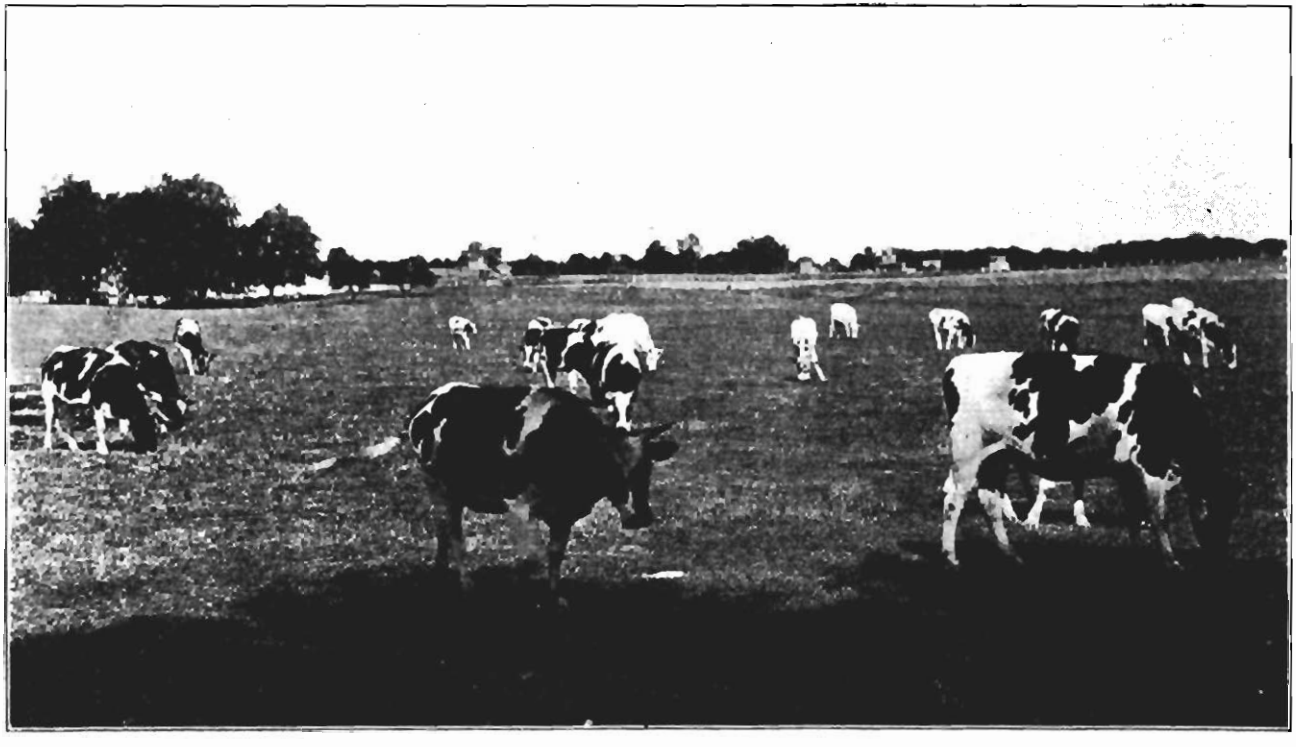
STATE OF NEW JERSEY
DEPARTMENT OF AGRICULTURE
WILLIAM B. DURYEE, SECRETARY

# Sixteenth Annual Report
of the
# New Jersey
# State Department of Agriculture

1930-1931



Trenton, N. J., November, 1931



Cattle on One of New Jersey's Dairy Farms

# State Board of Agriculture

1930-1931

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STATE OF NEW JERSEY
DEPARTMENT OF AGRICULTURE

WILLIAM B. DURYEE, *Secretary*

Trenton

November 10, 1931.

*To the Senate and General Assembly of the State of New Jersey:*

I have the honor to transmit on behalf of the State Board of Agriculture the Sixteenth Annual Report of the New Jersey Department of Agriculture for the fiscal year ended June 30, 1931.

Respectfully,

W. B. Duryee
Secretary for Agriculture

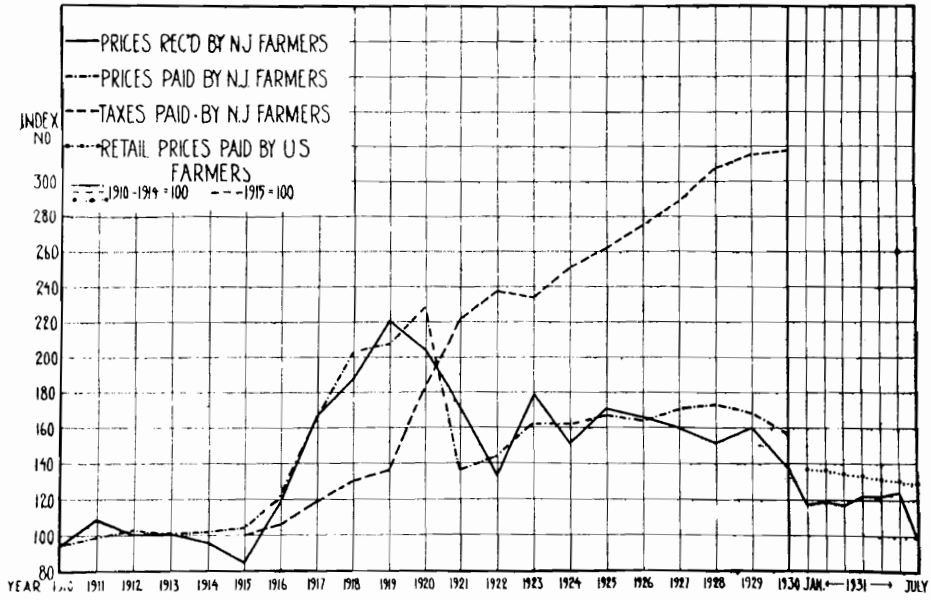
# *Report of the Secretary*

WILLIAM B. DURYEE, *Secretary*

## THE ECONOMIC SITUATION

As a result of the collapse in food commodity prices, agriculture is bearing the brunt of the economic depression. The net incomes or wages of farmers have declined more drastically than the net incomes of any other group. Since this decline has occurred on a nation-wide scale, the buying power of a third of our total population has approached the vanishing point and, coupled with a tremendous increase in taxes on real property, the economic position of the farmer finds precedence only in the critical times following the Civil War, when great agrarian movements began as organized protests against the unsatisfactory lot of the farmers. The chart on the following page shows prices and taxes affecting farmers for a period of twenty years. The three most striking lines are those representing the prices received by the farmer for his products; the prices he pays for labor, feeds and fertilizers; and the taxes on farm property, which are due mainly to local improvements.

Although the New Jersey farmer is undergoing a serious period of stress, the situation in states farther from great consuming centers is much worse. For example, when the potato grower of New Jersey receives 48 cents per bushel for potatoes, the Maine grower receives only about 16 cents per bushel; when the price of wheat on New Jersey farms is 75 cents per bushel, the Kansas grower receives approximately 30 cents; and when the price of corn is 70 cents per bushel in New Jersey, the Iowa producer gets approximately 35 cents. The New Jersey poultryman receives 35 cents per dozen for high quality, fresh eggs as compared to about 15 cents per dozen received by the poultryman of the Middle West. While the cost of production ranges higher in this state than in those with lower land values, our own producers, by application of the most efficient methods, can usually obtain at least the cost of production, a feat that is all but impossible to producers of most other areas under present conditions.




The chart shows that the prices received by New Jersey farmers have declined almost continuously since 1919. It also shows that, between 1926 and 1931, prices paid by New Jersey farmers did not decline as much as prices received by them. Figures on prices paid by New Jersey farmers in the first half of 1931 not being available, prices paid by United States farmers in that period are indicated on the chart. Taxes are seen to have mounted steadily since 1915 and by 1930 were 148 per cent. higher than in 1919—while farmers received 37 per cent. less for their products than in 1919, and now receive 55 per cent. less than in 1919.

Not only in the United States, but throughout the rest of the world, as well, the prices now being paid for agricultural commodities are, for the most part, below the costs of production. This fact means that only the most efficient producing areas and individuals can continue in production, the final economic collapse coming as it has after a decade of low prices. Such conditions bring about the abandonment of large areas that cannot be farmed profitably under present conditions. That this process of abandonment is now in full swing is beyond question. Regardless of man-made laws and artificial stimuli, economic forces are acting inexorably. With declines in acreage come reduced surpluses and a better adjustment between production and consumption. Prices will advance and the margin of profit will be made greater than ever through economies in production processes that necessity has forced. There is good evidence for the belief that 1931 will mark the lowest level for prices of most farm commodities for some time to come.

The most powerful stimulus that could come to the country would be an upward trend in prices of farm commodities. Those who try to analyze the causes of the present depression often forget to include the destruction of the buying power of the one-third of our population that is dependent upon agriculture. At present, that one-third cannot buy; but its needs are accumulating as rapidly as during better times and a restoration of agricultural buying power would exert a tremendous stimulus upon all other industries and professions.

So far as the farmers of New Jersey are concerned, there is today a much greater realization than ever before of the advantages of the great markets at their doors and of the necessity for catering to those markets. It is evident that eastern farmers can, by efficient methods, out-stay any other group in the most drastic competition ever known and that they will be the first to benefit by any upward trend of prices.

## THE GOVERNMENT AND AGRICULTURE

A great deal has been said and a few things have been done in recent years about governmental aid for agriculture. It is now becoming evident to the farmers and to the public generally that much legislative aid is unwise and worse than useless, since it so frequently tends to aggravate the conditions it is intended to relieve. We now see more clearly that governmental aid to agriculture should be limited to certain fields, in which such aid plays a highly necessary and important part.

There are four agricultural fields that deserve mention as being suited to governmental aid. First is the experimental field, for there is a con-

tinuing need for experimentation and determination by the trial-and-error method of the best procedure to be followed in all phases of crop and animal production. Second is the educational field, for there is a need for educating students in schools and colleges, where individual instruction can be given, and a further need for educating farmers by extension-work demonstration. Third is the field of regulation and promotion, for there must be action by the state for the control of insects and plant and animal diseases, for the suppression of unfair and oppressive trade practices that affect agriculture directly and indirectly, and for the establishment of public markets of various types. Fourth is the field of leadership, for a governmental agency such as the New Jersey Department of Agriculture can and should exercise leadership in the promotion of agriculture in all its branches.

In fulfilling its obligation of leadership, the Department of Agriculture has called the more progressive men in our agricultural industries to serve on clearing-house committees for the advancement of specialized branches of the state's agriculture. The department offers its facilities to such committees. Most of the definite advancements made in the field of agricultural economies have been brought about in this way. Since such advancements are of definite advantage in the development of the state's resources, leadership is clearly a field in which governmental agencies can render important public service.

## THE MILK SITUATION

The New Jersey Department of Agriculture has, for a number of years, endeavored to put into motion constructive plans for the benefit of the dairy industry of New Jersey. This industry is of great economic importance to the state, since it is estimated that approximately $18,000,000 worth of New Jersey dairy products are sold annually and there is in the state an investment of upward of $75,000,000 in material and animal equipment for carrying the industry on. Inasmuch as our own dairy farms supply less than half of the milk needed by our own people and since we have great resources in dairying, the industry offers great possibilities for development along economic lines. It should be given recognition as an asset to the state rather than merely consideration along the purely negative line of regulation in the interest of public health, which frequently amounts to suppression. Regulation is necessary, but regulation can be made constructive and not destructive.

The department has been instrumental in organizing two influential groups for the study and development of dairying. One is the New Jersey

Milk Conference Board, which represents all factors concerned in milk production, regulation and distribution. The other group, the State Dairy Committee, is composed of representatives from each county board of agriculture and each cattle-breed association. These organizations were asked to name their own representatives to meet in Trenton and develop a program for improving the condition of the dairy industry. The State Dairy Committee is purely a volunteer organization, but its activities have been very productive in solidifying and stabilizing the dairy interests throughout the state. Some twenty meetings of the group have been held and decided progress has been made, in spite of opposition on the part of other interests to some of the plans proposed by the representatives of the industry.

The State Dairy Committee, which, incidentally, the Department of Agriculture has aided as part of its work in the field of leadership along agricultural lines, has drawn up grades of milk suitable for state-wide application. With the exception of a few municipalities, there is no supervision in New Jersey over the use of milk grade designations and it is entirely usual for grade designations without any indicated significance to be placed on bottles of milk. The Dairy Committee has repeatedly asked the State Department of Health to take some action regulating the use of grade designations and two public hearings on the subject have been held. At the hearings the positions of the dairy farmers of the state, the state and local health departments, and the distributing organizations were developed publicly. Because of inability to reach an agreement on some points, no action has yet been accomplished and when proposals for regulation of milk grade designations were made to the Legislature in the form of bills, opposition again arose resulting in no action being taken. In the meantime, the dairy industry of the state is languishing and the really constructive ideas of the Dairy Committee, which it is perfectly willing to submit to examination as to their general public benefits, are getting nowhere. So complex and important an industry as dairying should not be removed from the field of economic consideration.

In the development of safe milk for human consumption, it is necessary that the animals producing it be free from disease. One of the principal diseases affecting cattle in this state is tuberculosis. A long and difficult fight, involving the use of state and federal funds, has been waged against it for a period of years. The end of the campaign to eliminate the disease through initial testing of herds is now in sight. About three-fourths of all the cattle in the state have been tested and are under governmental supervision to insure continued freedom from the infection. A financial

program has been set up which, if carried through, will practically eliminate the disease within the next two years. The elimination of tuberculosis not only has economic and health aspects, but such a program is essential in the development of a milk supply in the state that will have public confidence and serve as a basis for further development of the state's dairy industry.

Another step has recently been taken in the dairy field through the passage of an act requiring the licensing of all dealers in cattle after July 1, 1931. This measure is designed to prevent introduction of diseased cattle into the state, to prevent promiscuous transfer of cattle from one herd to another, and to make certain the maintenance of sales premises in a sanitary condition. By the end of the fiscal year, the law was being observed on the part of a great majority of cattle dealers in the state. It constitutes a further step toward the promotion of a healthful and economically sound milk production industry.

Recent legislation has placed New Jersey in the forefront of states in the control of Bang's disease, commonly known as contagious abortion. This disease, which causes abortions in cows and seriously lessens the production of milk by infected animals, is one of the most important economic problems in the dairy industry today. The plan now in effect in New Jersey permits cooperation between dairymen and the Department of Agriculture in placing herds under state supervision for initial tests and retests to bring about their freedom from the disease. The fact that a few isolated cases of undulant fever have occurred among residents of the state gives this project some public health significance, since it is believed that the positive agent of the disease in cows can be transmitted to people, causing a feverish condition typical of undulant fever. The work now being done in New Jersey to combat Bang's disease constitutes the beginning of a program to eliminate the disease from cattle in the state and to secure, thereby, more healthful milk, at the same time as one of the greatest causes of economic loss to dairymen is removed.

## RURAL ELECTRIFICATION

The department was instrumental in bringing together representatives of the utility companies of the state and agricultural leaders for the purpose of promoting the electrification of farms. The representatives made up the Rural Electrification Committee, which has functioned very successfully and in the best cooperative spirit. Electric lines are being extended to farms in all parts of the state and farmers are taking advantage of opportunities to electrify their farms. Rural electrification has im-

portant economic aspects in that many modern farm operations require power. It also has important aesthetic benefits through making farm life more attractive, through increasing the value of farms as places of residence and through bringing to these farms all the advantages and refinements that have accrued to urban life only. New Jersey now has the largest percentage of electrically equipped farms of any state in the Union.

## MARKETING ORGANIZATION AND SUPERVISION

Through the establishment of public markets, the department renders a service of great value to producers and consumers. These markets are of two distinct kinds, one being designed to supply the consumer with products fresh from the farm, and the other, so arranged as to provide for the assembling of farm products and their sale in relatively large quantities to wholesale buyers.

City markets have been growing in popularity and, during the past year, the three markets which are located in Atlantic City, Trenton and Camden sold $1,120,000 worth of farm products. In spite of the low prices received, the total value of these products compared very favorably with that of other years. Markets for the assembling of products from farms have been operated at Hammonton, Beverly, Cedarville, Rosenhayn, Williamstown, Vineland, Toms River and Flemington. With the exception of the market at Hammonton, all of these are of the auction type. The total value of fruits, vegetables, eggs and poultry sold at these markets totaled more than $2,500,000 for the season, a fact which indicates that they are becoming an increasingly important factor in the distribution of food products.

Practically all of the markets are operated by local cooperative associations with which this department cooperates in various ways. The establishment and checking of a system of bookkeeping, aiding in securing competent employees to operate the markets, and putting buyers in touch with these auctions are all functions of the department and have helped materially in bringing about the markets' success. There is also the constant need for advisory service, in the rendering of which the department's representatives and county agricultural agents have an active part. A poultry and egg market at Flemington is the outstanding example of such a market in the United States and its reputation has brought visitors from many other states to study its methods.

In addition to securing better prices for the producer, efficient marketing facilitates the distribution of products and benefits the consumer, not only by providing him with fresher commodities, but by reducing the

number of agencies which handle the products before they reach him. As New Jersey's auction markets become better established and their operating practices become standardized, they should be of even greater public service than they are at present. Multiplicity of units should be avoided and stress should be laid upon the strengthening of strategically located markets so that large volumes of farm commodities and large groups of buyers may be brought together at a few large assembling points in the state.

## INSECT PROBLEMS

In addition to the present galaxy of insect pests affecting every branch of agriculture in the state, farmers are now confronted with another enemy invader—the corn borer. This insect has been present in isolated areas for three or four years. New Jersey is one of the last of the eastern states to become seriously infested with the borer and means of control which have been well worked out elsewhere are applicable here. Two types of this insect have converged upon New Jersey—one the single-brood type from the West and the other the double-brood species from New England and New York. Besides corn, the borer infests many vegetables and flowering plants.

The result of insect invasions has been to make diversified farming and even home gardening more difficult and hazardous. Skill and knowledge in fighting pests, as well as capital investment in spraying machines, are as necessary in successful farming today as is knowledge of cultivation, fertilization, seed selection and marketing methods. The tendency is, therefore, toward specialization in crop production and, because the same situation prevails in the animal world, in livestock production as well. The diversified-crop farmer finds it difficult to combat several pests at once and, if he has to equip himself to fight them, he must have a considerable acreage or a large number of animals to enable him to spread the increased cost and overhead as widely as possible.

### JAPANESE BEETLE AND GIPSY MOTH

The Japanese beetle continues to spread in the state and in surrounding states, but at a relatively slow rate of speed. Funds are required for the certification of farm products in order to satisfy the requirements of states that buy New Jersey materials, including food products, nursery plants and trees, sand and gravel.

The most hopeful development during the year was the discovery of a parasitic nematode, or microscopic worm, which attacks grubs in the soil and destroys them. This nematode exists naturally in but one small area

and the problem is: first, to determine under what conditions it is most effective, and second, to distribute it in Japanese beetle-infested areas. Study and distribution of the nematode are being carried on by the department. Progress is also being made in the utilization of other parasites against the Japanese beetle, the prevention of beetle attack by protective spraying of foliage and the education of the public as to procedure in preserving plants from such attack.

Scouting for the gipsy moth was continued during the year and again no infestations were found. The apparatus used in the successful campaign against the moth is now being disposed of, the field offices are being closed and the whole project is being liquidated in general. Especial emphasis is being laid upon the inspection of nursery products and Christmas trees from other states coming into New Jersey to make sure that they are not carrying the gipsy moth in any of its life stages. It is much more economical to maintain an inspection service of this type than it is to undertake the destruction of such a pest as the gipsy moth after it is introduced.

## SURVEYS

The department has under way continually a number of surveys which are of direct value to the state. The chief of the Bureau of Plant Industry was secretary and executive officer of the State Commission to Investigate the Employment of Migratory Children. The commission presented an excellent report following a comprehensive study and made definite recommendations for the improvement of conditions under which migratory child labor is employed.

At the request of leaders in rural life in the state, a rural church survey, in which all denominations were requested to participate, was undertaken. The survey has aroused state-wide interest in the present status of the rural church and its possibilities in supplying agricultural leadership. It is proposed to use the survey as a basis for presenting a program for rural church development and for the stimulation of interest in the churches that exist as landmarks in every rural community. One of the results of the survey is the establishment of the fact that most communities are over-churched. The denominations concerned have taken an active part in discussions of the situation and this fact promises well for the development of strong rural churches and the possible union of weaker churches in communities which are endeavoring to maintain too many such institutions.

A survey, the findings of which are applicable throughout New Jersey's farming sections, was made of idle farms in one area of the state.

Study of the survey is bringing out the causes of abandonment of farms and is supplying the department with a list of farms to which prospective settlers can be directed. Where the land is suited to agriculture, there should be no idle farms and the process of encouraging settlement of potentially productive farms is in line with good public policy.

Large-scale farming formed the basis of another survey, which was made in an effort to determine whether large-scale farms are likely to increase in number and to determine the economical and social results following their development. A publication has been issued by the department and is devoted to this subject. It indicates that large-scale operations are likely to increase very slowly under present conditions.

The department has given considerable attention to the problem of taxation of farm lands and to the costs of local government. Studies have been made on both subjects and demonstrate that high taxes are usually the result of high costs of local government due to improvement projects usually voted by the people. Plans are now under way for the formation of a "Better Rural Government Committee," to be made up of representatives from rural counties and to have the purpose of devising more economical methods of administration in local government affairs and of directing attention to the correction of abuses that cause excessive burdens in rural communities. The committee will also take up the more equitable distribution of the tax burden as a matter of public policy.

## AGRICULTURAL WEEK

Agricultural Week was held, in 1931, two weeks later than usual, an arrangement which was satisfactory from every viewpoint. Practically all of the agricultural organizations in the state held meetings in conjunction with this "Week" and the annual Agricultural Convention. The largest attendance yet recorded showed that the interest of farmers and their families is increasing in the meetings and the exhibits that are held each year at Trenton during Agricultural Week.

A state-wide spelling contest is conducted annually as a feature of this "Week" and has stimulated interest in better spelling in a great many communities, particularly those in which elimination contests are held and representatives selected for the state-wide contest.

## LICENSING AND BONDING

According to acts passed by the Legislature, the department is responsible for the licensing and bonding of milk dealers, and the licensing and

bonding of produce dealers and commission merchants. During the fiscal year ending June 30, 1931, 232 dealers were licensed to purchase milk, 36 were exempted according to provisions of the act, and the total value of surety bonds filed was $446,575. The total number of licenses issued to dealers in perishable fruits and vegetables was 410 and the value of the bonds filed with the department under the produce dealers' licensing act totaled $1,249,000. The number of cattle dealers licensed before the end of the fiscal year under the new act effective July 1, 1931, was 169. No bond requirement is included in this act. A large number of farmers have been benefited through the licensing and bonding activities of the department and the management of the acts has been such as to greatly stabilize agricultural conditions in the state.

## THE NEW JERSEY JUNIOR BREEDERS' FUND, INC.

The New Jersey Junior Breeders' Fund, Inc., formerly known as the "Frelinghuysen Fund," became a permanent endowment during the year through the contribution of the original fund of $30,000 by Hon. Joseph S. Frelinghuysen, formerly president of the State Board of Agriculture, and Mr. Julius Forstmann, of Passaic. A board of trustees, composed of four members of the State Board of Agriculture and the secretary of agriculture, now administer the fund.

The fund provides a permanent method of financing the purchase of purebred livestock by boys and girls in New Jersey. It has served a very useful purpose since its inception in 1921 and it is believed that its usefulness will continue in as great a degree in the future. One thousand and seventy-five loans have been made to boys and girls in the state on their own notes. The borrowers repay the loans on scheduled dates, permitting the money borrowed to be returned to the fund and used by other boys and girls for the purchase of stock.

## DISSEMINATING INFORMATION

Every available means is utilized to familiarize the public with the services it can obtain from the department and with the results of the department's work. The press has cooperated heartily in the distribution of timely material of value to the public and motion pictures, addresses at meetings and circulars and bulletins have been used in the dissemination of information. Reports on progress have been sent at intervals to members of the Legislature and to county boards of agriculture as means of keeping the public informed on results secured from the use of public funds. Public presentation of the department's progress is in line

with our conception of our duties as public servants who are expected to report on accomplishments made through the expenditure of the public funds.

We believe there is a fine and commendable spirit of service prevailing throughout the department and we wish to take this opportunity of expressing appreciation for the cooperation of the Legislature and of all public agencies and individual citizens who have manifested their interest and appreciation of the developments in the operations of the department.

In the following pages are given the details of the department's work by the chiefs of the bureaus and others directly concerned with individual projects. The attention of readers is directed to the various projects and to the outstanding records of work upon them, which have been secured.

# *Report of the Bureau of Animal Industry*

J. H. McNeil, *Chief*

## TUBERCULOSIS ERADICATION

The annual appropriation of funds to indemnify owners for loss of cattle as the result of the tuberculin test was $200,000 for the fiscal year 1930-1931. This was exhausted early in the year, due to the fact that several of the milk-receiving stations in Monmouth County required that all herds supplying their plants must be tuberculin-tested under state and federal cooperative supervision. As the testing work progressed, a number of other firms promulgated a similar order, in an effort to meet competition resulting from the production of a better grade of milk.

About this time requests were received from Salem County to test the herds supplying the Richman Dairy, but, as the original appropriation was practically exhausted, it was necessary to request the Legislature for an additional $100,000 to enable the bureau to continue the work of tuberculin-testing. This amount was granted. The work progressed satisfactorily, but, because of the large number of reactors found, the funds appropriated were insufficient to meet the demands and, early in January, a second request was made for additional funds. The Appropriations Committee allowed the Department of Agriculture $175,000 to continue the work, making the appropriations for the year total $475,000. At the same time, the Federal Bureau of Animal Industry appropriated additional funds sufficient to match the state appropriation.

The City of Newark passed an ordinance in 1929 requiring that Grade A milk sold within the city limits must be produced by cattle which had been tuberculin-tested under state and federal cooperative supervision and found free from tuberculosis. This ordinance was not made operative at the time. However, early in January, 1931, notice was sent to milk producers that the regulations would be strictly enforced after September 1, 1931. As the greater quantity of the milk affected by the ordinance is produced in Sussex County, where but a small number of the herds were under supervision and a high percentage of tuberculosis existed, the notice necessarily meant that the majority of the cattle producing the supply for

Newark would have to be tuberculin-tested in order to meet existing and proposed regulations.

As there were other sections in the state besides Sussex County where the herds had not been tuberculin-tested and where the herd owners would be required to comply with Newark's regulations, it was decided, after a conference, to outline a three-year plan of tuberculosis eradication and request the Legislature to appropriate sufficient funds to complete the eradication of the disease from the herds of the state. The funds necessary for this purpose had been variously estimated at from $1,500,000 to $3,000,000 and, basing a request on current values of dairy cattle, the method of appraisement and other data available, it was believed that at least $1,800,000 of state funds would be needed to complete the eradication work.

The plan was considered by the Conference Committee of the Senate and the House and it was proposed that the committee recommend an appropriation for the following fiscal year of $800,000 and appropriations of $500,000 each year for the two succeeding years. The Appropriations Committee made available for immediate use $600,000 with the understanding that, when this sum was exhausted, there would be made available an additional $200,000 to complete the following year's work according to the plan evolved.

On adjournment of the Legislature in April, the $600,000 became immediately available for the payment of indemnities and intensive testing was started over the entire area of Sussex County and in special areas in Mercer, Monmouth, Ocean, Burlington and Salem Counties, where tuberculin-testing had been carried on more or less successfully for several years and very few herds remained to be tested.

Appraisement valuations and amounts received for salvage have followed general declines both in the price of cattle for dairy purposes and in the price of beef. However, the Bureau of Animal Industry has been able to maintain a fair price by moving its tuberculin-test reactors to several newly established markets in Buffalo, N. Y.; Bridgeport, Conn.; Scranton, Pa., and New York City and Brooklyn. The bureau's chief aim has been to divert shipments so that no single market would receive more than its trade would absorb. The prices received have been on a par with those for similar cattle sold in other states and on other markets.

The Federal Bureau of Animal Industry has made a reduction in the amount of compensation that it may pay farmers for reacting grade and registered animals, reducing its indemnity for grades from a maximum of $35 to a maximum of $25 and its indemnity for registered animals from

a maximum of $70 to $50. The amounts that the state may pay in indemnity remain the same.

Following is a brief summary of the work accomplished in tuberculosis eradication during the 1930-1931 fiscal year:

At the close of the fiscal year ending June 30, 1930, there were under supervision in New Jersey 9,818 herds, comprising 92,221 animals. At the close of the fiscal year, June 30, 1931, there were under supervision 10,292 herds, comprising 104,976 animals, an increase of 4.82 per cent. in the number of herds and 13.83 per cent. in the number of animals. During the past twelve-month period the bureau tested 134,965 cattle, of which 9,924, or 7.35 per cent., reacted.

During the year 1929-1930, indemnity was paid for 4,524 reactors, 281 of which were registered animals and 4,243, grades. During the year 1930-1931, indemnity was paid on 8,128 reactors, of which 349 were registered animals and 7,779, grades. During the year 1929-1930, the percentage of reactors on initial tests was 31.44, 11,769 animals having been tested and 3,701 having reacted. During the year 1930-1931, the percentage of reactors on initial tests amounted to 40.77, with 18,669 animals having been tested and 7,612 having reacted.

The percentage of reactors among imported cattle added to herds under supervision during the fiscal year 1929-1930 was 3.88. Of 9,244 cattle tested, 359 reacted. In the year 1930-1931, 10,049 cattle were tested and 339, or 3.37 per cent., reacted.

Second and third retests are made of herds already under supervision. During the fiscal year 1929-1930, 85,095 animals were tested and 1,629, or 1.91 per cent., reacted. During the fiscal year 1930-1931, 106,247 animals were tested and 1,973, or 1.86 per cent., reacted.

Following is the total amount received by dairymen and breeders for 8,128 reactors condemned as a result of tuberculin-testing during the fiscal year 1930-1931:

| | |
|---|---|
| Amount Received for Salvage from Reactors | $192,258.62 |
| Amount Paid by State of New Jersey in Indemnity | 469,935.85 |
| Amount Paid by the United States Government in Indemnity | 242,934.32 |
| TOTAL | $905,128.79 |

This is an average of $111.36 per head.

Following is a comparison of the average net proceeds received per head from the sale of reactors during the past five fiscal years:

| 1926-1927 | 1927-1928 | 1928-1929 | 1929-1930 | 1930-1931 |
|---|---|---|---|---|
| $32.10 | $45.43 | $50.14 | $39.24 | $23.65 |

## TOTAL STATE INDEMNITY PAID, BY COUNTIES, JULY 1, 1930-JUNE 30, 1931

| | |
|---|---|
| Atlantic | $..... |
| Bergen | 1,621.63 |
| Burlington | 96,156.53 |
| Camden | 591.17 |
| Cape May | 328.34 |
| Cumberland | 10,668.20 |
| Essex | 2,538.17 |
| Gloucester | 3,352.79 |
| Hudson | 391.04 |
| Hunterdon | 43,487.27 |
| Mercer | 27,606.66 |
| Middlesex | 8,160.60 |
| Monmouth | 30,882.42 |
| Morris | 18,276.00 |
| Ocean | 5,365.41 |
| Passaic | 1,455.64 |
| Salem | 91,055.71 |
| Somerset | 18,526.24 |
| Sussex | 78,855.91 |
| Union | 915.53 |
| Warren | 29,700.59 |
| TOTAL | $469,935.85 |

## TOTAL STATE INDEMNITY PAID, BY COUNTIES, FROM BEGINNING OF ACCREDITED HERD WORK IN 1916 TO JUNE 30, 1931

| | |
|---|---|
| Atlantic | $ 5,112.80 |
| Bergen | 26,865.24 |
| Burlington | 246,762.08 |
| Camden | 10,386.84 |
| Cape May | 7,412.58 |
| Cumberland | 59,641.32 |
| Essex | 22,928.01 |
| Gloucester | 50,719.83 |
| Hudson | 3,992.87 |
| Hunterdon | 164,861.19 |
| Mercer | 134,439.76 |
| Middlesex | 30,702.63 |
| Monmouth | 66,623.80 |
| Morris | 76,640.55 |
| Ocean | 15,642.19 |
| Passaic | 26,969.93 |
| Salem | 265,636.85 |
| Somerset | 123,422.38 |
| Sussex | 193,598.17 |
| Union | 15,071.80 |
| Warren | 159,978.19 |
| TOTAL | $1,707,409.01 |

The following summary indicates the amount of state indemnity paid for reactors resulting from the tuberculin test during the five-year period 1926-1931:

| Class of Cattle | 1926-1927 No. of Animals | 1926-1927 Amount Paid | 1927-1928 No. of Animals | 1927-1928 Amount Paid | 1928-1929 No. of Animals | 1928-1929 Amount Paid | 1929-1930 No. of Animals | 1929-1930 Amount Paid | 1930-1931 No. of Animals | 1930-1931 Amount Paid |
|---|---|---|---|---|---|---|---|---|---|---|
| Registered ..... | 252 | $16,435.66 | 290 | $18,664.21 | 209 | $15,860.35 | 281 | $33,311.34 | 349 | $34,101.09 |
| Grade ..... | 2,512 | 66,832.19 | 6,344 | 173,024.28 | 3,149 | 87,480.83 | 4,243 | 263,156.69 | 7,779 | 435,834.76 |
| Registered and Grade... | 2,764 | $83,267.85 | 6,634 | $191,688.49 | 3,358 | $103,341.18 | 4,524 | $296,468.03 | 8,128 | $469,935.85 |
| *Average State Indemnity Paid Per Head* | | | | | | | | | | |
| Registered Cattle..... | | $65.22 | | $64.35 | | $75.89 | | $118.55 | | $97.71 |
| Grade Cattle..... | | 26.60 | | 27.27 | | 27.78 | | 62.02 | | 56.03 |
| Registered and Grade Cattle | | 30.12 | | 28.89 | | 30.77 | | 65.53 | | 57.82 |

The following summary will indicate the amount of salvage received by owners for reactors resulting from the tuberculin test during the five-year period 1926-1931:

| Class of Cattle | 1926-1927 No. of Animals | 1926-1927 Amount Paid | 1927-1928 No. of Animals | 1927-1928 Amount Paid | 1928-1929 No. of Animals | 1928-1929 Amount Paid | 1929-1930 No. of Animals | 1929-1930 Amount Paid | 1930-1931 No. of Animals | 1930-1931 Amount Paid |
|---|---|---|---|---|---|---|---|---|---|---|
| Registered ..... | 252 | $9,988.62 | 290 | $15,783.23 | 209 | $12,331.98 | 281 | $14,381.30 | 349 | $11,573.47 |
| Grade ..... | 2,512 | 78,752.08 | 6,344 | 285,661.04 | 3,149 | 151,624.00 | 4,243 | 163,205.77 | 7,779 | 180,685.15 |
| Registered and Grade... | 2,764 | $88,740.70 | 6,634 | $301,444.27 | 3,358 | $163,955.98 | 4,524 | $177,587.07 | 8,128 | $192,258.62 |
| *Average Salvage Received Per Head* | | | | | | | | | | |
| Registered Cattle..... | | $39.63 | | $54.42 | | $60.15 | | $51.18 | | $33.16 |
| Grade Cattle..... | | 31.35 | | 45.02 | | 49.43 | | 38.46 | | 23.23 |
| Registered and Grade Cattle | | 32.10 | | 45.43 | | 50.10 | | 39.24 | | 23.65 |

| *Estimated Federal Indemnity Received by Owners* | *No. of Animals* | *Amount Paid* | *No. of Animals* | *Amount Paid* | *No. of Animals* | *Amount Paid* | *No. of Animals* | *Amount Paid* | *No. of Animals* | *Amount Paid* |
|---|---|---|---|---|---|---|---|---|---|---|
| Registered and Grade Cattle ..... | 2,764 | $55,000.00 | 6,634 | $116,000.00 | 3,358 | $81,767.30* | 4,524 | $146,938.71* | 8,128 | $242,934.32* |
| TOTAL AMOUNT RECEIVED BY OWNERS FOR REACTORS (Sum of salvage, federal indemnity and state indemnity) | | $227,008.55 | | $609,132.76 | | $349,064.46 | | $620,993.81 | | $905,128.79 |
| Average amount received per head by owners for reactors..... | | $82.13 | | $91.82 | | $103.10 | | $137.27 | | $111.36 |

| | |
|---|---|
| Total number of reactors appraised during five-year period 1926-1931..... | 25,408 |
| Total state indemnity paid during five-year period 1926-1931 ..... | $1,144,701.40 |
| Total salvage received by owners during five-year period 1926-1931..... | 923,986.64 |
| Total federal indemnity paid during five-year period 1926-1931 ..... | 642,640.33 |
| Total amount received by owners for 25,408 reactors during five-year period 1926-1931..... | $2,711,328.37 |
| Average amount received per head..... | $106.71 |

*Actual amount paid.

## HERDS FULLY ACCREDITED AND UNDER SUPERVISION

### State-Owned Herds Fully Accredited

| | *Number Cattle in Herds* | | |
|---|---|---|---|
| | *Registered* | *Grade* | *Total* |
| N. J. Agricultural Experiment Station, New Brunswick | 116 | 45 | 161 |
| N. J. Manual Training and Industrial School, Farm No. 1, Bordentown | 26 | 21 | 47 |
| N. J. Reformatory, Rahway | .. | 46 | 46 |
| N. J. State Prison, Leesburg | .. | 61 | 61 |
| N. J. State Colony for Feeble Minded Males, New Lisbon | 1 | 20 | 21 |
| N. J. State Hospital, Trenton Junction | 31 | 181 | 212 |
| N. J. State Hospital, Morris Plains | 5 | 232 | 237 |
| N. J. Reformatory for Boys, Annandale | 4 | 95 | 99 |
| N. J. State Institution for Feeble Minded, Vineland | 27 | 77 | 104 |
| N. J. State Reformatory for Women, Clinton | 1 | 39 | 40 |
| N. J. Sanatorium for Tuberculosis, Glen Gardner | .. | 94 | 94 |
| N. J. State Home for Boys, Jamesburg | 4 | 96 | 100 |
| The Training School, Vineland | 32 | 65 | 97 |
| N. J. Fish and Game Commission, Hackettstown | .. | 2 | 2 |
| Totals | 247 | 1,074 | 1,321 |

### State-Owned Herds Under Supervision

| | | | |
|---|---|---|---|
| N. J. Manual Training and Industrial School, Farm No. 2, Bordentown | 2 | 10 | 12 |
| North Jersey Training School, Little Falls | 1 | 39 | 40 |
| N. J. State Village for Epileptics, Skillman | 36 | 31 | 67 |
| N. J. State Hospital, Holmdel | 3 | 9 | 12 |
| N. J. State Prison Farm, Bordentown | 9 | 75 | 84 |
| N. J. Experiment Station Farm, Sussex | 205 | 51 | 256 |
| Totals | 256 | 215 | 471 |

Percentage of registered animals in state-owned herds ..... 28.07

Percentage of grade animals in state-owned herds ..... 71.93

### County-Owned Herds Fully Accredited

| | | | |
|---|---|---|---|
| Camden County Almshouse, Grenlock | .. | 123 | 123 |
| Cape May County Farm, Cape May Court House | .. | 18 | 18 |
| Cumberland County Almshouse, Bridgeton | 1 | 20 | 21 |
| Morris County Almshouse, Morris Plains | .. | 17 | 17 |
| Mercer County Workhouse, Lambertville | 1 | 10 | 11 |
| Warren County Farm, Oxford | 1 | 53 | 54 |
| Gloucester County Institution, Clarksboro | .. | 9 | 9 |
| Totals | 3 | 250 | 253 |

### County-Owned Herds Under Supervision

| | *Number Cattle in Herds* | | |
|---|---|---|---|
| | *Registered* | *Grade* | *Total* |
| Essex County Hospital, Cedar Grove | 184 | 2 | 186 |
| Burlington County Almshouse, New Lisbon | 2 | 39 | 41 |
| Totals | 186 | 41 | 227 |
| Percentage of registered animals in county-owned herds | 39.38 | | |
| Percentage of grade animals in county-owned herds | 60.62 | | |

### City-Owned Herds Fully Accredited

| | | | |
|---|---|---|---|
| Newark City Boys Home, Verona | .. | 10 | 10 |

### Township-Owned Herds Fully Accredited

| | | | |
|---|---|---|---|
| Raritan Township Farm, Flemington | 3 | 10 | 13 |

### Township-Owned Herds Under Supervision

| | | | |
|---|---|---|---|
| Hopewell Township Farm, Pennington | .. | 23 | 23 |
| Percentage of registered animals in township-owned herds | 8.34 | | |
| Percentage of grade animals in township-owned herds | 91.66 | | |

### Certified Dairies Fully Accredited

| | | | |
|---|---|---|---|
| Raritan Valley Farms, Somerville | 4 | 149 | 153 |

### Certified Dairies Under Supervision

| | | | |
|---|---|---|---|
| Walker-Gordon Laboratories, Juliustown | 10 | 456 | 466 |
| Purity Farms, Pennington | 2 | 476 | 478 |
| Walker-Gordon Laboratories, Plainsboro | 41 | 1,704 | 1,745 |
| Woodbrook Farms, Metuchen | 5 | 222 | 227 |
| Noe Farms, Madison | .. | 175 | 175 |
| Sheffield Farms, Pompton Plains | 1 | 221 | 222 |
| Totals | 59 | 3,254 | 3,313 |
| Percentage of registered animals in certified dairies | 1.82 | | |
| Percentage of grade animals in certified dairies | 98.18 | | |

The following chart shows the number of herds under supervision and those fully accredited, by counties, together with the percentage of the number of cattle in each county which are under supervision as indicated by the 1925 Federal Census:

| *County* | *Number of Herds Under Supervision* | *Herds Fully Accredited* | *Number of Cattle in County (1925 Federal Census)* | *Number of Cattle Under Supervision June 30, 1931* | *Percentage of Cattle Under Supervision (Based on 1925 Federal Census)* |
|---|---|---|---|---|---|
| Atlantic .... | 374 | 328 | 809* | 626 | 98.59 |
| Bergen ..... | 133 | 13 | 2,806 | 2,166 | 77.19 |
| Burlington .. | 799 | 453 | 17,797 | 13,606 | 76.45 |
| Camden .... | 234 | 196 | 1,428 | 1,122 | 78.57 |
| Cape May... | 270 | 244 | 1,072† | 1,065 | 98.92 |
| Cumberland. | 1,179 | 945 | 6,981 | 6,354 | 91.02 |
| Essex ..... | 34 | 8 | 3,565 | 1,726 | 48.42 |
| Gloucester .. | 876 | 752 | 5,875 | 3,939 | 67.05 |
| Hudson ..... | 17 | ... | 67† | 176 | 92.62 |
| Hunterdon .. | 1,145 | 654 | 18,002 | 12,107 | 67.25 |
| Mercer ..... | 757 | 463 | 7,892 | 7,658 | 97.03 |
| Middlesex .. | 367 | 267 | 5,953 | 4,547 | 76.38 |
| Monmouth .. | 645 | 402 | 8,436 | 5,052 | 59.89 |
| Morris ..... | 479 | 312 | 6,479 | 6,281 | 96.94 |
| Ocean ..... | 271 | 220 | 1,197 | 1,103 | 92.15 |
| Passaic ..... | 189 | 15 | 2,278† | 2,626 | 97.33 |
| Salem ..... | 1,047 | 583 | 15,203 | 11,834 | 77.84 |
| Somerset ... | 435 | 262 | 8,592 | 5,314 | 61.85 |
| Sussex ..... | 447 | 211 | 24,365 | 7,554 | 31.00 |
| Union ..... | 24 | 6 | 2,494 | 1,740 | 69.77 |
| Warren .... | 570 | 394 | 14,898 | 8,380 | 56.25 |
| Totals .. | 10,292 | 6,728 | 156,189 | 104,976 | 67.21 |

| *Animals in herds under supervision* | *Animals in herds fully accredited* |
|---|---|
| 18,014 Registered | 11,464 Registered |
| 86,962 Grades | 46,070 Grades |
| 104,976 | 57,534 |

*The federal estimate is too high.
†The federal estimate is too low.

ERDS UNDER SUPERVISION AND THOSE FULLY ACCREDITED IN EACH COUNTY FOR THE PAST FIVE YEARS

| | HERDS UNDER SUPERVISION | | | | | HERDS FULLY ACCREDITED | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1926-1927 | 1927-1928 | 1928-1929 | 1929-1930 | 1930-1931 | 1926-1927 | 1927-1928 | 1928-1929 | 1929-1930 | 1930-1931 |
| tlantic | 222 | 548 | 476 | 442 | 374 | 82 | 190 | 365 | 382 | 328 |
| ergen | 48 | 128 | 160 | 141 | 133 | 6 | 11 | 16 | 13 | 13 |
| urlington | 274 | 451 | 561 | 613 | 799 | 104 | 119 | 257 | 349 | 453 |
| amden | 41 | 201 | 254 | 253 | 234 | 6 | 8 | 88 | 188 | 196 |
| ape May | 349 | 438 | 335 | 287 | 270 | 71 | 205 | 274 | 247 | 244 |
| umberland | 227 | 910 | 1,150 | 1,183 | 1,179 | 101 | 110 | 506 | 825 | 945 |
| ssex | 35 | 49 | 38 | 29 | 34 | 7 | 8 | 11 | 8 | 8 |
| loucester | 259 | 922 | 974 | 886 | 876 | 82 | 92 | 577 | 672 | 752 |
| udson | ... | 18 | 22 | 22 | 17 | ... | ... | ... | ... | ... |
| unterdon | 337 | 530 | 864 | 1,006 | 1,145 | 168 | 199 | 368 | 507 | 654 |
| ercer | 363 | 572 | 604 | 772 | 757 | 127 | 163 | 286 | 425 | 463 |
| iddlesex | 297 | 374 | 377 | 386 | 367 | 152 | 183 | 222 | 254 | 267 |
| onmouth | 135 | 405 | 489 | 539 | 645 | 52 | 75 | 260 | 338 | 402 |
| orris | 259 | 417 | 455 | 492 | 479 | 116 | 144 | 248 | 272 | 312 |
| cean | 70 | 263 | 293 | 295 | 271 | 27 | 29 | 148 | 211 | 220 |
| assaic | 78 | 157 | 205 | 189 | 189 | 21 | 22 | 22 | 20 | 15 |
| alem | 156 | 539 | 765 | 815 | 1,047 | 73 | 81 | 202 | 471 | 583 |
| omerset | 215 | 320 | 360 | 390 | 435 | 142 | 141 | 194 | 236 | 262 |
| ussex | 101 | 248 | 301 | 371 | 447 | 50 | 62 | 150 | 191 | 211 |
| nion | 21 | 27 | 29 | 23 | 24 | 8 | 10 | 10 | 8 | 6 |
| arren | 587 | 662 | 611 | 684 | 570 | 368 | 369 | 418 | 429 | 394 |
| | 4,074 | 8,179 | 9,323 | 9,818 | 10,292 | 1,763 | 2,221 | 4,622 | 6,046 | 6,728 |
| egistered Animals. | 11,574 | 13,257 | 14,977 | 16,529 | 18,014 | 7,686 | 8,551 | 9,649 | 10,666 | 11,464 |
| rade Animals..... | 34,400 | 53,594 | 67,232 | 75,692 | 86,962 | 14,682 | 19,146 | 30,223 | 39,448 | 46,070 |
| Totals | 45,974 | 66,851 | 82,209 | 92,221 | 104,976 | 22,368 | 27,697 | 39,872 | 50,114 | 57,534 |

## NUMBER OF CATTLE UNDER SUPERVISION IN EACH COUNTY FOR THE PAST FIVE YEARS

| County | 1926-1927 | | 1927-1928 | | 1928-1929 | | 1929-1930 | | 1930-1931 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number Under Supervision | Per Cent | Number Under Supervision | Per Cent | Number Under Supervision | Per Cent | Number Under Supervision | Per Cent | Number Under Supervision | Per Cent |
| tlantic | 376 | 39 | 852 | 99 | 725 | 98 | 681 | 98 | 626 | 98 |
| ergen | 934 | 33 | 1,973 | 70 | 2,336 | 83 | 2,232 | 80 | 2,166 | 77 |
| urlington | 5,461 | 31 | 7,652 | 43 | 9,256 | 52 | 10,537 | 59 | 13,606 | 76 |
| amden | 278 | 19 | 724 | 51 | 972 | 68 | 1,033 | 72 | 1,122 | 79 |
| ape May | 973 | 79 | 1,176 | 99 | 1,061 | 98 | 1,090 | 98 | 1,065 | 98 |
| umberland | 1,914 | 27 | 4,015 | 58 | 5,541 | 79 | 5,705 | 82 | 6,354 | 91 |
| ssex | 1,687 | 47 | 1,981 | 56 | 1,677 | 47 | 1,736 | 49 | 1,726 | 48 |
| loucester | 1,514 | 26 | 3,090 | 53 | 3,970 | 68 | 4,001 | 68 | 3,939 | 67 |
| udson | .... | .. | 186 | 92 | 271 | 93 | 190 | 93 | 176 | 93 |
| lunterdon | 3,581 | 20 | 4,927 | 27 | 8,113 | 45 | 9,728 | 54 | 12,107 | 67 |
| ercer | 4,117 | 52 | 5,354 | 68 | 6,152 | 78 | 7,378 | 93 | 7,658 | 97 |
| iddlesex | 3,303 | 55 | 4,039 | 68 | 4,326 | 73 | 4,258 | 72 | 4,547 | 76 |
| lonmouth | 1,354 | 16 | 2,675 | 32 | 3,138 | 37 | 3,811 | 45 | 5,052 | 60 |
| lorris | 3,698 | 57 | 4,851 | 75 | 5,388 | 83 | 6,164 | 95 | 6,281 | 97 |
| cean | 267 | 22 | 824 | 69 | 937 | 78 | 1,032 | 86 | 1,103 | 92 |
| assaic | 1,559 | 72 | 2,302 | 97 | 2,769 | 97 | 2,537 | 97 | 2,626 | 97 |
| alem | 2,036 | 13 | 4,604 | 30 | 8,354 | 55 | 9,820 | 65 | 11,834 | 78 |
| omerset | 3,741 | 44 | 3,963 | 46 | 4,275 | 50 | 4,598 | 54 | 5,314 | 62 |
| ussex | 1,776 | 7 | 3,001 | 12 | 4,135 | 17 | 5,559 | 23 | 7,554 | 31 |
| nion | 1,094 | 44 | 1,532 | 61 | 1,503 | 51 | 1,840 | 74 | 1,740 | 70 |
| Varren | 6,311 | 42 | 7,130 | 48 | 7,310 | 49 | 8,291 | 56 | 8,380 | 56 |
| Totals | 45,974 | 29 | 66,851 | 43 | 82,209 | 53 | 92,221 | 59 | 104,976 | 67 |

## REACTORS TO INITIAL TESTS, BY COUNTIES

July, 1930-June, 1931

| County | Number of Herds Tested | Animals Tested Registered | Animals Tested Grade | Animals Reacted Registered | Animals Reacted Grade | Percentage Reacting Registered | Percentage Reacting Grade | Total Animals Tested | Total Animals Reacted | Per Cent of Total Reacting |
|---|---|---|---|---|---|---|---|---|---|---|
| tlantic | 15 | ... | 17 | ... | .... | .... | .... | .... | .... | .... |
| ergen | 5 | 4 | 37 | ... | .... | .... | .... | 41 | .... | .... |
| urlington | 216 | 75 | 3,095 | 20 | 1,466 | 26.67 | 34.44 | 3,170 | 1,486 | 34.26 |
| amden | 21 | 22 | 44 | ... | 5 | .... | 11.36 | 66 | 5 | 7.58 |
| ape May | 18 | 3 | 40 | ... | .... | .... | .... | 43 | .... | .... |
| umberland | 72 | 50 | 575 | 9 | 124 | 18.00 | 21.57 | 625 | 133 | 21.28 |
| ssex | 6 | ... | 112 | ... | 15 | .... | 13.39 | 112 | 15 | 13.39 |
| loucester | 84 | 18 | 199 | ... | 16 | .... | 8.04 | 217 | 16 | 7.37 |
| udson | 1 | ... | 11 | ... | 1 | .... | 9.09 | 11 | 1 | 9.09 |
| unterdon | 182 | 97 | 1,694 | 24 | 557 | 24.74 | 32.88 | 1,791 | 581 | 32.44 |
| ercer | 122 | 53 | 746 | ... | 250 | .... | 33.51 | 799 | 250 | 31.30 |
| iddlesex | 53 | 58 | 266 | 4 | 60 | 6.9 | 22.56 | 324 | 64 | 19.75 |
| onmouth | 182 | 59 | 1,974 | 9 | 635 | 15.25 | 32.17 | 2,033 | 644 | 31.68 |
| orris | 74 | 30 | 730 | ... | 189 | .... | 25.89 | 760 | 189 | 24.87 |
| cean | 34 | 4 | 273 | 1 | 99 | 25.00 | 36.26 | 277 | 100 | 36.10 |
| assaic | 26 | ... | 165 | ... | 5 | .... | 3.03 | 165 | 5 | 3.03 |
| alem | 287 | 78 | 3,196 | 16 | 1,545 | 20.51 | 48.34 | 3,274 | 1,561 | 47.68 |
| omerset | 73 | 104 | 678 | 9 | 300 | 8.65 | 44.25 | 782 | 309 | 39.51 |
| ussex | 87 | 115 | 2,314 | 48 | 1,442 | 41.74 | 62.32 | 2,429 | 1,490 | 61.34 |
| nion | 3 | ... | 254 | ... | 20 | .... | 7.87 | 254 | 20 | 7.87 |
| Varren | 89 | 73 | 1,406 | 22 | 721 | 30.14 | 51.28 | 1,479 | 743 | 50.24 |
| Totals | 1,650 | 843 | 17,826 | 162 | 7,450 | 19.22 | 41.79 | 18,669 | 7,612 | 40.77 |

## NUMBER OF CATTLE TESTED ON INITIAL TEST, NUMBER OF REACTORS RESULTING AND PERCENTAGE OF REACTIONS, BY COUNTIES, FROM JULY 1926 to JUNE 1931

| COUNTY | 1926-1927 | | | 1927-1928 | | | 1928-1929 | | | 1929-1930 | | | 1930-1931 | | | Totals 1926-1931 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of Cattle Tested | Number of Reactors Found | Per Cent Reactors | Number of Cattle Tested | Number of Reactors Found | Per Cent Reactors | Number of Cattle Tested | Number of Reactors Found | Per Cent Reactors | Number of Cattle Tested | Number of Reactors Found | Per Cent Reactors | Number of Cattle Tested | Number of Reactors Found | Per Cent Reactors | Number of Cattle Tested | Number of Reactors Found | Per Cent Reactors |
| tlantic | 247 | 76 | 31. | 473 | 53 | 11. | 78 | 2 | 3. | 35 | 8 | 23. | 17 | .. | .. | 850 | 139 | 16. |
| ergen | 187 | 78 | 42. | 1,112 | 211 | 19. | 350 | 24 | 7. | 93 | 16 | 17. | 41 | .. | .. | 1,783 | 329 | 18. |
| urlington | 1,078 | 331 | 31. | 1,629 | 704 | 43. | 1,175 | 285 | 24. | 1,685 | 639 | 38. | 3,170 | 1,486 | 34. | 8,737 | 3,445 | 39. |
| amden | 176 | 81 | 46. | 374 | 49 | 13. | 285 | 55 | 19. | 72 | 10 | 14. | 66 | 5 | 8. | 973 | 200 | 21. |
| ape May | 450 | 59 | 13. | 140 | 4 | 3. | 24 | .. | .. | 21 | 1 | 5. | 43 | .. | .. | 678 | 64 | 9. |
| umberland | 260 | 49 | 19. | 2,470 | 420 | 17. | 1,421 | 283 | 20. | 523 | 68 | 13. | 625 | 133 | 21. | 5,299 | 953 | 18. |
| ssex | 8 | 2 | 25. | 476 | 85 | 18. | 75 | 1 | 1. | 7 | .. | .. | 112 | 15 | 13. | 678 | 103 | 15. |
| loucester | 737 | 248 | 34. | 1,644 | 364 | 22. | 577 | 210 | 36. | 182 | 22 | 12. | 217 | 16 | 7. | 3,357 | 860 | 26. |
| udson | .. | .. | .. | 277 | 91 | 33. | 38 | 1 | 3. | .. | .. | .. | 11 | 1 | 9. | 326 | 93 | 29. |
| unterdon | 850 | 216 | 25. | 1,343 | 386 | 29. | 2,862 | 778 | 27. | 1,553 | 347 | 22. | 1,791 | 581 | 32. | 8,399 | 2,308 | 27. |
| ercer | 1,413 | 453 | 32. | 1,155 | 364 | 32. | 450 | 69 | 15. | 1,638 | 712 | 43. | 799 | 250 | 31. | 5,455 | 1,848 | 34. |
| iddlesex | 181 | 55 | 30. | 500 | 132 | 26. | 180 | 12 | 7. | 87 | 13 | 15. | 324 | 64 | 20. | 1,272 | 276 | 22. |
| onmouth | 332 | 87 | 26. | 1,384 | 252 | 18. | 531 | 55 | 10. | 811 | 160 | 20. | 2,033 | 644 | 32. | 5,091 | 1,198 | 24. |
| orris | 167 | 25 | 15. | 1,278 | 214 | 17. | 358 | 7 | 2. | 801 | 179 | 22. | 760 | 189 | 25. | 3,364 | 614 | 18. |
| cean | 145 | 33 | 23. | 608 | 124 | 20. | 127 | 2 | 2. | 78 | 3 | 4. | 277 | 100 | 36. | 1,235 | 262 | 21. |
| assaic | 61 | 8 | 13. | 858 | 101 | 12. | 244 | 16 | 7. | 37 | .. | .. | 165 | 5 | 3. | 1,365 | 130 | 10. |
| alem | 588 | 200 | 34. | 4,126 | 1,953 | 47. | 2,437 | 1,000 | 41. | 1,132 | 560 | 49. | 3,274 | 1,561 | 48. | 11,557 | 5,274 | 46. |
| omerset | 242 | 36 | 15. | 484 | 101 | 21. | 391 | 41 | 10. | 427 | 85 | 20. | 782 | 309 | 40. | 2,326 | 572 | 25. |
| ussex | 239 | 110 | 46. | 1,045 | 109 | 10. | 916 | 142 | 16. | 1,853 | 756 | 40. | 2,429 | 1,490 | 61. | 6,482 | 2,607 | 40. |
| nion | 9 | .. | .. | 144 | 35 | 24. | 29 | 6 | 21. | 39 | 2 | 5. | 254 | 20 | 8. | 475 | 63 | 13. |
| Varren | 262 | 49 | 19. | 475 | 85 | 18. | 362 | 35 | 10. | 695 | 120 | 17. | 1,479 | 743 | 50. | 3,273 | 1,032 | 32. |
| Total | 7,632 | 2,196 | 29. | 21,995 | 5,837 | 27. | 12,910 | 3,024 | 23. | 11,769 | 3,701 | 31. | 18,669 | 7,612 | 41. | 72,975 | 22,370 | 31. |

## ACCREDITED HERD WORK

| sted by N.J.B.A.I. Veterinarians | Initial Tests | | | | | Herd Addition Tests | | | | | Other Tests | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tested | | | Reactors | | Tested | | | Reactors | | Tested | | | Reactors | |
| | Lots | Registered | Grade | Registered | Grade | Lots | Registered | Grade | Registered | Grade | Lots | Registered | Grade | Registered | Grade |
| 30— | | | | | | | | | | | | | | | |
| July | 124 | 56 | 1,107 | 3 | 330 | 25 | 75 | 419 | 4 | 18 | 459 | 1,000 | 3,973 | 17 | 117 |
| August | 85 | 52 | 448 | 2 | 168 | 12 | 17 | 186 | 1 | 6 | 471 | 820 | 4,564 | 18 | 88 |
| September | 56 | 65 | 266 | 2 | 65 | 22 | 15 | 278 | ... | 13 | 499 | 536 | 3,808 | 5 | 55 |
| October | 67 | 20 | 252 | ... | 32 | 45 | 48 | 782 | 2 | 28 | 508 | 1,134 | 4,245 | 11 | 105 |
| November | 41 | 34 | 262 | ... | 35 | 38 | 28 | 451 | ... | 15 | 431 | 1,271 | 5,085 | 17 | 121 |
| December | 52 | 28 | 467 | 6 | 243 | 49 | 16 | 658 | 1 | 21 | 399 | 1,375 | 4,701 | 20 | 78 |
| 31— | | | | | | | | | | | | | | | |
| January | 112 | 62 | 1,458 | 11 | 641 | 40 | 33 | 811 | ... | 23 | 294 | 1,444 | 3,788 | 11 | 113 |
| February | 130 | 73 | 1,995 | 26 | 794 | 44 | 31 | 597 | 1 | 17 | 339 | 1,320 | 4,032 | 16 | 81 |
| March | 76 | 26 | 903 | 4 | 319 | 35 | 38 | 743 | 1 | 27 | 616 | 1,654 | 6,518 | 14 | 145 |
| April | 93 | 25 | 958 | 1 | 376 | 24 | 16 | 704 | ... | 25 | 820 | 1,234 | 6,227 | 8 | 128 |
| May | 70 | 28 | 875 | 12 | 464 | 39 | 30 | 719 | ... | 28 | 706 | 1,616 | 8,260 | 7 | 138 |
| June | 260 | 149 | 3,116 | 50 | 1,333 | 33 | 32 | 448 | 1 | 7 | 597 | 821 | 4,065 | 12 | 86 |
| tals | 1,166 | 618 | 12,107 | 117 | 4,800 | 406 | 379 | 6,796 | 11 | 228 | 6,139 | 14,225 | 59,266 | 156 | 1,255 |
| rcentage of Reactors | .... | ... | .... | 18.93 | 39.65 | ... | ... | .... | 2.90 | 3.35 | .... | .... | .... | 1.10 | 2.12 |
| erage Percentage | .... | ... | .... | 38.64 | | ... | ... | .... | 3.33 | | ... | ... | .... | 1.92 | |

## ACCREDITED HERD WORK
(Continued)

| sted by U.S.B.A.I. Veterinarians | Initial Tests | | | | | Herd Addition Tests | | | | | Other Tests | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tested | | | Reactors | | Tested | | | Reactors | | Tested | | | Reactors | |
| | Lots | Registered | Grade | Registered | Grade | Lots | Registered | Grade | Registered | Grade | Lots | Registered | Grade | Registered | Grade |
| 30— | | | | | | | | | | | | | | | |
| July | ... | ... | ... | ... | ... | 3 | 11 | 5 | ... | ... | 3 | .... | 70 | ... | ... |
| August | 1 | ... | 13 | ... | ... | 1 | 2 | 6 | 1 | 1 | 6 | 52 | 73 | 1 | 21 |
| September | 6 | 3 | 15 | ... | 1 | 8 | ... | 32 | ... | ... | 16 | 80 | 109 | ... | ... |
| October | 1 | ... | 7 | ... | ... | 5 | 29 | 9 | ... | 1 | 8 | 151 | 151 | ... | 1 |
| November | 4 | 10 | 19 | ... | 2 | 4 | ... | 12 | ... | ... | 7 | 12 | 51 | ... | ... |
| December | 2 | 6 | 23 | ... | ... | 1 | 1 | 3 | ... | ... | 3 | 16 | 13 | ... | ... |
| 31— | | | | | | | | | | | | | | | |
| January | ... | ... | ... | ... | ... | 9 | 2 | 26 | ... | ... | 8 | 302 | 147 | 2 | ... |
| February | ... | ... | ... | ... | ... | 4 | ... | 14 | ... | 1 | 6 | 5 | 96 | ... | 5 |
| March | 4 | 2 | 28 | ... | 16 | 4 | ... | 6 | ... | ... | 9 | 126 | 102 | ... | 1 |
| April | 1 | ... | 5 | ... | ... | 2 | ... | 5 | ... | ... | 7 | 71 | 62 | ... | ... |
| May | 3 | ... | 18 | ... | ... | 4 | ... | 18 | ... | ... | 22 | 1,134 | 110 | ... | ... |
| June | 1 | ... | 16 | ... | 2 | 7 | 9 | 17 | ... | ... | 7 | 31 | 122 | ... | 3 |
| tals | 23 | 21 | 144 | ... | 21 | 52 | 54 | 153 | 1 | 3 | 102 | 1,980 | 1,106 | 3 | 31 |
| rcentage of Reactors | ... | ... | ... | ... | 14.58 | ... | ... | .... | 1.85 | 1.96 | ... | .... | .... | .15 | 2.80 |
| erage Percentage | ... | ... | ... | 12.73 | | ... | ... | .... | 1.93 | | .... | .... | .... | 1.10 | |

## ACCREDITED HERD WORK
(Continued)

| sted by Accredited Veterinarians | Initial Tests | | | | | Herd Addition Tests | | | | | Other Tests | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tested | | | Reactors | | Tested | | | Reactors | | Tested | | | Reactors | |
| 30— | Lots | Registered | Grade | Registered | Grade | Lots | Registered | Grade | Registered | Grade | Lots | Registered | Grade | Registered | Grade |
| July | 35 | 16 | 403 | 2 | 212 | 6 | 5 | 79 | ... | ... | 68 | 83 | 700 | ... | 7 |
| August | 38 | 12 | 249 | 2 | 110 | 8 | 3 | 141 | ... | 2 | 189 | 197 | 1,193 | 3 | 22 |
| September | 38 | 10 | 254 | 1 | 85 | 8 | ... | 86 | ... | 5 | 228 | 142 | 1,143 | 2 | 39 |
| October | 15 | 2 | 80 | ... | 3 | 11 | 5 | 125 | ... | 4 | 154 | 145 | 769 | ... | 6 |
| November | 10 | 1 | 46 | ... | ... | 17 | 2 | 241 | ... | ... | 70 | 62 | 616 | ... | 13 |
| December | 23 | 24 | 314 | 1 | 133 | 26 | 4 | 208 | ... | 8 | 120 | 191 | 1,208 | ... | 13 |
| 31— | | | | | | | | | | | | | | | |
| January | 19 | 3 | 430 | 2 | 175 | 18 | 1 | 60 | ... | 1 | 74 | 230 | 974 | 2 | 19 |
| February | 44 | 12 | 684 | 3 | 331 | 4 | 4 | 51 | 1 | 1 | 91 | 303 | 1,741 | 9 | 41 |
| March | 24 | 18 | 336 | 6 | 168 | 34 | 37 | 392 | 1 | 18 | 106 | 329 | 1,426 | 5 | 64 |
| April | 4 | ... | 18 | ... | 9 | 11 | 2 | 141 | ... | 3 | 146 | 277 | 1,324 | 2 | 19 |
| May | 9 | 2 | 86 | ... | 23 | 15 | 17 | 193 | 1 | 6 | 185 | 316 | 4,510 | 6 | 78 |
| June | 43 | 24 | 382 | 17 | 173 | 7 | 11 | 103 | 1 | 9 | 170 | 256 | 1,359 | 6 | 28 |
| tals | 302 | 124 | 3,282 | 34 | 1,422 | 165 | 91 | 1,820 | 4 | 57 | 1,601 | 2,531 | 16,963 | 35 | 349 |
| rcentage of Reactors | ... | ... | .... | 27.42 | 43.33 | ... | ... | .... | 4.40 | 3.13 | .... | .... | .... | 1.38 | 2.06 |
| erage Percentage | ... | ... | .... | 42.75 | | ... | ... | .... | 3.19 | | .... | .... | ..... | 1.97 | |

## ACCREDITED HERD WORK
(Continued)

| sted by Accredited and Bureau Veterinarians | Initial Tests | | | | | Herd Addition Tests | | | | | Other Tests | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tested | | | Reactors | | Tested | | | Reactors | | Tested | | | Reactors | |
| | Lots | Registered | Grade | Registered | Grade | Lots | Registered | Grade | Registered | Grade | Lots | Registered | Grade | Registered | Grade |
| 30— | | | | | | | | | | | | | | | |
| July | 29 | 11 | 113 | 1 | 18 | 4 | 2 | 39 | ... | 3 | 59 | 126 | 486 | 3 | 25 |
| August | 21 | 3 | 158 | ... | 20 | 3 | 3 | 95 | ... | 3 | 82 | 207 | 780 | ... | ... |
| September | 17 | 2 | 482 | 2 | 336 | 1 | 2 | 57 | ... | 4 | 40 | 99 | 464 | 1 | 5 |
| October | 20 | 5 | 380 | 2 | 215 | 5 | 10 | 121 | 1 | 8 | 114 | 374 | 1,707 | 2 | 28 |
| November | 7 | 7 | 25 | ... | 1 | 8 | 3 | 176 | ... | 4 | 81 | 363 | 1,362 | ... | 17 |
| December | 24 | 4 | 397 | 1 | 173 | 6 | 1 | 15 | ... | ... | 2 | 34 | 1,738 | 1 | 33 |
| 31— | | | | | | | | | | | | | | | |
| January | 23 | 44 | 389 | 4 | 228 | 15 | 14 | 121 | 1 | 5 | 14 | 132 | 326 | 6 | 7 |
| February | 5 | ... | 81 | ... | 58 | 2 | 3 | 3 | ... | 2 | 28 | 34 | 494 | ... | 3 |
| March | ... | ... | ... | ... | ... | 1 | ... | 7 | ... | ... | 31 | 42 | 899 | ... | 4 |
| April | 8 | 3 | 163 | 1 | 102 | 1 | ... | 4 | ... | ... | 34 | 59 | 185 | ... | 1 |
| May | 4 | 1 | 95 | ... | 47 | 1 | ... | 4 | ... | ... | 5 | 26 | 101 | ... | 1 |
| June | 1 | ... | 10 | ... | 9 | 1 | 8 | 68 | ... | 4 | 16 | 8 | 130 | 1 | 6 |
| tals | 159 | 80 | 2,293 | 11 | 1,207 | 48 | 46 | 710 | 2 | 33 | 506 | 1,504 | 8,672 | 14 | 130 |
| rcentage of Reactors | ... | ... | .... | 13.75 | 52.64 | ... | ... | .... | 4.35 | 4.65 | ... | .... | .... | .93 | 1.50 |
| erage Percentage | ... | ... | .... | 51.33 | | ... | ... | .... | 4.63 | | ... | .... | .... | 1.42 | |

## NUMBER OF CATTLE TESTED UNDER ACCREDITED HERD PLAN FOR PAST FIVE YEARS

| | *Registered Animals* | | | | | *Grade Animals* | | | | | *Total* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *sts* | 1926-27 | 1927-28 | 1928-29 | 1929-30 | 1930-31 | 1926-27 | 1927-28 | 1928-29 | 1929-30 | 1930-31 | 1926-27 | 1927-28 | 1928-29 | 1929-30 | 1930-31 |
| .. | 815 | 965 | 970 | 1,015 | 843 | 6,817 | 21,030 | 11,940 | 10,754 | 17,826 | 7,632 | 21,995 | 12,910 | 11,769 | 18,669 |
| .. | 130 | 173 | 83 | 124 | 162 | 2,066 | 5,664 | 2,941 | 3,577 | 7,450 | 2,196 | 5,837 | 3,024 | 3,701 | 7,612 |
| ge | | | | | | | | | | | | | | | |
| ors | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 28.77 | 26.54 | 23.42 | 31.44 | 40.77 |
| *lition* | | | | | | | | | | | | | | | |
| .. | 361 | 112 | 602 | 829 | 570 | 4,536 | 1,395 | 5,766 | 8,415 | 9,479 | 4,897 | 1,507 | 6,368 | 9,244 | 10,049 |
| .. | 16 | 10 | 19 | 16 | 18 | 358 | 63 | 306 | 343 | 321 | 374 | 73 | 325 | 359 | 339 |
| ge | | | | | | | | | | | | | | | |
| ors | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 7.63 | 4.18 | 5.10 | 3.88 | 3.37 |
| *sts* | | | | | | | | | | | | | | | |
| .. | 12,143 | 14,762 | 14,701 | 15,549 | 20,240 | 33,693 | 45,514 | 68,846 | 69,546 | 86,007 | 45,836 | 60,276 | 83,547 | 85,095 | 106,247 |
| .. | 132 | 133 | 173 | 282 | 208 | 481 | 983 | 1,232 | 1,347 | 1,765 | 613 | 1,116 | 1,405 | 1,629 | 1,973 |
| ge | | | | | | | | | | | | | | | |
| ors | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1.31 | 1.85 | 1.68 | 5.22 | 1.86 |
| .. | 13,319 | 15,839 | 16,273 | 17,393 | 21,653 | 45,046 | 67,939 | 86,552 | 88,715 | 113,312 | 58,365 | 83,778 | 102,825 | 106,108 | 134,965 |
| .. | 278 | 316 | 275 | 422 | 388 | 2,905 | 6,710 | 4,479 | 5,267 | 9,536 | 3,183 | 7,026 | 4,754 | 5,869 | 9,924 |
| ge | | | | | | | | | | | | | | | |
| ors | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 5.45 | 8.39 | 4.62 | 5.36 | 7.35 |

## TOTAL NUMBER OF REACTORS SLAUGHTERED, BY MONTHS
Fiscal Year 1930-1931

| | |
|---|---|
| July | 678 |
| August | 816 |
| September | 625 |
| October | 457 |
| November | 197 |
| December | 446 |
| January | 1,018 |
| February | 1,417 |
| March | 1,159 |
| April | 687 |
| May | 685 |
| June | 1,412 |
| Total | 9,597 |

## TESTS MADE ON NATIVE CATTLE NOT UNDER STATE AND FEDERAL SUPERVISION
JULY, 1930—JUNE, 1931

*Tested by Private Veterinarians*

| | *HERD TESTS* | | | | *OTHER TESTS* | | | | *TESTS FOR EXPORT* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Number of Lots* | *Animals Tested* | *Number Reacted* | *Per Cent Reacted* | *Number of Lots* | *Animals Tested* | *Number Reacted* | *Per Cent Reacted* | *Number of Lots* | *Animals Tested* | *Number Reacted* | *Per Cent Reacted* |
| 1930— | | | | | | | | | | | | |
| July | 19 | 160 | 3 | 1.88 | ... | ... | ... | ... | ... | ... | ... | ... |
| August | 9 | 58 | 2 | 3.45 | ... | ... | ... | ... | 2 | 18 | ... | ... |
| September | 7 | 49 | 4 | 8.16 | ... | ... | ... | ... | ... | ... | ... | ... |
| October | 5 | 32 | ... | ... | ... | ... | ... | ... | 2 | 4 | ... | ... |
| November | 9 | 100 | 11 | 11. | ... | ... | ... | ... | 1 | 1 | ... | ... |
| December | 14 | 121 | 5 | 4.13 | ... | ... | ... | ... | 1 | 25 | ... | ... |
| 1931— | | | | | | | | | | | | |
| January | 21 | 132 | 2 | 1.52 | ... | ... | ... | ... | ... | ... | ... | ... |
| February | 12 | 114 | 8 | 7.02 | ... | ... | ... | ... | ... | ... | ... | ... |
| March | 19 | 213 | 7 | 3.29 | ... | ... | ... | ... | ... | ... | ... | ... |
| April | 22 | 203 | 8 | 3.94 | ... | ... | ... | ... | 1 | 3 | ... | ... |
| May | 23 | 262 | 8 | 3.05 | ... | ... | ... | ... | 1 | 16 | ... | ... |
| June | 19 | 119 | 1 | .84 | ... | ... | ... | ... | ... | ... | ... | ... |
| Totals | 179 | 1,563 | 59 | 3.77 | ... | ... | ... | ... | 8 | 67 | ... | ... |

## TESTS MADE ON NATIVE CATTLE, NOT UNDER STATE AND FEDERAL SUPERVISION, FOR THE PAST FIVE YEARS

*Tested by Private Veterinarians*

| Year | HERD TESTS | | | | OTHER TESTS | | | | TESTS FOR EXPORT | | | | TOTAL | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of Lots | Animals Tested | Number Reactors | Per Cent Reactors | Number of Lots | Animals Tested | Number Reactors | Per Cent Reactors | Number of Lots | Animals Tested | Number Reactors | Per Cent Reactors | Number of Lots | Animals Tested | Number Reactors | Per Cent Reactors |
| 1926-1927... | 262 | 2,977 | 155 | 5.20 | 74 | 133 | 4 | 3.00 | 23 | 92 | .. | .. | 359 | 3,202 | 159 | 4.96 |
| 1927-1928... | 362 | 2,559 | 174 | 6.85 | 9 | 160 | 2 | 1.25 | 17 | 42 | .. | .. | 388 | 2,741 | 176 | 6.42 |
| 1928-1929... | 253 | 2,428 | 99 | 4.06 | 30 | 639 | 2 | .31 | 25 | 83 | 1 | 1.2 | 308 | 3,150 | 102 | 3.24 |
| 1929-1930... | 243 | 2,331 | 74 | 3.17 | 18 | 511 | .. | .. | 16 | 117 | 2 | 1.7 | 277 | 2,959 | 76 | 2.57 |
| 1930-1931... | 179 | 1,563 | 59 | 3.77 | .. | .. | .. | .. | 8 | 67 | .. | .. | 187 | 1,630 | 59 | 3.62 |
| Totals... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,578 | 13,682 | 572 | 4.18 |

## IMPORT ANIMALS RECEIVED FROM VARIOUS STATES FOR DAIRY AND BREEDING PURPOSES, 1930-1931

| *Points of Origin* | *July* | *Aug.* | *Sept.* | *Oct.* | *Nov.* | *Dec.* | *Jan.* | *Feb.* | *Mar.* | *Apr.* | *May* | *June* | *Total* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Athenia (Quarantine) | 28 | ... | ... | 25 | ... | ... | ... | ... | ... | 21 | ... | ... | 74 |
| California | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 16 | ... | 16 |
| Canada | ... | ... | 87 | 29 | 1 | ... | ... | ... | 23 | 20 | ... | ... | 160 |
| Colorado | ... | ... | ... | ... | 34 | ... | ... | ... | ... | ... | ... | ... | 34 |
| Connecticut | ... | ... | ... | 10 | 2 | ... | 4 | ... | ... | ... | ... | ... | 16 |
| Delaware | ... | ... | ... | 5 | 4 | ... | ... | ... | 8 | ... | ... | ... | 17 |
| Illinois | ... | 1 | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | 2 |
| Indiana | ... | ... | ... | 24 | ... | ... | ... | ... | ... | ... | ... | ... | 24 |
| Iowa | ... | ... | ... | 10 | 29 | ... | ... | ... | ... | ... | ... | ... | 39 |
| Kansas | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 |
| Kentucky | ... | ... | ... | ... | ... | ... | ... | ... | 17 | ... | ... | ... | 17 |
| Lancaster (Yds.) | ... | 32 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 32 |
| Maine | ... | ... | 28 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 28 |
| Maryland | 13 | 17 | 10 | 28 | ... | 6 | 12 | 45 | 1 | 7 | 10 | ... | 149 |
| Massachusetts | ... | ... | ... | 1 | ... | ... | 1 | ... | 1 | ... | ... | ... | 3 |
| Michigan | 488 | 497 | 795 | 566 | 487 | 377 | 516 | 229 | 446 | 159 | 249 | 400 | 5,209 |
| Minnesota | ... | ... | ... | 1 | 44 | ... | ... | ... | ... | ... | ... | ... | 45 |
| Mississippi | 62 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 62 |
| New York | 42 | 2 | 112 | 51 | 56 | 39 | 19 | 29 | 58 | 12 | 28 | 23 | 471 |
| North Carolina | ... | ... | ... | ... | ... | 10 | ... | ... | ... | ... | ... | ... | 10 |
| Ohio | 219 | 279 | 335 | 378 | 314 | 230 | 28 | 117 | 180 | 97 | 70 | 184 | 2,431 |
| Pennsylvania | 139 | 187 | 502 | 481 | 282 | 206 | 195 | 104 | 206 | 81 | 113 | 173 | 2,669 |
| Tennessee | ... | 28 | 1 | 55 | 27 | 1 | 2 | ... | ... | ... | 3 | 68 | 185 |
| Vermont | ... | 23 | ... | 17 | ... | 1 | ... | ... | 53 | ... | ... | ... | 94 |
| Virginia | 46 | 64 | 53 | 54 | 59 | 27 | 170 | ... | 28 | ... | 10 | 42 | 553 |
| Washington, D. C. | ... | ... | ... | 2 | ... | 1 | ... | ... | ... | ... | ... | ... | 3 |
| Wisconsin | 511 | 649 | 1,260 | 1,714 | 936 | 1,004 | 713 | 997 | 1,099 | 801 | 1,488 | 1,033 | 12,205 |
| Totals | 1,548 | 1,779 | 3,183 | 3,452 | 2,275 | 1,902 | 1,661 | 1,521 | 2,120 | 1,198 | 1,987 | 1,923 | 24,549 |

## DAIRY AND BREEDING CATTLE IMPORTED FROM VARIOUS STATES DURING THE PAST FIVE FISCAL YEARS

| *State* | 1926-1927 | 1927-1928 | 1928-1929 | 1929-1930 | 1930-1931 | *Total Number of Cattle Imported Five Years* | *Per Cent of Total Number of Cattle Imported* |
|---|---|---|---|---|---|---|---|
| Arkansas | 1 | 36 | ... | 376 | ... | 413 | .3610 |
| Athenia Quar. Station | 152 | 229 | 186 | ... | 74 | 641 | .5604 |
| Canada | ... | 1,107 | 1,814 | 704 | 160 | 3,785 | 3.309 |
| California | 1 | ... | 1 | ... | 16 | 18 | .0157 |
| Colorado | ... | ... | ... | 9 | 34 | 43 | .0375 |
| Connecticut | 17 | 4 | 26 | 7 | 16 | 70 | .0612 |
| Delaware | 21 | 115 | 28 | 23 | 17 | 204 | .1783 |
| Georgia | ... | ... | ... | 3 | ... | 3 | .0026 |
| Illinois | ... | ... | 26 | 4 | 2 | 32 | .0279 |
| Indiana | 79 | 42 | ... | ... | 24 | 145 | .1267 |
| Iowa | 6 | 4 | ... | 77 | 39 | 126 | .1101 |
| Kansas | ... | ... | ... | 1 | 1 | 2 | .0017 |
| Kentucky | 376 | 192 | 93 | 185 | 17 | 863 | .7545 |
| Lancaster Yds. | ... | 298 | 394 | 141 | 32 | 865 | .7562 |
| Maine | ... | 194 | 79 | 71 | 28 | 372 | .3252 |
| Maryland | 157 | 158 | 228 | 303 | 149 | 995 | .8699 |
| Massachusetts | 52 | 37 | 6 | 36 | 3 | 134 | .1171 |
| Michigan | 7,949 | 3,342 | 3,799 | 4,069 | 5,209 | 24,368 | 21.305 |
| Minnesota | ... | 251 | 55 | 76 | 45 | 427 | .3733 |
| Mississippi | ... | 90 | 64 | ... | 62 | 216 | .1888 |
| Missouri | ... | ... | 1 | 54 | ... | 55 | .0480 |
| New Hampshire | ... | 44 | 13 | ... | ... | 57 | .0498 |
| New York | 1,395 | 1,133 | 1,045 | 877 | 471 | 4,921 | 4.302 |
| North Carolina | 45 | 124 | 107 | 41 | 10 | 327 | .2858 |
| Ohio | 1,376 | 1,809 | 2,439 | 2,215 | 2,431 | 10,270 | 8.979 |
| Pennsylvania | 3,551 | 1,959 | 2,182 | 1,724 | 2,669 | 12,085 | 10.566 |
| Rhode Island | 3 | ... | ... | ... | ... | 3 | .0026 |

*(Continued on next page)*

*(Continued)*

| *State* | 1926-1927 | 1927-1928 | 1928-1929 | 1929-1930 | 1930-1931 | *Total Number of Cattle Imported Five Years* | *Per Cent of Total Number of Cattle Imported* |
|---|---|---|---|---|---|---|---|
| South Carolina ..... | 7 | 86 | ... | ... | ... | 93 | .0813 |
| Tennessee ..... | 471 | 548 | 353 | 587 | 185 | 2,144 | 1.874 |
| Texas ..... | ... | ... | ... | 1 | ... | 1 | .0008 |
| Vermont ..... | 366 | 334 | 321 | 239 | 94 | 1,354 | 1.183 |
| Virginia ..... | 611 | 1,051 | 1,226 | 829 | 553 | 4,270 | 3.733 |
| Washington, D. C..... | ... | 2 | ... | ... | 3 | 5 | .0043 |
| Wisconsin ..... | 3,254 | 10,434 | 10,619 | 8,557 | 12,205 | 45,069 | 39.404 |
| Totals ..... | 19,890 | 23,623 | 25,105 | 21,209 | 24,549 | 114,376 | |

## BANG ABORTION DISEASE CONTROL

The work of the Bureau of Animal Industry in the control and eradication of Bang abortion disease proceeded in the fiscal year 1930-1931 along the lines indicated in previous reports. The bureau conducted tests on all herds which had been under supervision and gradually extended the work as applications were received. However, the progress of the work is necessarily slow because of the high percentage of reactors which are taken out of herds as result of the test and because of the economic depression, which has reduced the demand for milk and dairy products.

Because of the activities of other states in promulgating regulations requiring agglutination tests of all dairy and breeding cattle entering them, similar regulations were proposed in New Jersey and approved by the State Board of Agriculture, February 9, 1931, in an order which reads as follows:

WHEREAS, the New Jersey State Board of Agriculture has power and authority under and pursuant to the provisions of Section 9 of Chapter 179, Laws of 1926, to issue any quarantine and to make rules and regulations which may be deemed necessary for the control and eradication and to prevent the spread of Bang abortion disease to the live stock of the State

NOW, THEREFORE, the State Board of Agriculture does hereby make the following order:

1. General Quarantine Order No. IV, issued under date of September 20, 1929, is hereby rescinded.

2. All dairy and breeding cattle, including calves six months of age or over, destined for New Jersey points must pass an agglutination or other approved test for Bang abortion disease made within thirty days of the date of shipment except when consigned for immediate slaughter to public stock yards where Federal and State inspection is maintained.

Only tests will be accepted where the technic employed in conducting the same has been submitted to and approved by the Chief of the Bureau of Animal Industry, New Jersey State Department of Agriculture, who may refuse to accept any test or tests which in his judgment have not been properly executed and hold any live stock so tested in segregation and quarantine subject to an official test and disposal according to the rules and regulations of the State Board of Agriculture.

3. Tests of dairy and breeding cattle will not be accepted if made within twenty-one days after calving.

4. Each animal passing the test shall be ear tagged or otherwise permanently marked or identified by registration certificate, tattoo or lock number and the original report giving date of test and name and address of person or laboratory conducting the same must be approved by the Live Stock Sanitary Official or Veterinary Director General of the state or foreign country in which the cattle originate and attached to the copy of the tuberculin test chart sent to the Chief, Bureau of Animal Industry, Trenton, New Jersey. A duplicate copy of the report shall be attached to the way bill and accompany the animal or animals in transit.

5. The same tag, registration number, tattoo or lock number used in tuberculin testing for interstate shipment or movement may be utilized as a means of identification.

6. All dairy and breeding cattle, including calves six months of age or over, which have received an injection of any biological or chemical product or any other preparation given for immunization purposes or to reduce or prevent reaction to the agglutination or any other recognized test for Bang abortion disease are not eligible for entry into New Jersey.

7. Dairy and breeding cattle originating in any public stock yard or point designated as a public sales stable or sales yard are not eligible for entry into New Jersey.

8. Dairy and breeding cattle which have at any time given a positive reaction to the agglutination test or any other approved method of testing for Bang abortion disease recognized by the New Jersey State Board of Agriculture are not eligible for entry into New Jersey unless consigned for immediate slaughter to a public stock yard where State and Federal inspection is maintained, except in cases where special written order for the importation of such reacting animals is secured from the Department of Agriculture prior to the importation of such reacting animal or animals. Reacting animals brought into New Jersey on such written order shall be subject to quarantine and disposition as provided in Chapter 179, Laws of 1926.

9. If individual animals are found to comply with the requirements as stated in the preceding paragraphs they are eligible for shipment **direct** from point of origin to New Jersey points; providing, they also comply with the regulations governing the interstate movement of cattle with respect to tuberculosis or other requirements that may be in force and effect.

10. Within three days immediately after the arrival of the cattle at their destination within the State, the owner shall notify by telephone or telegraph the Chief, Bureau of Animal Industry, and hold the animals in quarantine **until** inspected and released by a representative of the Department of Agriculture.

11. Cattle not complying with these regulations are not eligible for entry into New Jersey.

12. All existing quarantines or orders or parts of quarantines or orders inconsistent with the provisions of this quarantine are hereby rescinded.

13. This order shall be in force and effect on and after April 1, 1931."

Cattle are only permitted to enter New Jersey under the following rules and regulations issued as provided in the quarantine regulations of the State Board of Agriculture:

1. New Jersey regulations provide that all dairy and breeding cattle, including calves six months of age or over, destined for New Jersey points, must pass an agglutination or other approved test for Bang abortion disease made within thirty days of the date of shipment.

2. Agglutination tests of dairy and breeding cattle will not be accepted if made within twenty-one days after calving.

3. The dilutions required for the agglutination tests conducted for cattle to be consigned to New Jersey are:

1—25 1—50 1—100 1—200

4. Only cattle which are negative in all dilutions are eligible for consignment to New Jersey.

5. Each animal negative in all dilutions shall be ear tagged or otherwise permanently marked or identified by registration certificate, tattoo or lock number.

6. The agglutination test shall be conducted in an approved laboratory operated under the direct supervision of the State University, Agricultural

College, Experiment Station or Live Stock Sanitary Organization. Special permits must be obtained from the State Board of Agriculture by laboratories other than those previously mentioned. All tests shall be approved by the State Live Stock Sanitary Official of the state or foreign country in which the test is conducted.

7. The original report of the test carrying the approval of the Live Stock Sanitary Official shall be forwarded to the Chief, Bureau of Animal Industry, Trenton, N. J. A duplicate copy shall be attached to the way bill and accompany the animals in transit.

There has been considerable discussion as to the relationship that exists between Bang abortion disease and undulant fever in man. Only in certain instances have municipal boards of health in the state taken any definite action prohibiting the consumption of raw milk.

The following herds, having passed the required number of tests and the owners having complied with the requirements prescribed by the Bureau of Animal Industry of the New Jersey Department of Agriculture for the maintenance of the herd for the prevention and eradication of Bang abortion disease, were issued accredited herd certificates:

| *OWNER'S NAME* | *ADDRESS* |
|---|---|
| R. L. Benson | Coventry Farm, Princeton |
| William T. White | Hill Top Farm, Princeton |
| Clarence Dillon | Dunwalke Farm, Far Hills |
| E. W. Wadley | Sunnyside Farm, Red Bank |
| Dr. J. E. Russell | R. D. No. 4, Trenton |
| Mrs. Elmer H. Geron | Matawan |
| Vineland Training School | Vineland |
| Van Zandt Brothers | Blawenburg |
| L. F. Loree | West Orange |
| Mrs. F. G. Lloyd | Bernardsville |
| Upton Pyne Estate | Bernardsville |
| Fred Brunner | Cranbury |
| Gordon Hall | Cranford |
| J. E. Ward | Stockton |
| Charles Baldwin | Pennington |
| F. H. Kinnicutt | Far Hills |
| E. H. Van Ronk | Somerville |
| J. L. Hope | Madison |
| F. S. Titsworth | Colts Neck |
| Mrs. Mabel Blagden | Red Bank |
| N. J. Agricultural Experiment Station | New Brunswick |
| Mrs. T. E. Bunting | Burlington |
| D. H. Moore & Sons | Hopewell |

There is one quarantine farm in the state where reactors are held in quarantine until such time as they become unprofitable, when they are sent to slaughter on written order issued by the chief of the Bureau of Animal Industry.

The following summary will show the work accomplished in the eradication of Bang abortion disease in the state:

| | |
|---|---|
| Total number of animals bled since the work commenced | 43,244 |
| Total number of animals showing positive reaction | 4,791—11.07% |
| Total number of animals showing negative reaction | 38,453—88.93% |
| Total number of animals bled on initial test since work commenced | 7,419 |
| Total number of animals showing positive reaction | 2,071—27.91% |
| Total number of animals showing negative reaction | 5,348—72.09% |

Included in the herds under supervision for the eradication of Bang abortion disease are 16 owned by the various state institutions. A summary of this work follows:

| | |
|---|---|
| Total number of animals bled in state institution herds on initial tests | 1,482 |
| Total number of animals showing positive reaction | 373—25.17% |
| Total number of animals showing negative reaction | 1,109—74.83% |

HERDS UNDER STATE SUPERVISION FOR THE ERADICATION OF BANG ABORTION DISEASE, BY COUNTIES

| | |
|---|---|
| Atlantic | .. |
| Bergen | .. |
| Burlington | 14 |
| Camden | 3 |
| Cape May | 4 |
| Cumberland | 2 |
| Essex | 2 |
| Gloucester | 3 |
| Hudson | .. |
| Hunterdon | 6 |
| Mercer | 19 |
| Middlesex | 7 |
| Monmouth | 6 |
| Morris | 5 |
| Ocean | .. |
| Passaic | 2 |
| Salem | 1 |
| Somerset | 23 |
| Sussex | 2 |
| Union | 2 |
| Warren | 1 |
| Total | 102 |

## SWINE DISEASE CONTROL

Swine disease control, especially the vaccination of swine as a protection against cholera, is practically all done by veterinarians in private practice, either answering individual calls or cooperating with county boards of agriculture in arranging for work in their particular sections.

The vaccination work at the Secaucus and Westfield garbage-feeding points was taken care of during the 1930-1931 fiscal year by private practitioners as in the past. Because of the low price of hogs, not as many were fed at those points as in previous years, but the usual number of sporadic outbreaks of cholera were reported, due to the fact that, when prices are low, hog owners do not take enough interest in their live stock and do not fully protect them against cholera infection.

SUMMARY BY MONTHS OF THE NUMBER OF HOGS INOCULATED AS A PROTECTION AGAINST CHOLERA INFECTION JULY, 1930, TO JUNE, 1931

| | *Bureau Veterinarians* | | *Private Veterinarians* | |
|---|---|---|---|---|
| | *Single Treatments* | *Double Treatments* | *Single Treatments* | *Double Treatments* |
| July | .. | 169 | .. | 6,156 |
| August | .. | .. | 7 | 6,526 |
| September | .. | .. | 30 | 12,360 |
| October | .. | .. | 15 | 3,138 |
| November | .. | .. | 310 | 11,739 |
| December | .. | .. | 15 | 5,820 |
| January | .. | .. | 38 | 7,630 |
| February | .. | .. | 82 | 963 |
| March | .. | .. | 3 | 899 |
| April | .. | .. | 2 | 3,323 |
| May | .. | .. | .. | 899 |
| June | .. | .. | 56 | 1,505 |
| Totals | .. | 169 | 558 | 60,958 |

| | |
|---|---|
| Total Single | 558 |
| Total Double | 61,127 |
| Grand Total | 61,685 |

## SUMMARY BY COUNTIES OF THE NUMBER OF HOGS INOCULATED AS A PROTECTION AGAINST CHOLERA INFECTION JULY, 1930, TO JUNE, 1931

| | *Bureau Veterinarians* | | *Private Veterinarians* | |
|---|---|---|---|---|
| | *Single Treatments* | *Double Treatments* | *Single Treatments* | *Double Treatments* |
| Atlantic | .. | .. | 16 | 834 |
| Bergen | .. | .. | .. | ... |
| Burlington | .. | .. | .. | ... |
| Camden | .. | .. | .. | 5,917 |
| Cape May | .. | .. | 1 | 1,189 |
| Cumberland | .. | .. | 74 | 318 |
| Essex | .. | .. | .. | 15 |
| Gloucester | .. | 93 | 29 | 12,486 |
| Hudson | .. | .. | .. | 28,102 |
| Hunterdon | .. | .. | .. | 183 |
| Mercer | .. | 60 | 85 | 240 |
| Middlesex | .. | .. | .. | 679 |
| Monmouth | .. | .. | 62 | 5,938 |
| Morris | .. | .. | .. | 746 |
| Ocean | .. | .. | .. | 478 |
| Passaic | .. | .. | .. | 804 |
| Salem | .. | .. | 3 | 697 |
| Somerset | .. | .. | .. | 156 |
| Sussex | .. | .. | 190 | 111 |
| Union | .. | 16 | 98 | 2,065 |
| Warren | .. | .. | .. | ... |
| Totals | .. | 169 | 558 | 60,958 |

| | |
|---|---|
| Total Single | 558 |
| Total Double | 61,127 |
| Grand Total | 61,685 |

## COMPARISON OF SUMMARIES, 1926-1931

| | 1926-1927 | 1927-1928 | 1928-1929 | 1929-1930 | 1930-1931 |
|---|---|---|---|---|---|
| *Treated by Bureau Veterinarians* | | | | | |
| Single Treatments | 624 | 387 | 38 | 35 | ... |
| Double Treatments | 8,931 | 9,575 | 6,622 | 6,228 | 169 |
| Totals | 9,555 | 9,962 | 6,660 | 6,263 | 169 |
| *Treated by Private Veterinarians* | | | | | |
| Single Treatments | 1,392 | 1,286 | 1,521 | 577 | 558 |
| Double Treatments | 13,305 | 18,716 | 26,060 | 54,531 | 60,958 |
| Totals | 14,697 | 20,002 | 27,581 | 55,108 | 61,516 |
| *Totals* | | | | | |
| Single Treatments | 2,016 | 1,673 | 1,559 | 612 | 558 |
| Double Treatments | 22,236 | 28,291 | 32,682 | 60,759 | 61,127 |
| Totals | 24,252 | 29,964 | 34,241 | 61,371 | 61,685 |

## GLANDERS

During the past fiscal year, a report was received by the Bureau of Animal Industry of the existence of glanders affecting one horse and two mules in the southern section of the state. A bureau veterinarian was detailed to make an examination and, if conditions warranted, to conduct a mallein test on all of the animals on the premises, three horses and two mules. This was done and the two mules and one horse reacted. They were immediately removed to a rendering plant and destroyed.

The bureau representative had the premises thoroughly cleaned and disinfected and returned for an inspection to see that instructions which he had given the owner were carried out in order to prevent reinfection. The history of the case indicated that the infected horse had been purchased from a sale stable and, at the time of purchase, had a very bad discharge from the nostrils. The discharge subsided and the ulcers healed. The symptoms were undoubtedly those of glanders.

Report was also received during the year of the positive reaction of three animals to a mallein test conducted by a private veterinarian. The animals were destroyed and the premises cleaned and disinfected under the bureau's supervision.

MALLEIN TESTS CONDUCTED AND REPORTED TO THE BUREAU OF ANIMAL INDUSTRY FISCAL YEAR 1930-1931

| *Month* | *Negative* | *Positive* |
|---|---|---|
| July | 23 | .. |
| August | 17 | .. |
| September | 20 | .. |
| October | 13 | .. |
| November | 12 | .. |
| December | 37 | .. |
| January | 5 | .. |
| February | 23 | .. |
| March | 29 | .. |
| April | 85 | .. |
| May | 20 | 3 |
| June | 15 | 3 |
| Totals | 299 | 6 |

MALLEIN TESTS REPORTED TO THE BUREAU OF ANIMAL INDUSTRY FIVE-YEAR PERIOD, 1926-1931

| | 1926–1927 | 1927–1928 | 1928–1929 | 1929–1930 | 1930–1931 |
|---|---|---|---|---|---|
| Negative | 131 | 566 | 566 | 386 | 299 |
| Positive | .. | 1 | 1 | 2 | 6 |
| Totals | 131 | 567 | 567 | 388 | 305 |

## ANTHRAX

Protective inoculation of horses and cattle against anthrax was conducted by bureau representatives in Salem County in March and April, 1931. There was a slight increase in the number of animals so treated as compared with the previous year. Interest, however, in this work has not been stimulated, due to the fact that there has not been an outbreak of anthrax in the state for several years.

CATTLE AND HORSES VACCINATED FOR ANTHRAX
FIVE-YEAR PERIOD, 1926-1931

| *Fiscal Year* | *Cattle* | *Horses* | *Total* |
|---|---|---|---|
| 1930-1931 | 823 | 73 | 896 |
| 1929-1930 | 685 | 65 | 750 |
| 1928-1929 | 905 | 101 | 1,006 |
| 1927-1928 | 1,265 | 74 | 1,339 |
| 1926-1927 | 1,413 | 119 | 1,532 |

## STALLION REGISTRATION

In accordance with the provisions of Chapter 212, Laws of 1908, stallions were examined and licenses issued.

STALLIONS REGISTERED, 1927-1931, BY BREEDS

| *Breed* | 1927 | 1928 | 1929 | 1930 | 1931 |
|---|---|---|---|---|---|
| Breed not given (registered) | .. | .. | .. | .. | 1 |
| Percheron (registered) | 8 | 6 | 7 | 4 | 3 |
| Standardbred (registered) | 2 | 2 | .. | .. | .. |
| Clydesdale (registered) | .. | .. | 1 | .. | .. |
| Belgian (registered) | .. | .. | .. | 1 | .. |
| Thoroughbred (registered) | 2 | .. | 4 | .. | .. |
| Arabian (registered) | 1 | 1 | .. | .. | .. |
| Jacks (registered) | 1 | .. | .. | .. | .. |
| Jacks (non-registered) | 2 | .. | 2 | 1 | .. |
| *Grade Drafts | 6 | 1 | 1 | .. | .. |
| Totals | 22 | 10 | 15 | 6 | 4 |

* Includes grade Percherons, Belgians and Clydesdales.

STALLIONS REGISTERED, 1927-1931, BY COUNTIES

| *County* | 1927 | 1928 | 1929 | 1930 | 1931 |
|---|---|---|---|---|---|
| Atlantic | .. | .. | .. | .. | .. |
| Bergen | .. | .. | .. | .. | .. |
| Burlington | 5 | 1 | .. | .. | .. |
| Camden | .. | 2 | .. | .. | 1 |
| Cape May | .. | .. | .. | .. | .. |
| Cumberland | 1 | .. | 1 | .. | .. |
| Essex | .. | .. | .. | .. | .. |
| Gloucester | .. | .. | .. | .. | .. |
| Hudson | .. | .. | .. | .. | .. |
| Hunterdon | 7 | 2 | 5 | 3 | 2 |
| Mercer | .. | 1 | .. | .. | .. |
| Middlesex | 2 | 2 | 2 | .. | .. |
| Monmouth | 2 | .. | 3 | .. | .. |
| Morris | 1 | .. | .. | .. | .. |
| Ocean | .. | .. | .. | .. | .. |
| Passaic | .. | .. | .. | .. | .. |
| Salem | .. | .. | .. | 1 | .. |
| Somerset | 2 | 1 | 2 | .. | .. |
| Sussex | .. | .. | .. | .. | .. |
| Union | .. | .. | .. | .. | .. |
| Warren | 2 | 1 | 2 | 2 | 1 |
| Totals | 22 | 10 | 15 | 6 | 4 |

## POULTRY DISEASE CONTROL

The regulatory work of the bureau in the control and eradication of poultry diseases was conducted throughout the year on the same lines as in previous years. Inspection of all carlots of poultry received at the poultry terminals, vaccination of poultry at owners' requests as a preventive of fowl pox, bleeding and testing of blood for Pullorum disease, and inspection of local flocks to determine the presence of any infectious or contagious poultry disease are included in the poultry disease control program.

### POULTRY INSPECTION

It will be noted from the summary following that there was considerable falling off in the total number of carlots of poultry received both at the New Jersey and New York City poultry terminals. This was due, no doubt, to the low prices obtained for poultry throughout the year. The quality of poultry shipped was about on a par with that of the preceding year. There was a slight decrease in the number of birds condemned and in their total weight.

CARLOTS OF POULTRY RELEASED FROM VARIOUS STATES AND SHIPPED TO RAILROAD TERMINALS IN NEW JERSEY, JULY 1, 1930, TO JUNE 30, 1931

| | *July* | *Aug.* | *Sept.* | *Oct.* | *Nov.* | *Dec.* | *Jan.* | *Feb.* | *Mar.* | *Apr.* | *May* | *June* | *Total* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ama | .. | .. | .. | .. | 5 | 3 | 17 | 20 | 30 | 19 | 12 | 4 | 110 |
| nsas | 17 | 35 | 21 | 10 | 12 | 20 | 36 | 24 | 23 | 22 | 11 | 14 | 245 |
| rado | 2 | 3 | 1 | 2 | 1 | .. | 1 | .. | .. | .. | .. | .. | 10 |
| da | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 |
| gia | .. | .. | .. | .. | .. | 1 | 6 | 17 | 17 | 20 | 9 | 2 | 72 |
| is | 52 | 51 | 89 | 77 | 75 | 56 | 71 | 51 | 36 | 26 | 31 | 27 | 642 |
| na | 68 | 66 | 100 | 119 | 85 | 77 | 55 | 28 | 23 | 31 | 23 | 31 | 706 |
| | 47 | 37 | 53 | 36 | 26 | 37 | 21 | 9 | 7 | 5 | 9 | 10 | 297 |
| as | 13 | 6 | 16 | 8 | 2 | 6 | 2 | 4 | 4 | 6 | 7 | 6 | 80 |
| ucky | 13 | 9 | 17 | 10 | 8 | 6 | 11 | 9 | 21 | 30 | 14 | 10 | 158 |
| land | .. | 1 | .. | .. | 2 | .. | .. | .. | 1 | .. | .. | 1 | 5 |
| esota | 1 | 1 | 2 | .. | 2 | 3 | 1 | .. | 1 | .. | 1 | 1 | 13 |
| issippi | 1 | .. | .. | .. | 2 | 1 | 1 | 8 | 10 | 2 | 1 | .. | 26 |
| ouri | 87 | 86 | 105 | 92 | 60 | 57 | 58 | 35 | 32 | 40 | 24 | 26 | 702 |
| aska | 36 | 31 | 52 | 45 | 21 | 24 | 22 | 14 | 11 | 11 | 12 | 11 | 290 |
| Mexico | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 |
| h Carolina | 2 | 4 | 3 | .. | 1 | 3 | 10 | 14 | 10 | 16 | 5 | 3 | 71 |
| h Dakota | .. | .. | .. | 5 | 5 | .. | .. | .. | .. | .. | .. | .. | 10 |
| | 28 | 30 | 44 | 54 | 51 | 45 | 31 | 16 | 13 | 15 | 12 | 13 | 352 |
| noma | 18 | 12 | 12 | 10 | 4 | 12 | 35 | 26 | 27 | 8 | 7 | 4 | 175 |
| sylvania | .. | 4 | 2 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | .. | 2 | 19 |
| n Carolina | 2 | .. | .. | .. | .. | 3 | 3 | 14 | 14 | 9 | 3 | 2 | 50 |
| n Dakota | 16 | 14 | 19 | 22 | 25 | 25 | 16 | 12 | 7 | 6 | 8 | 11 | 181 |
| essee | 11 | 16 | 22 | 12 | 36 | 16 | 44 | 59 | 90 | 165 | 79 | 35 | 585 |
| s | 5 | .. | .. | .. | .. | 1 | 14 | 10 | 6 | 4 | .. | .. | 40 |
| nia | 1 | 2 | 3 | 1 | 19 | 10 | 6 | 6 | 15 | 19 | 8 | 2 | 92 |
| onsin | 22 | 16 | 19 | 21 | 15 | 2 | .. | .. | .. | .. | .. | .. | 95 |
| ming | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Totals | 443 | 428 | 580 | 526 | 458 | 410 | 463 | 377 | 399 | 456 | 277 | 215 | 5,032 |

## NUMBER OF BIRDS CONDEMNED AND THEIR APPROXIMATE WEIGHT JULY, 1930—JUNE, 1931

| | *Number of Cars* | *Number of Birds* | *Number of Pounds* |
|---|---|---|---|
| July | .. | .... | .... |
| August | 7 | 460 | 1,840 |
| September | 17 | 1,435 | 5,740 |
| October | 19 | 1,851 | 7,524 |
| November | 6 | 374 | 1,492 |
| December | 4 | 319 | 1,276 |
| January | 11 | 471 | 1,884 |
| February | 7 | 285 | 1,140 |
| March | .. | .... | .... |
| April | .. | .... | .... |
| May | 1 | 18 | 72 |
| June | .. | .... | .... |
| Total | 72 | 5,213 | 20,968 |

## CARLOTS OF POULTRY RELEASED AT THE VARIOUS RAILROAD TERMINALS IN NEW JERSEY

*July 1, 1930-June 30, 1931*

| *Month* | *Asb. Pk.* | *C.R.R., Nrk.* | *D.L.&W., Nrk.* | *C.R.R.N.J., J.C.* | *D.L.&W., J.C.* | *Erie, Whkn.* | *Erie, Nrk.* | *Pa., Eliz.* | *Pa., J.C.* | *Pa., Nrk.* | *D.L.&W., Boonton* | *Total* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| uly | 2 | .. | .. | 25 | 126 | 195 | 59 | 4 | 8 | 24 | .. | 443 |
| ugust | .. | 5 | .. | 22 | 132 | 175 | 62 | 8 | 6 | 18 | .. | 428 |
| eptember | .. | .. | .. | 32 | 193 | 224 | 84 | 8 | 13 | 26 | .. | 580 |
| ctober | .. | .. | .. | 28 | 165 | 219 | 77 | 5 | 15 | 17 | .. | 526 |
| ovember | .. | .. | .. | 69 | 118 | 154 | 63 | 6 | 16 | 22 | 10* | 458 |
| ecember | .. | .. | .. | 30 | 127 | 151 | 57 | 5 | 13 | 22 | 5* | 410 |
| anuary | .. | .. | .. | 82 | 125 | 153 | 66 | 6 | 10 | 20 | 1* | 463 |
| ebruary | .. | .. | .. | 120 | 75 | 105 | 46 | 7 | 7 | 17 | .. | 377 |
| arch | .. | .. | .. | 166 | 68 | 77 | 45 | 8 | 14 | 21 | .. | 399 |
| pril | .. | 2 | .. | 229 | 62 | 59 | 43 | 11 | 11 | 39 | .. | 456 |
| ay | .. | .. | .. | 122 | 37 | 46 | 44 | 8 | 4 | 16 | .. | 277 |
| une | .. | .. | .. | 63 | 33 | 46 | 46 | 8 | 6 | 13 | .. | 215 |
| Totals | 2 | 7 | .. | 988 | 1,261 | 1,604 | 692 | 84 | 123 | 255 | 16* | 5,032 |

Carlots of geese.

## CARLOTS OF POULTRY RELEASED AT THE VARIOUS RAILROAD TERMINALS IN NEW JERSEY

*July 1, 1929-June 30, 1930*

| *Month* | *Asb. Pk.* | *C.R.R., Nrk.* | *D.L.&W., Nrk.* | *C.R.R.N.J., J.C.* | *D.L.&W., J.C.* | *Erie, Whkn.* | *Erie, Nrk.* | *Pa., Eliz.* | *Pa., J.C.* | *Pa., Nrk.* | *D.L.&W., Boonton* | *Total* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | 3 | .. | .. | 67 | 175 | 221 | 61 | 5 | 12 | 10 | .. | 554 |
| August | 4 | .. | .. | 55 | 243 | 244 | 57 | 5 | 13 | 25 | .. | 646 |
| September | .. | .. | 1 | 22 | 160 | 95 | 160 | 8 | 15 | 26 | .. | 487 |
| October | .. | .. | .. | 26 | 138 | 200 | 43 | 6 | 14 | 18 | .. | 445 |
| November | .. | .. | .. | 34 | 194 | 309 | 66 | 10 | 28 | 23 | 22* | 686 |
| December | .. | 2 | .. | 98 | 182 | 226 | 63 | 9 | 31 | 24 | 10* | 645 |
| January | .. | 1 | .. | 82 | 168 | 292 | 77 | 11 | 30 | 23 | 5* | 689 |
| February | .. | .. | .. | 111 | 125 | 197 | 57 | 5 | 5 | 14 | 1* | 515 |
| March | .. | .. | .. | 106 | 132 | 144 | 48 | 4 | 3 | 19 | .. | 456 |
| April | .. | 1 | .. | 178 | 176 | 216 | 56 | 7 | 8 | 37 | .. | 679 |
| May | .. | .. | .. | 149 | 140 | 194 | 47 | 6 | 19 | 25 | .. | 580 |
| June | .. | 1 | .. | 50 | 102 | 205 | 53 | 4 | 10 | 20 | .. | 445 |
| Totals | 7 | 5 | 1 | 978 | 1,935 | 2,543 | 788 | 80 | 188 | 264 | 38* | 6,827 |

*Carlots of geese.

Following is a comparison of the number of carlots of poultry released monthly at the New York City and New Jersey railroad terminals in the past fiscal year:

| | *July* | *Aug.* | *Sept.* | *Oct.* | *Nov.* | *Dec.* | *Jan.* | *Feb.* | *Mar.* | *Apr.* | *May* | *June* | *Total* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **New Jersey** | 443 | 428 | 580 | 526 | 458 | 410 | 463 | 377 | 399 | 456 | 277 | 215 | 5,032 |
| **New York City** | 377 | 504 | 660 | 631 | 645 | 749 | 570 | 411 | 611 | 494 | 479 | 572 | 6,703 |

Following is the number of carlots of poultry released at the various railroad terminals in New Jersey in the past five years:

| 1926-1927 | 1927-1928 | 1928-1929 | 1929-1930 | 1930-1931 |
|---|---|---|---|---|
| 8,569 | 8,424 | 7,006 | 6,827 | 5,032 |

The number of carlots received at the New York City terminals during the past five years follows:

| 1926-1927 | 1927-1928 | 1928-1929 | 1929-1930 | 1930-1931 |
|---|---|---|---|---|
| 4,245 | 4,578 | 4,440 | 5,148 | 6,703 |

## FOWL POX VACCINATION

Work of vaccinating poultry as a protection against fowl pox was conducted along the same lines as in previous years. Opportunity was given the poultrymen to procure their own vaccine from laboratories operating under federal supervision and to use it on their own flocks. This procedure decreased the amount of work done by the state.

The Biological Products Law provides that veterinarians may be authorized to use virus in this work. The number of permits granted for the use of virus have increased during the past two years, 20 having been issued the first year; 121, in 1930; and 479, in 1931. It is desirable to obtain results of the work performed by poultry owners, but the data we are able to collect is incomplete and, while we believe that the work in general has been satisfactory, it has come to our notice that, in a number of instances, the method of inoculation has not been in accordance with general practice and best possible results have not been attained.

During the year just completed, the Bureau of Animal Industry vaccinated 112 flocks of 87,670 birds.

### SUMMARY SHOWING THE NUMBER OF FLOCKS AND THE NUMBER OF FOWLS VACCINATED BY BUREAU REPRESENTATIVES AS A PROTECTION AGAINST FOWL POX IN THE YEAR ENDING JUNE, 1931

| *County* | *Number of Flocks Vaccinated* | *Number of Fowls Vaccinated* |
|---|---|---|
| Atlantic | .. | .... |
| Bergen | 5 | 6,088 |
| Burlington | 13 | 12,421 |
| Camden | 4 | 1,699 |
| Cape May | 1 | 1,200 |
| Cumberland | 9 | 5,655 |
| Essex | 3 | 1,596 |
| Gloucester | 7 | 4,905 |
| Hudson | .. | .... |
| Hunterdon | 3 | 1,189 |
| Mercer | 5 | 2,132 |
| Middlesex | 15 | 10,059 |
| Monmouth | 5 | 2,935 |
| Morris | 4 | 2,643 |
| Ocean | 25 | 19,871 |
| Passaic | 4 | 4,565 |
| Salem | .. | .... |
| Somerset | 6 | 6,622 |
| Sussex | .. | .... |
| Union | 3 | 4,090 |
| Warren | .. | .... |
| Totals | 112 | 87,670 |

## PULLORUM DISEASE

The work of bleeding poultry and testing the blood for pullorum disease was carried out throughout the year, as the following summary will indicate. A total of 116,170 birds were bled and 9,484 of them, or 8.16 per cent., reacted. The reactors were immediately segregated and disposed of by slaughter.

SUMMARY BY COUNTIES OF THE POULTRY BLOOD-TESTED FOR PULLORUM DISEASE DURING THE FISCAL YEAR 1930-1931

| *County* | *Number of Birds Tested* | *Number of Birds Reacting* | *Per Cent Reacting* |
|---|---|---|---|
| Atlantic | 418 | 17 | 4.07 |
| Bergen | 4,716 | 237 | 5.02 |
| Burlington | 7,479 | 394 | 5.27 |
| Camden | .... | ... | ... |
| Cape May | .... | ... | ... |
| Cumberland | 18,081 | 2,017 | 11.16 |
| Essex | 2,746 | 42 | 1.53 |
| Gloucester | 7,965 | 359 | 4.51 |
| Hudson | .... | ... | ... |
| Hunterdon | 20,704 | 1,383 | 6.68 |
| Mercer | 11,678 | 785 | 6.71 |
| Middlesex | 9,507 | 475 | 5.00 |
| Monmouth | 4,270 | 177 | 4.15 |
| Morris | 337 | 71 | 21.07 |
| Ocean | .... | ... | ... |
| Passaic | 7,315 | 464 | 6.34 |
| Salem | 12,215 | 2,610 | 21.37 |
| Somerset | 5,749 | 210 | 3.64 |
| Sussex | 1,627 | 202 | 12.42 |
| Union | 764 | 10 | 1.31 |
| Warren | 599 | 31 | 5.18 |
| Totals | 116,170 | 9,484 | 8.16 |

## PHYSICAL EXAMINATIONS OF CATTLE

The Bureau of Animal Industry was called upon to make physical examinations of cattle producing milk to be sold according to two grades, "New Jersey Grade A Pasteurized" and "New Jersey Grade A Raw," which were promulgated by the State Board of Agriculture in June, 1931. The work of making examinations was carried out on 136 herds, in which 4.34 per cent. of the animals were isolated for treatment and 2.35 per cent. were condemned, removed from the herds and sent to slaughter.

The requirements of the grades are that the herds must be examined twice annually. The bureau is planning to make a second examination in the fall of 1931 and, whenever possible, to secure the services of private veterinarians to do this work in cooperation with the bureau veterinarians.

## RECORD BY COUNTIES OF PHYSICAL EXAMINATION OF CATTLE FISCAL YEAR, 1930-1931

| *County* | *Number of Herds Examined* | *Number of Animals Examined* | *Number of Animals Passed* | *Number of Animals Isolated* | *Number of Animals Condemned* |
|---|---|---|---|---|---|
| Atlantic | .. | .. | .. | .. | .. |
| Bergen | .. | .. | .. | .. | .. |
| Burlington | .. | .. | .. | .. | .. |
| Camden | .. | .. | .. | .. | .. |
| Cape May | .. | .. | .. | .. | .. |
| Cumberland | .. | .. | .. | .. | .. |
| Essex | 2 | 17 | 17 | .. | .. |
| Gloucester | .. | .. | .. | .. | .. |
| Hudson | .. | .. | .. | .. | .. |
| Hunterdon | 3 | 257 | 242 | 15 | .. |
| Mercer | 4 | 103 | 97 | 3 | 3 |
| Middlesex | 5 | 419 | 377 | 41 | 1 |
| Monmouth | 1 | 160 | 150 | 5 | 5 |
| Morris | 75 | 2,628 | 2,517 | 79 | 32 |
| Ocean | .. | .. | .. | .. | .. |
| Passaic | 1 | 30 | 29 | 1 | .. |
| Salem | .. | .. | .. | .. | .. |
| Somerset | 35 | 1,267 | 1,235 | 26 | 6 |
| Sussex | 3 | 218 | 211 | 3 | 4 |
| Union | 2 | 43 | 42 | 1 | .. |
| Warren | 5 | 368 | 350 | 18 | .. |
| Totals | 136 | 5,510 | 5,267 | 192 | 51 |
| Per Cent | | 100 | 93.59 | 3.5 | .93 |

## SUMMARY

| | |
|---|---|
| Number of herds examined | 136 |
| Number of herds in which all animals passed | 61—44.85% |
| Number of herds in which all animals were isolated | 59— 4.34% |
| Number of herds in which animals were condemned | 32— 2.35% |
| Number of herds in which animals were both condemned and isolated | 16—11.76% |

## REPORT OF WORK ACCOMPLISHED IN LABORATORY

Following is a summary of the work performed in the laboratory of the Bureau of Animal Industry:

### TESTING OF BLOOD SAMPLES FOR PRESENCE OF BANG'S ABORTION DISEASE IN CATTLE

FISCAL YEAR 1930-1931

| | |
|---|---|
| Number of blood samples received | 14,154 |
| Number of blood tests made | 14,154* |
| Number of tests read | 14,197 |
| Number of samples positive | 880 |
| Number of samples highly suspicious | 345 |
| Number of samples slightly suspicious | 1,163 |
| Number of samples hemolyzed | 5 |
| Number of samples with insufficient sera for testing | 1 |
| Number of samples negative | 11,803 |

* This number does not include the number of rapid or plate tests conducted.

### TESTING OF MILK SAMPLES FOR PRESENCE OF BANG'S ABORTION DISEASE IN CATTLE

FISCAL YEAR 1930-1931

| | |
|---|---|
| Number of milk samples received | 270 |
| Number of milk samples tested | 270 |
| Number of milk samples positive | 99 |
| Number of milk samples suspicious | 5 |
| Number of milk samples negative | 166 |
| Number of cows tested | 154 |
| Number of cows negative | 65 |

### TESTING OF BLOOD SAMPLES FOR PRESENCE OF PULLORUM DISEASE IN POULTRY

FISCAL YEAR 1930-1931

| | |
|---|---|
| Number of blood samples received | 129,528 |
| Number of blood tests set up | 129,528* |
| Number of blood tests read | 129,528 |
| Number of samples positive | 9,655 |
| Number of samples suspicious | 12 |
| Number of samples hemolyzed | 216 |
| Number of samples contaminated | 782 |
| Number of samples jellied | 1,078 |
| Number of samples broken | 1 |
| Number of samples negative | 117,784 |

* This number does not include the number of rapid or plate tests conducted.

### PATHOLOGICAL EXAMINATIONS

| *Material* | *Animal* | *Condition Suspected* | *Finding* |
|---|---|---|---|
| Liver and omentum | Leporine | Unknown | Cysticercus pisiformis (Tape worm—cystic stage) |

## BACTERIOLOGICAL EXAMINATIONS MADE

| *Material* | *Number* | *Animal* | *Condition Suspected* | *Finding* |
|---|---|---|---|---|
| Lymph gland | 2 | Bovine | Tuberculosis | Mycobacterium tuberculosis |
| Bone | 1 | Bovine | Tuberculosis | Mycobacterium tuberculosis |
| Lung | 1 | Bovine | Tuberculosis | Mycobacterium tuberculosis |
| Lymph gland | 2 | Bovine | Tuberculosis | Negative |
| Liver | 1 | Bovine | Tuberculosis | Negative |
| Pus (Udder) | 1 | Bovine | Tuberculosis | Negative |
| Cotyledon | 1 | Bovine | Bangs Disease | Brucella abortus |
| Liver | 1 | Bovine | Unknown | Necrobacillosis |
| Spleen | 2 | Bovine | Anthrax | Negative |
| Ear | 1 | Bovine | Anthrax | Negative |
| Liver | 1 | Avian | Tuberculosis | Mycobacterium tuberculosis |
| Spleen | 1 | Avian | Tuberculosis | Mycobacterium tuberculosis |
| Abdominal organs | | Porcine | Septicemia | Decomposed |

## POST MORTEM EXAMINATIONS

| *Animal* | *Number* | *Condition Suspected* | *Finding* |
|---|---|---|---|
| Avian | 10 | Tuberculosis | Mycobacterium tuberculosis |
| Avian | 1 | Unknown | Infectious bronchitis |
| Avian | 4 | Unknown | Coccidiosis |
| Avian | 1 | Enlarged liver | Leukemia |
| Canine | 1 | Unknown | Distemper |
| Avian | 1 | Unknown | Fowl cholera |
| Avian | 3 | Tuberculosis | Parasitism |
| Porcine | 1 | Hog Cholera | Necrotic enteritis |

# *Report of the Bureau of Markets*

WARREN W. OLEY, *Chief*

## AGRICULTURAL PROBLEMS

It has been said that there is no problem in any line of work when the machinery runs smoothly and no factor arises to interfere with its running or to make difficult the attainment of the ultimate objective. Today, we have agricultural problems. There is the problem of achieving economic production and various sub-problems pertaining to soil management, seed selection, growing products of high quality and satisfying consumers. Another problem in this day of efficient agriculture which is of special interest to the Bureau of Markets is that pertaining to economic distribution. Our farmers, after mastering the difficulties of production, have found a real problem in obtaining returns for their labor. This problem has become very acute in the past year. The Bureau of Markets has been turned to more than ever in the hope that it could help to find a solution. In many lines of work it has been helpful. In the field of marketing intelligence it has made forward strides. The bureau has rightly felt that knowledge of conditions in competing areas, knowledge of price conditions in New Jersey's markets, and definite knowledge of the buying power of consuming centers, all fit New Jersey shippers more easily to meet the marketing problems so intensified in a period of over-production and marketing depression.

The direct answer of the Bureau of Markets to the agricultural problem has been the development of marketing facilities in terminal markets and at shipping points. This has been accomplished by aiding in the actual development of new markets, as well as in enlarging the facilities of markets already in operation. During the past year, four more auction markets at shipping points were organized with aid from the bureau. Two others were developed independently, although modeled after the bureau's market plan. The shipping-point auction markets organized by growers and owned by them have developed a new line in marketing. Not only have they sold far in excess of a million dollars' worth of farm products annually for the farmers, but they have been the most important factor in improving the quality of packs and packages, thereby bettering the reputa-

tion of New Jersey products. During the year the auction method of selling was extended to the sale of eggs and poultry, and has been a great aid to the poultrymen of certain sections of the state. Another function of the bureau has been the development of city markets. The Camden market, a new one, has passed through one year of service to producer and consumer.

Speaking of the consumer—the Joint Committee of Economic Food Distribution in New Jersey, which was organized during the year, promises to provide exceptional opportunities for improving distribution in the interests of the consuming public. The Bureau of Markets was instrumental in organizing this committee. It is made up of representatives of the New Jersey Federation of Women's Clubs, the League of Women Voters, the State Department of Agriculture, the New Jersey College of Agriculture, the State Federation of County Boards of Agriculture, the State Grange, and several other agricultural and consumers' organizations. These organizations are coordinating their endeavors to aid the producer and consumer in obtaining more equitable prices and in obtaining better commodities for money expended. As an outgrowth of this work, the Bureau of Markets conducted a series of eight radio talks over WAAM, Newark, in May and June. The talks were prepared with the object of aiding the New Jersey consumer in selecting fresh foods economically, and also of aiding the New Jersey farmer in more efficient and direct marketing to New Jersey buyers.

The further development of direct markets and work with the consumer is contingent upon a better understanding of a means of measuring quality. The Bureau of Markets has, through its standardization work in fruits and vegetables, in milk and in poultry products, made marked strides along this line. The further use of grades promulgated a year ago for fruits and vegetables, the promulgation during the year of retail grades for eggs, and the development and promulgation of grades for milk are a direct benefit to the consumer as well as a distinct aid to the farmer in more efficient distribution. Thus, the bureau is endeavoring to render aid in solving the marketing problem in New Jersey.

A project which required much time of the chief of the bureau and which might have had far-reaching results was the bureau's cooperation with the Committee to Investigate Public Market Needs of New Jersey Agriculture. This committee was constituted by action of the 1930 Legislature in Joint Resolution No. 4 and was composed of nine persons, three of whom were members of the Senate and appointed by the president of the Senate, three of whom were members of the House of As-

sembly and appointed by the speaker of the House, and three of whom were citizens appointed by the Governor. The committee as appointed was made up of Senators A. R. McAllister, of Cumberland County; E. D. Sterner, of Monmouth County, and Arthur Quinn, of Middlesex County; Assemblymen W. A. Rittenhouse, of Hunterdon County; Marcus W. Newcomb, of Burlington County, and H. H. Hollinshed, of Sussex County; and Dr. Frank App, of Bridgeton; Roscoe DeBaun, of Caldwell, and former State Senator Emmor Roberts, of Moorestown.

The committee organized on November 18, 1930, and elected Senator A. R. McAllister, chairman; former Senator Emmor Roberts, vice-chairman, and asked the chief of the Bureau of Markets, who was not a member of the committee, to serve as secretary.

The greater part of the work of the committee was carried out by a sub-committee headed by Dr. Frank App. The Chief of the Bureau of Markets was a member of this sub-committee. A preliminary report of the committee was made to the Governor and the Legislature. It outlines very thoroughly the needs for primary and secondary markets in the state and where such markets should be located. The report deals largely with the needs of the Newark area. The work of the committee was not finished, but as far as it goes, constituted a contribution to marketing work in the state. Copies of the committee report may be obtained through the Bureau of Markets. The committee was not continued by the Legislature.

## CROPS AND MARKETS INFORMATION SERVICE

As has been remarked, farmers and shippers have turned to the Bureau of Markets for aid in solving some of the difficulties of marketing. Requests for information concerning crop and market conditions were much more numerous during the 1930-1931 fiscal year than in previous years, when agriculture in this state was in a better economic condition. The greatest number of requests undoubtedly came from those agricultural industries most seriously affected by curtailed demand and low prices. Poultry producers, vegetable growers and fruit men asked for a greater amount of marketing information than for several years past.

The work of the crops and markets information service was carried on during the year with its general object always in mind; namely, to furnish the farmer with timely and impartial information regarding markets and to supply him with economic information concerning crops in competing areas.

Several changes were made in the project during the year. The first of these was the change in the title of the project from "Market News

Service" to "Crops and Markets Information Service." The new title expresses more adequately the nature of the work conducted than did the former.

The work of collecting motor truck receipts at the Philadelphia market commenced on July 2, 1930, as a cooperative project between the New Jersey Department of Agriculture, the United States Bureau of Agricultural Economics, and the Pennsylvania Department of Agriculture. According to the present arrangement, a cooperatively paid employee is stationed at the market to collect and tabulate the volume of fruits and vegetables arriving at the market daily by motor truck. Up to the time this work was started, no accurate record of receipts at Philadelphia was available. The omission of the data on truck movement worked a hardship on the New Jersey farmer, for it gave producers in distant shipping areas a false impression of the amount of produce arriving at Philadelphia, and resulted in a demoralized condition of the market because of an oversupply of produce during the normal New Jersey marketing season. Carlot figures were available, but they meant little, since the New Jersey farmer moves the greatest part of his produce to Philadelphia by truck.

The importance of including the truck receipts in market news quotations is shown in the following statements. During the fiscal year, a total of 71,414 carlot equivalents of produce arrived at Philadelphia by rail and truck. The rail receipts amounted to 51,243 carlots, while the truck receipts totaled 20,171 carlot equivalents. The importance of figures on truck receipts as a true indicator of the movement of New Jersey produce to Philadelphia is shown in the relative volumes of such produce moved by rail and truck to that market from this state. Of the total rail receipts, New Jersey supplied only 509 cars, but, of the total truck movement, New Jersey supplied 12,062 carlot equivalents. The expenditure of a small amount of money to collect figures on truck receipts is more than justified by the result of enabling farmers to obtain a more reliable indicator of receipts at Philadelphia than was possible before the operation of this service. As several years' figures are obtained, the service will be more valuable, for it will then give the farmer a chance to make comparisons.

COMPARISON OF MONTHLY RAIL AND TRUCK RECEIPTS AT PHILADELPHIA DURING THE FISCAL YEAR ENDING JUNE 30, 1931; SHOWING THE IMPORTANCE OF TRUCK FIGURES FOR THE NEW JERSEY FARMER

| | *Rail (Carlots)* | *Truck Receipts from New Jersey (Carlot Equivalents)* | *All Truck Receipts (Carlot Equivalents)* |
|---|---|---|---|
| 1930 | | | |
| July | 5,371 | 2,618 | 3,315 |
| August | 3,399 | 2,764 | 3,458 |
| September | 3,782 | 2,272 | 3,441 |
| October | 5,229 | 1,242 | 2,151 |
| November | 4,492 | 393 | 832 |
| December | 4,267 | 287 | 590 |
| 1931 | | | |
| January | 3,627 | 217 | 584 |
| February | 3,383 | 142 | 482 |
| March | 3,678 | 187 | 560 |
| April | 4,079 | 248 | 600 |
| May | 4,599 | 479 | 1,356 |
| June | 5,337 | 1,213 | 2,802 |
| Totals | 51,243 | 12,062 | 20,171 |

For the past four years, the department has maintained a cooperative agreement with the United States Bureau of Agricultural Economics regarding market news and inspection work at Newark. Because this market is growing in importance as an outlet for New Jersey produce, it was felt that having a full-time state employee would be an improvement over the arrangement under which the market news work was done by a cooperatively employed man. Therefore, plans were worked out during the latter part of the year to start on July 1, 1931, with a full-time man at Newark, who should do market news reporting and be the department's representative in that city. According to present plans, the service on fruits and vegetables is to be enlarged to include more products than it was possible to report under the cooperative plan, together with a report of Newark's truck and rail receipts. Extension of the service to include poultry and eggs is contemplated. Improvements in the distribution of market news through the media of the press and radio is hoped for under the new arrangement.

## DAILY MARKET NEWS SERVICE

The department's general policy of obtaining daily market information at New Jersey's largest markets in cooperation with the United States Bureau of Agricultural Economics was carried out during the past year. This policy prevents duplication of effort and results in obtaining a greater amount of daily information for a smaller outlay than would be possible

under any other arrangement. During the year, cooperatively paid employees of this department and the United States Department of Agriculture were stationed at New York, Newark and Philadelphia. It was again fortunate that no change in the personnel of this staff took place during the year. With an additional year's experience concerning New Jersey conditions, the reporters rendered a type of service that was satisfactory and superior to that which would have been rendered by new men.

The distribution of market information was carried on largely through the medium of the daily press. This has proved to be the most economical method of carrying the daily report to the farmer. Fifteen of the leading newspapers of the state carried the bureau's reports during the year, and, in addition, Philadelphia and New York City papers carried market information concerning New Jersey produce during the active marketing season.

There were no changes of importance in the broadcasting of market reports over the radio. Due to the proximity of the producing areas of New Jersey to the markets in the eastern part of the United States, the radio has not played such a large part in the dissemination of market news information in the state as it has in states where it is the chief and quickest method of sending daily information to the farmer. The change in the work at the Newark office during the next year will probably mean a change in radio broadcasting work.

## WEEKLY MARKET SUMMARIES

The popularity of the *Market Conditions* reports continued during the past year. The mailing list was revised at the close of the year and the number of names was cut somewhat. On June 30, 1931, there were 3,787 names on the list. A total of 196 reports was issued during the year. These included 40 on apples, 32 on white potatoes, 30 on sweet potatoes, 15 on lettuce, 13 on asparagus, 12 on spinach, 11 on strawberries, 10 on onions, 10 on peaches, 10 on tomatoes, and 13 on miscellaneous truck crops. A large amount of correspondence was carried on between shippers and state officials of other areas, as well as with members of the fruit and vegetable trade at the state's most important markets. Travel through the producing sections was necessary in order to keep well informed as to crop and market conditions.

During the latter part of the 1929-1930 fiscal year, work was started on the collection of figures and facts concerning the crops on which *Market Conditions* reports are issued. This work was carried on this past year, and there has now been collected, under one cover for each

crop, much valuable information concerning the marketing of these crops. It is hoped that this work will be brought up to date and published in the early part of the coming year, in order that the producers may have access to this statistical and economic information.

The *Weekly Market Review* was issued regularly throughout the year, with changes which were mostly minor and seasonal in character. As in the past, this report carried an analysis of the grain and feed markets, together with carlot quotations at local delivery points within the state. In addition, it included short reviews of the hay and straw markets of New York and Philadelphia, as well as live and dressed poultry prices at New York; egg prices at New York; and fruit and vegetable quotations at New York, Newark and Philadelphia. The special service to the poultrymen, consisting of publishing estimates of asking prices and surplus hatching eggs and chicks from certified flocks, was dropped and, in its place, was substituted information on the amount of business and quotations for the egg auctions at Toms River, Flemington and Vineland. During the summer months, the reported volume of business and prices at the various fruit and vegetable auction markets was again published. This helped advertise the auctions and place their relative importance before the producers.

## MISCELLANEOUS SERVICES

In addition to the foregoing services, which were carried on throughout the entire year, several seasonal services were carried on during the active marketing seasons for various groups of persons and individuals in different parts of the state.

1. The shipping-point auction markets in the various parts of the state were again furnished with daily price quotations for the most important commodities that they sell. These included prices of fruits and vegetables at New York and Philadelphia. The auction markets utilizing this service were Cedarville, Rosenhayn, Williamstown, during the 1930 marketing season, and the Vineland produce auction, during the early part of the 1931 season. The service was of value to farmers and to dealers alike. It gave both an opportunity to know the value of produce, with the result that each profited.

2. The Hammonton berry growers again received special berry information during their active marketing season. In cooperation with the United States Bureau of Agricultural Economics office, in Philadelphia, and the Market Commission of the City of Hammonton, information on several important berry markets was transmitted to the Hammonton Market, daily. The information was used widely by shippers to determine

the markets into which they would ship their berries. It was also of considerable benefit to farmers in aiding them to know the value of their berries as they sold them on the market.

3. New Jersey is one state where a knowledge of prices prevailing at farms is of more value than in some states more distant from their markets. The closeness to markets has meant the growth of country buying by truck operators and so-called "country riders," who travel through producing areas to obtain produce to huckster in our larger cities. The increase in such business during the past few years has been rapid, and has meant that the farmer should know definitely and readily the value of produce at the farm. In order to have the necessary information in the hands of farmers, the Bureau of Markets, through the cooperation of large growers and the State Extension Service, published the farm prices of apples in the northwestern part of the state. This service was used by several small growers, who had no other means of knowing the value of their apples, and it helped them in obtaining fair prices at the farm.

4. For the past three years, a temporary branch office of the New Jersey Department of Agriculture has been opened at Hightstown during the active potato harvesting and shipping season. The office is maintained for the collection of market information and its dissemination to potato growers, shippers and dealers. This information consists of reports of shipments from New Jersey and competing areas, receipts and prices at terminal markets, and reports of truck sales at the farms throughout the potato belt of central New Jersey.

Last season, the office was opened on July 21 and was operated until September 6. During the period of seven weeks, 81 growers and 17 dealers in central New Jersey made 1,048 telephone calls to the office for information. In addition, several growers frequently made personal visits to the office for special information. City dealers and some dealers in the southern section of the state also called the office from time to time for information. Included in the list of dealers is the name of every large handler of potatoes in central New Jersey. No reports were mailed from the Hightstown office.

The relation of the calls for information to the movement and condition of the potato market is shown in the following table, which gives the daily carlot movement of New Jersey potatoes from central New Jersey points, the daily f.o.b. price, and the number of grower and dealer calls daily.

| Date | | New Jersey Shipments (Carlots) | F.O.B. Price Central New Jersey | Grower Calls | Dealer Calls |
|---|---|---|---|---|---|
| July | 28 | 65 | $2.10-2.15 | 14 | 9 |
| | 29 | 126 | 2.00-2.10 | 13 | 9 |
| | 30 | 129 | 2.00 | 10 | 11 |
| | 31 | 114 | 2.00 | 8 | 12 |
| Aug. | 1 | 148 | - | 6 | 9 |
| | 2 | 137 | 1.85-2.00 | 4 | 7 |
| | 4 | 183 | 1.75-1.90 | 16 | 8 |
| | 5 | 226 | 1.85 | 14 | 10 |
| | 6 | 206 | 1.90-2.00 | 16 | 9 |
| | 7 | 224 | 2.25 | 21 | 7 |
| | 8 | 236 | 2.50-2.60 | 24 | 10 |
| | 9 | 213 | 2.75 | 9 | 8 |
| | 11 | 131 | 2.75 | 29 | 12 |
| | 12 | 255 | 2.50 | 32 | 14 |
| | 13 | 275 | 2.35-2.50 | 29 | 9 |
| | 14 | 291 | 2.25-2.40 | 25 | 12 |
| | 15 | 210 | 2.25-2.35 | 16 | 11 |
| | 16 | 177 | 2.25-2.35 | 7 | 7 |
| | 18 | 217 | 2.25-2.35 | 17 | 12 |
| | 19 | 289 | 2.25 | 18 | 6 |
| | 20 | 286 | 2.15-2.25 | 30 | 11 |
| | 21 | 268 | 2.15 | 18 | 12 |
| | 22 | 215 | 2.25 | 16 | 12 |
| | 23 | 90 | 2.35 | 5 | 7 |
| | 25 | 95 | 2.50 | 20 | 14 |
| | 26 | 205 | 2.40-2.50 | 18 | 10 |
| | 27 | 147 | 2.40 | 21 | 8 |
| | 28 | 161 | 2.25-2.40 | 20 | 7 |
| | 29 | 167 | 2.35-2.40 | 18 | 9 |
| | 30 | 131 | 2.35-2.50 | 10 | 9 |
| Sept. | 1 | Labor Day | | | |
| | 2 | 96 | 2.50 | 19 | 8 |
| | 3 | 91 | 2.50-2.75 | 15 | 6 |
| | 4 | 132 | 2.75-3.00 | 19 | 8 |
| | 5 | 97 | 3.00-3.15 | 19 | 10 |
| | 6 | 83 | 3.00-3.15 | 15 | 6 |
| Totals | | | | 532 | 329 |

## FARM PRICES

The farm price of some twenty fruits and vegetables was again collected semi-monthly throughout the year and turned over to the Federal-State cooperative crop reporting service.

## MILK MARKETING

By far the most important piece of work accomplished during the year in milk marketing was the supervision of the production and distribution of milk sold under grades designated as "New Jersey Grade A Raw Milk" and "New Jersey Grade A Pasteurized Milk." These grades were the result of three years' study by the New Jersey Milk Conference Board and the New Jersey State Dairy Committee, and were recommended by the Dairy Committee to the State Board of Health in April, 1930. No action on them was taken by the Board of Health at that time. The subject was brought before the Dairy Committee again on September 6, 1930. After prolonged discussion, it was again referred to the Board of Health. The committee urged action, which resulted in a hearing being held on October 7, 1930. The hearing had no decisive results. The Dairy Committee then decided to demonstrate that there was a demand for a superior grade of New Jersey milk and asked the Department of Agriculture to arrange for inspections to be made in connection with the sale of milk according to grades, the marketing to be handled by a cooperative association. This the department agreed to do and two sanitary inspectors were employed. They began work December 1, 1930. One inspector has been employed continuously since that time; employment of the other was discontinued on May 6.

During the past year, the relationship of the Bureau of Markets to the New Jersey State Dairy Committee was of greatest help in formulating policies and in coordinating the efforts of existing dairy organizations in New Jersey. While some of the committee's work did not have a direct relation to the work of the Bureau of Markets, the committee indirectly affected the bureau's work in milk marketing. Six meetings of the committee were held during the year and, in addition, numerous sub-committee meetings were held. The attendance at all meetings was excellent, each breed association, the county boards of agriculture, the College of Agriculture, the Grange, the State Federation of County Boards of Agriculture, and the Department of Agriculture being well represented. J. L. Young, supervisor of dairy products standardization, of the Bureau of Markets, continued to serve as secretary of the committee.

The New Jersey State Dairy Committee during the two years of its existence has proved to be a very strong factor in improving conditions for the milk producer of New Jersey. It has been instrumental in getting people to attend the various milk bill hearings. At its meetings, differ-

ences between northern and southern New Jersey counties, and between different breed associations have been ironed out. Originating at its meetings, were the present program of tuberculosis eradication, which is expected to result in cleaning up the herds of the state within the next three years; the Bang's abortion disease regulation pertaining to cattle coming into the state, which was adopted by the Department of Agriculture after the Dairy Committee approved of it; the change in the administration of advanced registry testing; the cattle dealers' licensing law, which the Dairy Committee recommended; as well as the development of milk grades and their promulgation by the department. The Dairy Committee has presented a solid front in every case, and, without such a group, there would have been no convincing presentation of farmers' interests in legislative matters pertaining to dairying.

A cooperative association of New Jersey dairy farmers, entitled "New Jersey Dairymen, Inc.," was incorporated in December, as was a distributors' organization, called "New Jersey Milk Distributors, Inc." The purpose of the former cooperative was to organize the farmers producing the milk according to the two New Jersey grades into an active group; the purpose of the latter was to ally more closely the interests of the independent dealers who were selling the graded milk. One hundred and thirty-three farmers producing the graded milk are members of the New Jersey Dairymen, Inc.

The first response of the independent dealers to the two grades was very gratifying. Forty-three dealers applied for inspection and all of their supply was inspected; 38 passed the inspection and five were rejected for various reasons. Of the 38 passed, 22 actually sold milk under the grade designation, and 21 were still selling milk under the grade designation at the end of the fiscal year. Sixteen dealers were inspected but never used the grade designation. It was intended that the cooperative association take over the inspection work, financing it by collecting a royalty of one-tenth of a cent per quart. The association assumed this obligation March 1, but the collection of the royalties proceeded so slowly that the New Jersey Dairymen, Inc., was in financial difficulties. The New Jersey Dairymen, Inc., was aided during March, April and May by loans made by the New Jersey Federation of County Boards of Agriculture.

Late in May, it was felt that some action must be taken to put the two grades of milk on a substantial footing. It was felt that official recognition was needed. The Department of Agriculture was loath to take any action which was not in full accord with the policies of other departments

in the state government. But the plight of the dairymen was such that it was felt necessary to take some action that would gain recognition for these grades.

In order that information might be obtained on what other states were doing in the way of enforcing milk laws, a questionnaire was mailed to the 47 other states. A summary of the report received is as follows:

SUMMARY

| *States* | *Milk Law Enforced By* |
|---|---|
| Alabama | State Board of Health |
| Arizona | Separate Milk Control Commission |
| *Arkansas | |
| California | State Department of Agriculture |
| Colorado | State Department of Agriculture |
| Connecticut | Separate Milk Control Commission |
| Delaware | State Board of Health |
| Florida | State Department of Agriculture |
| Georgia | State Department of Agriculture |
| Idaho | State Department of Public Welfare |
| Illinois | State Department of Agriculture |
| Indiana | State Board of Health |
| Iowa | State Department of Agriculture |
| Kansas | State Department of Agriculture |
| Kentucky | State Department of Health |
| Louisiana | Separate Milk Control Commission |
| Maine | State Department of Agriculture |
| Maryland | State Department of Agriculture |
| Massachusetts | State Department of Health |
| Michigan | State Department of Agriculture |
| Minnesota | State Department of Agriculture |
| Mississippi | State Department of Agriculture |
| Missouri | State Department of Agriculture |
| Montana | Separate Milk Control Commission |
| Nebraska | State Department of Agriculture |
| Nevada | State Department of Agriculture |
| New Hampshire | State Board of Health |
| New Mexico | State Department of Agriculture |
| New York | State Board of Health |
| North Carolina | State Department of Agriculture |
| North Dakota | State Department of Agriculture |
| Ohio | State Department of Agriculture |
| Oklahoma | State Department of Agriculture |
| Oregon | State Department of Agriculture |
| Pennsylvania | State Board of Health |
| Rhode Island | State Department of Agriculture |
| *South Carolina | |
| South Dakota | State Department of Agriculture |
| Tennessee | State Department of Agriculture |
| Texas | State Department of Health |
| Utah | State Department of Agriculture |
| Vermont | State Board of Health |

* State had no law regulating milk.

| *States* | *Milk Law Enforced By* |
|---|---|
| Virginia | State Department of Agriculture |
| Washington | State Department of Agriculture |
| West Virginia | State Department of Agriculture |
| Wisconsin | State Department of Agriculture |
| Wyoming | State Department of Agriculture |

RECAPITULATION

| | |
|---|---|
| Enforced by State Board of Health | 11 |
| Enforced by State Department of Agriculture | 30 |
| Enforced by Separate Milk Control Department | 4 |
| No State Law | 2 |
| Total | 47 |

With this information on hand, the State Dairy Committee was again presented with the entire problem and asked for its opinion as to what should be done. The committee accordingly recommended that the Department of Agriculture promulgate the two grades of milk as official state grades. This the Department of Agriculture did, effective August 1, 1931.

The development of these milk grades and the supervision of production under them has been at all times controlled by the Bureau of Markets. During the seven months of inspection, initial inspection was made on 414 farms; 312 re-inspections were made; 43 inspections and seven re-inspections of distributing plants were made; and a total of 5,485 animals was physically examined on initial inspection, of which 5,242 were passed, 192 were recommended for isolation and treatment, and 51 for permanent removal from the dairy herd. In addition, the sanitary inspectors found, upon re-inspection, 101 additional animals suffering from udder trouble, nine of which were permanently removed from the dairy herd. The others were isolated and treated. Cows examined by the sanitary inspectors were examined for udder diseases only.

As to volume of milk handled—this could only be estimated from information that inspectors were able to gather. According to the best information available, a total of 50,000 quarts were sold daily, of which 35,000 quarts were raw and 15,000 quarts pasteurized. This volume has fallen off as several dealers have stopped putting grade caps on their milk to lessen expense and thus meet competition with lower-priced milk. However, when new inspections are made in accordance with requests for inspection made since initial inspections were discontinued, the volume should considerably exceed the 50,000-quart mark.

Much time was spent in the first four months of the year in endeavoring to secure markets for persons without them and for those desiring, by reason of better barn or milk house facilities, to secure a higher price

for their milk. The enormous surplus of milk that prevailed during the year was a severe handicap, but the bureau was successful in securing new markets or higher grade allotments in 27 cases as follows: in Burlington County, 2; in Hunterdon, 6; in Morris, 10; in Somerset, 8; and in Sussex, 1. Several of the markets obtained in Morris and Somerset Counties were for dealers selling the New Jersey officially graded milk.

In April, 1931, the work of compiling a roster of dairy cattle breeders within the state was commenced and questionnaires were sent to 1,540 names furnished by the secretaries of the various breed associations. This work is being pushed rapidly and it is expected that the roster will go to press early in the coming year.

## FRUIT AND VEGETABLE MARKETING

Certain developments marked definite progress in the fruit and vegetable marketing project during the fiscal year. Outstanding among these was a sincere, increased interest by growers and shippers in the use and value of standard grades. The bureau's assistance to growers in making grade inspections has measurably improved marketing methods and, in many cases, has resulted in increased returns to them.

During the year, a working program was developed (1) to improve the marketing of New Jersey fruits and vegetables, (2) to render assistance to growers and shippers in obtaining better outlets and greater returns for their products, and (3) to promote a consumer demand for New Jersey fruits and vegetables. This program not only enlarges the standardization and shipping point work as conducted in the past, but is essentially broadened to include concentration on city markets, consumer education, and effective publicity.

### STANDARDIZATION

More inspections were made at New Jersey shipping points this year than in any of the previous eight years that the inspection service had been available. All the work performed was at the request of growers and shippers who endeavored to grade and pack their products according to recognized standards and to have the grade certified. The inspection service at shipping point was, as usual, made possible through a cooperative agreement with the United States Bureau of Agricultural Economics whose policies were agreed with.

A total of 1,557 carloads and truckloads of fruits and vegetables was inspected during the year, approximately four times as much as in the previous year. With the exception of April and May, inspections were made throughout the year. August, when the majority of the potatoes

were shipped, represented the peak month with 55 per cent of the total volume. Inspections by products with comparative figures for previous years, and the record of work by months, are shown in the following tables:

INSPECTIONS OF VARIOUS PRODUCTS

| | *1922-23* | *23-24* | *24-25* | *25-26* | *26-27* | *27-28* | *28-29* | *29-30* | *30-31* |
|---|---|---|---|---|---|---|---|---|---|
| Apples | ... | 250 | 147 | 124 | ... | 25 | 13 | 1 | 549 |
| Onions | ... | ... | ... | ... | ... | ... | ... | ... | 2 |
| Peaches | 240 | 380 | 443 | 245 | 188 | 154 | ... | 83 | 4 |
| Pears | ... | ... | 2 | ... | ... | ... | ... | ... | 29 |
| Peas | ... | ... | ... | ... | ... | ... | ... | ... | 4 |
| Potatoes | 1,259 | 89 | 77 | 27 | 423 | 757 | 789 | 312 | 911 |
| Strawberries | ... | ... | ... | ... | ... | ... | ... | ... | 47 |
| String Beans | ... | ... | ... | ... | ... | ... | ... | ... | 11 |
| Sweet Potatoes | ... | ... | ... | ... | ... | ... | ... | 1 | ... |
| Totals | 1,499 | 719 | 669 | 396 | 611 | 936 | 802 | 397 | 1,557 |

RECORD OF INSPECTIONS BY MONTHS

| | *Apples* | *Onions* | *Peaches* | *Pears* | *Peas* | *Potatoes* | *Straw-berries* | *String Beans* | *Total* |
|---|---|---|---|---|---|---|---|---|---|
| 1930 | | | | | | | | | |
| July | 14 | .. | .. | .. | .. | 118 | .. | .. | 132 |
| August | 45 | .. | 4 | 12 | .. | 793 | .. | .. | 854 |
| September | 176 | .. | .. | 8 | .. | .. | .. | .. | 184 |
| October | 153 | .. | .. | 9 | .. | .. | .. | .. | 162 |
| November | 40 | .. | .. | .. | .. | .. | .. | .. | 40 |
| December | 13 | .. | .. | .. | .. | .. | .. | .. | 13 |
| 1931 | | | | | | | | | |
| January | 2 | .. | .. | .. | .. | .. | .. | .. | 2 |
| February | 56 | .. | .. | .. | .. | .. | .. | .. | 56 |
| March | 50 | .. | .. | .. | .. | .. | .. | .. | 50 |
| April | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| May | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| June | .. | 2 | .. | .. | 4 | .. | 47 | 11 | 64 |
| Totals | 549 | 2 | 4 | 29 | 4 | 911 | 47 | 11 | 1,557 |

*Inspection of Apples*

A number of New Jersey's apple growers have been interested in grading and inspection for some years. However, they felt that the United States grades were not adapted to New Jersey conditions, and particularly, were not adapted to apples of summer varieties on which much color cannot be obtained without advanced maturity. The United States Department of Agriculture, recognizing a need, promulgated certain new grades including a "U. S. No. 1 Early" for early varieties, and further made provisions for combination packs for later varieties. The new United States grades were adopted in the 1929-1930 fiscal year as official

New Jersey standards and have enabled apple growers to pack much of their fruit in conformity with them.

Light apple crops last year in the eastern apple-exporting states led exporters into New Jersey to obtain apples. Exporters had previously shunned New Jersey apples in the belief that they were not of dependable quality. Last year, however, exporters found they could obtain high quality apples, in New Jersey, which were backed up as to grade by a shipping-point certificate. As a result, the exporters bought freely in the state at prices well in excess of those paid for stock for domestic sale.

The fact that the export business requires certification as a basis of sale, together with increased interest by growers in grading and inspection of apples for domestic sale, resulted in contacts with and actual certification for 55 apple growers. Practically all of these growers were unfamiliar with grade requirements and much time was devoted to teaching them about grades; proper packing in baskets, barrels and boxes; and car loading. While only a portion of the fruit of the 55 growers was inspected, it is estimated that the growers for whom the inspections and educational work were performed, control approximately 75 per cent of the state's commercial production of apples.

Inspections involved a total of 240,381 bushels of apples, of which 44 per cent were for export to England and continental Europe; 15 per cent, for export to South America; and 41 per cent, for sale in markets in the eastern United States. The efforts of growers to meet grade requirements were highly commendable; all of the 140,970 bushels exported met the grade specified, and only seven per cent of the fruit for domestic sale failed to meet requirements. The quality of fruit shipped is further reflected in the fact that, in South American shipments from New Jersey, 95 per cent of the apples graded U. S. No. 1; one per cent, Combination U. S. No. 1 and Commercial; and three per cent, U. S. Commercial. In other words, 99 per cent of the apples met U. S. No. 1 grade standards in all respects but color.

Of the exports to England and continental Europe, where high color is not as essential as in South America, 60 per cent graded U. S. No. 1; 23 per cent, Combination U. S. No. 1 and Commercial; seven per cent, U. S. Commercial; and one per cent, Washington Fancy. A total of 91 per cent was of U. S. No. 1 quality in all respects but color. For sales in the United States, the trade was agreeable to the two new United States grades (U. S. No. 1 Early and Combination) and, because of their acceptance, growers were able to market more of their apples according to official standards than would have been possible with only the U. S. No. 1

grade. As a result, 55 per cent of the apples inspected for United States sales were U. S. No. 1; 18 per cent, Combination U. S. No. 1 and Commercial; 19 per cent, U. S. No. 1 Early; and one per cent, Commercial. A total of 93 per cent was of U. S. No. 1 quality in all respects but color.

The tables following indicate the volumes of apples of various varieties inspected and certified as to grade and further indicate the varieties most in demand for export. All figures, except percentages, represent bushels.

FOR SALE IN UNITED STATES

| *Variety* | *U.S.No.1* | *Combination U.S.No.1 & Commercial* | *U.S.No.1 Early* | *U.S. Commercial* | *Fail Grade* | *Total* |
|---|---|---|---|---|---|---|
| Grimes ..... | 31,814 | .... | .... | .... | 2,312 | 34,126 |
| Stayman .... | 10,676 | 7,935 | .... | 528 | 2,616 | 21,755 |
| Wealthy .... | .... | .... | 9,420 | 516 | 528 | 10,464 |
| Gravenstein.. | .... | .... | 7,467 | .... | 345 | 7,812 |
| Delicious .... | 2,224 | 3,223 | .... | .... | 516 | 5,963 |
| Rome ..... | 4,619 | 516 | .... | .... | .... | 5,135 |
| Williams .... | .... | 4,153 | 528 | .... | .... | 4,681 |
| Starr ..... | 2,100 | .... | .... | .... | 528 | 2,628 |
| Jonathan .... | 1,871 | .... | .... | .... | .... | 1,871 |
| York ..... | .... | 1,784 | .... | .... | .... | 1,784 |
| Duchess .... | .... | .... | 1,584 | .... | .... | 1,584 |
| Twenty Ounce | 1,013 | .... | .... | .... | .... | 1,013 |
| Winesap .... | 461 | .... | .... | .... | .... | 461 |
| Paragon .... | 134 | .... | .... | .... | .... | 134 |
| Totals .. | 54,912 | 17,611 | 18,999 | 1,044 | 6,845 | 99,411 |
| Percentage .. | 55 | 18 | 19 | 1 | 7 | |

FOR EXPORT TO SOUTH AMERICA

| *Variety* | *U.S.No.1* | *Combination U.S.No.1 and Commercial* | *U.S. Commercial* | *U.S. Utility* | *Total* |
|---|---|---|---|---|---|
| Ben Davis ..... | 14,427 | 504 | ... | 480 | 15,411 |
| Delicious ..... | 7,773 | ... | ... | ... | 7,773 |
| Rome ..... | 3,039 | ... | 909 | ... | 3,948 |
| Winesap ..... | 3,852 | ... | ... | ... | 3,852 |
| Gano ..... | 2,463 | ... | ... | ... | 2,463 |
| King David ..... | 684 | ... | ... | ... | 684 |
| Jonathan ..... | 558 | ... | ... | ... | 558 |
| Paragon ..... | 528 | ... | ... | ... | 528 |
| Totals ..... | 33,324 | 504 | 909 | 480 | 35,217 |
| Percentage ..... | 95 | 1 | 3 | 1 | 100 |

FOR EXPORT TO EUROPE

| *Variety* | *U.S.No.1* | *Combination U.S.No.1 and Commercial* | *Combination U.S.No.1 and Utility* | *U.S. Commercial* | *U.S. Utility* | *Unclassified* | *Washington Fancy* | *Total* |
|---|---|---|---|---|---|---|---|---|
| Winesap | 19,855 | 1,671 | 1,056 | .... | 557 | 1,260 | .... | 24,399 |
| Rome | 3,765 | 18,926 | .... | 948 | .... | 60 | .... | 23,699 |
| Stayman | 7,182 | 495 | .... | 5,881 | .... | 930 | .... | 14,488 |
| Grimes | 9,067 | .... | .... | .... | .... | .... | .... | 9,067 |
| Paragon | 6,615 | 1,059 | .... | 150 | 412 | 426 | .... | 8,662 |
| Ben Davis | 4,317 | .... | .... | .... | .... | 711 | .... | 5,028 |
| King David | 4,596 | .... | .... | .... | .... | 219 | .... | 4,815 |
| Delicious | 778 | 600 | .... | 293 | 1,331 | 1,369 | .... | 4,371 |
| Winter Banana | 4,297 | .... | .... | .... | .... | .... | .... | 4,297 |
| York Imperial | 330 | 1,239 | .... | .... | .... | 225 | .... | 1,794 |
| Williams | .... | .... | .... | .... | .... | .... | 1,172 | 1,172 |
| Gano | 1,011 | .... | .... | .... | .... | .... | .... | 1,011 |
| Jonathan | 656 | .... | .... | .... | .... | .... | .... | 656 |
| Maiden Blush | 582 | .... | .... | .... | .... | .... | .... | 582 |
| Nero | 117 | .... | .... | 407 | .... | .... | .... | 524 |
| Ohio Pippin | .... | .... | .... | .... | .... | 414 | .... | 414 |
| Cooper Redling | .... | .... | .... | .... | .... | 223 | .... | 223 |
| Champion | 189 | .... | .... | .... | .... | .... | 24 | 213 |
| Opalescent | 167 | .... | .... | .... | .... | .... | .... | 167 |
| Pelican | 105 | .... | .... | .... | .... | .... | .... | 105 |
| McIntosh | 33 | .... | .... | .... | .... | .... | .... | 33 |
| McMahon | 33 | .... | .... | .... | .... | .... | .... | 33 |
| Totals | 63,695 | 23,990 | 1,056 | 7,679 | 2,300 | 5,837 | 1,196 | 105,753 |
| Percentage | 60 | 23 | 1 | 7 | 2 | 6 | 1 | 100 |

*Inspection of Potatoes*

Three times as many potatoes as were inspected in 1929 at shipping points were inspected last season. The inspection work was done on a Federal-State basis and at the request of a number of shippers in central New Jersey. In the 30 working days between July 28 and August 30, an average of 30 cars was inspected daily. The total volume for the season amounted to 911 cars compared with 312 in 1929. The increase was due to a greater use of the inspection service by shippers who had previously used it and to requests on the part of some new shippers.

The quality of the 1930 crop was slightly inferior to that of the previous year, according to the inspection records, 68 per cent of the cars being passed as U. S. No. 1 compared with 72 per cent in 1929. A total of 296 cars failed to grade U. S. No. 1 because of defects in excess of the tolerance. Two hundred and fifteen cars were out of grade because of varying amounts (more than six per cent) of scab, wire-worm or

sunburn. Two-thirds of these cars showed an average of seven to 10 per cent of the above defects.

In other words, with a little more care in grading, about 150 additional carloads could have been shipped as U. S. No. 1 stock. Forty-five cars were "partly out of grade." That is, most sacks in these cars had less than six per cent of defects, but some sacks in each car had from 10 to 40 per cent of defects, but mostly 15 to 20 per cent of scab and wireworm. This condition was most prevalent in cars containing potatoes loaded by several or more growers. Certificates on such cars state that "Most stock grades U. S. No. 1, but car as a whole fails to grade U. S. No. 1 on account of percentage of defects in some sacks."

Twenty-two cars were out of grade because of sunscald ranging from seven to 20 per cent. The affected stock showed moist or sticky spots and, in some instances, decay had already started. The fact that some of the gummy spots may dry up before reaching the market, instead of becoming an advanced decay, is no reason for minimizing the seriousness of sunscald. The resulting dried-up, black, sunken areas on the potatoes would still be scored as a grade defect.

Eleven cars failed to be certified as U. S. No. 1 on account of eight to 10 per cent of hollow heart. An added tolerance of five per cent is allowed for hollow potatoes, this defect not being included in the regular six per cent tolerance for grade defects. The only method of eliminating hollow heart from cars is to cull out large potatoes during the grading if the cutting of a few large tubers shows this condition is present. Three carloads were not U. S. No. 1 because some sacks in the cars showed that 12 to 15 per cent of the stock by weight was under the minimum size of 1⅞ inches. This of course was due to running the potatoes too deeply over the grader, to the use of a small-size belt, or to careless field grading.

Of the 911 carloads of potatoes inspected at New Jersey shipping points, 10 were re-inspected at their destinations and their grade changed; upon two other re-inspections, grades established at shipping points were confirmed. Twelve other cars were inspected for condition (for decay following sunscald not advanced enough at the time of shipping to be apparent at the shipping point). Fifteen additional cars were inspected on the market and the shipping point report that they failed to grade U. S. No. 1 was confirmed.

SUMMARY OF POTATO INSPECTION WORK

| Week | Total Cars Inspected | Number of Cars U. S. No. 1 | Per Cent U. S. No. 1 |
|---|---|---|---|
| July 28-Aug. 2 | 149 | 100 | 67 |
| Aug. 4-9 | 222 | 145 | 65 |
| 11-16 | 244 | 186 | 76 |
| 18-23 | 203 | 144 | 71 |
| 25-30 | 93 | 40 | 43 |
| 1930 season | 911 | 615 | 68 |
| 1929 season | 312 | 225 | 72 |
| 1928 season | 789 | 533 | 68 |
| 1927 season | 757 | 577 | 76 |
| 1926 season | 423 | 233 | 55 |

*Inspection of Peaches*

With but 24 cars of peaches shipped from New Jersey during the 1930 season, there was little opportunity for inspection of this product, and as a result, inspection was requested on only four cars as compared with a fairly heavy volume in previous years (except in 1928, when the rail movement was likewise limited by a light crop to a few dozen cars).

*Inspection of Pears*

Some increase in the number of inspections of pears occurred as a result of export demands for this fruit. For domestic sale, 2,469 bushels were inspected, most of which met the requirements of the grades under which they were packed. Inspections for export sale involved 8,511 boxes and 8,502 half-boxes, all of which were certified.

*Inspection of Miscellaneous Fruits and Vegetables*

For the first time, inspection of strawberries, onions, peas and string beans was requested. The request for such inspection was largely an outcome of the bureau's work last year in the promulgation of grades. All of the strawberry, onion, pea and string bean inspection work was done at auction markets and will be covered under "Shipping Point Markets."

*Inspection of Cannery Tomatoes*

At the request of a Bridgeton canning company, the Bureau of Markets furnished inspection service on cannery tomatoes for the second successive season. The primary purpose of the inspections was the classification according to grade of each load of tomatoes delivered at the factory, and the certificate issued on each load showed the relative percentages of No. 1's,

No. 2's and culls present. The volume inspected was nearly twice that of the 1929 season; 7,924 loads containing 17,077 tons of tomatoes were inspected, as compared with 9,121 tons on 5,144 loads, in 1929. Although the tomatoes were paid for according to a flat contract price rather than a sliding scale of payment, such as has developed as a result of inspection in some other tomato-canning districts, the growers were paid a bonus of $2.00 per ton above the contract price for the No. 1's delivered, as determined on the basis of the bureau's certificates.

*Inspection at Shipping Point Markets*

Interest in grading and inspection extended this year into auction markets at shipping points and resulted in a new type of service for the bureau. Inspection work began the last month of the fiscal year on strawberries at the auction markets in Cedarville and Rosenhayn. At the latter point, the work lasted one week and was then discontinued following difficulties over the rejection of topped loads. The inspection was well supported at Cedarville and continued through the season.

The usual method of inspecting loads while they are lined-up prior to sale was considered not suited for the new work and the procedure followed consisted of actual inspection, at the request of the buyer desiring it, after goods had moved through the auction block. At Cedarville, four carloads and 43 truckloads of strawberries, constituting approximately 20 per cent of the volume of the crop handled through that market, were inspected. Several influential buyers favored inspection because it enabled them to deliver high quality berries to distant purchasers. Evidences of the value of inspection were numerous. Quality averaged about 85 per cent U. S. No. 1, most of the lots which failed to meet full U. S. No. 1 grade requirements did so because of amounts of soft berries slightly in excess of the tolerance. It is generally conceded that the inspection service and the presence of official inspectors on the market influenced an improvement in the general quality and pack.

Another service rendered at the auction markets was that of checking "topped" or overfaced packages or loads. The market association's rules prohibited topping, and inspectors checked that feature on loads subject to inspection and bought by buyers using the inspection service. The number of loads turned down for topping was exceptionally light in comparison with total volume inspected.

At the auction markets, the method of financing the inspection service consisted of charging the buyer or applicant the standard fee of $5.00 per car or a proportionate fee on trucklots, with any deficit between fees and

operating expenses made up by the auction association. The Cedarville market officials considered that any small contribution that might be made to make up a deficit would be an investment in improved quality and pack on the market, and in assisting buyers to sell to better advantage.

At the close of the fiscal year, inspection was just beginning on peas, string beans and onions.

### *Receiving Point Inspections*

For five years Trenton has been designated by the United States Bureau of Agricultural Economics as one of the markets where receivers, shippers, and other financially interested parties can obtain federal inspection of inbound produce in order to determine the quality and condition on arrival. Such inspection work is done at the request of applicants and is usually for the purpose of settling disputes. It is irregular in volume, and, during the past year, decreased appreciably. The five-year record of the work is indicated in the following table:

| *Product* | *1926-27* | *1927-28* | *1928-29* | *1929-30* | *1930-31* |
|---|---|---|---|---|---|
| Apples | .. | .. | 9 | 5 | 3 |
| Cabbage | 3 | .. | .. | 3 | .. |
| Celery | .. | .. | .. | 1 | .. |
| Grapes | .. | .. | .. | .. | 1 |
| Lettuce | .. | .. | .. | 1 | .. |
| Peaches | .. | .. | 1 | .. | .. |
| Potatoes | 22 | 11 | 13 | 84 | 19 |
| Tomatoes | .. | .. | 2 | .. | .. |
| Watermelons | .. | .. | 1 | .. | 1 |
| Xmas Trees | .. | .. | 1 | .. | .. |
| Totals | 25 | 11 | 27 | 94 | 24 |

### *Other Inspections*

Two lots of potatoes produced by prospective members of the 300-Bushel Club of New Jersey were inspected in Warren County in November. Numerous other requests for such service came in August and September from Mercer, Middlesex, Monmouth, Cumberland and Salem Counties, but were declined because of lack of sufficient personnel during the heavy shipping season. This type of inspection is usually performed for the Agricultural Extension Service as a part of the requirements for membership of growers in the 300-Bushel Club, and will continue to be carried on by the bureau where time permits.

*Financial Statement*

Fruit and Vegetable Inspection

| | | |
|---|---|---|
| *Fees Received:* . | | |
| Potatoes | $1,674.50 | |
| Apples, peaches, pears | 2,310.49 | |
| Cannery tomatoes | 450.00 | |
| Auction market products | 398.33 | |
| | | $4,833.32 |
| *Expenses:* | | |
| Salaries | $2,752.50 | |
| Reporting and travel | 1,203.33 | |
| Refunds (potatoes and tomatoes) | 205.84 | |
| Federal fees | 149.30 | |
| Unpaid bills | 128.65 | |
| Reserve | 13.93 | |
| Supplies | 379.77 | |
| | | $4,833.32 |

## VALUE OF GRADING AND SHIPPING POINT INSPECTION

Buyers in receiving markets are becoming increasingly critical of the quality of produce bought f.o.b. shipping point. Under the operation of the Federal Perishable Agricultural Commodities Act they are restrained from any rejection or adjustment of confirmation price if the product is of the quality specified. Conversely, they demand delivery of the quality commensurate with the price paid. Shippers in states further distant from their important markets than are New Jersey growers have been quicker to appreciate the need for an impartial inspection agency to determine and substantiate the grade of a product according to officially and commercially recognized standards. In New Jersey this appreciation has been rather dormant, but the better growers and shippers are gradually realizing that their nearness to market is no longer an advantage if the quality of their output is not equal to that of competitive supplies. Following are some of the evidences of the value of grades and grade inspections which have come to our attention during the year:

Mr. M———, a large potato shipper, sold a portion of his shipments as U. S. No. 1 subject to shipping-point inspection, and, in instances too numerous to detail here, was in a position to demand and obtain full invoice prices on carloads on which adjustment was requested or refusal to accept threatened, especially because of the prima facie certificates of quality which he held. The actual cash saving which the shipper effected is inestimable but admitted by him to be considerable.

Mr. A——— shipped four cars of peaches during the 1930 season. On three uninspected cars appreciable adjustments from the f.o.b. price had to be made; the last car was inspected, passed grade requirements,

and no loss was sustained. This shipper judged all four cars to be of equal quality and publicly announced his intention of having all his peaches inspected in 1931.

Mr. R———— shipped his first car of apples for the season to Boston and was forced to make a price adjustment of 35 cents per bushel. Inspection service was immediately contracted for, and on 98 additional cars which were inspected during the remainder of the season no adjustments were necessary.

Mr. C———— and many other apple growers in New Jersey who were interested in taking advantage of the good export market existing during the year were able to do so by meeting the requirements of the grades specified as desired by exporters and by offering inspection certificates in evidence of this compliance.

Mr. C————, a large buyer and shipper of New Jersey fruit, avoided, whenever possible, buying any carlot quantity of fruit unless it had been packed according to official grades, and inspected.

## EXHIBITS AND DEMONSTRATIONS

As a part of the fruit and vegetable standardization program, grading exhibits were set up and grading demonstrations conducted at the following places:

*Trenton*—A model roadside market was constructed as a part of the department's exhibit at the Farm Products and Equipment Show. Graded apples, potatoes, sweet potatoes and root crops attractively packed in retail containers were displayed at the market.

*Trenton*—In conjunction with the department's exhibit at the Trenton Inter-State Fair, a grading exhibit of potatoes, apples and onions was set up.

*Atlantic City*—An exhibit of the various United States grades for each of two varieties of apples (Stayman and Rome) was displayed at the annual winter meeting of the State Horticultural Society. This exhibit was prepared primarily on the basis of minimum color allowed in the respective grade and was accepted by many growers as an opportunity to discuss color and other grade requirements at close hand.

*Glassboro*—A grading exhibit was set up in cooperation with the State Extension Service at the summer meeting of the State Horticultural Society. The exhibit showed the relative grade of various packs of apples as obtained at packing houses in several fruit sections.

*Pitman*—Tomatoes and cantaloupes produced in New Jersey and competing sections, and packed in various containers, were purchased on the

Newark market and displayed at the Gloucester County Fair. The exhibit attracted considerable attention by reason of the fact that it afforded growers an opportunity to observe differences in quality, pack and container as they appeared on a large city wholesale market, together with the variations in wholesale price.

*Bridgeton*—An exhibit of graded sweet potatoes and cannery tomatoes was set up in September for display at the Bridgeton Fair, illustrating the grade requirements of two important products at that season of the year.

*Pennington*—A grading demonstration for Mercer County apple growers was held at the packing house of John Hankinson.

*West Freehold*—A demonstration of grading potatoes was held on the farm of Ross Clayton in conjunction with Potato Field Day. Southern potatoes were used for the purpose, but illustrated the method of good grading and the requirements necessary for U. S. No. 1 stock.

## CITY MARKETS

Plans of the fruit and vegetable marketing project include the study of methods of operations of farmers' markets in important New Jersey cities and the tabulation of facts to be used in reference to coordinating movement from nearby producing sections. The initial step in this line of work will be a survey of the Elizabeth farmers' market to be conducted at the request of the Elizabeth Chamber of Commerce and tradesmen, with a view to offering recommendations for improvement. The groundwork has been laid and this survey will be conducted during the summer and fall of 1931.

## CONSUMER EDUCATION

As has been mentioned, the Joint Committee on Economic Food Distribution in New Jersey, formed during the year for the purpose of studying and effecting intelligent and greater use of New Jersey food products among New Jersey people offers the Bureau of Markets an excellent opportunity to work with consumers on various marketing problems. Composed of three members each from the Department of Agriculture, the College and Experiment Station, the League of Women Voters, the Federation of Women's Clubs, and various agricultural associations of the state, the committee represents an active group.

To develop greater interest and knowledge in the retail purchase of fresh fruits and vegetables, the bureau prepared illustrated "popularized" versions of grades for asparagus and strawberries. Several hundred copies of these grades for each product were disseminated through

the League of Women Voters and the Federation of Women's Clubs, and represent a beginning in acquainting the housewife with standards for economic purchasing.

## PUBLICITY

Various types of publicity were utilized in expanding the fruit and vegetable project in promoting interest in quality and standardization, and in publishing results of work. Among these were:

*Radio Talks*—Two radio talks of interest to consumers were given over station WAAM, Newark, on the subjects of "How to Buy Wisely at the Vegetable Store" and "Hot Market Tips for the Housewife." Both emphasized quality requirements of various New Jersey products which were in season.

*Advertising Letters*—Letters advertising the openings of shipping-point markets supervised by the bureau were prepared and sent to 350 to 700 buyers in various important markets in the northeastern United States. Such letters were made up for the Cedarville and Rosenhayn auction markets, the Vineland auction market, the Glassboro auction market, and the Hammonton market. All of these markets felt that this type of publicity was helpful and desirable, and welcomed the bureau's cooperation in this respect.

*Consumer Articles*—Articles were prepared especially for consumers and published in the *Pilot*, the official widely distributed organ of the League of Women Voters. "What to Look for in Buying Asparagus" and "Helpful Hints in Buying Strawberries," covered the subject of quality from the consumers' angle.

*Potato Sacks Report*—A report on the size of potato sacks in general use over the United States was prepared from a 67 per cent return of questionnaires sent out for that information. The report indicated a decided trend in all parts of the country, except New Jersey, Long Island, and a few lesser states, toward complete use of the 100-pound size. Complete details, originally requested by New Jersey growers, were furnished in the report which was sent to approximately 750 interested people.

*State Labels*—The use of state labels on high quality, officially inspected products is a type of effective publicity. Various labels have been designed for use on closed packages of fruits and vegetables, and some action on their use is anticipated during the next season. The use of a state label reflecting quality must be rigidly controlled, and the best results are expected where products are marketed at central shipping points; among these, auction markets are most favored and future work along this line will begin at such centers.

## MARKET ORGANIZATION AND SUPERVISION

Considerable headway has been made in the development of outlets for farm produce in New Jersey. The plan of the Bureau of Markets for shipping-point markets in which a producer is enabled to sell direct to the distributor has been extended to additional points and is favorably received. New Jersey is now looked to by other states, some of which were pioneers in developing markets, for guidance in such marketing work. The bureau has had numerous requests from marketing officials in many states for information and has had delegations from federal and many state agencies inspecting the markets with which it cooperates.

The new shipping-point markets established during the past year include two egg auctions and one live poultry auction. These are described under "Poultry Products Marketing." Also established were two produce auctions, one at Vineland and one at Glassboro. The Glassboro market, although not scheduled to open until July 6, 1931, was organized and ready to operate at the close of the 1930-31 fiscal year. It was planned to take the place of the one at Williamstown organized last year and mentioned in our last year's report. It was felt by all cooperating agencies, including the farmers interested, that a market to serve the Gloucester area should be more centrally located. The immediate support for the new location confirmed the wisdom of the change.

As time goes on and the volume of produce moving through produce auction markets increases, it is more and more evident that, in order to attract new buyers and to encourage further distribution, shippers from these markets should buy and sell on the basis of recognized standards. Realization of this fact has resulted in an increased use of the official New Jersey grades promulgated by the Department of Agriculture. It has also developed the need of closer market supervision by representatives of the Bureau of Markets.

As the markets continue to operate it is also increasingly evident that, in organization work, the selection of directors is most important. Associations which have boards of directors, who whole-heartedly support the markets and freely give their time and ability toward making them successful, have the greatest chance for success. In the new markets organized during the past year, the farmers have been very fortunate in obtaining the very highest type of director.

One new service which the Bureau of Markets rendered during the past year was giving aid in bookkeeping and accounting to such markets as desired it. The bureau has considered that a proper system of accounts

set up and kept by one who has had some preliminary instruction, and an occasional audit by the bureau would do much to protect the membership of a market association and support the directors. There was considerable demand for the new service. The bureau did not have a man available for this work, but through the courtesy of the Committee to Investigate Public Market Needs of New Jersey Agriculture, it was loaned a man who was a trained accountant. This man studied the systems of bookkeeping in effect at successful markets and made up a sample form of accounts. After the Committee to Investigate Public Market Needs of New Jersey Agriculture discontinued its work the bureau employed this man for a short time. He established a suitable accounting system at four markets cooperating with the bureau. The bureau has since made plans to continue this service for all cooperating markets needing it.

A report of the business carried on in the markets in the supervision of which the bureau assists, together with a report of new markets in the past year, follows:

## HAMMONTON MARKET

The Department of Agriculture continued its cooperative agreement with the Hammonton Market Commission and placed an inspector on that market. A very dry summer hurt the quality of the berries sold and shortened the season considerably. The quality of the berries sold at the market as compared to that of berries from other markets continued to be favorable. An early spring freeze wiped out the prospects of a peach crop in Hammonton and vicinity. More than 15,000 fewer packages were sold on the market in the 1930 season than in the 1929 season. There were 15,535 sales made on the market in 1930 compared with 13,568 in 1929, but the number of packages sold in 1930 was 60,427 compared with 75,833, in 1929. The total value of all sales was $319,697.30.

In order to estimate the value of the Hammonton market to the producers it serves, the following table has been prepared. It shows that higher returns were received by farmers using the market than they might have received had they shipped to New York and obtained the average prices paid for New Jersey berries on the New York market. The prices given are a summary of a comparison made on a daily basis. The table covers berries only.

COMPARATIVE RETURNS
HAMMONTON AND NEW YORK CITY
SEASON OF 1930

| *Product* | *Number of Packages Sold at Hammonton* | *Value of Sales at Hammonton* | *Net Value of Sales at New York** | *Difference Hammonton Over New York* | *Difference Per Crate (Cents)* |
|---|---|---|---|---|---|
| Strawberries | 2,407 | $ 13,223.25 | $ 11,146.83 | $ 2,076.42 | 86.25 |
| Dewberries | 15,873 | 70,682.65 | 59,406.44 | 11,276.21 | 71.00 |
| Raspberries | 12,987 | 98,982.75 | 89,673.58 | 9,309.17 | 71.66 |
| Black Diamonds | 25,377 | 107,205.60 | 92,624.75 | 14,580.85 | 57.50 |
| Huckleberries | 3,134 | 16,666.50 | 14,618.12 | 2,048.38 | 65.33 |
| Totals | 59,778 | $306,760.75 | $267,469.72 | $39,291.03 | |

Percentage by which value of sales at Hammonton exceeded value of hypothetical sales at New York—14.7.

The report as given above covers the period from June 4 to August 24, 1930. The season opened later in 1931 than in 1930. The bureau's inspector was placed on the market, June 17. During the twelve days the market operated, there were 2,265 sales made, totaling 10,231 packages. Total value of these sales was $61,557.41. This material for the month of June, 1931, is not included in the report for the 1930 season.

## CAMDEN MARKET

The Camden retail farmers' market completed its first year of operation, June 25, 1931. Mention was made of the development of this market in last year's annual report. From its opening day, to June 30, 1931, there were 4,616 farmers' loads sold on the market. The market developed considerable trade in fresh eggs, dressed poultry and pork. These items constituted nearly half of the gross sales during the six months that the market was open for business. The balance of the sales consisted of more than 50,000 bushels of mixed vegetables and daily offerings of fresh cut flowers. Sales on this market totaled approximately $100,000 in value.

## ATLANTIC CITY MARKET

Low prices during the past fiscal year affected the returns to farmers selling on the Atlantic City Farmers' Market. The number of loads sold

* Value of average sales at New York after 10 per cent commission and 40 cents per crate transportation charges are deducted.

was 15,103. This is 299 loads more than were sold in the preceding year, but the gross value of these loads was only $586,632, which was $171,749 less than the gross value of loads sold in the previous year. The volume was nearly the same, but prices were but 74 per cent of prices of the preceding year.

In the 1929-1930 annual report, work done in standardizing packs and grades on the Atlantic City market was described. The work was considered so helpful that the city commission requested the Bureau of Markets to supply a full-time man to serve at the market as an inspector. This request was granted and the inspector cooperated with the city officials in improving the quality of goods offered for sale at the market. Because of the fact that such improvement in quality should largely be accomplished on farms, the county agent of Atlantic County took over that part of the project in the spring of 1931.

## TRENTON MARKETS

The Bureau of Markets continued to cooperate with the Trenton farmers' markets. The same market master was in charge of the markets. In years of depression, such as the past one, it would seem from reports of actual sales that markets at resorts, such as the Atlantic City market, suffer more than markets in industrial sections. In all probability, prices at resorts are advanced in good times, while prices of farm products sold at retail to a working class are always at a lower level. Data relative to the Trenton markets are in accordance with this assertion.

The dryness of the summer of 1930 affected the volume of offerings on the Trenton markets. There were, during the past fiscal year, 14,821 loads of farm products offered for sale at the markets, whereas, in the preceding year, there were 15,926 loads offered. But the gross receipts for those 14,821 loads totaled $433,734, which is only $18,447 less than the gross receipts of the 1929-30 fiscal year. While the volume of general produce was less than in the preceding year, egg, dressed poultry and pork sales increased. It is difficult to estimate the percentage of reduction of price to the farmer during the past year for the Trenton markets. While prices were evidently somewhat lower than in the previous year, decreases were not as pronounced as at Atlantic City.

The market master continued preparing a price report and a newspaper article for publication each evening in the *Trenton Evening Times*. This practice has done much to advertise products offered in volume by farmers on the Trenton farmers' markets.

## CEDARVILLE AND ROSENHAYN MARKETS

The Cedarville and Rosenhayn produce auction markets were the first to be organized in New Jersey. Each year since they opened they have made an advance in the service they are rendering to the farmers in their territory. They are both in Cumberland County and are greatly aided by the county agent, who has made cooperation with them one of his most important projects. He has cooperated whole-heartedly with the Bureau of Markets in its work at the markets. The Cedarville market, especially, has grown so that the surrounding farmers have faith in it as a means of selling their products. Each year a larger part of the total production of the territory near the market is sold at its auction block.

The Cedarville and Rosenhayn markets, in particular, have realized the need of having standard grades by which buyers on the markets could make quotations to distant buyers so that all parties would understand the quality offered. The progress of standardization work at the two markets is described under "Fruit and Vegetable Marketing—Shipping Point Markets."

In order to portray the actual service that these markets have rendered to the farmer, sales at the markets, as compared with those that might have been received if produce had been shipped to New York on commission are presented in accompanying tables. The comparisons were worked out on a daily basis, prices at the market having been compared with prices the next morning at New York. The tables show the estimated higher prices resulting from sales by auction at the two shipping points. Also, in order that the yearly increase in volume can be understood, two other tables showing the results of operation of the Cedarville and Rosenhayn markets for the past three years are presented.

## CEDARVILLE AUCTION MARKET—1930

| Commodity | Number of Packages Sold | Actual Sales at Auction Market | Charges for Selling at Auction Market | Net Receipts at Auction Market | Estimated Value in the New York Market | Deductions, If Sold in New York Market: Commission Charge | Deductions, If Sold in New York Market: Freight and Hauling Charge | Deductions, If Sold in New York Market: Total | Net If Sold in New York Market | Margin by Selling at Auction Market: Profit |
|---|---|---|---|---|---|---|---|---|---|---|
| yberries .. | 22,824 | $126,787.57 | $ 684.72 | $126,102.85 | $117,390.88 | $11,739.09 | $10,384.92 | $22,124.01 | $ 95,266.87 | $30,835.98 |
| g Beans.. | 92,811 | 106,276.13 | 1,368.28 | 104,907.85 | 119,676.32 | 11,967.63 | 16,705.98 | 28,673.61 | 91,002.71 | 13,905.14 |
| Beans... | 43,037 | 88,418.55 | 833.24 | 87,585.31 | 84,736.51 | 8,473.65 | 7,746.66 | 16,220.31 | 68,516.20 | 19,069.11 |
| ns ..... | 34,712 | 39,371.17 | 656.38 | 38,714.79 | 50,881.25 | 5,088.13 | 7,983.76 | 13,071.89 | 37,809.36 | 905.43 |
| ers ..... | 26,155 | 11,672.30 | 261.55 | 11,410.75 | 16,425.95 | 1,642.59 | 4,707.90 | 6,350.49 | 10,075.46 | 1,335.29 |
| ..... | 4,542 | 8,386.61 | 90.84 | 8,295.77 | 10,123.01 | 1,012.30 | 817.56 | 1,829.86 | 8,293.15 | 2.62 |
| ce ..... | 968 | 545.61 | 9.68 | 535.93 | 716.39 | 71.64 | 125.84 | 197.48 | 518.91 | 17.02 |
| sh ..... | 512 | 350.94 | 5.12 | 345.82 | 316.24 | 31.62 | 122.88 | 154.50 | 161.74 | 184.08 |
| ots ..... | 285 | 197.11 | 3.27 | 193.84 | 201.04 | 20.10 | 68.40 | 88.50 | 112.54 | 81.30 |
| Totals ....225,846 | | $382,005.99 | $3,913.08 | $378,092.91 | $400,467.59 | $40,046.75 | $48,663.90 | $88,710.65 | $311,756.94 | $66,335.97 |

| | |
|---|---|
| Profit by selling at auction market | $66,335.97 |
| Per cent of profit by selling at auction market | 21.3 |
| Total number of sales | 10,869 |
| Total packages sold | 244,393 |
| Total value all sales | $399.087.22 |

## ROSENHAYN AUCTION MARKET—1930

| *ommodity* | *Number of Packages Sold* | *Actual Sales at Auction Market* | *Charges for Selling at Auction Market* | *Net Receipts at Auction Market* | *Estimated Value in the New York Market* | *Deductions, If Sold in New York Market* | | | *Net If Sold in New York Market* | *Margin by Selling at Auction Market* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | *Commission Charge* | *Freight and Hauling Charge* | *Total* | | *Profit* | *Loss* |
| vberries ... | 7,551 | $38,556.39 | $192.83 | $38,363.56 | $ 38,737.28 | $ 3,873.73 | $ 3,435.70 | $ 7,309.43 | $31,427.85 | $ 6,935.71 | |
| kberries .... | 5,375 | 22,493.77 | 112.47 | 22,381.30 | 23,183.86 | 2,318.39 | 2,445.63 | 4,764.02 | 18,419.84 | 3,961.46 | |
| ers ..... | 38,436 | 18,848.26 | 94.24 | 18,754.02 | 25,108.59 | 2,510.86 | 6,380.38 | 8,891.24 | 16,217.35 | 2,536.67 | |
| g Beans.... | 7,329 | 7,029.17 | 35.15 | 6,994.02 | 8,104.93 | 810.49 | 1,216.61 | 2,027.10 | 6,077.83 | 916.19 | |
| Beans..... | 2,183 | 5,495.88 | 27.48 | 5,468.40 | 6,162.28 | 616.23 | 362.38 | 978.61 | 5,183.67 | 284.73 | |
| ..... | 2,586 | 4,666.19 | 23.33 | 4,642.86 | 5,735.00 | 573.50 | 429.28 | 1,002.78 | 4,732.22 | | $ 89.36 |
| berries .... | 164 | 1,238.62 | 6.19 | 1,232.43 | 1,393.40 | 139.34 | 74.62 | 213.96 | 1,179.44 | 52.99 | |
| berry Beans. | 946 | 1,002.92 | 5.01 | 997.91 | 1,132.64 | 113.26 | 157.04 | 270.30 | 862.34 | 135.57 | |
| ns ..... | 123 | 139.05 | .69 | 138.36 | 188.22 | 18.82 | 28.29 | 47.11 | 141.11 | | 2.75 |
| ragus ..... | 19 | 34.30 | .17 | 34.13 | 38.74 | 3.87 | 4.75 | 8.62 | 30.12 | 4.01 | |
| Beans..... | 32 | 32.97 | .16 | 32.81 | 56.75 | 5.68 | 5.31 | 10.99 | 45.76 | | 12.95 |
| ..... | 2 | 3.00 | .02 | 2.98 | 2.25 | .22 | .33 | .55 | 1.70 | 1.28 | |
| Totals ..... | 64,746 | $99,540.52 | $497.74 | $99,042.78 | $109,843.94 | $10,984.39 | $14,540.32 | $25,524.71 | $84,319.23 | $14,828.61 | $105.06 |

| | |
|---|---|
| Profit by selling at auction market | $ 14,723.55 |
| Per cent of profit by selling at auction market | 17.5 |
| Total number of sales | 4,774 |
| Total packages sold | 67,137 |
| Total value all sales | $102,886.65 |

## CEDARVILLE AUCTION MARKET*

| | *1928* | *1929* | *1930* |
|---|---|---|---|
| Number of packages sold | 62,077 | 163,866 | 225,846 |
| Actual sales at auction market | $154,050.19 | $309,062.06 | $382,005.99 |
| Charges for selling at auction market | 1,241.54 | 3,308.73 | 3,913.08 |
| Net receipts at auction market | 152,808.65 | 305,753.33 | 378,092.91 |
| Net value in New York market | 122,429.15 | 257,726.45 | 311,756.94 |
| Profit by selling at auction | 30,379.50 | 48,026.88 | 66,335.97 |
| Per cent of profit | 24.8 | 18.63 | 21.3 |

## ROSENHAYN AUCTION MARKET*

| | *1928* | *1929* | *1930* |
|---|---|---|---|
| Number of packages sold | 98,579 | 58,059 | 64,746 |
| Actual sales at auction market | $121,902.44 | $99,914.92 | $99,540.52 |
| Charges for selling at auction market | 609.51 | 499.57 | 497.74 |
| Net receipts at auction market | 121,292.93 | 99,415.35 | 99,042.78 |
| Net value in the New York market | 100,418.23 | 87,787.27 | 84,319.23 |
| Profit by selling at auction | 20,874.70 | 11,825.89 | 14,723.55 |
| Per cent of profit | 21.4 | 13.3 | 17.5 |

*The data shown in this table are made up from the most important items sold on these markets.

## NEWPORT MARKET

Farmers and shippers in the vicinity of Newport, a town four miles from the Cedarville market, felt that they would be served to advantage by having a produce market at Newport. Some of these parties formerly bought or sold at Cedarville. The Bureau of Markets felt that a market so near to Cedarville would divide buyers and produce between the two markets to the detriment of sellers. The Newport people, however, organized a market. They modeled it after the plan developed at Cedarville and operated it very successfully. The Bureau of Markets did not cooperate financially nor did its market supervisor make official inspections at this market. The bureau's only aid to it was given by mentioning the market in publicity and in aiding local shippers in obtaining markets.

The volume of produce sold at this market was very satisfactory. A total of 78,195 packages was sold during the season for $144,609.02. Important commodities were lima beans, string beans, peppers, strawberries, peas and tomatoes.

## BEVERLY MARKET

Mention was made in the 1929-1930 report of the development of a produce market by the Cooperative Growers' Association of Beverly. The bureau's supervisor has cooperated with the management of this market

in planning buildings and yards. During the past year, more than 180,000 packages were sold by auction at this market for more than $150,000.

One very interesting fact has been drawn from the operations of the Beverly market. The cooperative association sells the products of its members either by supervised shipment to commission houses, by direct sale, or over the auction block. During the past year, the management made an accurate comparison between the sale of nearly 300,000 packages by the commission system in New York and the sale of 135,270 packages by auction at Beverly. Comparisons were made on each commodity daily. The results were favorable to the auction method of selling, showing an average increase in returns to the farmer selling by this method of more than 11 per cent.

## WILLIAMSTOWN MARKET

Mention was made in last year's report of a new market at Williamstown. The market was not continued, due to various reasons. One principal reason was that the market was not properly supported by farmers. Another reason was that producers supporting it felt that a different location would be more desirable.

The market sold 13,227 packages of produce for the sum of $15,578.79. Because of lack of support, it closed July 29, 1930. Since that time, articles of dissolution were filed with the secretary of state and the project abandoned.

## GLASSBORO MARKET

As a result of the operation of the Williamstown market, the farmers still interested in such a market and others in Gloucester County, felt that a new organization should be perfected and a new site chosen for a produce market that would better serve the great producing area of that county. The county agent, the vocational agricultural teacher at Glassboro, and Bureau of Markets representatives met with groups at Williamstown and Glassboro. As a result, an association was formed and incorporated as the Glassboro Cooperative Auction Market Association, Inc. Many meetings were held and a building fund was raised by contributions from farmers. As the year drew to a close, an auction block was built on land adjoining the Reading Railroad, at Glassboro, officers were employed, and all details were completed for opening the market on July 6, 1931.

## VINELAND MARKET

A petition signed by nearly a hundred farmers from East Vineland and vicinity requesting that steps be taken to obtain the help of the county

agent and the Bureau of Markets in developing an auction market at Vineland, was presented to the Cumberland County Board of Agriculture. Meetings on the subject were held in Vineland and, after a survey of buying power and produce grown, it was felt that a market could be successfully operated at Vineland. A building was erected by popular subscription on the basis of short-time loans on land leased at a very nominal figure from the Landis Township Committee, and a market opened May 21, 1931.

While the volume sold on this market by the end of the year was not large, it is felt that its operation was successful and very helpful to the farmers. The Bureau of Markets cooperated financially in the supervision of the market and aided materially in planning buildings, in laying out the grounds, and in advertising products offered. From May 21, the date of opening, to June 30, there were 2,242 loads sold at the market. The number of packages offered for sale was 32,048 and they sold for a total of $24,977.76. Comparisons show that the prices received were better than prices received by shippers on commission to New York.

### *TOMS RIVER EGG MARKET

The Toms River Egg Auction Market ceased to operate as an auction market, March 13, 1931. During the eight and one-half months in the year that it operated, there were 9,193 cases of eggs sold at it for a total of $103,990.32.

### *FLEMINGTON EGG MARKET

The Flemington Egg Auction Market opened August 1, 1930. During the eleven months of the fiscal year that it operated there were 24,496 cases of eggs sold at this market for a total of $214,393.02. The bureau's supervision work at this market consisted of aid in organization and operation, checking of grades used, and aid in setting up and auditing the accounting system. For the first few months a representative of the bureau attended every sale and aided in developing the grading system and methods of operation. At each director's meeting a representative of the department was present. The tables showing business carried on and comparisons with other markets, found under "Poultry Products Marketing," are most interesting.

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* The direct marketing work of the Bureau of Markets has been extended to live poultry and eggs. A detailed account of the operations of poultry markets follows under the poultry marketing section of this report. For this section of the report, certain information relative to poultry and egg auctions is of interest.

## *FLEMINGTON POULTRY MARKET

On April 29, when a sufficient supply of cockerels had been developed for sale, the organization operating the Flemington Egg Auction Market opened the first shipping-point, live poultry auction market in the state. The market has been aided not only by the Bureau of Markets, but by the Bureau of Animal Industry which has supplied an inspector to check upon the healthfulness of birds offered for sale. Sales have been held each Wednesday. At the nine sales held by the end of June, there were 1,985 crates of live poultry sold. These weighed 89,299 pounds net and sold for $20,842.45.

## *VINELAND EGG MARKET

Following the operation of the other egg auctions in the state, a group of southern New Jersey egg producers decided that they would like to establish an auction market for eggs in Vineland. After careful study of conditions in southern New Jersey and of the possibilities of an auction market, an organization was formed with the help of the Bureau of Markets. This organization, The Cooperative Egg Auction Association of South Jersey, Inc., was formed with the combined aid of the county agents and county boards of agriculture of Atlantic, Cape May and Cumberland counties, and poultrymen from those counties and from Salem and Gloucester counties, all working together with the Department of Agriculture. The Vineland Chamber of Commerce was of great assistance in starting the market.

Great care in the selection of directors of this organization resulted in the selection of a representative group of influential poultrymen who will in all probability make this market a great success. The start was modest. The market opened June 4 and, during its first month, sold 963 cases of eggs for $7,582.84.

The bureau aided in the organization and incorporation of the market, set up its accounting system, and located an egg inspector there so that state grades and labels might be used for the eggs.

## NEWARK MARKET

The farmers, who for many years sold their produce on the market which was operated by the City of Newark, felt for a long time that their condition would be improved greatly if they owned their own market.

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* The direct marketing work of the Bureau of Markets has been extended to live poultry and eggs. A detailed account of the operations of poultry markets follows under the poultry marketing section of this report. For this section of the report, certain information relative to poultry and egg auctions is of interest.

They were greatly interested in the survey made by the Committee to Investigate Public Market Needs in New Jersey. They were forced to develop a market of their own during the past year because they were not assured of any other one after the summer of 1931. They, therefore, incorporated as the Newark Farmers' Market, Inc., and leased land in what is known as the "Iron Bound" section of Newark. This land is just off the Raymond Boulevard as it approaches the new super-highway across the meadows to Jersey City. The land obtained is nine acres in extent. Four acres have been paved for market purposes and a row of commission houses has been erected. The organization is entirely farmer-owned and controlled.

The market was opened on May 31, 1931, and enjoyed a brisk trade as the season advanced. The Bureau of Markets cooperated with the farmers in planning and developing their organization and their market. Prices of produce sold on the market and commodity information are obtained by the bureau's Newark market reporter and supplied to interested parties by telephone, mail and newspaper reports.

## SALES ON ALL MARKETS

The following table shows the volume of products sold in terms of farmers' loads, and the value of sales made during the fiscal year ending June, 1931, on all markets which were supervised in part by the Bureau of Markets. In some cases these figures do not correspond with figures given under separate headings, as it has been the bureau's endeavor for seasonal markets, to show the business conducted during the season.

### SALES MADE IN FISCAL YEAR 1930-31

| *Markets* | *Loads Sold* | *Gross Value All Sales* |
|---|---|---|
| Atlantic City | 15,103 | $586,632.00 |
| Camden | 4,616 | 85,251.00 |
| Trenton | 14,821 | 433,734.00 |
| Vineland (Produce) | 2,242 | 24,977.76 |
| Vineland (Egg) | .... | 7,582.84 |
| Flemington (Egg) | .... | 214,393.02 |
| Flemington (Poultry) | .... | 20,842.45 |
| Toms River (Egg) | .... | 99,657.72 |
| Hammonton | 14,215 | 272,298.71 |
| Williamstown | 258 | 3,518.65 |
| Rosenhayn | 5,149 | 104,530.92 |
| Cedarville | 12,173 | 413,268.88 |
| Totals | 68,577 | $2,266,687.95 |

Two other produce auction markets with which the bureau has cooperated in many ways other than supervision and otherwise mentioned in this report, sold more than $300,000 worth of products by auction during the past year. As these markets have used the auction system peculiar to this state and receive cooperation from the bureau their sales could well be added to those of markets actually under cooperative supervision. The products sold at these two markets and at the 12 markets under supervision of the bureau total more than $2,500,000 in volume in the year.

## POULTRY PRODUCTS MARKETING

During the fiscal year ending June 30, 1931, the poultry staff of the bureau devoted considerable attention to the establishment of auction markets for the sale of eggs and poultry within the state. It has also spent considerable time putting into use the grades for eggs which were promulgated in 1930. These grades have proved a boon to poultry producers of the state, their use having brought producers using them several thousands of dollars that they otherwise would not have received. During the year, the bureau prepared grade labels for retail use and it is expected that, early in the new year, they will be in more general use.

One outstanding piece of work of the past year was the organization and development of the Flemington Auction Market Cooperative Association, Inc. The association was formed under the act regulating agricultural cooperative associations (Chapter 12, Laws of 1924). While the bureau representatives took a very active part in the functioning of the association, the work could not have been accomplished without the full cooperation of the Hunterdon County agricultural agent and a board of directors composed of nine outstanding poultrymen of Hunterdon County. These men have given their whole-hearted support to the association and it has meant thousands of dollars in receipts to poultrymen in the northwestern part of the state. It is interesting to note that three directors attended every one of the 25 meetings held during the year and no director attended less than 21 meetings.

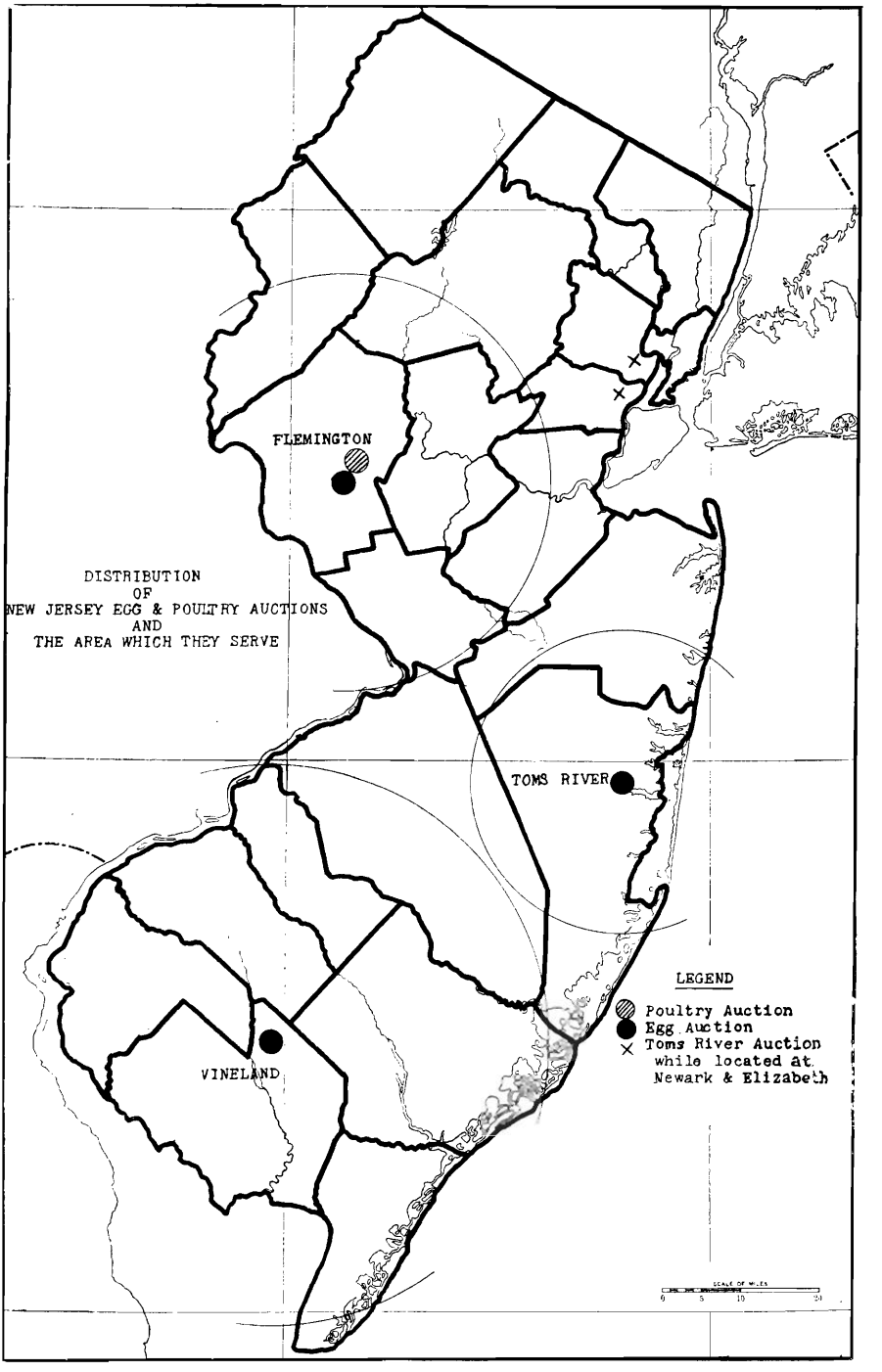
The directors through one of their number supervise each semi-weekly sale of eggs and serve entirely without pay. The association operates the auction market where the eggs of its members are sold on a graded basis to the highest bidder. Egg grading is done for those who desire it. Inspectors supervised by the Bureau of Markets pass on all grading done and oversee the use of grade labels. Membership in the association grew during the 11 months of its operation from less than 50 members to nearly 500.

The organization and operation of the Toms River Egg Auction Market was described in the 1929-30 report. By the end of the past year another egg auction market had begun operations in Vineland. This market opened June 4, 1931.

The Bureau of Markets cooperated with the auction market associations very effectively in bringing buyers to the different auction market points. The map on page 103 shows the locations of these markets. At the end of the year, there were approximately 400 buyers purchasing eggs at various times on the markets. The graph on page 104 shows just how successful the Flemington Auction Market Association was in selling eggs, for it compares prices at this market with the highest quotations on the New York City market and also with five-year average prices. The figures in the summary table on page 105 indicate the tremendous volume of business transacted at the market.

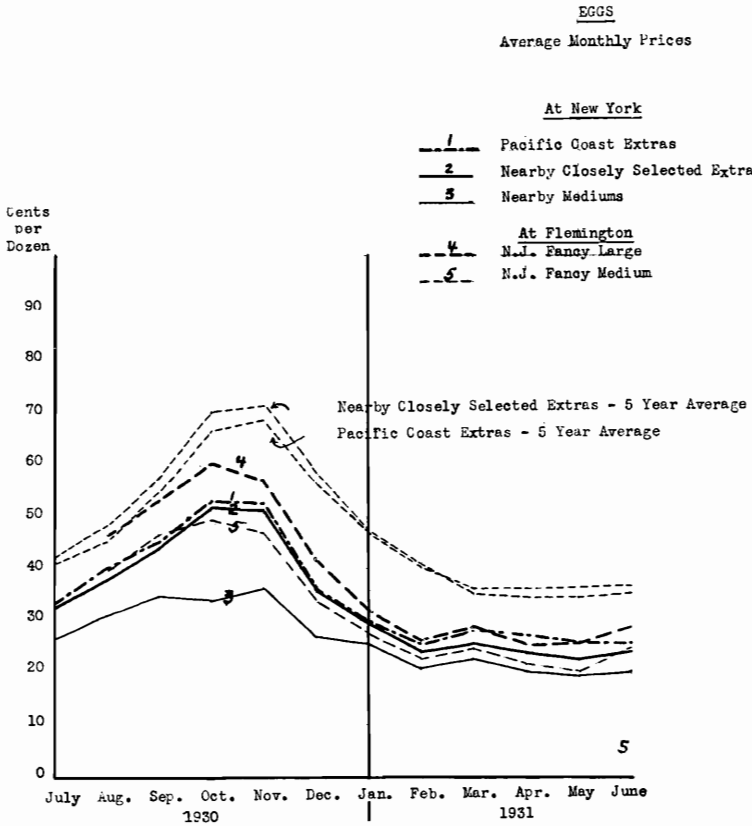
A poultry meat auction market was opened April 29, 1931, in connection with the Flemington egg auction and, because of the goodwill the auction market association had established, it met with success from the very start. Producers gave it immediate support. Furthermore, preparations are being made to operate the market on a year-round basis rather than only during the broiler season, as was originally intended. Such preparations are being made at the request of buyers. Their confidence is shown in the prices they paid at the market for the goods sold during the spring.

Figures showing the volume of business done and the prices received at Flemington and average New York quotations are given on page 105. A comparison of these figures will show that the poultryman received at Flemington almost the average price paid at New York. He saved transportation charges, which were possibly offset by auction charges, but he also saved a much larger item, that of shrinkage in transit, which was minimized by the delivery at Flemington and shared in part by the buyer who purchased the stock at Flemington, moving it at his own risk to distributing points.



EGGS

Average Monthly Prices



## SUMMARY OF SALES ON A GRADED BASIS AT THE FLEMINGTON EGG AUCTION MARKET

August, 1930-June, 1931

| *Month* | *Number of Cases* | *Gross Price Flemington* | **N. Y. Quotation* | *Difference* | †*Profit to Most Producers* | ‡*Loss to Few Producers* |
|---|---|---|---|---|---|---|
| Aug. .... | 772 | $9,355.58 | $8,391.60 | $963.98 | $1,005.79 | $41.81 |
| Sept. ... | 1,198 | 14,883.07 | 13,808.33 | 1,074.74 | 1,234.24 | 159.50 |
| Oct. .... | 1,219 | 17,107.89 | 15,144.10 | 1,963.79 | 2,111.86 | 148.07 |
| Nov. .... | 1,263 | 17,664.07 | 15,460.67 | 2,203.40 | 2,348.38 | 144.98 |
| Dec. .... | 1,701 | 17,976.29 | 16,815.26 | 1,161.03 | 1,322.02 | 160.99 |
| Jan. .... | 1,903 | 16,662.98 | 16,363.45 | 299.53 | 703.12 | 403.59 |
| Feb. .... | 2,043 | 15,079.95 | 14,965.40 | 114.55 | 455.47 | 340.92 |
| Mar. .... | 2,632 | 21,012.59 | 20,894.81 | 117.78 | 875.28 | 757.50 |
| April ... | 2,846 | 19,465.15 | 20,089.92 | 624.77– | 285.76 | 910.53 |
| May .... | 3,802 | 26,046.74 | 26,603.17 | 556.43– | 233.28 | 789.71 |
| June .... | 3,118 | 24,691.92 | 23,295.82 | 1,396.10 | 1,634.15 | 238.05 |
| Totals.. | 22,497 | $199,946.23 | $191,832.53 | $8,113.70 | $12,209.35 | $4,095.65 |
| | | Undergrades, etc., 1,996 cases..... | | | $14,446.79 | |
| | | Grading and selling charges..... | | | 9,607.85 | |

*Comparative prices used in the summary are as follows:

New Jersey Fancy—New Jersey Closely Selected Extras (including premium).

New Jersey Grade A—Highest Closely Selected Extra quotation.

New Jersey Fancy Medium—Highest Nearby Marked Medium quotation.

New Jersey Grade A Medium—Highest Nearby Marked Medium quotation.

Highest nearby quotation on all undergrades, pullets, pewees, etc.

†The majority of producers obtained a profit by selling on the auction. A few sales were made at prices below the New York quotations. The column marked "Profit to Most Producers" shows the actual profit made by the sales above the highest New York market quotation for the same comparable grade. Comparisons are made daily and the results tabulated for this table monthly.

‡Losses shown in this column are computed from those actual sales made by auction at prices below the highest New York market quotation for the same grade on the same day. These losses may not be actual as the producers of these eggs probably would not receive the highest New York return. There is always a reason for lower bids at auction. Figures in the column marked "Loss to Few Producers" subtracted from the corresponding figure in the profit column will equal the figures in the preceding column marked "Difference."

SUMMARY OF SALES AT FLEMINGTON POULTRY MEAT AUCTION 1931

| *Month* | *Pounds of Poultry* | *Gross Price Flemington* | *Average N. Y. Quotation* |
|---|---|---|---|
| April | 7,758.5 | $2,115.06 | $2,123.90 |
| May | 39,468.5 | 9,471.29 | 9,805.37 |
| June | 42,072. | 9,256.10 | 9,264.00 |
| Totals | 89,299 | $20,842.45 | $21,193.27 |

**Note:**—A careful estimate by large producers in the Hunterdon County area indicates a loss to producers from all causes, such as shrinkage, cartage and commissions of 6 to 7 cents per pound on all poultry shipped to New York. This would amount to a net loss of approximately $6,300.

The Vineland Egg Auction Market began selling operations on June 4, 1931, and at the end of the fiscal year showed every promise of continued success. Following are the figures covering the market's sales and the cost of operation up to the end of the fiscal year.

VINELAND AUCTION MARKET ASSOCIATION, INC.
SUMMARY OF SALES ON A GRADED BASIS

| *Month* | *Number of Cases* | *Gross Price Vineland* | **N. Y. Quotation* | *Difference* | †*Profit to Most Producers* | ‡*Loss to Few Producers* |
|---|---|---|---|---|---|---|
| June | 909 | $7,173.62 | $6,803.85 | $369.77 | $441.15 | $71.38 |
| | | Undergrades, etc., 54 cases | | | $409.22 | |
| | | Grading and selling charges | | | 410.11 | |

*Comparative prices used in the summary are as follows:
New Jersey Fancy—New Jersey Closely Selected Extras (including premium).
New Jersey Grade A—Highest Closely Selected Extra quotation.
New Jersey Fancy Medium—Highest Nearby Marked Medium quotation.
New Jersey Grade A Medium—Highest Nearby Marked Medium quotation.
Highest nearby quotation on all undergrades, pullets, pewees, etc.

†The majority of producers obtained a profit by selling on the auction. A few sales were made at prices below the New York quotations. The column marked "Profit to Most Producers" shows the actual profit made by the sales above the highest New York market quotation for the same comparable grade. Comparisons are made daily and the results tabulated for this table monthly.

‡Losses shown in this column are computed from those actual sales made by auction at prices below the highest New York market quotation for the same grade on the same day. These losses may not be actual as the producers of these eggs probably would not receive the highest New York return. There is always a reason for lower bids at auction. Figures in the column marked "Loss to Few Producers" subtracted from the corresponding figure in the profit column will equal the figures in the preceding column marked "Difference."

The Bureau of Markets is sorry to report that it was unable to further cooperate with the Toms River Egg Auction Market since its management failed to follow vital recommendations of the bureau. The market ceased to function as an auction market, March 13, 1931. It is believed that, during the 1931-32 fiscal year, because of the success of the auction markets in other sections of the state, another market will be established somewhere in the eastern territory to serve poultry producers in that area. The following table covers the operation of the Toms River Auction Market for the entire period that it operated.

SUMMARY OF SALES ON A GRADED BASIS AT TOMS RIVER EGG AUCTION MARKET
JUNE, 1930—MARCH, 1931

| *Month* | *Number of Cases* | *Gross Price Toms River* | **N. Y. Quotation* | *Difference* | †*Profit to Most Producers* | ‡*Loss to Few Producers* |
|---|---|---|---|---|---|---|
| June ..... | 443 | $ 4,346.93 | $ 4,307.25 | $ 39.68 | $ 122.07 | $ 82.39 |
| July ..... | 752 | 8,159.31 | 7,648.85 | 510.46 | 536.36 | 25.90 |
| Aug. ..... | 814 | 10,658.29 | 9,259.36 | 1,398.93 | 1,404.38 | 5.45 |
| Sept. ..... | 1,063.5 | 13,127.17 | 12,410.52 | 716.65 | 724.57 | 7.92 |
| Oct. ..... | 1,242 | 16,928.59 | 15,708.30 | 1,220.29 | 1,273.54 | 53.25 |
| Nov. ..... | 1,036 | 14,034.98 | 13,324.65 | 710.33 | 752.93 | 42.60 |
| Dec. ..... | 1,022 | 11,346.53 | 10,382.10 | 964.43 | 971.62 | 7.19 |
| Jan. ..... | 990 | 9,313.22 | 8,705.10 | 608.12 | 610.07 | 1.95 |
| Feb. ..... | 798 | 6,265.14 | 5,981.40 | 283.74 | 302.12 | 18.38 |
| March ..... | 173 | 1,457.17 | 1,373.05 | 84.12 | 84.12 | .... |
| Totals... | 8,333.5 | $95,637.33 | $89,100.58 | $6,536.75 | $6,781.78 | $245.03 |

Undergrades, etc., 859 cases..... $8,352.99
Grading and selling charges..... $2,981.81

*Comparative prices used in the summary are as follows:
New Jersey Fancy—New Jersey Closely Selected Extras (including premium).
New Jersey Grade A—Highest Closely Selected Extra quotation.
New Jersey Fancy Medium—Highest Nearby Marked Medium quotation.
New Jersey Grade A Medium—Highest Nearby Marked Medium quotation.
Highest nearby quotation on all undergrades, pullets, pewees, etc.

†The majority of producers obtained a profit by selling on the auction. A few sales were made at prices below the New York quotations. The column marked "Profit to Most Producers" shows the actual profit made by the sales above the highest New York market quotation for the same comparable grade. Comparisons are made daily and the results tabulated for this table monthly.

‡Losses shown in this column are computed from those actual sales made by auction at prices below the highest New York market quotation for the same grade on the same day. These losses may not be actual as the producers of these eggs probably would not receive the highest New York return. There is always a reason for lower bids at auction. Figures in the column marked "Loss to Few Producers" subtracted from the corresponding figure in the profit column will equal the figures in the preceding column marked "Difference."

It was necessary for members of the poultry division of the Bureau of Markets to make many inspections at the new poultry markets during the year in order to guarantee to buyers the quality indicated by state labels used. It is felt that a reputation for the label and for the officially graded eggs will be established in that way and will go a long way in guaranteeing permanency to the auction method of marketing. The additional work required in developing the auction markets was done by the regular poultry staff personnel, with the exception of two cooperating inspectors, the chief part of whose salaries was paid by the associations operating the auction markets.

While carrying on these new lines of work, the poultry staff at the same time maintained its breeding-flock standardization work in all its phases, a task which required a total of 407 flock inspections, 17 hatchery inspections, 134 Record of Performance inspections, 876 sanitary inspections, and 430 other farm visits. The staff inspected more flocks than in former years.

It was necessary for members of the poultry staff to attend more meetings devoted to poultry subjects and to address more people on the subject of the bureau's poultry products standardization program than previously. Records show that members of the poultry staff attended 91 meetings during the year and addressed 3,557 people on poultry subjects. Practically all of this work was carried out by Alben E. Jones. supervisor of poultry products standardization. It is felt that through the addresses, the poultry marketing plan of the department was carried to the poultry producers of the state in a thorough manner.

Two radio talks on poultry subjects were made, one over Station WOR in Newark, N. J., and one over Station WAAM in Newark, N. J. Eight circular letters were mailed to a large mailing list, drawing the attention of producers to the program of the bureau; also, 26 articles were written for periodicals and newspapers. In order to acquaint people attending fairs and other meetings with the requirements of the bureau's work in poultry and egg marketing, six exhibits were set up. These exhibits demonstrated the grade requirements for eggs and also illustrated the requirements for flock improvement. The bureau also held 15 egg grading demonstrations which were attended by approximately 1,200 persons.

The Bureau of Markets' program for the standardization of breeding flocks proved itself during the year, for in the country as a whole, it was almost impossible to sell chicks at any price. From reports gathered by inspectors it was found that practically all of those poul-

try producers who had been receiving cooperation from the bureau were able to sell the baby chicks they had to offer during the season, and at prices approximating those of the previous year. It is interesting to note that the bureau did not have a single complaint from a buyer of baby chicks last season. The number of complaints in other years were from three to ten.

The Baby Chick Show, held in connection with Agricultural Week, was again held and apparently was very satisfactory. Plans are now under way to develop the 1932 show. It is hoped that there will be from 100 to 150 entries at the 1932 show in place of the usual 20 or 25. The entry fee, which has been charged from year to year, will be omitted this year and the number of chicks reduced to 25 per entry.

There was a decided increase in the number of flocks, but a slight decrease in the number of birds under the supervision of the bureau in the past year. The changes were due largely to the economic trends of the year, during which the policy in many lines of business was to reduce the size of the business, and during which several small poultry producers saw an advantage in cooperating with the Department of Agriculture, made application for supervision and were accepted.

The bureau continued to receive cooperation from the Bureau of Animal Industry which carried on blood testing for pullorum disease and made splendid progress in the eradication of the disease. There was some little misunderstanding on the part of some producers in regard to the procedure followed in destroying reactors to the test. It was required that all reactors be sold directly for slaughter. Experience has shown that this procedure for handling diseased birds is more effective than others and consequently it will be continued indefinitely.

At the end of the report on poultry marketing will be found four tables which illustrate the distribution of flocks under the bureau's supervision in the state, the capacity of hatcheries under supervision, the number of birds inspected and rejected, the reactors to the pullorum disease test, and the classifications of the birds under supervision. The tables are based on the figures used in the following portion of the text.

The Bureau of Markets made a total of 407 flock inspections including inspections of flock additions. The flocks inspected contained a total of 140,334 birds. In the 1929-30 fiscal year, the bureau inspected 294 flocks, including flock additions, containing a total of 154,895 birds. The bureau continued to make rigid inspections as indicated by the fact that 26,238 birds were rejected for physical defects, either from a

standpoint of production or of standard quality, and by the fact that, of the remaining group, a total of 9,352 reactors were located and removed for slaughter. The excellent quality of the baby chicks produced by these flocks and the fact that no complaints about them were received, leads the bureau to believe that the program is effective and should be continued. The bureau was able to carry on the work in the past year at a reduced cost to poultrymen.

The following tables give the costs per bird charged to poultrymen for the bureau's standardization work in the past three years. The tables show that the costs to the poultry producer averaged one cent less per bird last year than in previous years.

COST PER BIRD PASSED—INSPECTION ONLY

(1930-1931)

| *Number of Birds in Flock* | *Cost Per Bird* |
|---|---|
| 0- 200 | $.066 |
| 200- 500 | .032 |
| 500-1000 | .027 |
| 1000-1500 | .024 |
| 1500-2000 | .026 |
| 2000-Up | .026 |
| All Flocks | .027 |

(1929-1930)

| *Number of Birds in Flock* | *Cost Per Bird* |
|---|---|
| 0- 200 | $.065 |
| 200- 500 | .035 |
| 500-1000 | .033 |
| 1000-1500 | .031 |
| 1500-2000 | .027 |
| 2000-Up | .026 |
| All Flocks | .037 |

(1928-1929)

| *Number of Birds in Flock* | *Cost Per Bird* |
|---|---|
| 0- 200 | $.08 |
| 200- 500 | .044 |
| 500-1000 | .038 |
| 1000-1500 | .033 |
| 1500-2000 | .029 |
| 2000-Up | .029 |
| All Flocks | .04 |

## COST PER BIRD PASSED, INCLUDING ALL BUREAU OF ANIMAL INDUSTRY CHARGES

(1930-1931)

| *Number of Birds in Flock* | *Cost Per Bird* |
|---|---|
| 0- 200 | $.10 |
| 200- 500 | .056 |
| 500-1000 | .047 |
| 1000-1500 | .044 |
| 1500-2000 | .047 |
| 2000-Up | .047 |
| All Flocks | .048 |

(1929-1930)

| *Number of Birds in Flock* | *Cost Per Bird* |
|---|---|
| 0- 200 | $.099 |
| 200- 500 | .058 |
| 500-1000 | .057 |
| 1000-1500 | .052 |
| 1500-2000 | .047 |
| 2000-Up | .046 |
| All Flocks | .063 |

## COST PER BIRD PASSED, INCLUDING LABORATORY CHARGES

(1928-1929)

| *Number of Birds in Flock* | *Cost Per Bird* |
|---|---|
| 0- 200 | $.12 |
| 200- 500 | .084 |
| 500-1000 | .078 |
| 1000-1500 | .073 |
| 1500-2000 | .069 |
| 2000-Up | .069 |
| All Flocks | .08 |

Receipts for both inspection and blood testing were $6,867.88 and the total disbursements were $7,049.46, leaving a difference of $181.58, which is covered by supplies on hand.

The Bureau of Markets made a total of 876 sanitary inspections of flocks. These are the monthly inspections of all breeding flocks and hatcheries under supervision. It has been found that cooperators endeavor to comply with the rules, if they understand them, and in making sanitary inspections, the bureau has been able to make its requirements more understandable.

One hundred and ninety-eight applications to have flocks certified and approved were received by the bureau last year. These applications covered 262 flocks, having a total of 140,334 birds, of which 26,238 or 18.6 per cent of the total were rejected at the time of inspection for

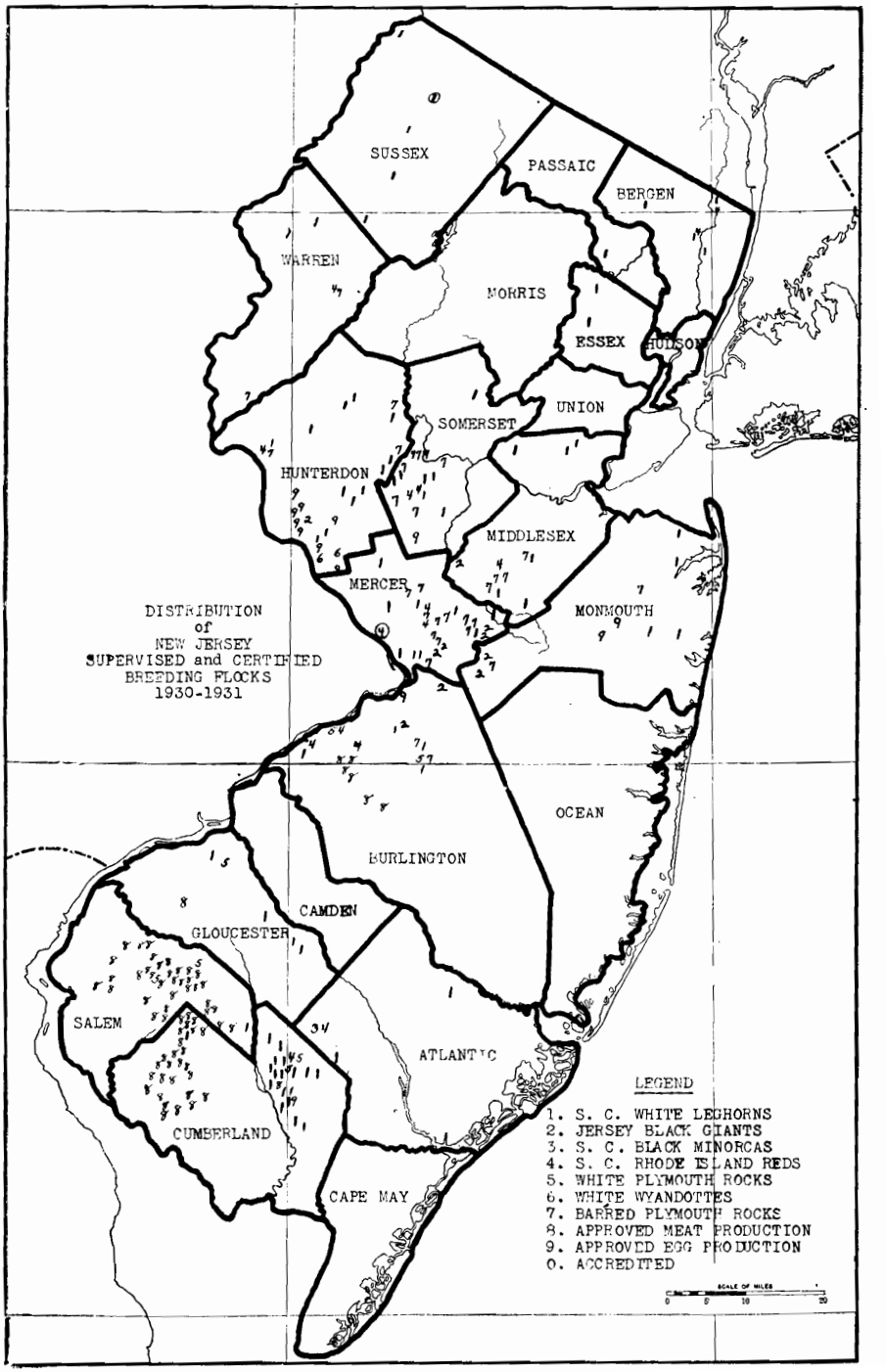
standard disqualifications or production defects. A total of 104,744 birds passed inspection and testing. Of this number, 46,905 were "Supervised"; 34,654, "Certified"; 421, "Supervised-Accredited"; 653, "Certified Meat Production"; 16,579, "Approved Meat Production" and 5,532, "Egg Production." Nine thousand three hundred and fifty-two, or 8.1 per cent of the birds passing inspection, were reactors to the test for pullorum disease and were removed from flocks. The number of birds inspected decreased 14,561 since the 1929-30 fiscal year, and the number of applicants increased from 133 to 198.

Of the 262 flocks inspected and blood-tested, 81 contained less than 200 birds; 66, between 200 and 500; 23, from 500 to 1,000; and 28, from 1,000 to 5,000 (including 64 hatchery out-flocks listed as one flock). Most of these flocks were entered in the breeding flock certification project. One hundred and eight flocks, which were included in the 262, were classified as follows: 10 "Certified Meat Production" flocks, in Burlington, Hunterdon, Mercer and Monmouth counties; and 84 "Approved Meat Production" flocks, distributed in Burlington, Cumberland, Gloucester, Mercer, Middlesex, Salem, Sussex and Warren counties; and 14, "Approved Egg Production" flocks in Burlington, Cumberland, Hunterdon, Mercer, Monmouth and Somerset counties.

Single comb White Leghorns led the single breed total of birds inspected with 90,539; followed by Approved Breeding Flock (Meat) with 25,194; (Egg) 6,855; Barred Plymouth Rocks, 8,548; Rhode Island Reds, 4,850; Certified Meat Production, 1,907; White Plymouth Rocks, 1,222; White Wyandottes, 1,098; Black Minorcas, 121.

The map on the following page shows the distribution by counties of "Supervised" and "Certified" breeding flocks during the past year. It also shows the location of flocks according to breed and class of production. These flocks were distributed over 17 counties, Cumberland leading with 57, followed by Salem with 49; Mercer, 38; Hunterdon, 24; Somerset, 17; Burlington, 17; Middlesex, 12; Monmouth, 12; Gloucester, 8; Sussex, 6; Bergen, 5; Warren, 5; Passaic, 4; Essex, 3; Atlantic, 2; Morris, 2; Union, 1. Rated numerically on the basis of the number of birds inspected, the ranking of counties is as follows: Cumberland leading with 22,827; Hunterdon, 19,483; Salem, 13,427; Middlesex, 12,858; Mercer, 11,974; Somerset, 10,657; Gloucester, 9,444; Passaic, 9,197; Burlington, 9,022; Bergen, 5,959; Monmouth, 5,821; Essex, 3,592; Warren, 2,065; Sussex, 1,932; Union, 1,053; Morris, 544; Atlantic, 479.

The bureau continued to divide flocks into two groups, in the same manner as in other years, those with less than 200 and those with more



than 200 birds. The inspection of the smaller flocks required a total of five and one-twelfth days' work by inspectors of this department who inspected 1,897 birds and rejected 305. Of the birds that passed inspection, 434 were "Supervised"; 281, "Certified"; 299, "Certified Meat Production"; 213, "Approved Meat Production"; 79, "Approved Egg Production." One hundred and twenty-five birds were "Supervised-Accredited." The inspection work was done on a flat-rate basis of ten cents per bird handled. The inspection of flocks of 200 or more birds required a total of 222.25 days' work, during which 138,437 birds were inspected; 25,933, rejected; 46,471, listed as "Supervised," 34,373 as "Certified," 296 as "Supervised-Accredited," 354 as "Certified Meat Production," 16,366 as "Approved Meat Production," and 5,453 as "Approved Egg Production."

The chart which shows the distribution of hatcheries indicates that 50 breeders' hatcheries, having a total capacity of 647,449 eggs, were receiving their total egg supply from flocks under state supervision and seven commercial hatcheries, with capacities of 285,600 eggs, were receiving some of their eggs from flocks under supervision. The total capacity of these hatcheries is 933,049 eggs.

The cost of inspection work for the past year was figured on the basis of crew inspections, a crew consisting of an inspector and a bleeder. For each crew, a total of $15.00 a day was charged for labor and charges for maintenance and transportation were made. The laboratory fee for blood testing was one cent per test tube of blood. All collections were made by the Bureau of Markets.

At the annual meeting of the cooperators in the poultry certification project held June 2, 1931, no requests were made for a change in the rules and regulations governing the certification work; therefore they will be retained until such requests are received.

## RECORD OF PERFORMANCE

Nine poultrymen, with a total of 4,318 birds, entered the "Record of Performance" trapnest project last year. Birds entered in this project are entered for the purpose of making official records and should not be confused with breeding hens which have already made the record in accordance with "Record of Performance" rules and regulations. Twenty-two breeders entered a total of 87 breeding flocks containing a total of 1,216 breeding females for "Record of Performance" ratings. Mating lists for these flocks are included in Circular No. 205. The flocks are made up entirely of females whose production has been certified by egg

laying contest managements through their contests or home record of performance projects, together with all those individuals which have made their records in accordance with the rules and regulations governing the trapnest project in this state and which have been certified by this department. Of the 87 flocks entered, 77 were Leghorns; four, Barred Rocks; and five, Rhode Island Reds, and one was of the White Plymouth Rock breed. Eighty-four flocks were "Certified"; two, "Supervised"; and one, "Supervised-Accredited." The flocks were distributed by counties as follows:

DISTRIBUTION ACCORDING TO BREEDS OF FLOCKS ENTERED FOR "RECORD OF PERFORMANCE" RATINGS

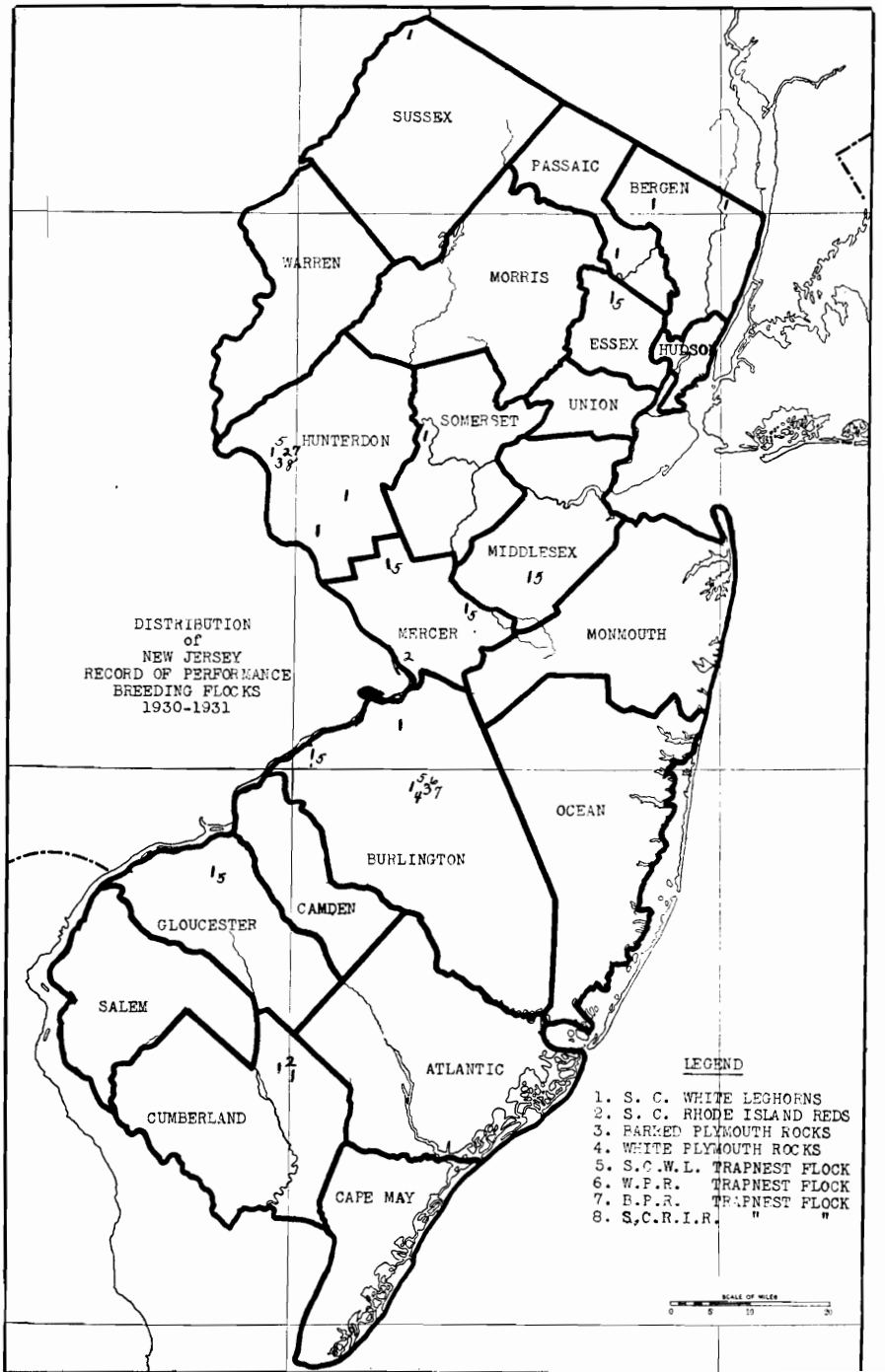
| *County* | *Total Number of Flocks* | *S. C. White Leghorns* | *Barred Rocks* | *Rhode Island Reds* | *White Rocks* |
|---|---|---|---|---|---|
| Bergen | 8 | 8 | .. | .. | .. |
| Burlington | 10 | 8 | 1 | .. | 1 |
| Cumberland | 13 | 12 | .. | 1 | .. |
| Essex | 5 | 5 | .. | .. | .. |
| Gloucester | 6 | 6 | .. | .. | .. |
| Hunterdon | 15 | 9 | 3 | 3 | .. |
| Mercer | 8 | 7 | .. | 1 | .. |
| Middlesex | 9 | 9 | .. | .. | .. |
| Monmouth | 1 | 1 | .. | .. | .. |
| Passaic | 4 | 4 | .. | .. | .. |
| Somerset | 6 | 6 | .. | .. | .. |
| Sussex | 2 | 2 | .. | .. | .. |
| Totals | 87 | 77 | 4 | 5 | 1 |

The distribution of "Record of Performance" flocks is shown in the map on page 117. All of the flocks were single-mated and progeny-hatched under the supervision of the Department of Agriculture. Such male progeny is qualified after inspection to head "Certified" and "Record of Performance" breeding flocks in accordance with the production standard in each case. The records show a total of 1,216 females which produced 50,971 eggs, of which 37,250 were incubated to produce 20,253 chicks. Of this progeny, many of the females will be entered in the "Record of Performance" trapnest project for official records and progeny tests by flock owners. The males will be used on "Certified" and "Record of Performance" flocks in the 1931-32 fiscal year.

The following table shows the number of "Record of Performance" chicks produced in the past year. The distribution of these flocks continued to be about the same as previously.

## 1931 RECORD OF PERFORMANCE BREEDING FLOCKS

| *County* | *Number of Flocks* | *Number of Birds* | *Number of Eggs Produced* | *Number of Eggs Set* | *Number of Chicks Hatched* |
|---|---|---|---|---|---|
| Bergen..... | 8 | 111 | 5,074 | 4,081 | 1,988 |
| Burlington ..... | 10 | 157 | 8,261 | 6,360 | 3,997 |
| Cumberland .... | 13 | 170 | 4,778 | 2,806 | 1,417 |
| Essex ..... | 5 | 82 | 3,276 | 1,695 | 838 |
| Gloucester ..... | 6 | 89 | 5,511 | 4,588 | 2,571 |
| Hunterdon ..... | 15 | 169 | 4,991 | 3,338 | 1,292 |
| Mercer ..... | 8 | 110 | 5,494 | 4,477 | 2,402 |
| Middlesex ..... | 9 | 110 | 3,923 | 1,963 | 1,392 |
| Monmouth ..... | 1 | 12 | 593 | 577 | 328 |
| Passaic ..... | 4 | 97 | 5,670 | 4,465 | 2,282 |
| Somerset ..... | 6 | 85 | 2,196 | 2,069 | 1,315 |
| Sussex ..... | 2 | 24 | 1,204 | 831 | 431 |
| Totals ..... | 87 | 1,216 | 50,971 | 37,250 | 20,253 |



## CAPACITIES OF HATCHERIES UNDER STATE SUPERVISION, YEAR ENDING JUNE 30, 1931

| County | Breeder Hatcheries Under 5,000 | Breeder Hatcheries 5,000 to 15,000 | Breeder Hatcheries 15,000 to 50,000 | Breeder Hatcheries Over 50,000 Capacity | Total Capacity of Breeder Hatcheries | Commercial Hatcheries | | Total Hatchery Capacities |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Number | Capacity | |
| lantic | 2 | .. | .. | .. | 2,400 | .. | ..... | 2,400 |
| rgen | .. | 2 | 1 | .. | 32,400 | .. | ..... | 32,400 |
| rlington | 3 | 2 | .. | .. | 31,506 | .. | ..... | 31,506 |
| mberland | .. | 1 | 1 | .. | 20,744 | .. | ..... | 20,744 |
| sex | 1 | 1 | 1 | .. | 33,344 | .. | ..... | 33,344 |
| oucester | 2 | 3 | 1 | .. | 63,860 | .. | ..... | 63,860 |
| nterdon | 2 | 2 | 2 | 2 | 251,925 | 1 | 16,200 | 268,125 |
| ercer | 1 | 2 | 1 | .. | 34,870 | 1 | 99,000 | 133,870 |
| ddlesex | 1 | .. | 1 | .. | 18,600 | 2 | 65,000 | 83,600 |
| onmouth | 2 | 3 | 1 | .. | 54,200 | .. | ..... | 54,200 |
| ssaic | .. | 1 | 2 | .. | 52,000 | .. | ..... | 52,000 |
| lem | .. | .. | .. | .. | ..... | 1 | 20,000 | 20,000 |
| merset | 2 | .. | 1 | .. | 31,500 | 1 | 61,000 | 92,500 |
| ssex | .. | 1 | .. | .. | 6,500 | .. | ..... | 6,500 |
| nion | .. | 1 | .. | .. | 12,600 | .. | ..... | 12,600 |
| arren | 1 | .. | .. | .. | 1,000 | 1 | 24,400 | 25,400 |
| Totals | 17 | 19 | 12 | 2 | 647,449 | 7 | 285,600 | 933,049 |

## NUMBER OF BIRDS INSPECTED, YEAR ENDING JUNE 30, 1931

| County | Number of Flocks Inspected | S.C. White Leghorns | R.I. Reds | Barred Rocks | White Rocks | White Wyandottes | Approved Black Minorcas | Approved Breeding Flock (Egg) | Approved Breeding Flock (Meat) | Certified Meat Production | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlantic | 2 | 357 | 32 | ... | ... | ... | 90 | ... | ... | ... | 479 |
| Bergen | 5 | 5,803 | 156 | ... | ... | ... | ... | ... | ... | ... | 5,959 |
| Burlington | 17 | 4,251 | 1,365 | 364 | 163 | ... | ... | 364 | 1,805 | 710 | 9,022 |
| Cumberland | 57 | 12,868 | 474 | ... | 149 | ... | ... | 92 | 9,244 | ... | 22,827 |
| Essex | 3 | 3,592 | ... | ... | ... | ... | ... | ... | ... | ... | 3,592 |
| Gloucester | 8 | 8,334 | ... | ... | 610 | ... | ... | ... | 500 | ... | 9,444 |
| Hunterdon | 24 | 12,546 | 662 | 866 | ... | 863 | ... | 4,340 | ... | 206 | 19,483 |
| Mercer | 38 | 7,428 | 842 | 2,065 | ... | 235 | ... | 117 | 380 | 907 | 11,974 |
| Middlesex | 12 | 10,499 | 143 | 2,074 | ... | ... | ... | ... | 142 | ... | 12,858 |
| Monmouth | 12 | 4,043 | 291 | 648 | ... | ... | 31 | 724 | ... | 84 | 5,821 |
| Morris | 2 | 544 | ... | ... | ... | ... | ... | ... | ... | ... | 544 |
| Passaic | 4 | 9,197 | ... | ... | ... | ... | ... | ... | ... | ... | 9,197 |
| Salem | 49 | 461 | ... | ... | 300 | ... | ... | ... | 12,666 | ... | 13,427 |
| Somerset | 17 | 7,013 | 775 | 1,651 | ... | ... | ... | 1,218 | ... | ... | 10,657 |
| Sussex | 6 | 1,632 | 90 | ... | ... | ... | ... | ... | 210 | ... | 1,932 |
| Union | 1 | 1,053 | ... | ... | ... | ... | ... | ... | ... | ... | 1,053 |
| Warren | 5 | 918 | 20 | 880 | ... | ... | ... | ... | 247 | ... | 2,065 |
| Totals | 262 | 90,539 | 4,850 | 8,548 | 1,222 | 1,098 | 121 | 6,855 | 25,194 | 1,907 | 140,334 |

## NUMBER OF BIRDS REJECTED, YEAR ENDING JUNE 30, 1931

| *County* | *S.C. White Leghorns* | *R.I. Reds* | *Barred Rocks* | *White Rocks* | *White Wyandottes* | *Black Minorcas* | *Approved Breeding Flock (Egg)* | *Approved Breeding Flock (Meat)* | *Certified Meat Production* | *Total* |
|---|---|---|---|---|---|---|---|---|---|---|
| tlantic | 56 | 2 | ... | ... | ... | 3 | ... | ... | ... | 61 |
| ergen | 1,216 | 42 | ... | ... | ... | ... | ... | ... | ... | 1,258 |
| urlington | 938 | 238 | 85 | 40 | ... | ... | 56 | 178 | 115 | 1,650 |
| umberland | 3,232 | 140 | ... | 80 | ... | ... | 9 | 829 | ... | 4,290 |
| ssex | 882 | ... | ... | ... | ... | ... | ... | ... | ... | 882 |
| loucester | 1,354 | ... | ... | 104 | ... | ... | ... | 63 | ... | 1,521 |
| unterdon | 2,920 | 175 | 233 | ... | 154 | ... | 668 | ... | 33 | 4,183 |
| ercer | 1,419 | 255 | 555 | ... | 35 | ... | 35 | 35 | 192 | 2,526 |
| iddlesex | 1,598 | 53 | 657 | ... | ... | ... | ... | 20 | ... | 2,328 |
| onmouth | 850 | 140 | 144 | ... | ... | 3 | 100 | ... | 40 | 1,277 |
| orris | 55 | ... | ... | ... | ... | ... | ... | ... | ... | 55 |
| assaic | 1,183 | ... | ... | ... | ... | ... | ... | ... | ... | 1,183 |
| alem | 108 | ... | ... | 84 | ... | ... | ... | 1,412 | ... | 1,604 |
| omerset | 1,607 | 68 | 401 | ... | ... | ... | 80 | ... | ... | 2,156 |
| ussex | 306 | 50 | ... | ... | ... | ... | ... | ... | ... | 356 |
| nion | 289 | ... | ... | ... | ... | ... | ... | ... | ... | 289 |
| arren | 354 | 10 | 255 | ... | ... | ... | ... | ... | ... | 619 |
| Totals | 18,367 | 1,173 | 2,330 | 308 | 189 | 6 | 948 | 2,537 | 380 | 26,238 |

NUMBER OF REACTORS TO TESTS FOR BACILLARY WHITE DIARRHEA, YEAR ENDING JUNE 30, 1931

| *County* | *S.C. White Leghorns* | *R.I. Reds* | *Barred Rocks* | *White Rocks* | *White Wyandottes* | *Black Minorcas* | *Approved Breeding Flock (Egg)* | *Approved Breeding Flock (Meat)* | *Certified Meat Production* | *Total* |
|---|---|---|---|---|---|---|---|---|---|---|
| tlantic | 10 | 2 | ... | ... | ... | 5 | ... | ... | ... | 17 |
| ergen | 233 | 4 | ... | ... | ... | ... | ... | ... | ... | 237 |
| urlington | 99 | 54 | 26 | 7 | ... | ... | 11 | 81 | 74 | 352 |
| umberland | 454 | 15 | ... | 9 | ... | ... | 1 | 1,547 | ... | 2,026 |
| ssex | 55 | ... | ... | ... | ... | ... | ... | ... | ... | 55 |
| loucester | 165 | ... | ... | 12 | ... | ... | ... | 134 | ... | 311 |
| unterdon | 810 | 23 | 43 | ... | 51 | ... | 273 | ... | 38 | 1,238 |
| ercer | 143 | 101 | 232 | ... | 37 | ... | 3 | 3 | 75 | 594 |
| iddlesex | 497 | 4 | 125 | ... | ... | ... | ... | 27 | ... | 653 |
| onmouth | 119 | 11 | 26 | ... | ... | ... | 41 | ... | 10 | 207 |
| orris | 80 | ... | ... | ... | ... | ... | ... | ... | ... | 80 |
| assaic | 486 | ... | ... | ... | ... | ... | ... | ... | ... | 486 |
| alem | 10 | ... | ... | 117 | ... | ... | ... | 2,460 | ... | 2,587 |
| omerset | 86 | 14 | 54 | ... | ... | ... | 24 | ... | ... | 178 |
| ussex | 165 | 18 | ... | ... | ... | ... | ... | ... | ... | 183 |
| nion | 10 | ... | ... | ... | ... | ... | ... | ... | ... | 10 |
| arren | 31 | 5 | 45 | ... | ... | ... | ... | 57 | ... | 138 |
| Totals | 3,453 | 251 | 551 | 145 | 88 | 5 | 353 | 4,309 | 197 | 9,352 |

## CONCLUSION

The report of the bureau indicates important aid which it is endeavoring to give to the agricultural industry of the state. It has not lost sight of the consumer's interest, realizing that consumer demand is the greatest aid to nearby producers. As problems come up, many of which are not anticipated, the bureau endeavors to arrange its work so that it can aid in solving them. Under the unsettled conditions through which the agricultural industry is now passing, unlooked for opportunities for service arise. The bureau hopes to be able, with trained men, to meet those opportunities as well as to continue the long-time project of developing economic marketing of New Jersey farm products.

# *Report of the Bureau of Plant Industry* *

HARRY B. WEISS, *Chief*

## STATISTICAL AND RELATED WORK

### CROP REPORTS

The New Jersey Report was issued monthly, as usual, with the co-operation of the crop reporters and the Bureau of Agricultural Economics of the United States Department of Agriculture.

The December copy of the Crop Report was enlarged considerably. New features, such as an analysis of weather, a detailed discussion of acreage changes, production and prices of vegetables, potatoes, cereals, hay and berries, were introduced. Gross farm income was computed. The summary of the 1930 agricultural year as compared with that of 1929 and six-year averages (1924-1929) follows:

### *Gross Income in* 1930†

In the following table, under the heading "Total Farm Value," the 1930 gross income for all the crops for which we have record is estimated at $54,297,000, as compared with $56,018,000, in 1929, and $61,037,195, the average for the six-year period, 1924-1929. Speaking in terms of dollars and cents, it is proper to conclude that the 1930 season for the state as a whole was not as good as the 1929 season, nor the average of the six-year period, 1924-1929. The total production in 1930 was considerably higher than in 1929, yet the gross income was smaller. This fact is due mainly to the lower prices received by the farmer in 1930 as compared with those received in 1929 and the average prices of the six-year period. Lower prices were the result of the general business depression and, consequently, the lowered purchasing power of the people.

*Until June, 1931, this bureau was known as the "Bureau of Statistics and Inspection."

†Livestock Industry is not included.

OTAL ACREAGE, PRODUCTION AND FARM VALUE OF CROPS IN NEW JERSEY IN 1930 AND 1929 AND THE AVERAGES FOR THE SIX-YEAR PERIOD 1924-1929

| Crops | Acreage | | | Total Production | | | Total Farm Value | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1930 (Acres) | 1929 (Acres) | Six Year Average (Acres) | 1930 (Units) | 1929 (Units) | Six Year Average (Units) | 1930 | 1929* | Six Year Average* |
| rain crops..... | 302,000 | 312,000 | 336,150 | 9,747,000 | 9,413,000 | 11,232,000 | $ 8,266,000 | $ 9,220,000 | $10,168,000 |
| otatoes, white and sweet ..... | 58,000 | 58,000 | 70,000 | 10,255,000 | 7,300,000 | 9,822,000 | 10,241,000 | 11,288,000 | 11,952,000 |
| ay, all..... | 229,000 | 233,000 | 264,830 | 342,000 | 352,000 | 444,000 | 7,192,000 | 6,382,000 | 7,940,000 |
| ruits ..... | ..... | ..... | ..... | 5,989,000 | 4,818,000 | 5,742,000 | 7,006,000 | 6,821,000 | 7,059,000 |
| rapes, cranberries and strawberries | ..... | ..... | ..... | 376,890 | 387,652 | 496,061 | 2,695,000 | 2,157,000 | 2,869,195 |
| egetables ..... | 141,150 | 130,450 | 127,516 | 15,181,000 | 14,633,500 | 16,362,540 | 18,897,000 | 20,150,000 | 21,049,000 |
| Totals ..... | 730,150 | 733,450 | 798,496 | 41,890,890 | 36,904,152 | 44,098,601 | $54,297,000 | $56,018,000 | $61,037,195 |

* Revised.

## MIGRATORY CHILD LABOR SURVEY

A survey of migratory child labor in New Jersey, in the making of which the bureau cooperated with the Legislature's Commission to Investigate the Employment of Migratory Child Labor in the State of New Jersey, was completed and the results published in the "Report of the Commission to Investigate the Employment of Migratory Children in the State of New Jersey." The publication was printed in the spring of 1931.

## CANNING INDUSTRY SURVEY

The canning industry in the state was surveyed, and the results of this survey are as follows:

The acreage of canhouse tomatoes on New Jersey farms is increasing from year to year. In 1930, farmers in the state cultivated 43,000 acres, as compared with 33,000 in 1929 and 31,330, the average acreage for the six-year period, 1924-1929. This expansion in acreage is due to the constantly increasing demand on the part of New Jersey canners for New Jersey tomatoes, which, being of high quality and good color, are well suited for canning purposes.

The number of various sized cases of New Jersey tomatoes packed in 1930 totaled about 5,393,609, as compared with 4,081,464 in 1929. The increase was about 1,312,145 cases. The average contract price ($20.34 per ton) paid to farmers in 1930 was almost equal to the average contract price of $20.55 per ton paid in 1929, when the decline in the prices of agricultural commodities was not so pronounced. On the other hand, the average open-market price of $18.72 per ton in 1930 was considerably lower than the price of $24.75 in 1929. The lower open-market price may be explained by the general business depression and the lowered purchasing power of the population.

A new industry is developing in New Jersey. The surplus of cranberries is canned as cranberry jelly by newly-organized establishments. It was estimated that, in 1928, from 16,000 to 20,000 barrels were canned; in 1929, 15,500 barrels; and, in 1930, from 10,000 to 15,000 barrels.

The quantity of all other vegetables and fruits canned in New Jersey in 1930 was more or less the same as in previous years.

Before closing this short discussion, we wish to express our thanks to the canners of the state for their splendid spirit of cooperation in furnishing us with data on the amount of their pack. Of the 42 New Jersey

enterprises which are engaged in packing fruits and vegetables and which are listed in the 1930 "Canners' Directory," 35 of the most important canners cooperated with the Department of Agriculture in the matter of ascertaining the situation of the canning industry during 1930. Of these 35, three did not pack in 1930. The seven establishments which did not answer the department's request for information are, as far as we know, of minor importance in the canning industry of New Jersey and the lack of their data does not materially affect the totals obtained in the survey. We are able to say that the survey almost completely covers the field.

## TOTAL PACK OF FRUITS AND VEGETABLES IN NEW JERSEY

| Product | Number of Canners, 1930 | Unit (Equivalents) | Units Canned | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 | 1930 Compared with 1929 |
| Tomatoes | | | | | | | | | |
| 1. Canned whole | 20 | 2 doz. case No. 3 can | 431,743 | 199,000 | 263,504 | 111,038 | 257,943 | 283,671 | +25,728 |
| 2. Puree | 10 | ½ doz. case No. 10 can | 244,320 | 146,232 | 188,391 | 90,949 | 414,001 | 216,356 | —197,645 |
| 3. Catsup | 8 | 2 doz. case 16-oz. bottles | 653,574 | 413,580 | 514,829 | 388,592 | 750,983 | 756,851 | +14,868 |
| 4. Pulp | 6 | ½ doz. case No. 10 can | 2,020,255 | 1,728,340 | 1,989,000 | 717,919 | 2,658,537* | 4,127,731 | +1,469,194 |
| Lima Beans | 5 | 2 doz. case No. 2 can | 291,774 | 248,000 | 204,500 | 51,864 | 81,048 | 100,145 | +19,097 |
| Peas | 2 | 2 doz. case No. 2 can | 24,731 | ..... | 11,210 | 6,220 | 2,723 | 17,203 | +14,480 |
| String beans | 3 | 2 doz. case No. 2 can | 19,123 | 17,580 | 19,220 | 28,931 | 42,600 | 38,770 | —3,830 |
| Spinach | 0 | 2 doz. case No. 3 can | 22,128 | 25,097 | 24,000 | 38 | ..... | ..... | ..... |
| Beets | 8 | 2 doz. case No. 3 can | 176,068 | 93,478 | 57,059 | 49,245 | 109,805 | 179,702 | +69,897 |
| Pumpkins | 3 | 2 doz. case No. 3 can | 71,027 | 20,327 | 14,247 | 6,088 | 71,880 | 39,840 | —32,040 |
| Squash | 2 | 2 doz. case No. 3 can | 32,185 | 24,201 | 23,077 | 20,361 | 20,589 | 2,924 | —17,665 |
| Pears | 1 | 2 doz. case No. 3 can | 31,100 | 16,332 | 6,623 | 1,096 | 4,416 | 70 | —4,346 |
| Cherries | 3 | 2 doz. case No. 2 can | 2,560 | 2,121 | 1,158 | 899 | 280 | 889 | +609 |
| Rhubarb | 3 | 2 doz. case No. 3 can | 5,548 | 2,681 | 2,323 | 1,951 | 5,499 | 4,195 | —1,304 |
| Asparagus | 3 | 2 doz. case No. 2 can | ..... | ..... | ..... | ..... | 2,632 | 21,333 | +18,701 |
| Carrots | 1 | 2 doz. case No. 2 can | ..... | ..... | ..... | ..... | 4,498 | 52 | —4,446 |
| Sweet potatoes | 1 | 2 doz. case No. 3 can | ..... | ..... | ..... | ..... | 1,000 | 1,401 | +401 |
| Peaches | 0 | 2 doz. case No. 3 can | ..... | ..... | ..... | ..... | 5,200 | ..... | ..... |
| Strawberries | 1 | 16-oz. jars, number | ..... | ..... | ..... | ..... | 12,400 | 12,600 | +200 |
| Cucumbers, pickles | 1 | 2 doz. case, 16-oz. bottles | ..... | ..... | ..... | ..... | ..... | 8,072 | ..... |
| Pork and beans | 1 | 2 doz. case No. 3 can | ..... | ..... | ..... | ..... | ..... | 1,500,000 | ..... |
| Cranberries | | barrel | ..... | ..... | ..... | 16,000 to 20,000 | 15,500 | 10,000 to 15,000 | ..... |

* Revised.

## AVERAGE OPEN-MARKET PRICES RECEIVED BY FARMERS FOR CROPS FOR MANUFACTURE*

| *Crop* | *Unit* | *1925* | *1926* | *1927* | *1928* | *1929* | *1930* |
|---|---|---|---|---|---|---|---|
| Tomatoes ..... | ton | $12.33 | $25.28 | $18.34 | $22.31 | $24.75 | $18.72 |
| Lima Beans..... | ton | 155.00 | 140.00 | 120.00 | 120.00 | 155.00 | .... |
| Beets ..... | ton | 17.00 | 10.00 | .... | 14.00 | 18.50 | 7.00 |
| Pumpkins ..... | ton | 6.50 | 8.81 | 8.40 | .... | 9.00 | 9.84 |
| Squash ..... | ton | 6.50 | 10.64 | 10.50 | 14.45 | 10.00 | .... |

## AVERAGE CONTRACT PRICES RECEIVED BY FARMERS FOR CROPS FOR MANUFACTURE*

| *Crop* | *Unit* | *1925* | *1926* | *1927* | *1928* | *1929* | *1930* |
|---|---|---|---|---|---|---|---|
| Tomatoes ..... | ton | $21.37 | $20.68 | $19.83 | $20.75 | $20.55 | $20.34 |
| Lima Beans ..... | ton | 130.00 | 136.00 | 140.00 | 100.00 | 135.00 | 133.90 |
| Peas ..... | ton | 75.00 | .... | .... | 70.00 | 70.00 | 72.50 |
| Beets ..... | ton | 15.00 | 10.00 | 21.30 | 10.00 | 16.00 | 13.11 |
| Pumpkins ..... | ton | 9.00 | 7.60 | 9.00 | 7.67 | 8.00 | 8.00 |
| Squash ..... | ton | 10.73 | 9.50 | .... | 9.50 | 10.00 | 10.00 |
| Spinach ..... | ton | 30.00 | 40.00 | 30.00 | .... | .... | .... |
| String Beans..... | ton | .... | .... | .... | 60.00 | 70.00 | .... |

*Delivered at factory.

## PRICES PAID BY CANNERS FOR CERTAIN CROPS

| *Crop* | *Unit* | *1925* | *1926* | *1927* | *1928* | *1929* | *1930* |
|---|---|---|---|---|---|---|---|
| String Beans..... | ton | $54.00 | $70.00 | $65.00 | $60.00 | $70.00 | $75.00 |
| Sweet potatoes... | bu. | .91 | .45 | .... | .... | .... | .... |
| Peppers ..... | crate | .45 | 59.20 (ton) | .... | 1.89 (bbl.) | .... | .... |
| Pears ..... | bu. | .... | .57 | .65 | .75 | .65 | .75 |
| Peaches ..... | bu. | 3.50 | .40 | .... | .... | .85 | .... |
| Cherries ..... | crate | 3.20 | 3.23 | .... | 3.97 | 4.20 | 4.48 |
| Rhubarb ..... | ton | 12.50 | 13.12 | .... | 12.00 | 12.50 | 12.81 |
| Blackberries ..... | crate | 3.25 | 2.75 | 3.37 | 2.71 | .... | .... |
| Strawberries ..... | crate | 5.00 | 4.57 | 2.90 | 2.23 | 2.25 | .... |
| Raspberries ..... | crate | .... | 4.16 | .... | .... | .... | .... |
| Cranberries ..... | bbl. | 10.50 | 5.58 | 8.88 | 9.32 | .... | 6.91 |
| Plums ..... | bu. | .... | 2.50 | .... | 2.88 | .... | .... |
| Gooseberries .... | bu. | .... | .... | .... | 4.57 | .... | .... |
| Asparagus ..... | ton | .... | .... | .... | .... | .... | 100.00 |
| Cucumbers for pickles..... | ton | .... | .... | .... | .... | .... | 17.64 |
| Carrots ..... | ton | .... | .... | .... | .... | .... | 14.00 |

## INDEX NUMBERS

In addition to the index numbers of New Jersey farm prices published monthly in the *Crop Report,* index numbers of New Jersey prices of hired farm labor, feedstuffs and fertilizer materials for the year 1930 were prepared. A publication on this subject (Circular No. 199) is available. It is supplemental to Circular No. 155 and Circular No. 181.

## ABANDONED FARM SURVEY

There are several counties in the state in which the number of abandoned farms is quite large. In order to determine the causes and extent of abandonment, it was decided to make a survey of abandoned farms in Hunterdon, Warren and Sussex counties. The arbitrary definition of an abandoned farm used in the survey is as follows:

(1) Any tract of land which was in cultivation or in orchard one year or more ago and which is not farmed now.

(2) If an owner lives during the summer on the farm but does not live there during the winter, and if the land is not cultivated at all, such a farm is considered an abandoned farm.

(3) If an owner lives the entire year on the farm but does not cultivate the land at all, such a farm is considered an abandoned farm.

(4) If a farm is used for game-preserve purposes, such a farm is an abandoned farm.

(5) If a farm is used for recreational purposes and not cultivated at all, such a farm is abandoned.

(6) If an owner cultivates one-fifth of his tillable land and pastures, and the rest of it remains idle, such a farm is considered as abandoned.

(7) If a real estate company or an individual broker possesses a farm but does not cultivate it, such a farm is abandoned.

The survey is progressing satisfactorily along the lines planned and the results will be published sometime in 1932.

## TYPES OF WEATHER IN TRENTON AND THEIR FREQUENCY

The accumulation and analysis of data on types of weather in Trenton is in progress. The results will be published in 1932.

## A SURVEY OF LARGE FARMS IN NEW JERSEY

In order to determine the status of large farms in this state a survey covering 88 farms was made during the past year. The farms were distributed throughout the state and included 27 vegetable farms, 24 dairy farms, 20 poultry farms and 17 fruit farms. Each of these farms was personally visited and a record obtained of its operations, receipts and expenditures.

The farms covered in the survey, exclusive of the poultry farms, averaged 519 acres per farm. The average investment per farm was $189,448. Nineteen farms were owned by corporations, three by estates, and the remainder by individuals. According to the records submitted

33 reporting farms averaged a 9.6 per cent return on an average total capital of $116,821.

As regards trends in the size of farms in New Jersey, the study shows that from 1850 to 1930 the average size of all farms in New Jersey decreased from 115.2 acres to 69.3 acres. At the same time there was a definite and consistent shift to more intensive use of smaller acreages.

The detailed results of this study have been printed in Circular No. 194.

## COOPERATION WITH FARM LOAN ORGANIZATIONS

Cooperation with the New Jersey Federation of National Farm Loan Associations, and, through it, with the 19 cooperative local associations and their 1,500 farmer-members in the state has continued.

At the request of the executive committee of the federation a detailed study was made of a proposed indemnity agreement to be entered into between the Federal Land Bank of Springfield and each local association. For this study, meetings between representatives of the associations and officials of the Federal Land Bank of Springfield and the Federal Farm Loan Board were arranged and held. A letter was addressed to each of the 142 associations in the first Federal Land Bank District to obtain information regarding the proposed agreement.

It was finally determined that it would be to the advantage of the local associations to enter into the said agreement since, by so doing, the time period in which an association might be called upon to make good any defalcation or loss would be extended and the association, to a certain extent, would receive the profits from any sales of acquired real estate. Without the said agreement, the local association does not receive these benefits. The executive committee of the New Jersey Federation of National Farm Loan Associations was advised of the findings of the study.

Representatives of the Department of Agriculture have cooperated with the executive committee of the New Jersey Federation of National Farm Loan Associations and with officials of the Federal Land Bank of Springfield in formulating a plan for the annual inspection of outstanding loans. The plan, as finally adopted, provides for an annual review of all outstanding loans and an annual review of all doubtful and poor loans by officials of the associations. The cost of this work is paid by the Federal Land Bank out of general funds. The operation of this inspection system should serve to reduce materially the losses to the associations and the member-borrowers which in the past have come about through the acquisition and sales of properties that had been allowed to deteriorate in value to a point below the actual investment.

## LOCAL GOVERNMENT IN HUNTERDON COUNTY

A study is now being made of the functions and costs of local government in Hunterdon County. Records giving the detailed expenditures for all purposes for 1930 are being obtained for each of the 26 taxing districts in the county. In addition, an intensive field study is being made of each of the functions and services being performed by these governmental units, both as to the nature and value of the service and as to its cost. This work constitutes an intensive case study of local government in a typically rural section of the state and should bring to light examples of costly and inefficient methods as well as methods which are efficient and economic. It is hoped that the information obtained may be made the basis for practical recommendations which may be used in reducing the cost of local government in rural sections and in improving the services rendered by these governments. Roughly, three-fourths of all the moneys raised through taxation in the state and expended by governmental agencies—local, county and state—are expended by the local governments and their subdivisions. Local government, therefore, constitutes a most important field in which to bring about economies and thereby effect a reduction in the farmers' tax burden.

## APPLE STUDY

A study of the apple industry of the state, based on information collected by the Bureau of Agricultural Economics of the United States Department of Agriculture and on statistics appearing in the *Agricultural Yearbook,* has been made.

Among other information, there is shown the trend of apple production in New Jersey and in the United States from 1889 to 1930, the per capita apple production in New Jersey and in the United States for the same period, the ratio of commercial production to total production in New Jersey and the United States, the numbers of bearing and non-bearing apple trees, etc.

The results of this study will be shortly available in the form of a department circular.

## MISCELLANEOUS ACTIVITIES

A record of the expenditures of the Department of Agriculture during the last ten years was prepared and submitted to the secretary of agriculture at his request.

A statement was prepared setting forth briefly the history of quarantines in the United States, the principles which underlie sound quarantine policy, the number of federal and state quarantines now in effect and the

cost of quarantine work. Information on the costs of quarantine work in other states was obtained by means of a circular letter.

At the request of Warren W. Oley, chief of the Bureau of Markets, a study was made of the operations of the Cedarville and Rosenhayn auction markets during the 1930 season. This involved a comparison of the daily sales on these markets with computed hypothetical sales on the New York market. The results of this study appeared in the *New Jersey Crop Report* for December 1, 1930.

A report was prepared and submitted to the secretary of agriculture covering the subject of "present legislative, political and educational trends facilitating cooperation among units of local government." Information on the subject was obtained from various sources, such as the printed reports of state commissions and agencies and from correspondence with the governor of each state.

## WHITE PINE BLISTER RUST CONTROL

During the year 1930-1931, inspections were made of the sites of plantations of white pine planting stock distributed by the Department of Conservation and Development. These inspections were for the purpose of determining the possibilities of blister rust infection and of advising owners how to maintain control by the removal of nearby ribes species. Fifty-one sites were examined. They contained 125,100 white pine seedlings, 10,300 white pine transplants, 29,195 ornamental white pines of various ages, and two acres of commercial planting, seven years old. Twelve of these sites had ribes nearby as follows: 133 red currants, 21 European black currants, 101 gooseberries, 43 American black currants and eight ornamental currants. Only one infection (telial stage) was found and that was on a single large bush of red or garden currant growing near an old cellar hole near Stockholm, Sussex County. Adjacent flowering currant bushes were uninfected. There were no white pines nearby. Map locations, together with cards of information, have been made out for all the above-mentioned sites.

Observations were made of the locations and quantities of (a) native white pines, (b) wild ribes, (c) ornamental plantings of white pines, (d) older and recent plantations of white pines, and (e) host plants in nurseries. The information gained is to be compiled as a state-wide survey by counties and should be valuable in dealing with blister rust control in the future. The survey is partially completed and should be finished within the ensuing year.

The survey of host plants in nurseries has been completed and its results are shown in the following table. Similar surveys made in 1926, 1927 and 1928 are given for comparison.

| | *Number of Certified Nurserymen* | *Number of Nurseries Handling Host Plants* | *Per Cent of Nurseries Handling Host Plants* | *Number of Nurseries Handling Both Host Plants* | *Red Currant* | *European Black Currant* | *Gooseberries* | *Ornamental Ribes* | *Five-Leafed Pines* |
|---|---|---|---|---|---|---|---|---|---|
| 1931 .... | 611 | 113* | 18.49 | 22 | 7,081 | 119 | 6,183 | 386 | 543,577† |
| 1926 .... | 310 | 58‡ | 18.71 | 22 | 20,380 | § | 2,669 | 150 | 6,614 |
| 1927 .... | 405 | 40 | 9.88 | 25 | 2,498 | 261 | 507 | 1 | 21,388 |
| 1928‖ ... | 549 | 10 | ... | 1 | 20,425 | 9,000 | 21,325 | 221 | 200 |

*Three nurserymen were not heard from.
†Includes 423,000 in state nursery. All other nurseries have 120,432.
‡Twenty-one nurserymen not heard from.
§Grouped with red currants.
‖Includes larger currant growers only.

Four hundred and ninety-five nurserymen carry no stock of either host plant.

Requests for information regarding Federal Quarantine No. 63, which regulates the movement of host plants of blister rust, were answered during the year. Other requests for information concerning this disease were likewise taken care of.

## SEED CERTIFICATION AND RELATED WORK

### WHITE POTATO CERTIFICATION

The growing season for second-crop seed potatoes in 1930 again presented a series of adverse conditions. The summer was marked by reports of severe drought in many of the agricultural sections of the country and southern New Jersey was no exception to the general condition. Weather reports from the Bridgeton weather station show much less than normal rainfall in the months of April and May (3.55 inches less than normal), whereas for June, the rainfall was only 0.61 inches below normal. Thus, the growers of white potatoes for certification were faced with a pre-season deficiency of moisture, which was not compensated for with the passage of time. Rainfall for July was below normal

by 2.58 inches; for August, by 2.28 inches; for September, by 1.23 inches; for October, by 1.61 inches. From July 25, the earliest planting date permitted for the Irish Cobbler variety, until October 31, when most of the potatoes were harvested, there were only 19 days on which rain fell to the extent of more than .01 inches. The total amount of rainfall for this period was 6.45 inches. These measurements were taken in Bridgeton and, from observations made, growers near there were more fortunate than growers around Elmer, Shirley, Deerfield and Salem.

Rains were very spotty and, in some sections, only one or two very light showers occurred from planting time until potato vines died prematurely from drought. Growers who are located west of Bridgeton, near Shiloh, had enough rainfall to result in potato yields of more than 200 baskets per acre, whereas all of the growers in other sections produced yields of less than 200 baskets per acre. The lowest yield was 38 baskets per acre.

At the time of the first inspection, early in September, most of the fields showed excellent prospects provided rain followed shortly thereafter. Carefully selected seed from fields in Prince Edward Isle, which had clean records in 1929, had shown no disease counts in the test plot and were practically free from virus diseases at the first inspection. Early blight was present in practically every field at the time of the first inspection and spread with the dry weather until it, together with drought injury, resulted in reduced yields. At the completion of the first inspection, it was necessary to proceed immediately with the second inspection, as fields were dying fast of drought injury.

Dry weather conditions once more demonstrated the importance in seed potato production of the previous cropping of the field and the need for careful preparation of the seed bed. Soils cultivated to conserve moisture give the seed a better chance to germinate and they hold moisture during the growing season. Tabulating yields according to the previous croppings of fields, we find the highest average yield on fallow land kept tilled until planting time. Thirteen acres of such land averaged 171.7 baskets per acre. One hundred ninety-nine and five-tenths acres of sod land composed mostly of acreages where the sod was plowed early and the soil kept harrowed had an average yield of 164.7 baskets per acre (those where crops of hay were cut had a low average). Two hundred and fifty and five-tenths acres of land previously devoted to green manure crops gave the third highest average, which was 159.5 baskets per acre. Grain stubble and early potato land had average yields much below the general average of 153.4 baskets per acre as follows: 70 acres of grain stubble land averaged 120.4 baskets per acre and 24

acres of land previously devoted to early potatoes averaged 84.5 baskets per acre. Once again the thought may be expressed that, generally, it is believed to be a mistake to follow grain stubble and early potatoes with seed potatoes. The practice of doing so generally results in low yields and should be discontinued.

Seed disinfection maintained its popularity, 86.89 per cent of the seed planted having been treated by the instantaneous-dip treatment. DuBay Semesan and Sanoseed were the products used. Several manufactured and home-made machines are now used by southern New Jersey growers to expedite the disinfection operation and they are proving very efficient. One ingenious farmer has built a home-made machine to which he has applied electric power. By means of the machine he can treat many sacks of seed in a short time. Several hundred sacks of seed were treated in this machine in the fiscal year.

Fertilizer was applied at an average rate of 2,094 pounds per acre, the mixtures of 5-8-7 and 5-8-5 analyses having been most popular. Several growers used the double-strength, concentrated fertilizers with good results.

Failure to get the first spray of Bordeaux mixture on the plants early enough was unquestionably responsible for the early appearance of early blight (Alternaria solani) and the subsequent failure to control this leaf disease. Nicotine sprays were necessary in several fields for the control of aphids. However, where such sprays were applied, the results were not uniform. More attention can well be paid by growers to spraying, including the regulation of the number and adjustment of nozzles to conform with the vine growth. No definite and specific advice can be given as to the number of nozzles needed, etc., for the grower must adjust spraying details to his own conditions so that he gets complete coverage of foliage.

Roguing in the 1930 season was very much simplified due to the purchase of parent stock having clean records. Only seed which was purchased without the previous season's inspection records required any amount of roguing. Seed of that sort was used on those fields which were rejected on the first inspection. Growers who purchase their seed only after first examining the previous season's inspection reports are to be commended and the practice of purchasing parent stock in this manner is strongly advised.

The marketing of the year's crop was marked by an attempt to have growers sell collectively and standardize the price. The attempt, sponsored by the J. Harry Kandle Seed Club, ended in a joint contract with two large central New Jersey potato dealers. Approximately 30 grow-

ers signed the contract and shipped 3,508 sacks of seed to these dealers for resale. Had yields been nearer normal and had local demand been less (nearer normal), several times as many sacks would have been handled under the contract.

The movement, started in 1929, to purchase quality parent stock on the basis of clean inspection records, was continued by a majority of growers for the purchase of parent stock for 1931. Several cars of seed of such character were ordered by the Kandle Seed Club and private individuals.

Increased interest in New Jersey certified seed potatoes was apparent through the strong demand for it by central New Jersey growers in the 1930 season. Reports coming from the central New Jersey potato section indicate that New Jersey certified seed out-yielded seed from other sections in 1930. The increased interest in New Jersey seed may be considered as a direct result of the care taken by the growers of certified seed in the selection of parent seed of clean-record strains that have vigor and will reproduce well.

## SUMMARY OF SEED POTATO CERTIFICATION

*Acres Entered for Certification*

| *County* | *Acres* | *Per Cent* |
|---|---|---|
| Cumberland | 311.5 | 52.53 |
| Salem | 277.5 | 46.80 |
| Camden | 4.0 | .67 |
| | 593.0 | 100.00 |

*Seed Source*

| | *Bags* | *Per Cent* |
|---|---|---|
| Prince Edward Isle | 3,834 | 82.40 |
| Maine | 751 | 16.14 |
| New Jersey | 68 | 1.46 |
| | 4,653 | 100.00 |

*Seed Storage*

| | *Bags* | *Per Cent* |
|---|---|---|
| Del Bay | 2,852 | 61.29 |
| Woodstown | 1,021 | 21.94 |
| Salem | 385 | 8.27 |
| Philadelphia | 269 | 5.78 |
| Vineland | 72 | 1.55 |
| Bridgeton | 38 | 0.83 |
| Camden | 16 | 0.34 |
| | 4,653 | 100.00 |

*Seed Disinfection*

| | *Bags* | *Per Cent* |
|---|---|---|
| Semesan | 2,648 | 56.91 |
| Sanoseed | 1,395 | 29.98 |
| No disinfectant | 405 | 8.70 |
| Sulphur | 205 | 4.41 |
| | 4,653 | 100.00 |

*Previous Cropping of Fields*

| | *Acres* | *Per Cent* |
|---|---|---|
| Green manure crops | 250.5 | 42.24 |
| Sod | 231.5 | 39.04 |
| Grain stubble | 70.0 | 11.80 |
| Early potatoes | 25.0 | 4.22 |
| Fallow | 13.0 | 2.19 |
| Truck | 3.0 | .51 |
| | 593.0 | 100.00 |

*Fertilization*

| | | |
|---|---|---|
| Tons applied (593 acres) | 621.19 | |
| Average application per acre | 2,094.00 | pounds |
| Heaviest application per acre | 2,800.00 | " |
| Lightest application per acre | 1,500.00 | " |

*Rate of Planting*

| | *150-lb. Sacks* |
|---|---|
| Total number of bags of seed planted | 4,653 |
| Average number of bags per acre | 7.85 |
| Heaviest planting per acre | 10.00 |
| Lightest planting per acre | 4.00 |

*Calculated Weight of Seed Piece*
*(Spacing 11 x 32 in.—17,968 hills per acre)*

| *Bags Per Acre* | *Weight of Seed Piece* |
|---|---|
| 4. | 0.534 oz. |
| 7.85 | 1.049 oz. |
| 10. | 1.352 oz. |

*Yields Per Acre (⅝ Bushel Baskets)*

| | |
|---|---|
| Average yield (518 acres) | 153.41 |
| Lowest yield | 38.00 |
| Highest yield | 300.00 |

*Preliminary Expenses Per Acre*

| | |
|---|---|
| Seed—7.85 bags @ $7.00 | $54.95 |
| Fertilizer—2,094 pounds @ $35.00 per ton | 36.65 |
| | $91.60 |

*Potato Acreage Entered for Certification, 1930*

| *County* | *Growers* | *Cobblers* | *Green Mountains* | *Red Skins* | *Total* |
|---|---|---|---|---|---|
| Cumberland | 42 | 308.5 | 1.0 | 2.0 | 311.5 |
| Salem | 21 | 276.0 | 1.5 | .0 | 277.5 |
| Camden | 1 | .0 | .0 | 4.0 | 4.0 |
| Totals | 64 | 584.5 | 2.5 | 6.0 | 593.0 |

*Acreage Failing and Passing Certification*

| | *Acres* | *Per Cent* |
|---|---|---|
| Acreage withdrawn before first inspection | 33.0 | 5.56 |
| Acreage rejected at first inspection | 3.0 | 0.51 |
| Acreage rejected at second inspection | 0 | 0 |
| Total acreage rejected or withdrawn at end of two field inspections | 36.0 | 6.07 |
| Acreage rejected at third (tuber) inspection | 39.0 | 6.58 |
| Acreage withdrawn and rejected, two field and one tuber inspections | 75.0 | 12.65 |
| Acreage passing first, second and third inspections | 518.0 | 87.35 |

WHITE POTATO SEED CERTIFICATION INDUSTRY OF NEW JERSEY

| *Year* | *No. of Growers* | *Acres Entered* | *Per Ct. Rejected* | *Varietal Distribution* | |
|---|---|---|---|---|---|
| 1929 | 64 | 621 | 12.64 | Cobbler | 584.5 |
| | | | | Green Mts. | 19. |
| | | | | Red Skins | 17.5 |
| 1930 | 64 | 593.0 | 12.65 | Cobbler | 584.5 |
| | | | | Green Mts. | 2.5 |
| | | | | Red Skins | 6.0 |

INSPECTION RESULTS BY COUNTIES, 1930

| | *Cumberland* | *Salem* | *Camden* | *Total* |
|---|---|---|---|---|
| Acreage entered | 311.5 | 277.5 | 4.0 | 593.0 |
| Number of growers | 42.0 | 21.0 | 1.0 | 64.0 |
| Average number of acres per grower | 7.42 | 13.21 | 4.0 | 9.27 |
| Acres rejected first inspection | 4.0 | 32.0 | 0 | 36.0 |
| Per cent rejected first inspection | 1.28 | 11.53 | 0 | 6.07 |
| Acres rejected second inspection | 0 | 0 | 0 | 0 |
| Per cent rejected second inspection | 0 | 0 | 0 | 0 |
| Acres rejected third inspection | 14.0 | 25.0 | 0 | 39.0 |
| Per cent rejected third inspection | 4.49 | 9.0 | 0 | 6.58 |
| Acres rejected total | 18.0 | 57.0 | 0 | 75.0 |
| Per cent rejected total | 5.78 | 20.54 | 0 | 12.65 |
| Acres certified | 293.5 | 220.5 | 4.0 | 518.0 |
| Per cent certified | 94.22 | 79.46 | 100.0 | 87.35 |

VARIETAL DISTRIBUTION

| | | *Acres Rejected and Withdrawn* | | | |
|---|---|---|---|---|---|
| *Variety* | *Acres Entered* | *First Inspection* | *Second Inspection* | *Third Inspection* | *Acres Certified* |
| Irish Cobbler | 584.4 | 35.0 | 0 | 39.0 | 510.5 |
| Green Mountains | 2.5 | 1.0 | 0 | 0 | 1.5 |
| Red Skins | 6.0 | 0 | 0 | 0 | 6.0 |

## PRODUCTION AND DISTRIBUTION
## NEW JERSEY CERTIFIED CROP OF WHITE POTATOES
1928-1930

| | *1930* | *1929* | *1928* |
|---|---|---|---|
| Acres of seed certified | 518. | 542.5 | 579.5 |
| Total yield (field run) in baskets | 79,465. | 99,658. | 160,571. |
| Total yield (field run) in bushels | 49,666. | 62,286. | 100,355. |
| Average yield per acre in baskets | 153.4 | 183.7 | 278.3 |
| Average yield per acre in bushels | 95.8 | 114.8 | 173.9 |
| Bags certified seed sold | 7,898. | 12,339. | 16,966. |
| Bags sold locally | 13,521.* | 1,863. | 918. |
| Bags sold elsewhere in state | 7,845. | 9,291. | 15,048. |
| Bags shipped out of state | 53. | 1,185. | 980. |
| Pennsylvania | .... | 885. | 980. |
| New York | 3. | 240. | .... |
| South Carolina | 50. | 60. | .... |
| Bags sold untagged (old sacks used, tags not allowed) | 450. | .... | .... |
| Bags sold locally | .... | .... | .... |
| Bags sold elsewhere in state | 450. | .... | .... |
| Bags sold out of state | .... | .... | .... |
| Total bags of seed shipped | 8,348. | 10,476. | 16,966. |
| Bags seed unsold December 1 | 5,450.* | 3,756. | 11,914. |
| Baskets of seed retained for own use | 24,039. | 24,458. | 22,935. |
| Bushels of seed retained for own use | 15,024. | 15,288. | 14,334. |

*Five-eighths-bushel baskets rather than 150-pound bags.

## SUMMARY OF WEATHER CONDITIONS

| | *July* | *August* | *September* | *October* |
|---|---|---|---|---|
| Number of days during which rain fell | 10 | 5 | 6 | 5 |
| Heaviest daily rainfall (in inches) | 0.52 | 0.88 | 0.81 | 1.30 |
| Lightest daily rainfall (in inches) | 0.02 | 0.08 | 0.03 | 0.02 |
| Total rainfall (in inches) | 1.91 | 2.31 | 2.08 | 1.98 |
| Deviation from normal (in inches) | —2.58 | —2.28 | —1.23 | —1.61 |
| *Average relative humidity at 8 A. M | 70. | 71. | 74. | 69. |
| *Normal for the month at 8 A. M | 72. | 75. | 78. | 75. |
| *Percentage of possible sunshine | 62. | 64. | 71. | 81. |
| *Deviation from normal (per cent) | —2. | +1. | +7. | +19. |
| Highest temperature reached | 103. | 101. | 92. | 84. |
| Average of the high temperatures | 89. | 86. | 83.5 | 66.2 |
| Normal for high temperatures | 87.5 | 85.3 | 79.3 | 68.8 |
| Lowest temperature reached | 54.0 | 50. | 47. | 27. |
| Average of the low temperatures | 65.5 | 62.3 | 61.4 | 42.5 |
| Normal for low temperatures | 66.2 | 64.8 | 57.8 | 46.9 |

Note:—The Bridgeton official weather bureau was reopened in April, 1930. Such data as are available are given as being representative of the section in southern New Jersey where certified seed potatoes are grown.

* Philadelphia station—such data not available for Bridgeton station.

## BRIDGETON STATION CLIMATOLOGICAL DATA

| Day | July | | | | August | | | | September | | | | October | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Temperature | | | | Temperature | | | | Temperature | | | | Temperature | | |
| | Rainfall | High | Low | Mean | Rainfall | High | Low | Mean | Rainfall | High | Low | Mean | Rainfall | High | Low | Mean |
| 1. | .. | 88 | 70 | 79. | .29 | 85 | 61 | 73. | .34 | 85 | 68 | 76.5 | .. | 66 | 40 | 53. |
| 2. | .20 | 86 | 65 | 75.5 | .. | 90 | 62 | 76. | .. | 90 | 70 | 80. | .. | 69 | 42 | 55.5 |
| 3. | .20 | 82 | 62 | 72. | .. | 96 | 70 | 83. | .. | 90 | 69 | 79.5 | .. | 72 | 45 | 58.5 |
| 4. | .. | 82 | 59 | 70.5 | .. | 97 | 61 | 79. | .. | 83 | 56 | 69.5 | .. | 68 | 40 | 54. |
| 5. | .. | 79 | 58 | 68.5 | .. | 101 | 77 | 89. | .. | 83 | 57 | 70. | .. | 70 | 42 | 56. |
| 6. | .08 | 87 | 67 | 77. | .. | 92 | 69 | 80.5 | .. | 88 | 64 | 76. | .. | 75 | 43 | 59. |
| 7. | .35 | 88 | 65 | 76.5 | .. | 98 | 66 | 82. | .. | 85 | 66 | 75.5 | .. | 78 | 49 | 63.5 |
| 8. | .. | 85 | 60 | 72.5 | .. | 99 | 72 | 85.5 | .19 | 76 | 67 | 71.5 | .. | 65 | 54 | 59.5 |
| 9. | .. | 89 | 62 | 75.5 | .. | 98 | 73 | 85.5 | .. | 89 | 52 | 66.5 | .. | 69 | 52 | 60.5 |
| 10. | .35 | 82 | 62 | 72. | .. | 95 | 73 | 84. | .. | 83 | 53 | 68. | .. | 79 | 51 | 65. |
| 11. | .. | 87 | 61 | 74. | .. | 89 | 59 | 74. | .. | 84 | 54 | 69. | .. | 78 | 50 | 64. |
| 12. | .. | 83 | 65 | 74. | .. | 78 | 52 | 65. | .. | 83 | 64 | 73.5 | .. | 79 | 50 | 64.5 |
| 13. | .. | 88 | 57 | 72.5 | .. | 84 | 50 | 67. | .60 | 80 | 69 | 74.5 | .. | 84 | 55 | 69.5 |
| 14. | .03 | 80 | 70 | 75. | .. | 79 | 54 | 66.5 | .81 | 89 | 70 | 79.5 | 1.30 | 72 | 56 | 64. |
| 15. | .. | 82 | 54 | 68. | .88 | 73 | 62 | 67.5 | .. | 86 | 69 | 77.5 | .02 | 72 | 50 | 61. |
| 16. | .. | 86 | 56 | 71. | .08 | 84 | 63 | 73.5 | .. | 92 | 72 | 82. | .. | 70 | 52 | 61. |
| 17. | .. | 87 | 61 | 74. | .12 | 83 | 61 | 72. | .11 | 85 | 69 | 77. | .. | 73 | 41 | 57. |
| 18. | .. | 81 | 65 | 78. | .. | 80 | 65 | 72.5 | .. | 75 | 60 | 67.5 | .. | 58 | 31 | 44.5 |
| 19. | .. | 98 | 73 | 85.5 | .. | 82 | 57 | 69.5 | .. | 79 | 56 | 67.5 | .. | 58 | 35 | 46.5 |
| 20. | .. | 97 | 75 | 86. | .08 | 84 | 58 | 71. | .. | 83 | 53 | 68. | .. | 51 | 29 | 40. |
| 21. | .. | 103 | 73 | 88. | .. | 78 | 60 | 69. | .. | 85 | 58 | 71.5 | .. | 52 | 30 | 41. |
| 22. | .52 | 99 | 72 | 85.5 | .. | 72 | 54 | 63. | .. | 90 | 65 | 77.5 | .. | 56 | 27 | 41.5 |
| 23. | .10 | 92 | 68 | 80. | .86 | 70 | 56 | 63. | .. | 87 | 62 | 74.5 | .. | 58 | 43 | 50.5 |
| 24. | .02 | 88 | 68 | 78. | .. | 80 | 53 | 66.5 | .. | 85 | 55 | 70. | .. | 52 | 37 | 44.5 |
| 25. | .. | 94 | 66 | 80. | .. | 85 | 55 | 70. | .03 | 91 | 61 | 76. | .. | 53 | 35 | 44. |
| 26. | .. | 97 | 71 | 84. | .. | 80 | 65 | 72.5 | .. | 91 | 67 | 79. | .. | 61 | 30 | 45.5 |
| 27. | .. | 96 | 79 | 87.5 | .. | 81 | 60 | 70.5 | .. | 76 | 70 | 73. | .. | 61 | 42 | 51.5 |
| 28. | .. | 94 | 70 | 82. | .. | 88 | 57 | 72.5 | .. | 78 | 47 | 62.5 | .14 | 72 | 47 | 59.5 |
| 29. | .. | 90 | 70 | 80. | .. | 85 | 68 | 76.5 | .. | 71 | 48 | 59.5 | .27 | 59 | 46 | 52.5 |
| 30. | .06 | 88 | 67 | 77.5 | .. | 92 | 63 | 77.5 | .. | 71 | 50 | 60.5 | .25 | 62 | 40 | 51. |
| 31. | .. | 90 | 61 | 75.5 | .. | 88 | 65 | 76.5 | .. | .. | .. | ... | .. | 59 | 34 | 46.5 |
| Totals ..... | 1.91 | .. | ... | ... | 2.31 | .. | ... | ... | 2.08 | .. | .. | ... | 1.98 | .. | .. | ... |
| Average ... | .. | 89 | 65.5 | ... | ... | 86 | 69.3 | ... | .. | 83.5 | 61.4 | ... | .. | 66.2 | 42.5 | ... |

## SWEET POTATO CERTIFICATION

The certification of sweet potato seed has been temporarily discontinued, primarily because of the almost negligible demand for the certified seed. However, prompt attention will be given to requests from individuals and firms for sweet potato field inspections. A letter stating inspection findings has been found helpful to growers in negotiating seed sales.

## TOMATO SEED CERTIFICATION

The history of tomato seed certification is as follows:

| *Year* | *Acres Certified* | *Growers* |
|---|---|---|
| 1921 | 128.0 | 16 |
| 1922 | 199.0 | 23 |
| 1923 | 219.0 | 32 |
| 1924 | 327.0 | 40 |
| 1925 | 582.0 | 58 |
| 1926 | 456.0 | 71 |
| 1927 | 871.0 | 74 |
| 1928 | 743.0 | 68 |
| 1929 | 703.0 | 63 |
| 1930 | 1,414.5 | 94 |

The 1930 acreage was distributed as follows:

| *Variety* | *Acres* |
|---|---|
| Marglobe | 620.0 |
| Bonny Best | 363.5 |
| Baltimore | 250.5 |
| J. T. D | 162.0 |
| Break O' Day | 18.5 |
| | 1,414.5 |

The tomatoes certified for seed purposes were grown in Burlington, Mercer, Camden, Salem, Cumberland and Gloucester Counties. The previously adopted three-generation plan of seed selection was found to be adequate in its class limitation to promote constructively tomato seed certification.

## WHEAT CERTIFICATION

For the first time, wheat was certified for New Jersey farmers. Thirteen and one-half acres of Leap's Prolific wheat, grown on a farm in Salem County and on a farm in Cumberland County, were inspected and the wheat certified. The rate of sale of this wheat indicated that this phase of the certification work will probably be of slow growth.

## RASPBERRY INSPECTION

Dealers shipping raspberry plants into certain states must provide themselves with certificates issued by the State Department of Agriculture.

Certificates are issued when the plants pass two field inspections for transmissible diseases. In 1930, inspections were made for five dealers, for the most part in the Hammonton section of Atlantic and Camden Counties, as follows:

| *County* | *Acreage* |
|---|---|
| Camden | 31.5 |
| Atlantic | 20.5 |
| Cumberland | 4.75 |
| Monmouth | 4. |
| | 60.75 |

## DISEASE INVESTIGATIONAL WORK

During the year, 32 reported cases of plant diseases were investigated. When diseases were found, recommendations for their control were made promptly. A careful laboratory examination was made whenever necessary. The laboratory facilities of the Department of Plant Pathology at the Agricultural Experiment Station were used for the work. Control recommendations for wood-boring grubs infesting white cedar logs which are incorporated into cabins at Medford Lakes were presented to interested individuals.

"Plant Quarantine" and "State Requirement" charts were revised, printed and distributed as heretofore. Supervision was given to the spraying of about 75 well-grown tulip poplar trees in Hammonton for the control of the tulip soft shell scale. An extensive insect infestation on arborvitae in the vicinity of Lake Hopatcong was investigated and referred to the Department of Entomology at the State Experiment Station.

## NURSERY INSPECTION SERVICE

The following tables summarize the plant inspection activities of the bureau for the fiscal year ending June 30, 1931, and include nursery inspections, domestic and foreign nursery stock inspections, the certification of stock consigned to Canada, and the certification of narcissus bulbs in compliance with federal regulations. The inspection of potatoes from the eastern shores of Maryland and Virginia is also included.

### FOREIGN STOCK INSPECTION SPRING OF 1931

| *Origin* | *Cases* | *Roses* | *Bulbs* | *Evergreens* |
|---|---|---|---|---|
| Holland | 196 | 196 | .. | .. |
| Japan | 35 | .. | 35 | .. |
| Canada | 1 | .. | .. | 1 |
| England | 61 | 61 | .. | .. |
| British Columbia | 1 | 1 | .. | .. |
| Totals | 294 | 258 | 35 | 1 |

## DOMESTIC STOCK INSPECTION
## (ORNAMENTAL)
## FALL OF 1930

| Origin | Cases | Bales | Cars | Aquatic Plants | Perennials | Shrubs | Roses | Ferns | Greenhouse Plants | Trees | Roots | Rhododendron | Palms | Evergreens | Boxwood | Azalea | Bulbs | Vines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Illinois | 14 | 1 | .. | .. | 4 | 1 | .. | .. | 9 | 1 | .. | .. | .. | .. | .. | .. | .. | .. |
| Texas | 1 | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Michigan | 17 | 1 | .. | .. | 17 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| New York | 23 | 2 | .. | .. | 7 | 5 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | 7 |
| Ohio | 75 | .. | 2 | .. | 70 | 1 | 4 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. |
| Wisconsin | 5 | .. | .. | .. | 5 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Oregon | 5 | 1 | 1 | .. | 6 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Massachusetts | 10 | 5 | .. | .. | 6 | 1 | .. | 8 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Florida | 30 | .. | .. | .. | 30 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| California | .. | .. | 7 | .. | .. | .. | .. | .. | 7 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Virginia | 30 | 1 | 1 | .. | 8 | 1 | .. | .. | 5 | 1 | .. | .. | .. | 15 | 2 | .. | .. | .. |
| Delaware | 6 | 28 | 1 | .. | .. | 3 | .. | .. | .. | 7 | 22 | .. | .. | 2 | .. | 1 | .. | .. |
| Connecticut | 2 | .. | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| North Carolina | 8 | .. | .. | 2 | 1 | .. | .. | .. | .. | .. | 5 | .. | .. | .. | .. | .. | .. | .. |
| Pennsylvania | 4 | .. | .. | .. | .. | 1 | .. | 1 | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. |
| Tennessee | 1 | 1 | 1 | .. | .. | .. | .. | .. | .. | 2 | .. | .. | .. | 1 | .. | .. | .. | .. |
| California | 1 | .. | 2 | .. | 1 | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. |
| South Carolina | 2 | .. | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Louisiana | 1 | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Iowa | 1 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Rhode Island | 2 | .. | .. | .. | .. | .. | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Totals | 238 | 40 | 15 | 2 | 160 | 15 | 6 | 9 | 25 | 11 | 27 | 1 | 1 | 18 | 3 | 2 | 6 | 7 |
| Grand Totals | | 293 | | | | | | | 293 | | | | | | | | | |

## DOMESTIC STOCK INSPECTION (ORNAMENTAL) SPRING OF 1931

| *Origin* | *Cases* | *Cars* | *Bales* | *Truck* | *Roses* | *Shrubs* | *Trees* | *Holly* | *Perennials* | *Bulbs* | *Greenhouse Plants* | *Magnolias* | *Azaleas* | *Evergreens* | *Rhododendrons* | *Boxwood* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| California | 2 | 14 | .. | .. | 12 | 2 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | 1 |
| Ohio | 1 | 2 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. |
| Tennessee | 3 | .. | .. | .. | .. | 1 | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. |
| Pennsylvania | 1 | .. | 1 | .. | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. |
| Colorado | 4 | .. | .. | .. | .. | .. | .. | .. | 1 | 3 | .. | .. | .. | .. | .. | .. |
| New York | 21 | .. | 1 | 1 | 1 | 2 | 1 | .. | 3 | 14 | .. | 1 | 1 | .. | .. | .. |
| Massachusetts | 3 | .. | .. | .. | .. | .. | .. | .. | 3 | .. | .. | .. | .. | .. | .. | .. |
| Illinois | 2 | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. |
| North Carolina | 5 | .. | .. | .. | .. | .. | .. | .. | 5 | .. | .. | .. | .. | .. | .. | .. |
| Indiana | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. |
| Connecticut | 2 | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. |
| Virginia | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| Delaware | 3 | .. | 9 | .. | .. | .. | 3 | .. | 8 | .. | .. | .. | .. | 1 | .. | .. |
| Michigan | 1 | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Alabama | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Totals | 51 | 16 | 11 | 1 | 14 | 7 | 8 | 1 | 24 | 17 | 1 | 1 | 2 | 2 | 1 | 1 |
| Grand Totals | | 79 | | | | | | | | 79 | | | | | | |

## DOMESTIC STOCK INSPECTION (FRUIT)

### FALL OF 1930

| *Origin* | *Cases* | *Bales* |
|---|---|---|
| Delaware | 11 | 19 |
| New York | 32 | 1 |
| Missouri | 2 | .. |
| Ohio | 93 | .. |
| Maryland | .. | 23 |

### SPRING OF 1931

| *Origin* | *Cases* | *Bales* |
|---|---|---|
| Tennessee | 8 | 11 |
| Maryland | 7 | 1 |
| New York | 1 | 13 |
| Delaware | 3 | 7 |
| Ohio | 1 | 2 |
| Missouri | 5 | 1 |

## NURSERY INSPECTION

The annual inspection of nurseries was begun June 25 and finished in September, except for a number of new nurseries which were inspected afterwards. In most cases, inspection certificates were issued by September 1, except to a few nurseries that failed to clean up infestations satisfactorily or in time to receive their certificates by that time. On the whole, the nurseries were in a good condition. In fact, in 411 nurseries, there were no important insect infestations found. For the past two years, an attempt has been made to eradicate all infestations of pine leaf and juniper scale. This endeavor has increased the number of nurseries needing attention.

Six hundred and ninety-three nurseries and dealers' establishments were inspected and certified and certificates were issued as follows:

| | | | |
|---|---|---|---|
| General | 515 | Fruit | 6 |
| Rose | 15 | Greenhouse | 21 |
| Privet | 2 | Dahlia | 9 |
| Perennial | 14 | Orchid | 2 |
| Berry | 9 | Asparagus | 2 |
| Aquatic | 1 | Cacti | 1 |
| Bulb | 1 | Dealers | 95 |
| | | Total | 693 |

## GIPSY MOTH WORK

One gipsy moth egg mass was found on a shipment consisting of one spruce tree from the Western Maine Forestry Company, Fryeburg, Maine, which was consigned to R. D. Holmes, 149 Merison Avenue, Teaneck, N. J. It was intercepted October 1, 1930.

## NEW ENGLAND STOCK INSPECTION

The following table shows the inspection of nursery stock originating in the quarantined gipsy moth area of the New England States by months. A total of 2,658 cases and 13 carlots was inspected.

| | *Cases* | *Carlots* |
|---|---|---|
| 1930: | | |
| July | 57 | .. |
| August | 74 | .. |
| September | 91 | .. |
| October | 240 | .. |
| November | 204 | 1 |
| December | 129 | 1 |
| 1931: | | |
| January | 142 | .. |
| February | 93 | .. |
| March | 183 | .. |
| April | 286 | 6 |
| May | 625 | 5 |
| June | 534 | .. |
| Totals | 2,658 | 13 |

## SPECIAL CERTIFICATES

Special certificates were issued to private citizens and to some nurserymen who wished to ship nursery stock to other states and to foreign countries. A certificate was issued at the time of packing if the stock in question was found to be free from injurious insects and plant diseases. One hundred and twenty of these certificates were issued as follows:

| | *Special Certificates Issued* |
|---|---|
| 1930: | |
| July | 10 |
| August | 4 |
| September | 5 |
| October | 14 |
| November | 6 |
| December | 2 |
| 1931: | |
| January | 5 |
| February | 1 |
| March | 22 |
| April | 18 |
| May | 22 |
| June | 11 |
| Total | 120 |

## SPECIAL INSPECTIONS

Each year numerous requests are received for advice on the control of various insects and on nursery and horticultural problems. In most cases, they necessitate visits to the persons requesting aid. One hundred and four of such visits were made. The following table shows the number of special inspections made each month for the past year:

| | *Special Inspections* |
|---|---|
| 1930: | |
| July | 16 |
| August | 5 |
| September | 8 |
| October | 4 |
| November | 9 |
| December | 4 |
| 1931: | |
| January | .. |
| February | 10 |
| March | 2 |
| April | 14 |
| May | 15 |
| June | 17 |
| Total | 104 |

## CANADIAN STOCK INSPECTION

Since the Canadian Department of Agriculture requires certificates of inspection issued at the time of packing, it was necessary to issue 382 of these certificates. The following table shows the number issued each month:

| | *Certificates Issued* |
|---|---|
| 1930: | |
| July | 20 |
| August | 4 |
| September | 18 |
| October | 16 |
| November | 1 |
| December | 7 |
| 1931: | |
| January | 10 |
| February | 13 |
| March | 35 |
| April | 47 |
| May | 70 |
| June | 141 |
| Total | 382 |

## CHRISTMAS TREE INSPECTION

Ten thousand, eight hundred and forty-six Christmas trees, which originated in the slightly infested gipsy moth area of the New England States, were examined for gipsy moth infestations. No infestations were intercepted. Inspections were made in 94 different towns throughout the state.

## FINAL NARCISSUS BULB INSPECTION REPORT, 1930

| | | *Pests Found* | | | | *Treatment This Season* | |
|---|---|---|---|---|---|---|---|
| *Variety* | *Acreage or Number of Bulbs* | *T. Dipsaci* | *Other Eelworms* | *Merodon Equestris* | *Eumerus Spp.* | *Nature* | *Date* |
| Linfield Flower Shop, Salem, N. J. Field Inspection—April 30, 1930. Harvest Inspection—Aug. 13, 1930. | | | | | | | |
| Emperor | 300 | 0 | 0 | 0 | 0 | | |
| Golden Spur | 400 | 0 | 0 | 0 | 0 | | |
| Mixed | 200 | 0 | 0 | 0 | 0 | | |
| Totals | 900 | 0 | 0 | 0 | 0 | | |

Number of shipping certificates issued to grower—16
Serial No.—30A

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Paul Cronce, Frenchtown, N. J.
Field Inspection—April 12, 1930. Harvest Inspection—Aug. 30, 1930.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mixed | 800 | 0 | 0 | 0 | 0 | | |

Number of shipping certificates issued to grower—48
Serial No.—29A

---

Pennington Nurseries, Incorporated, Pennington, N. J.
Field Inspection—May 6, 1930. Harvest Inspection—Aug. 16, 1930.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| VonZion | 600 | 0 | 0 | 0 | 0 | | |
| Sir Watkin | 1,500 | 0 | 0 | 0 | 0 | | |
| B. Conspicuous | 1,500 | 0 | 0 | 0 | 0 | | |
| White Lady | 1,500 | 0 | 0 | 0 | 0 | | |
| Giant White | 700 | 0 | 0 | 0 | 0 | | |
| Totals | 5,800 | 0 | 0 | 0 | 0 | | |

Number of shipping certificates issued to grower—12
Serial No.—19A

| Variety | Acreage or Number of Bulbs | Pests Found: T. Dipsaci | Other Eelworms | Merodon Equestris | Eumerus Spp. | Treatment This Season: Nature | Date |
|---|---|---|---|---|---|---|---|
| Peter N. VanSteyn, Wheat Road, Vineland, N. J. Field Inspection—April 29, 1930. Harvest Inspection—Aug. 14, 1930. | | | | | | | |
| Sir Watkin | 10,000 | 0 | 0 | 0 | 0 | | |
| L. Koster | 70,000 | 0 | 0 | 0 | 0 | | |
| Emperor | 2,000 | 0 | 0 | 0 | 0 | | |
| VonZion | 15,000 | 0 | 0 | 0 | 0 | | |
| Golden Spur | 1,200 | 0 | 0 | 0 | 0 | | |
| Miss Ellen Terry | 500 | 0 | 0 | 0 | 0 | | |
| Glory of Sasseheim | 2,000 | 0 | 0 | 0 | 0 | | |
| P. Ornatus | 25,000 | 0 | 0 | 0 | 0 | | |
| Totals | 125,700 | 0 | 0 | 0 | 0 | | |
| Number of shipping certificates issued to grower—36 Serial No.—4A | | | | | | | |
| Nicholas P. Van Steyn, Vineland, N. J. Field Inspection—April 29, 1930. Harvest Inspection— | | | | | | | |
| King Alfred | 20,000 | 0 | 0 | 0 | 0 | | |
| Emperor | 30,000 | 0 | 0 | 0 | 0 | | |
| Sir Watkin | 35,000 | 0 | 0 | 0 | 0 | | |
| L. Koster | 20,000 | 0 | 0 | 0 | 0 | | |
| Golden Spur | 2,000 | 0 | 0 | 0 | 0 | | |
| Ornatus | 3,000 | 0 | 0 | 0 | 0 | | |
| Mixed | 6,000 | 0 | 0 | 0 | 0 | | |
| Totals | 116,000 | 0 | 0 | 0 | 0 | | |
| No bulbs for sale this year. No certificates nor tags issued. | | | | | | | |
| M. C. Oudyk, Basking Ridge, N. J. Field Inspection—May 6, 1930. Harvest Inspection August 19, 1930. | | | | | | | |
| Mixed | 10,000 | 0 | 0 | 0 | 0 | | |
| Number of shipping certificates issued to grower—8 Serial No.—21A | | | | | | | |
| John VanSteyn, Paterson, N. J. Field Inspection—May 5, 1930. Harvest Inspection—August 18, 1930. | | | | | | | |
| B. Victoria | 40,000 | 0 | 0 | 0 | 0 | | |
| Golden Spur | 1,000 | 0 | 0 | 0 | 0 | | |
| Emperor | 1,000 | 0 | 0 | 0 | 0 | | |
| Totals | 42,000 | 0 | 0 | 0 | 0 | | |
| Number of shipping certificates issued to grower—12 Serial No.—8A | | | | | | | |

(Continued on next page)

| | | *Pests Found* | | | | *Treatment This Season* | |
|---|---|---|---|---|---|---|---|
| *Variety* | *Acreage or Number of Bulbs* | *T. Dipsaci* | *Other Eelworms* | *Merodon Equestris* | *Eumerus Spp.* | *Nature* | *Date* |
| Ware, Moore & Ware, Bridgeton, N. J. Field Inspection—April 29, 1930. Harvest Inspection—August 11, 1930. | | | | | | | |
| King Alfred..... | 10,000 | 0 | 0 | 0 | 0 | | |

Number of shipping certificates issued to grower—4
Serial No.—23A

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Henry Krueger, Pedricktown, N. J.
Field Inspection—April 30, 1930. Harvest Inspection—August 7, 1930.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Emperor ..... | 3,100 | 0 | 0 | 0 | 0 | | |
| Golden Spur..... | 1,000 | 0 | 0 | 0 | 0 | | |
| Victoria ..... | 300 | 0 | 0 | 0 | 0 | | |
| Sir Watkin..... | 3,200 | 0 | 0 | 0 | 0 | | |
| Empress ..... | 2,400 | 0 | 0 | 0 | 0 | | |
| Totals ..... | 10,000 | 0 | 0 | 0 | 0 | | |

Number of shipping certificates issued to grower—12
Serial No.—22A

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Sikking Brothers, Wheat Road, Vineland, N. J.
Field Inspection—April 29, 1930. Harvest Inspection—August 14, 1930.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| King Alfred..... | 80,000 | 0 | 0 | 0 | 0 | | |
| Emperor ..... | 5,000 | 0 | 0 | 0 | 0 | | |
| Empress ..... | 4,000 | 0 | 0 | 0 | 0 | | |
| Sir Watkin..... | 30,000 | 0 | 0 | 0 | 0 | | |
| Glory of Sasseheim.... | 20,000 | 0 | 0 | 0 | 0 | | |
| Glory of Lisse..... | 15,000 | 0 | 0 | 0 | 0 | | |
| Horace ..... | 4,000 | 0 | 0 | 0 | 0 | | |
| L. Koster..... | 100,000 | 0 | 0 | 0 | 0 | | |
| Servantus ..... | 20,000 | 0 | 0 | 0 | 0 | | |
| Victoria ..... | 50,000 | 0 | 0 | 0 | — | Sterilized Aug. 28, 1930 | |
| VonZion ..... | 30,000 | 0 | 0 | 0 | — | " " " " | |
| Totals ..... | 358,000 | 0 | 0 | 0 | 2 | lots of infested bulbs | |

Number of shipping certificates issued to grower—40
Serial No.—12A
The 80,000 bulbs that were sterilized were not sold; no certificate issued.

(Continued on next page)

| Variety | Acreage or Number of Bulbs | Pests Found: T. Dipsaci | Other Eelworms | Merodon Equestris | Eumerus Spp. | Treatment This Season: Nature | Date |
|---|---|---|---|---|---|---|---|
| W. H. Ellis, Glendola, N. J. Field Inspection—April 30, 1930. Harvest Inspection—August 20, 1930. | | | | | | | |
| Empress | 400 | 0 | 0 | 0 | 0 | | |
| Sir Watkin | 300 | 0 | 0 | 0 | 0 | | |
| Glory of Sasseheim | 400 | 0 | 0 | 0 | 0 | | |
| King Alfred | 400 | 0 | 0 | 0 | 0 | | |
| Spring Glory | 300 | 0 | 0 | 0 | 0 | | |
| M. Talma | 300 | 0 | 0 | 0 | 0 | | |
| Golden Spur | 50 | 0 | 0 | 0 | 0 | | |
| Campenella | 300 | 0 | 0 | 0 | 0 | | |
| L. Koster | 150 | 0 | 0 | 0 | 0 | | |
| P. Ornatus | 1,000 | 0 | 0 | 0 | 0 | | |
| P. Recurvis | 2,000 | 0 | 0 | 0 | 0 | | |
| Totals | 5,600 | 0 | 0 | 0 | 0 | | |

Number of shipping certificates issued to grower—6
Serial No.—28A

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rex D. Pearce, 6930 Walnut Avenue, Merchantville, N. J. Field Inspection—April 25, 1930. Harvest Inspection—August 8, 1930. | | | | | | | |
| Bernardrio | 500 | 0 | 0 | 0 | 0 | | |
| Mixed Jonquils | 1,000 | 0 | 0 | 0 | 0 | | |
| Mixed Daffodils | 500 | 0 | 0 | 0 | 0 | | |
| Mixed Poeticus | 1,500 | 0 | 0 | 0 | 0 | | |
| Totals | 3,500 | 0 | 0 | 0 | 0 | | |

Number of shipping certificates issued to growers—12
Serial No.—20A

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| C. J. Overdevest, Deerfield, N. J. Field Inspection—April 24, 1930. Harvest Inspection—August 5, 1930. | | | | | | | |
| Sir Watkin | 60,000 | 0 | 0 | 0 | 0 | | |
| Emperor | 25,000 | 0 | 0 | 0 | 0 | | |
| Empress | 10,000 | 0 | 0 | 0 | 0 | | |
| King Alfred | 7,500 | 0 | 0 | 0 | 0 | | |
| Orange Phoenix | 6,000 | 0 | 0 | 0 | 0 | | |
| Sulfer Phoenix | 3,000 | 0 | 0 | 0 | 0 | | |
| B. Victoria | 5,000 | 0 | 0 | 0 | 0 | | |

(Continued on next page)

| Variety | Acreage or Number of Bulbs | Pests Found: T. Dipsaci | Other Eelworms | Merodon Equestris | Eumerus Spp. | Treatment This Season: Nature | Date |
|---|---|---|---|---|---|---|---|
| C. J. Overdevest, Deerfield, N. J.—(Continued) | | | | | | | |
| Rob. Sidenham | 4,500 | 0 | 0 | 0 | 0 | | |
| Will Scarlet | 50 | 0 | 0 | 0 | 0 | | |
| W. P. Millner | 100 | 0 | 0 | 0 | 0 | | |
| Treserve | 25 | 0 | 0 | 0 | 0 | | |
| Wavering Giant | 25 | 0 | 0 | 0 | 0 | | |
| Herrick | 30 | 0 | 0 | 0 | 0 | | |
| Homer | 30 | 0 | 0 | 0 | 0 | | |
| Sir Dar | 40 | 0 | 0 | 0 | 0 | | |
| Lord Kitchner | 35 | 0 | 0 | 0 | 0 | | |
| Campenella | 4,500 | 0 | 0 | 0 | 0 | | |
| Grand Solier D'Or | 3,000 | 0 | 0 | 0 | 0 | | |
| Mastro | 300 | 0 | 0 | 0 | 0 | | |
| Ornatus | 600 | 0 | 0 | 0 | 0 | | |
| B. Conspicuous | 750 | 0 | 0 | 0 | 0 | | |
| Golden Spur | 3,000 | 0 | 0 | 0 | 0 | | |
| The Pear | 30 | 0 | 0 | 0 | 0 | | |
| Totals | 133,515 | 0 | 0 | 0 | 0 | | |

Number of shipping certificates issued to grower—130
Serial No.—27A

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DeGraaf Bulb Company, Bridgeton, N. J. | | | | | | | |
| Wavering Giant | 2,500 | 0 | 0 | 0 | 0 | | |
| L. Koster | 18,000 | 0 | 0 | 0 | 0 | | |
| Sir Watkin | 680,000 | 0 | 0 | 0 | 0 | | |
| Princess | 70,000 | 0 | 0 | 0 | 0 | | |
| Empress | 65,000 | 0 | 0 | 0 | 0 | | |
| Olympia | 8,500 | 0 | 0 | 0 | 0 | | |
| Herrick | 2,000 | 0 | 0 | 0 | 0 | | |
| Horace | 5,000 | 0 | 0 | 0 | 0 | | |
| King Alfred | 200,000 | 0 | 0 | 0 | 0 | | |
| Tulist | 1,200 | 0 | 0 | 0 | 0 | | |
| The Pearl | 200 | 0 | 0 | 0 | 0 | | |
| Red Beacon | 3,000 | 0 | 0 | 0 | 0 | | |
| Will Scarlet | 1,500 | 0 | 0 | 0 | 0 | | |
| Queen of England | 36,000 | 0 | 0 | 0 | 0 | | |
| White Lady | 20,000 | 0 | 0 | 0 | 0 | | |
| Segarson | 2,000 | 0 | 0 | 0 | 0 | | |
| Lucifer | 20,000 | 0 | 0 | 0 | 0 | | |
| St. Olaf | 3,000 | 0 | 0 | 0 | 0 | | |
| Treserve | 3,600 | 0 | 0 | 0 | 0 | | |
| Rob. Sidenham | 1,500 | 0 | 0 | 0 | 0 | | |

(Continued on next page)

| Variety | Acreage or Number of Bulbs | Pests Found: T. Dipsaci | Other Eelworms | Merodon Equestris | Eumerus Spp. | Treatment This Season: Nature | Date |
|---|---|---|---|---|---|---|---|
| DeGraaf Bulb Company, Bridgeton, N. J.—(Continued) | | | | | | | |
| Glory of Leiden | 1,000 | 0 | 0 | 0 | 0 | | |
| Sir Dar | 3,000 | 0 | 0 | 0 | 0 | | |
| Silver Phoenix | 18,000 | 0 | 0 | 0 | 0 | | |
| Ornatus | 1,000 | 0 | 0 | 0 | 0 | | |
| King Alfred | 32,000 | 0 | 0 | 0 | 0 | | |
| Maestro | 400 | 0 | 0 | 0 | 0 | | |
| Grand Solier D'Or | 1,800 | 0 | 0 | 0 | 0 | | |
| Homespun | 50,000 | 0 | 0 | 0 | 0 | | |
| Recurvis | 25,000 | 0 | 0 | 0 | 0 | | |
| Emperor | 219,000 | 0 | 0 | 0 | 0 | | |
| Mixed | 40,000 | 0 | 0 | 0 | 0 | | |
| Glory of Lisse | 800 | 0 | 0 | 0 | 0 | | |
| DuBloom | 17,000 | 0 | 0 | 0 | — | Sterilized | Aug. 20, 1930 |
| Spring Glory | 1,000 | 0 | 0 | 0 | — | " | " |
| Lord Kitchner | 500 | 0 | 0 | 0 | — | " | " |
| B. Conspicuous | 37,000 | 0 | 0 | 0 | — | " | " |
| Golden Spur | 20,000 | 0 | 0 | 0 | — | " | " |
| Totals | 1,610,500 | 0 | 0 | 0 | 5 | lots of infested bulbs | |

Number of shipping certificates issued to grower—52
Serial No.—16A
Sterilized bulbs are not for sale, no certificate issued.

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C. E. Chapman, Oakland, N. J.

| Field Inspection— | | | | | | Harvest Inspection—November 10, 1930. |
|---|---|---|---|---|---|---|
| Poeticus | 150 | 0 | 0 | 0 | 0 | |
| Golden Spur | 150 | 0 | 0 | 0 | 0 | |
| Totals | 300 | 0 | 0 | 0 | 0 | |

Number of shipping certificates issued to grower—1
Serial No.—31A

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## Summary for 1930

Total number of bulbs inspected—152,432,615 (116,000 of these bulbs were not for sale).

Total number of shipping certificates issued to the growers—389.

Total number of bulbs sterilized—155,500 (not for sale).

## POTATO TUBER MOTH INSPECTION

The potato tuber moth is known to occur in California, Texas, South Carolina, North Carolina, Virginia, Florida and Maryland. It was intercepted on seed potatoes shipped to New Jersey from the Eastern Shore of Maryland and Virginia.

The injury of this insect is caused by the larvae, which mine the leaves and tunnel the stems of the potato, frequently to such an extent that a large portion of the vines become brown prematurely. When the potatoes are maturing, many larvae will enter tubers that may be exposed by cultivation. Larvae that mature in the tops of the plants enter the ground near the plants and spin their cocoons in rubbish or other debris. Adults emerging from these cocoons lay eggs upon the tubers as they lie overnight in the field, and larvae hatching therefrom feed upon the potatoes in storage or transit. Early or late potatoes that are held in storage are liable to be severely damaged, or made unfit for food or seed if the pest becomes established on them.

In November, 1930, eight potato dealers were visited on two different occasions, the object being to inspect seed potatoes for potato tuber moth infestation. Seven carlots were inspected. All the seed potatoes were received under certificate from the state of origin.

The following firms were visited and their seed potatoes, which originated on the Eastern Shore, were examined and no infestations found:

**Chamberlin and Barclay, Cranbury**
**Bennett and Clayton Company, Inc., Prospect Plains**
**Rooney and Ely Company, Englishtown**
**J. M. Laird, Tennent.**
**Rood and Perrine, Tennent**
**Farmers' Exchange, Freehold—Potatoes ordered but not received (received four carloads on November 24, 1930)**
**Grover Brothers, Hightstown**
**Schanck and Field, Inc., Hightstown**
**Farmers' Exchange, Marlboro**

Two carloads of potatoes from the Pocomoke Growers' Association, Pocomoke City, Md., (Certificate No. 102, Grade 1 and 2, 1st and 2nd) and one carload from Worcester Growers' Association, Snow Hill, Md., (Certificate No. 100, Grade 1 and 2) were examined. The potatoes in these cars averaged from three to nine potatoes per barrel infested or showing signs of infestation. The larval channels were not deep. A few potato tuber moth larva and pupa cases were evident on the burlap covers. This inspection was made on November 12, 1930. Another inspection was made on November 24 and conditions found to be the same.

## BEE INSPECTION SERVICE

The work of contagious bee-disease control was carried on during the 1930-1931 fiscal year as in the preceding one with the exception that two temporary bee inspectors were engaged. They began work on July 1, 1930, on the area-clean-up plan. One worked in a rural area and thoroughly scouted and inspected all bees in that area. The area extended from Belvidere to a point near Netcong and was approximately five miles wide. The other temporary inspector worked in Essex County.

The result of the work in the rural area, as shown by reinspections, was a reduction in the percentage of apiaries infected with American foulbrood from 20 per cent in 1930 to eight per cent in 1931. The percentage of colonies infected with the disease dropped from five per cent in 1930 to two per cent in 1931.

In Essex County, where beekeeping conditions are quite unlike those in farming areas, the percentage of apiaries infected with disease was reduced from 40 per cent in 1930 to 17 per cent in 1931, and the percentage of colonies infected with disease, from ten per cent in 1930 to nine per cent in 1931.

All calls for bee inspections and service were given prompt attention during the year. All discoverable bees within two miles of queen-rearing apiaries were inspected twice each season to guard against the entrance of bee diseases into such apiaries.

During the fiscal year, 739 apiaries having a total of 7,369 colonies of bees, were inspected. Two hundred and eight apiaries were housed in boxes, etc., and 273 were housed in hives with crossed combs. Five hundred and thirty-two cases of American foulbrood were found in 187 apiaries. In thirteen apiaries, 29 cases of European foulbrood were seen. Sacbrood was present in 393 colonies.

One hundred and seventeen colonies of bees infected with American foulbrood were destroyed. In some cases, the owner wished the disease eliminated at once; in others, the inspector was obliged to destroy the bees because the owner had failed to take action necessary to eliminate the disease.

Ten per cent of all colonies inspected during the fiscal year 1929-1930 were infected with American foulbrood. During the fiscal year 1930-1931, the percentage was seven per cent. For the same fiscal years, the percentages of apiaries diseased were 36 per cent and 24 per cent, respectively. There was a slight increase in the number of observed

cases of European foulbrood during the first half of 1931, but it was of minor importance.

Thirty samples of dead bee brood were received for microscopic examination. Thirteen of these contained the spores of American foulbrood, three contained the organisms causing European foulbrood and 14 were without bee disease germs.

Two lots of bees were certified for interstate movement, one of four colonies to Florida and one of 37 colonies to Pennsylvania.

## QUEEN REARERS' CERTIFICATES

Three queen-rearing apiaries were certified as follows: That of Albert G. Hann, of Glen Gardner, July 22, 1930, and April 30, 1931; that of Albert G. Hann, at Pittstown, July 21, 1930, and May 7, 1931; and that of Donald A. Wyckoff, of R. D. 6, New Brunswick, at East Millstone, June 18, 1931.

## EDUCATIONAL WORK

A certain amount of educational work necessarily goes hand in hand with bee inspections. The ability of the individual beekeeper to identify and treat properly infectious bee disease is a large factor in the ultimate elimination of such disease. Information, given the beekeeper at the time of inspection which enables him to produce a larger and better crop of honey, encourages him to greater interest in bee disease control.

Field meetings and demonstrations for beekeepers were held at four places, as follows: At Bridgeport, July 10, 1930, with 15 persons present; at Hammonton, May 26, 1931, with 17 persons present; at Manahawken, June 2, 1931, with 13 persons present; and at Freehold, June 16, with 11 persons present.

Lectures on bees and honey were given at fifteen Grange meetings. The places at which the lectures were given and the number of persons present are as follows: Bridgeport, 45; Branchville, 250; Rancocas, 34; Blackwood, 15; Myersville, 58; Williamstown, 17; Barbertown, 58; Whitehouse, 16; Blue Anchor, 38; Three Bridges, 40; Mullica Hill, 42; New Market, 39; Preakness, 39; South Seaville, 48, and Hope, 24.

A study showing the results of bee inspection for the years 1912 to 1930 was prepared and published as Circular No. 197. Manuscript for a system of beekeeping adapted to the suburban regions of New Jersey was prepared and published as Circular No. 201.

## THE GIPSY MOTH

The eleventh year of the exterminative work against the gipsy moth conducted cooperatively with the United States Department of Agriculture, was concluded on June 30, 1931. Scouting was done in the townships of Bernards, Bridgewater, Hillsboro, North Plainfield and Piscataway and in Duke's Park. It was completed May 20, no infestations having been found.

### RESULTS OF SCOUTING AND OTHER WORK

| | *1st year* | *2nd year* | *3rd year* | *4th year* | *5th year* | *6th year* | *7th year* | *8th year* | *9th year* | *10th year* | *11th year* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of colonies found ..... | 855 | 216 | 98 | 48 | 9 | 3* | 12 | 5 | 1 | 0 | 0 |
| Number of egg masses found (new) | 3,003,039 | 909 | 1,182 | 723 | 69 | 54 | 646 | 70 | 2 | 0 | 0 |

* Does not include colony of caterpillars found in Duke's Park.

Although some territory remains to be scouted, it is unlikely that any serious infestations will be found and it may be assumed that the extermination project is being successfully concluded. Following work in the 1931-1932 fiscal year, a small force should be retained to watch the areas which were formerly infested. Such a force, when not engaged in gipsy moth work, could be utilized to take care of other inspection work, principally that in nurseries, which have been so growing in number for several years that additional inspectors are necessary.

## THE EUROPEAN CORN BORER

In order to prevent the introduction into the unrestricted part of New Jersey, of corn from quarantined areas of the United States, the Federal Plant Quarantine and Control Service operated 30 road stations, principally in northern New Jersey. Some of these stations were opened as early as July 16. No difficulty was experienced except at two stations in Hudson County where heavy congestion of westbound traffic occurred. During the 52 days of the operation of the New Jersey stations in 1930, 6,256,129 vehicles passed the stations. Of this number, 6,253,788 carried no corn and 2,341 carried corn. The operators of 127 vehicles refused to have them inspected. The ears of corn intercepted totaled 90,277. Thirty-one larvae of which five proved to be those of P. nubilalis, the European corn borer, were found.

Eighteen federal scouting crews were assigned field stations in Bergen, Passaic, Hudson, Essex, Warren, Middlesex, Union and Monmouth counties and on main highways of southern New Jersey roads on July 21, 1930. Scouting work was completed in New Jersey on September 27. As a result of this work, infestations were found in the following municipalities:

**Montclair Borough—Essex County**
**Harmony Township—Warren County**
**Lopatcong Township—Warren County**
**Pohatcong Township—Warren County**
**Greenwich Township—Warren County**
**Franklin Township—Warren County**
**Bethlehem Township—Hunterdon County**

A total of 30 European corn borer larvae was found. The Montclair infestation was cleaned up during the spring of 1931. No clean-up operations were performed in the infested townships of Warren and Hunterdon Counties.

In view of the findings of infestations, the State Board of Agriculture, on February 9, 1931, adopted a quarantine on account of the European corn borer, which placed the above-mentioned townships under quarantine and which prohibited the movement of corn from them to uninfested parts of New Jersey. At the same time, the quarantine on all of Hudson County east of Newark Bay and the Hackensack River was continued.

## JAPANESE BEETLE SUPPRESSION

Japanese beetle suppression activity was directed chiefly at the dissemination of Japanese beetle control information, the conducting of experimental spraying work, and the investigation of methods and appliances for the application of lead arsenate mixtures to lawns for protection against the beetle grubs.

Satisfactory measures have not been devised for the protection from beetle injury of raspberry and blackberry plants maturing fruit during the beetle-feeding period. Inasmuch as the Hammonton berry section had suffered severe beetle damages during the previous (1929) beetle-feeding period, an attempt was made to afford this area some relief through the use of an attractant spray. Accordingly, one of the state-owned, high-pressure sprayers, previously used in gipsy moth control work was taken to Hammonton. A spray mixture of green lead arsenate, a stomach poison; syrline, an appetizer; and geraniol, an attractant, was made up to attract beetles from economic plants to non-economic plants, the latter being those sprayed.

Although the beetles had emerged and were causing considerable damage by July 5, there was no weather suitable for spraying until July 12. Fifteen locations of non-economic foliage were sprayed; in some instances excellent results were attained, while in the others the results were very ineffectual. Relatively high temperatures (90 degrees Fahrenheit or above) and relatively low humidity (60 per cent or less) are desirable for the use of this attractant spray. The handicaps caused by the weather are not believed to be of perennial occurrance. Consequently, further attention, probably with better adapted spraying machinery, will be given to this phase of the control work during the summer of 1931.

A permanent, portable Japanese beetle exhibit consisting of a life-history cabinet, and two artificial trees was constructed at the State Museum studio. This exhibit was used for the first time at the State Farm Products and Equipment Show.

Circular No. 180, "Facts Pertaining to the Japanese Beetle," was revised and a new edition printed. Circular No. 176, which presents recommendations for controlling adult Japanese beetles was revised in accordance with opinions rendered at a meeting held at the Japanese Beetle Laboratory at Moorestown. Circular No. 176 was distributed to retail insecticide dealers throughout the infested area. Twelve hundred and fifty posters, 14 by 24 inches, directing attention to the beetle-feeding period and the availability of control recommendations were conspicuously placed in the infested area.

Consideration of lawn treatment for grub control aroused more interest than previously. An investigation of the machinery used for the application of lead arsenate mixtures revealed the fact that its performance was far from ideal. One of the most promising hand spreaders (three-foot spread) was purchased and completely rebuilt to meet the requirements for a practical applicator. Several basic factors of lawn treatment have been subjected to critical examination with the result that grub control recommendations now in preparation will be of a more workable nature than heretofore. The inauguration of lawn treatment demonstrations was deferred. Approved commercial lawn treatment preparations were recommended in a considerable number of cases.

Manuscript for a circular "The Maintenance of Lawns and Golf Courses with Particular Reference to White Grub and Earth Worm Control" was only partly assembled because of the uncrystallized condition of available information.

# JAPANESE BEETLE QUARANTINE WORK*
(Calendar Year, 1930)

## SCOUTING WORK

Scouting for Japanese beetles was conducted in 1930 along the lines outlined for the previous year. As the scouting procedure was explained in some detail in the report for the calendar year 1929, it does not seem desirable to repeat the matter here.

## FARM PRODUCTS CERTIFICATION

There was only about a four per cent gain in the amount of farm products certified this year. It would not be fair to consider this figure as being indicative of the amount of increased work, because corn is the most difficult of all farm products to certify since it is extremely hazardous from a Japanese beetle control standpoint. Corn constitutes a desirable host product; the corn certified came from localities heavily infested with the Japanese beetle; before certification, each ear must be inspected and the beetles removed; and, finally, while there was only a gain of 3,283 units (a unit usually consisting of a bag containing 100 ears) actually certified, practically all of the 10,759 units certified emanated from the heavily infested area in the vicinity of Camden and Trenton. Last year practically all of the corn was certified by men from inspection stations at Rutherford, Newark and Paterson Island and was presumably grown in northern New Jersey. The presumption that it was grown in the northern part of the state becomes obvious when it is noted that no beetles were extracted from corn, last year, whereas 16,823 beetles were removed from corn this year, owing, of course, to the fact that the corn emanated from heavily infested areas. Most of the corn certified found its way to the Washington, D. C., market and a portion of it was reconsigned from that market to points in the South.

It was necessary to maintain 20 inspection points this year, as compared with 21 last year. The Paterson Island market point was discontinued after July because the small quantity of material offered for inspection there did not justify the maintenance of an inspection station there. The same situation was applicable to the Newark inspection point. While only 537 units of farm products, a number

*Japanese beetle quarantine work was conducted by the Department of Agriculture in cooperation with the United States Plant Quarantine and Control Administration.

much less than had been expected, were certified from Newport, it was thought feasible to consider Newport as an inspection point. The result was that two points were discontinued, and one new point created, making a net decrease of one inspection point. Last year, inspectors certified 1,144,838 units of farm products, including cut flowers. This year, 1,188,673 units were certified, the gain being 43,835 units, or approximately four per cent.

The greatest increase in the amount of a specific commodity certified was the increase in the amount of beans. In 1929, 29,048 units of beans were certified, whereas, in 1930, 91,462 such units were certified. Only 24 beetles were removed from this vast quantity of beans. A probable reason for the small quantity of beetles removed may be ventured: in a locality where the Japanese beetle infestation was more or less general and a shipper contemplated asking for certification on 200 hampers of beans, for example, the inspectors, provided, of course, that the beans were already packed, would open a reasonable percentage of the hampers, the results of which would indicate the relative freedom from infestation of the balance. In other words, if an inspector examined ten per cent of the 200 hampers and found two beetles, he would continue to examine the remainder of the beans. The shippers became conscious of this method and, accordingly, all of the pickers were instructed to be very careful in picking and to be absolutely certain that no beetles got into the picking basket. In the case of new shippers, an endeavor was made, and in most cases it proved successful, to have the inspectors supervise the packing of all the beans. Usually, beans are picked in five-eighths-bushel baskets in the field but are shipped in bushel hampers. The five-eighths-bushel baskets were brought to inspection points by the pickers and the beans were slowly and carefully dumped from the picking basket into the shipping basket under the close scrutiny of the inspectors. This procedure gave a fair picture of the likelihood of adult beetle infestation of beans at certain farms, and the subsequent rigidity of inspection was governed by the results of the initial procedure. It was not always possible to have sufficient numbers of inspectors at all of the bean patches at a certain time, since most of the beans were shipped in carlots, and cars perhaps were filled by ten or fifteen growers all of whom were picking at the time. It was necessary to do a great amount of Sunday work, which additional work, however, was usually done by regularly employed men and without any added expense to the Department of Agriculture.

The department certified 413,049 units of tomatoes, which were mostly in five-eighths-bushel baskets and crates as compared with 372,335 units certified in 1929. It would not be fair to estimate the amount of tomatoes shipped for canning purposes from these figures, since last year's figures included many boatloads of tomatoes which were consigned to Baltimore and therefore had to be certified. This year, of course, an equal if not greater number of boatloads of tomatoes was consigned to Baltimore, but the movement of tomatoes to that point was not restricted by the Japanese beetle quarantine.

Tomatoes for canning found a ready market and appeared to be a trifle better in quality than last year, although their price was not particularly attractive. There was an increase of almost 100 per cent in the number of units certified at Mt. Royal; a decrease in the number certified from Pedricktown; and a slight decrease in the number certified at Swedesboro, three of the main shipping points via boat.

Fortunately, things ran along quite smoothly at Hammonton during the year. There was a certain element of preparedness manifested by the market commission and the fumigating plant was in readiness to be used at a moment's notice. Last year, inspectors certified 9,980 crates of berries, while only 8,237 crates, 7,745 crates of which were fumigated, were certified this year. The situation at Rosenhayn this year became quite acute. Previously, the degree of infestation in the berry fields did not warrant fumigation procedure, but, unfortunately, this year the infestation became sufficiently general so that under date of July 7, the county agent at Bridgeton was telegraphed and informed that berries originating from Rosenhayn and vicinity would have to be fumigated before they would be certified. From information which was gathered, the Hammonton market officials were perfectly willing to permit the use of their fumigating house by Rosenhayn growers and this intimation was made in the telegram. Up to the present writing, we have been unable to obtain information as to the number of crates of berries from Rosenhayn and vicinity which were fumigated at Hammonton, but it is believed that it is negligible.

One hundred and seventy-two packers of small fruits had their method of packing and grading approved this year, as compared with 198 last year. Most of the 172 were located in the vicinity of Hammonton, and we endeavored to anticipate their request for approval on the peach crop so that we would not be confronted with all of the requests at the same time. Since the peach crop in that vicinity was virtually a failure, it is doubtful whether many of the packers shipped

peaches to points outside the area. Only 28,942 units of peaches were certified this year, as compared with 218,128 units of apples. This comparison is given because records show that usually about as many units of peaches are certified as units of apples.

Almost 500,000 units of farm products were certified from Gloucester County, which ranked first among all counties of the state in the number of units certified. Cumberland County was second; Salem County, third; Burlington County, fourth, and Atlantic County, fifth. About 95 per cent of all the farm products certified emanated from these five counties.

Under miscellaneous fruits, there was a decrease of approximately 100,000 units in the number certified. The decrease apparently was due to a smaller number of peaches certified. Last year, about 38,000 units of peaches from Hammonton were certified, whereas this year only about 7,500 such units were certified. At Del Bay Farms, about 42,000 units were certified last year, but this year only about 25,000 such units were certified.

## NUMBER OF MEN EMPLOYED FOR THE INSPECTION AND CERTIFICATION OF FRUITS, VEGETABLES, CUT FLOWERS, HAY AND STRAW

| *Location* | *Administrators* | *Supervisors* | *Foremen* | *Inspectors* | *Totals* |
|---|---|---|---|---|---|
| Glassboro | 1 | 1 | 5 | 18 | 25 |
| Camden | .. | .. | 2 | 4 | 6 |
| Trenton | .. | 1 | 1 | 3 | 5 |
| New Brunswick | .. | .. | .. | 1 | 1 |
| Rutherford | .. | .. | .. | 2 | 2 |
| Totals | 1 | 2 | 8 | 28 | 39 |

## INSPECTION POINTS, PACKAGES CERTIFIED AND BEETLES REMOVED

| *Place* | *Period Operated* | *Hours Per Day Open* | *Number of Men* | *Packages Certified* | *Beetles Removed* |
|---|---|---|---|---|---|
| Bridgeton | July 1 to Sept. 30 | 8 | 1 | 78,376 | 0 |
| DelBay Farms | July 2 to Sept. 12 | 8 | 1 | 24,944 | 0 |
| Camden | June 15 to Sept. 30 | 8 | 1 | 190,425 | 16,276 |
| Cedarville | July 2 to Sept. 30 | * | * | 61,472 | 0 |
| Fairton | July 11 to Sept. 4 | * | * | 4,337 | 0 |
| Glassboro | June 15 to Sept. 30 | 8† | 2 | 46,308 | 1 |
| Hammonton Market | July 1 to Sept. 1 | 8 | 2 | 7,743 | 106 |
| Landisville | July 2 to Sept. 30 | 8 | 1 | 82,992 | 0 |
| Malaga | July 1 to Sept. 30 | 8 | 1 | 7,959 | 0 |
| Mt. Royal | July 15 to Sept. 13 | 8 | 1 | 121,992 | 0 |
| New Brunswick | June 15 to Sept. 30 | 8 | 1 | 2,432 | 2 |
| Newfield | July 1 to Sept. 30 | 8 | 1 | 146,136 | 1 |
| Newport | July 11 to Sept. 4 | * | * | 537 | 0 |
| Paterson Market | July 2 to July 29 | 8‡ | 1 | 0 | 0 |
| Pedricktown | July 7 to Sept. 29 | 8 | 1 | 165,494 | 0 |
| Rosenhayn | July 6 to Sept. 30 | * | * | 37,292 | 0 |
| Rutherford | June 15 to Sept. 30 | 8 | 1 | 5,393 | 0 |
| Swedesboro | July 11 to Sept. 30 | 8 | 5 | 174,433 | 4 |
| Trenton | June 15 to Sept. 30 | 8 | 1 | 6,416 | 633 |
| Vineland | July 3 to Oct. 6 | 8 | 1 | 2,755 | 0 |
| Wheat Road | July 9 to Sept. 29 | 8 | 1 | 21,237 | 0 |
| Totals | | | | 1,188,673 | 17,023 |

* Indicates that one man visited this station at train time to render inspection service. The station was termed an "appointment inspection point."

† This point was open seven days a week during the season for the harvesting of farm products.

‡ It was not deemed advisable to maintain this inspection point throughout the season.

## NUMBER OF PACKAGES OF FRUIT, VEGETABLES AND CUT FLOWERS CERTIFIED AND NUMBER OF BEETLES REMOVED FROM THEM IN THE REGULATED AREA OF NEW JERSEY, SUMMER OF 1930

| *Articles* | *Number of Packages* | *Number of Beetles Removed* |
|---|---|---|
| Corn | 10,759 | 16,823 |
| Beans | 91,462 | 24 |
| Peas | 34 | 0 |
| Lettuce | 230 | 0 |
| Vegetables with tops | 15,432 | 0 |
| Miscellaneous vegetables | 788,803 | 5 |
| Miscellaneous fruit | 280,866 | 170 |
| Cut flowers | 1,087 | 1 |
| Totals | 1,188,673 | 17,023 |

## NUMBER OF BALES OF HAY, STRAW AND SPHAGNUM MOSS CERTIFIED BY EACH OFFICE FOR SHIPMENT FROM THE REGULATED AREA OF NEW JERSEY, DURING THE 1930 SEASON

| *Office* | *Bales of Hay* | *Bales of Straw* | *Bales of Moss* | *Total Bales* |
|---|---|---|---|---|
| New Brunswick | 20 | 30 | ... | 50 |
| Trenton | ... | 15,590 | 89 | 15,679 |
| Camden | 1,725 | 4 | 880 | 2,609 |
| Glassboro | ... | ... | 78 | 78 |
| Totals | 1,745 | 15,624 | 1,047 | 18,416 |

## NUMBER OF BALES OF HAY, STRAW AND SPHAGNUM MOSS CERTIFIED BY ALL OFFICES IN THE REGULATED AREA OF NEW JERSEY FOR SHIPMENT TO EACH OF VARIOUS STATES

| *Office* | *Bales of Hay* | *Bales of Straw* | *Bales of Moss* | *Total Bales* |
|---|---|---|---|---|
| California | ... | ... | 1 | 1 |
| Colorado | ... | ... | 1 | 1 |
| Connecticut | ... | 1,561 | 6 | 1,567 |
| District of Columbia | ... | 511 | 25 | 536 |
| Florida | ... | 140 | 256 | 396 |
| Illinois | 20 | 557 | ... | 577 |
| Indiana | ... | ... | 3 | 3 |
| Iowa | ... | ... | 3 | 3 |
| Kentucky | 12 | 3 | 1 | 16 |
| Louisiana | ... | 128 | ... | 128 |
| Massachusetts | ... | 4,041 | 142 | 4,183 |
| Maryland | ... | 120 | 6 | 126 |
| Maine | ... | ... | 7 | 7 |
| Michigan | ... | 134 | 3 | 137 |
| Minnesota | ... | ... | 1 | 1 |
| Missouri | ... | ... | 8 | 8 |
| North Carolina | 1 | 1 | 40 | 42 |
| Nebraska | ... | ... | 1 | 1 |
| New Hampshire | ... | 407 | ... | 407 |
| New York | 1,712 | 537 | 270 | 2,519 |
| Ohio | ... | 1,549 | 8 | 1,557 |
| Pennsylvania | ... | 1,632 | 122 | 1,754 |
| Rhode Island | ... | 268 | 54 | 322 |
| South Carolina | ... | ... | 5 | 5 |
| Texas | ... | ... | 1 | 1 |
| Virginia | ... | ... | 75 | 75 |
| Vermont | ... | ... | 3 | 3 |
| West Virginia | ... | 4,035 | 1 | 4,036 |
| Wisconsin | ... | ... | 1 | 1 |
| Foreign | ... | ... | 3 | 3 |
| Totals | 1,745 | 15,624 | 1,047 | 18,416 |

## MOSS, HAY AND STRAW CERTIFICATION

It seems useless to go into a great amount of detail as to the procedure followed this year in certifying moss, hay and straw, for it was explained in the 1929 report. The conditions were substantially the same in 1930, except that we did not encounter as many difficulties owing to the fact that the shippers were better acquainted with the requirements. The method of certifying hay, straw and sphagnum moss after fumigation by each shipper has been discontinued and a new method inaugurated, which is fully explained in the discussion on moss, hay and straw certification for 1929. No bananas were fumigated in New Jersey during 1930. Seven thousand, seven hundred and forty-five crates of berries were fumigated at the Hammonton Market during 1930 with carbon disulphide.

## NURSERY AND ORNAMENTAL STOCK

Japanese beetle quarantine offices in the State of New Jersey and the area under the jurisdiction of each were as follows in 1930:

Trenton—
(State Headquarters), Broad Street, Trenton. A field office maintained in conjunction with the office takes care of Mercer County.

Rutherford—
Park Avenue and Glen Road. Sussex, Morris, Passaic, Bergen, Essex, and Hudson counties.

Camden—
1590 Pierce Avenue. Burlington and Ocean counties and the northern half of Camden County.

New Brunswick—
Throop Avenue and Suydam Street. Monmouth, Middlesex, Somerset, Hunterdon, Warren, and Union counties.

Glassboro—
Main and High Streets. Lower half of Camden County, Gloucester, Atlantic, Salem, Cumberland, and Cape May counties.

## SUMMARY

| | | |
|---|---|---|
| Total number of nurseries | 84 | |
| Total number removed during 1930 | 13 | |
| | | 71 |
| Total number of greenhouses | 45 | |
| Total number removed during 1930 | 13 | |
| | | 32 |
| Total number of nurseries and greenhouses | 112 | |
| Total number removed during 1930 | 10 | |
| | | 102 |
| Total number of root growers | 70 | |
| Total number removed during 1930 | 6 | |
| | | 64 |
| Total number of plant growers | 27 | |
| Total number removed during 1930 | 7 | |
| | | 20 |
| Total number of miscellaneous | 19 | |
| Total number removed during 1930 | 2 | |
| | | 17 |
| Total number of classified establishments for 1930 | | 306 |
| Total square feet of glass | 5,930,674.5 | |
| Total removed during 1930 | 644,844 | |
| Total square feet of glass for 1930 | | 5,285,830.5 |
| Total acreage | 10,194,334 | |
| Total acreage removed during 1930 | 461,683 | |
| Total acreage for 1931 | | 9,732,651 |

## NUMBER OF PLANTS CERTIFIED FOR SHIPMENT TO EACH STATE FOR EACH MONTH OF 1930

| State | January | February | March | April | May | June | July | August | September | October | November | December | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ıbama .... | 8,885 | 4,504 | 11,053 | 9,775 | 5,431 | 2,921 | 540 | 26 | 393 | 2,982 | 11,164 | 25,050 | 82,724 |
| zona ..... | 213 | 444 | 418 | 1,106 | 260 | 150 | 16 | .... | 12 | 13 | 28 | 3 | 2,663 |
| ıansas .... | 878 | 1,462 | 7,733 | 2,393 | 903 | 414 | 254 | .... | 133 | 723 | 4,887 | 233 | 20,013 |
| lifornia .. | 2,373 | 5,321 | 17,475 | 6,360 | 2,687 | 1,944 | 10,420 | 3,506 | 3,240 | 1,802 | 1,697 | 987 | 57,812 |
| lorado .... | 402 | 508 | 3,022 | 4,874 | 2,252 | 5,480 | 51 | 1,224 | 2,193 | 1,623 | 2,797 | 162 | 24,588 |
| nnecticut .. | 100,451 | 38,415 | 88,702 | 113,186 | 188,107 | 79,707 | 199,300 | 19,185 | 20,439 | 29,654 | 11,015 | 3,869 | 892,033 |
| strict of Columbia .. | 3,017 | 14,469 | 55,917 | 30,464 | 18,391 | 13,019 | 5,650 | 3,537 | 3,896 | 7,662 | 5,052 | 57 | 161,131 |
| laware .... | 557,695 | 1,133,307 | 264,326 | 68,020 | 56,794 | 48,263 | 10,013 | 22 | 821 | 20,196 | 43,674 | 15,670 | 2,218,801 |
| rida ..... | 112,176 | 4,904 | 9,939 | 2,864 | 1,492 | 3,176 | 1,278 | 669 | 78,291 | 44,415 | 46,004 | 12,438 | 317,646 |
| orgia ..... | 22,806 | 42,834 | 37,209 | 25,583 | 7,418 | 4,862 | 5,799 | 13,947 | 3,486 | 20,567 | 46,245 | 11,554 | 242,310 |
| ho ..... | ..... | 559 | 468 | 1,107 | 331 | 15 | 2,004 | 3 | 150 | 156 | 51 | 17 | 4,861 |
| inois ..... | 143,224 | 169,544 | 130,328 | 99,381 | 34,766 | 19,957 | 3,849 | 53,366 | 165,892 | 106,671 | 98,080 | 75,846 | 1,100,904 |
| liana ..... | 5,129 | 5,633 | 45,971 | 34,697 | 18,951 | 10,900 | 4,155 | 3,325 | 3,106 | 7,650 | 4,855 | 476 | 144,848 |
| va ..... | 310 | 15,851 | 14,667 | 17,981 | 8,420 | 3,697 | 4,239 | 4,708 | 5,649 | 9,590 | 2,636 | 500 | 88,248 |
| nsas ..... | 1,680 | 380 | 6,925 | 11,047 | 6,470 | 1,438 | 174 | 1,424 | 661 | 1,616 | 6,933 | 7,292 | 46,040 |
| ntucky .... | 2,817 | 4,448 | 13,143 | 24,138 | 7,934 | 3,437 | 6,068 | 440 | 1,568 | 8,522 | 6,345 | 394 | 79,254 |
| uisiana ... | 3,166 | 6,321 | 3,597 | 2,433 | 2,050 | 2,911 | 2,609 | 121 | 166 | 972 | 2,561 | 11,009 | 37,916 |
| ıssachusetts. | 27,505 | 56,630 | 249,468 | 339,743 | 185,101 | 254,513 | 132,510 | 43,295 | 38,144 | 51,802 | 45,833 | 26,602 | 1,451,146 |
| aryland ... | 30,381 | 41,122 | 170,858 | 95,680 | 42,155 | 856,262 | 23,933 | 37,588 | 1,339 | 7,550 | 12,489 | 2,538 | 1,321,895 |
| ine ..... | 5,967 | 3,405 | 6,716 | 20,167 | 46,363 | 34,287 | 23,991 | 4,710 | 9,863 | 8,301 | 2,631 | 518 | 166,919 |
| chigan .... | 19,852 | 8,992 | 88,069 | 130,412 | 41,259 | 21,764 | 7,897 | 4,400 | 23,013 | 16,295 | 35,086 | 15,380 | 412,419 |
| nnesota ... | 404 | 1,036 | 7,235 | 9,462 | 6,376 | 5,596 | 2,375 | 1,543 | 1,231 | 2,946 | 5,819 | 858 | 44,881 |
| ssissippi ... | 4,092 | 3,469 | 4,804 | 2,571 | 1,200 | 560 | 26 | 3 | 31,154 | 7,316 | 6,930 | 5,633 | 67,758 |
| ssouri .... | 9,510 | 16,324 | 49,749 | 26,807 | 12,026 | 14,921 | 9,752 | 14,753 | 2,359 | 12,006 | 6,954 | 4,596 | 179,757 |
| ontana .... | 13 | 60 | 301 | 878 | 473 | 83 | 31 | .... | 102 | 85 | 24 | 45 | 2,095 |
| rth Carolina | 10,343 | 15,236 | 51,714 | 27,124 | 20,715 | 5,835 | 44,758 | 7,664 | 41,299 | 38,089 | 92,587 | 8,753 | 364,117 |
| rth Dakota. | 116 | 8 | 67 | 2,329 | 599 | 57 | 204 | 10 | 93 | 163 | .... | 519 | 4,165 |
| ebraska .... | 2,421 | 493 | 2,247 | 4,190 | 2,455 | 3,969 | 4,691 | 37 | 561 | 468 | 684 | 886 | 23,102 |
| evada ..... | 3 | 55 | 225 | 133 | 209 | 73 | .... | 6 | 46 | 76 | 71 | 2 | 899 |
| w Hampshire | 454 | 1,315 | 7,271 | 25,348 | 24,796 | 27,294 | 19,118 | 4,203 | 2,919 | 4,178 | 1,548 | 803 | 119,247 |
| w Mexico... | 13 | 54 | 862 | 2,443 | 644 | 520 | 15 | .... | 56 | 180 | 101 | 5 | 4,893 |
| w York.... | 74,582 | 142,906 | 250,615 | 313,967 | 958,753 | 690,040 | 489,095 | 55,653 | 71,080 | 137,058 | 106,381 | 397,674 | 3,687,804 |
| io ..... | 136,242 | 224,924 | 155,195 | 174,425 | 103,750 | 71,661 | 23,633 | 64,900 | 57,810 | 33,082 | 72,429 | 93,195 | 1,211,246 |
| klahoma ... | 217 | 997 | 5,913 | 4,177 | 2,726 | 2,094 | 44 | .... | 278 | 2,997 | 784 | 374 | 20,601 |
| egon ..... | 627 | 410 | 2,335 | 3,752 | 1,650 | 356 | 10,011 | 6,300 | 7,126 | 499 | 706 | 1,341 | 35,113 |
| nnsylvania . | 38,693 | 34,105 | 153,147 | 225,549 | 201,872 | 431,066 | 220,461 | 20,255 | 23,337 | 42,758 | 29,015 | 13,377 | 1,433,635 |
| ıode Island.. | 5,965 | 10,086 | 28,576 | 62,885 | 39,001 | 19,139 | 32,901 | 6,826 | 10,870 | 12,169 | 16,971 | 7,186 | 252,575 |
| uth Carolina | 20,901 | 16,157 | 17,964 | 8,870 | 4,303 | 1,517 | 7,549 | 1,734 | 1,327 | 18,705 | 56,430 | 10,607 | 166,064 |
| uth Dakota. | 1 | 1,046 | 1,030 | 842 | 650 | 510 | 28 | 25 | 141 | 94 | 122 | 30 | 4,519 |
| nnessee ... | 356,502 | 10,582 | 24,378 | 19,589 | 10,661 | 3,268 | 4,350 | 1,515 | 1,349 | 2,380 | 10,784 | 4,177 | 449,535 |
| xas ..... | 37,462 | 6,317 | 16,283 | 12,009 | 2,474 | 1,088 | 1,199 | 196 | 6,803 | 21,206 | 16,265 | 10,025 | 131,327 |
| ah ..... | 872 | 635 | 3,544 | 599 | 633 | 55 | 38 | 24 | 38 | 3,252 | 87 | 60 | 9,837 |
| rginia .... | 26,088 | 24,081 | 63,196 | 71,486 | 118,952 | 33,188 | 34,935 | 9,613 | 5,504 | 27,514 | 31,495 | 3,043 | 449,095 |
| rmont .... | 690 | 892 | 11,047 | 12,195 | 21,217 | 30,243 | 23,132 | 2,323 | 1,890 | 3,686 | 1,405 | 267 | 108,987 |
| ashington .. | 12,690 | 3,663 | 4,188 | 3,447 | 1,964 | 351 | 70 | .... | 120 | 1,403 | 204 | 141 | 28,241 |
| est Virginia. | 708 | 2,184 | 19,624 | 19,378 | 28,227 | 17,711 | 5,107 | 439 | 2,779 | 7,350 | 10,402 | 1,956 | 115,865 |
| isconsin ... | 3,355 | 1,035 | 52,647 | 20,410 | 15,221 | 12,839 | 5,761 | 1,999 | 7,116 | 22,535 | 12,129 | 6,633 | 161,680 |
| yoming ... | ..... | 5 | 111 | 522 | 369 | 4 | 1 | .... | 32 | 115 | 8 | 5 | 1,172 |
| reign ..... | 4,901 | 11,792 | 39,473 | 13,915 | 9,480 | 41,890 | 23,108 | 5,808 | 2,221 | 2,444 | 2,600 | 1,748 | 155,380 |
| Totals... | 1,796,795 | 2,088,920 | 2,199,745 | 2,110,713 | 2,264,931 | 2,785,045 | 1,407,143 | 401,325 | 642,096 | 753,516 | 872,998 | 784,534 | 18,107,761 |

## CERTIFICATION OF COMMODITIES SHIPPED FROM CLASSIFIED DEALERS IN NEW JERSEY TO OTHER CLASSIFIED DEALERS

| | | *Sand, Soil, Etc.* | | | | *Compost and Manure* | | |
|---|---|---|---|---|---|---|---|---|
| *Destination* | *Plants* | *Carloads* | *Pounds* | *Peat Lbs.* | *Moss Bales* | *Carloads* | *Pounds* | *Totals* |
| Connecticut ..... | 216,202 | .. | 3,500 | .... | 200 | .. | 2,150 | 222,052 |
| District of Columbia | 32,554 | .. | .... | .... | 10 | .. | .... | 32,564 |
| Delaware ..... | 350,435 | .. | 6,000 | .... | 96 | 1 | 99,900 | 456,432 |
| Massachusetts ..... | 7,573 | .. | .... | .... | ... | .. | .... | 7,573 |
| Maryland ..... | 240,600 | .. | 115,000 | 150 | 25 | .. | 100,700 | 456,475 |
| New Jersey..... | 2,387,711 | 29 | 414,900 | 4,912 | 145 | 14 | 258,922 | 3,066,633 |
| New York..... | 1,711,550 | 1 | 304,131 | 1,000 | 449 | 5 | 60,704 | 2,077,840 |
| Pennsylvania ..... | 1,748,994 | .. | 161,250 | .... | 1 | 32 | 412,473 | 2,322,750 |
| Rhode Island..... | 151 | .. | .... | .... | ... | .. | .... | 151 |
| Virginia ..... | 535 | .. | .... | .... | ... | .. | .... | 535 |
| Totals ..... | 6,696,305 | 30 | 1,004,781 | 6,062 | 926 | 52 | 934,849 | 8,643,005 |

## TREATMENTS OF NURSERY STOCK, SOIL, ETC., 1930

Nursery and Ornamental Stock given field treatments with carbon disulphide during the spring and fall of 1930:
5 evergreens, 1 deciduous plant.

Tank Treatments of Nursery and Ornamental Stock during the year 1930:
Carbon disulphide Dip.
3,150 rhubarb roots were treated.
Hot Water.
19,354 plants were treated.

Fumigation of Potting Soil with Carbon Disulphide:
2,740.19 cubic yards of potting soil treated.

Potting Soil Steam Sterilized:
38.104 cubic yards of potting soil sterilized.

Arsenate of Lead Treatments of Soil Plots:
3,212,668.5 square feet treated; 3,038,399 square feet of which contained 567,729 plants.

Soil Plots Treated with Carbon Disulphide (Surface Treatments):
13,723.81 square feet treated.

Soil Plots Treated with Carbon Disulphide Emulsion:
517.33 square yards treated.

Greenhouses Treated with Naphthalene:
None.

Five Per Cent Inspection of Plants in Class II Nurseries:
8,591 plants inspected, no larvae found.

Ten Per Cent Inspection of Potted Plants in Class II and III Greenhouses:
5,795 plants were inspected, no larvae found.

## DIGGINGS TO DETERMINE GRUB INFESTATIONS

Owing to the revocation of Quarantine No. 66 on account of the Asiatic beetle, the diggings to determine grub infestations in fields, frames and treated plots were made solely on account of the Japanese beetle.

It will be noted that several of the establishments which were dug are at the present time not in a classification which would merit this digging. Some of these establishments have been changed to Class III on account of the subsequent findings of adult beetles, others have been changed to Class I owing to the fact that they were located a greater distance than one mile from an infestation. At the time these diggings were made, however, the establishments so dug were in a classification which required same.

In the spring of 1929, there were 89,558 holes dug as compared to 5,373, in the spring of 1930. A total of 1,631 larvae was found in the spring of 1929, as compared with 127 larvae in the spring of 1930.

In the fall of 1929, practically all establishments located in areas which were likely to be infested with the Asiatic beetle were dug. Since the infestation of Asiatic beetles was in northeastern New Jersey, diggings were more or less concentrated at this point, although classified establishments located in these areas are, as a whole, free from the Japanese beetle and consequently were not dug this fall.

A comparative recapitulation indicates that during the 1929 calendar year, 229,397 holes were dug and an area comprising 154,097.6 square feet dug solidly with the finding of 3,656 larvae as compared with the diggings of 1930 which would indicate that 31,539 holes were dug with the finding of 430 larvae, representing a material decrease.

The diggings were carried on very systematically and the matter of records improved somewhat. Each block in an establishment which was dug was drawn on our grub infestation charts, using a pink sheet for Class II establishments and a white one for treated areas. These were all executed in duplicate, one copy being retained by the field office under whose supervision the establishment was dug and the other copy forwarded to state headquarters office. Man hours, actual cost of diggings, etc., were carefully computed and a report rendered to general headquarters at Camden after the work was accomplished.

During the year we tried an experiment which it was hoped would enable us to make diggings in wet weather or at least when the ground was wet and soggy. This apparatus consisted of a framework in which

were placed three separate screens; the top one being of one quarter of an inch mesh and the bottom two being of one eighth of an inch mesh. It was thought to put soil extracted from a hole one inch by two inches in area and about six inches deep, under water pressure and force this mud through the screens. The soil was infested with a known quantity of larvae and in several instances it was even impossible to recover all of the larvae originally placed in the soil. The larvae were subjected to severe mechanical injury due to water under pressure and due to pebbles and stones. It was almost impossible to differentiate between distorted and mechanically injured larvae and small pebbles of almost the same size and color. The procedure was abandoned as being impracticable, although it might prove satisfactory in certain types of loamy soil free from pebbles.

SUMMARY OF DIGGINGS MADE IN THE STATE OF NEW JERSEY IN 1930

*Spring*

| | |
|---|---|
| Total number of holes dug | 5,373 |
| Total number of larvae found | 127 |
| Number of negative larvae found | 127 |

*Fall*

(Summary of diggings made in heeling-in areas, etc.; second class establishments and field-grown plants.)

| | |
|---|---|
| Total number of holes dug | 26,166 |
| Total number of larvae found | 303 |
| Number of Popillia larvae found | 13 |
| Number of negative larvae found | 290 |

During the fall of 1930, diggings were made in the following:

*Second Class Establishments*

| | |
|---|---|
| Total number of holes dug | 12,942 |
| Total number of larvae found | 262 |
| Number of negative larvae found | 262 |

*Heeling-in Areas, Etc.*

| | |
|---|---|
| Total number of holes dug | 1,447 |
| Total number of larvae found | 1 |
| Number of negative larvae found | 1 |

*Field-Grown Plants*

| | |
|---|---|
| Total number of holes dug | 11,777 |
| Total number of larvae found | 40 |
| Number of Popillia larvae found | 13 |
| Number of negative larvae found | 27 |

*Recapitulation*

(Summary of diggings made during 1930)

| | |
|---|---|
| Total number of holes dug | 31,539 |
| Total number of larvae found | 430 |
| Number of Popillia larvae found | 13 |
| Number of negative larvae found | 417 |

## CARLOADS OF EACH CLASS OF SAND, SOIL, MARL, PEAT, ETC., CERTIFIED FOR SHIPMENT FROM THE REGULATED AREA OF NEW JERSEY, 1930

| *Destination* | *Construction* | *Molding* | *Marl* | *Clay* | *Glass* | *Soil* | *Peat* | *Totals* |
|---|---|---|---|---|---|---|---|---|
| Alabama | .. | .. | 1 | .. | .. | .. | .. | 1 |
| Arizona | .. | 1 | .. | .. | .. | .. | .. | 1 |
| California | 10 | .. | 10 | .. | .. | .. | .. | 20 |
| Colorado | .. | .. | 1 | .. | .. | .. | .. | 1 |
| Connecticut | 123 | 179 | 1 | 32 | 5 | .. | 2 | 342 |
| District of Columbia | 3 | 61 | 2 | .. | .. | .. | .. | 66 |
| Delaware | 4 | 4 | .. | .. | .. | .. | .. | 8 |
| Florida | 3 | 1 | 1 | .. | .. | .. | .. | 5 |
| Georgia | 3 | .. | 1 | .. | .. | .. | .. | 4 |
| Illinois | 30 | 2 | 5 | 3 | .. | .. | .. | 40 |
| Indiana | 7 | .. | 17 | .. | .. | .. | .. | 24 |
| Iowa | .. | .. | 1 | .. | .. | .. | .. | 1 |
| Kansas | .. | .. | 5 | .. | .. | .. | .. | 5 |
| Kentucky | 1 | .. | 1 | .. | .. | .. | .. | 2 |
| Louisiana | .. | 1 | 13 | .. | .. | .. | .. | 14 |
| Massachusetts | 469 | 407 | 3 | 188 | 9 | .. | 2 | 1,078 |
| Maryland | 71 | 83 | .. | 10 | 2 | .. | 1 | 167 |
| Maine | 18 | 25 | .. | 132 | .. | .. | .. | 175 |
| Michigan | 14 | 11 | 8 | 10 | .. | .. | .. | 43 |
| Minnesota | .. | .. | 3 | .. | .. | .. | .. | 3 |
| Missouri | .. | .. | 4 | .. | .. | .. | .. | 4 |
| North Carolina | 14 | 5 | 3 | .. | .. | .. | 1 | 23 |
| North Dakota | .. | .. | 1 | .. | .. | .. | .. | 1 |
| New Hampshire | 51 | 7 | .. | 5 | 2 | .. | .. | 65 |
| New Mexico | .. | .. | 3 | .. | .. | .. | .. | 3 |
| New York | 634 | 996 | 6 | 168 | 10 | .. | 2 | 1,816 |
| Ohio | 49 | 67 | 7 | 49 | 41 | .. | .. | 213 |
| Oklahoma | .. | .. | 6 | .. | .. | .. | .. | 6 |
| Oregon | 12 | .. | .. | .. | .. | .. | .. | 12 |
| Pennsylvania | 208 | 328 | 9 | 31 | 3 | .. | 1 | 580 |
| Rhode Island | 37 | 64 | .. | 15 | 1 | .. | .. | 117 |
| South Carolina | 1 | .. | .. | .. | .. | .. | .. | 1 |
| Tennessee | 12 | 6 | 1 | .. | .. | .. | .. | 19 |
| Texas | 1 | .. | 9 | .. | .. | .. | .. | 10 |
| Virginia | 47 | 58 | 3 | .. | 1 | .. | .. | 109 |
| Vermont | 4 | 8 | .. | 2 | .. | .. | .. | 14 |
| Washington | 33 | .. | 1 | .. | .. | .. | .. | 34 |
| West Virginia | 24 | 5 | 4 | 30 | 1 | .. | .. | 64 |
| Wisconsin | 3 | 2 | 2 | 1 | .. | .. | .. | 8 |
| Foreign | 211 | 257 | 8 | 179 | 10 | .. | .. | 665 |
| Totals | 2,097 | 2,578 | 140 | 855 | 85 | .. | 9 | 5,764 |

## NUMBER OF CARLOADS OF EACH CLASS OF SAND, SOIL, PEAT, ETC., CERTIFIED EACH MONTH AND TOTALS

| *Distribution* | *Construction* | *Molding* | *Marl* | *Clay* | *Glass* | *Soil* | *Peat* | *Totals* |
|---|---|---|---|---|---|---|---|---|
| January | 120 | 140 | 19 | 26 | 3 | .. | 2 | 310 |
| February | 169 | 131 | 9 | 28 | 3 | .. | 4 | 344 |
| March | 196 | 186 | 9 | 86 | 4 | .. | .. | 481 |
| April | 211 | 240 | 12 | 83 | 4 | .. | 1 | 551 |
| May | 209 | 262 | 12 | 88 | 2 | .. | .. | 573 |
| June | 328 | 328 | 17 | 58 | 3 | .. | .. | 734 |
| July | 139 | 208 | 12 | 53 | 2 | .. | .. | 414 |
| August | 100 | 162 | 13 | 136 | 7 | .. | .. | 418 |
| September | 156 | 161 | 9 | 52 | 15 | .. | 1 | 394 |
| October | 236 | 436 | 10 | 129 | 17 | .. | .. | 828 |
| November | 131 | 215 | 9 | 92 | 15 | .. | 1 | 463 |
| December | 102 | 109 | 9 | 24 | 10 | .. | .. | 254 |
| Totals | 2,097 | 2,578 | 140 | 855 | 85 | .. | 9 | 5,764 |

**Note.**—According to the monthly reports, a total of 5,612 cars of sand, etc., and 9 cars of peat were reported. However, 11,469,032 pounds were shipped in small lots and figuring 80,000 pounds to the car, we arrived at the figure of an additional 143 carloads, making the grand total in carlots 5,764.

## NUMBER OF CARLOADS OF MANURE CERTIFIED FOR SHIPMENT TO EACH DIFFERENT STATE RECEIVING SHIPMENTS DURING YEAR AND TOTAL

| *State* | *Carloads* |
|---|---|
| Connecticut | 31 |
| Delaware | 7 |
| Florida | 1 |
| Massachusetts | 12 |
| Maryland | 15 |
| Maine | 3 |
| New Hampshire | 1 |
| New York | 38 |
| Pennsylvania | 8 |
| Rhode Island | 7 |
| Texas | 1 |
| Virginia | 8 |
| West Virginia | 1 |
| Totals | 133 |

## AVERAGE NUMBER OF MEN EMPLOYED IN EACH DIFFERENT BRANCH OF THE QUARANTINE WORK AT EACH OFFICE FOR EACH MONTH IN 1930

| | *January* | *February* | *March* | *April* | *May* | *June* | *July* | *August* | *September* | *October* | *November* | *December* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Glassboro* | | | | | | | | | | | | |
| Scouting | .. | .. | .. | .. | .. | .. | 4 | 4 | .. | .. | .. | .. |
| Farm Products | .. | .. | .. | .. | .. | .. | 32 | 32 | 3 | .. | .. | .. |
| Nursery and Greenhouse | 6 | 6 | 8 | 8 | 8 | 8 | 8 | 8 | 12 | 8 | 8 | 5 |
| Totals | 6 | 6 | 8 | 8 | 8 | 8 | 44 | 44 | 15 | 8 | 8 | 5 |
| *Camden* | | | | | | | | | | | | |
| Scouting | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. |
| Farm Products | .. | .. | .. | .. | .. | .. | 6 | 6 | 1 | .. | .. | .. |
| Nursery and Greenhouse | 3 | 3 | 4 | 4 | 4 | 4 | 3 | 4 | 5 | 5 | 5 | 4 |
| Totals | 3 | 3 | 4 | 4 | 4 | 4 | 10 | 11 | 6 | 5 | 5 | 4 |
| *New Brunswick* | | | | | | | | | | | | |
| Scouting | .. | .. | .. | .. | .. | .. | 8 | 8 | .. | .. | .. | .. |
| Farm Products | .. | .. | .. | .. | .. | .. | 3 | 3 | 1 | .. | .. | .. |
| Nursery and Greenhouse | 8 | 8 | 11 | 12 | 12 | 12 | 15 | 15 | 15 | 13 | 12 | 9 |
| Totals | 8 | 8 | 11 | 12 | 12 | 12 | 26 | 26 | 16 | 13 | 12 | 9 |
| *Rutherford* | | | | | | | | | | | | |
| Scouting | .. | .. | .. | .. | .. | .. | 10 | 10 | .. | .. | .. | .. |
| Farm Products | .. | .. | .. | .. | .. | .. | 2 | 2 | 1 | .. | .. | .. |
| Nursery and Greenhouse | 3 | 3 | 3 | 4 | 4 | 4 | 15 | 15 | 3 | 4 | 4 | 3 |
| Totals | 3 | 3 | 3 | 4 | 4 | 4 | 27 | 27 | 4 | 4 | 4 | 3 |
| *Dreer's Nursery* | | | | | | | | | | | | |
| Scouting | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Farm Products | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nursery and Greenhouse | 2 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 | 2 |
| Totals | 2 | 2 | 2 | 3 | 2 | 2 | 1 | 1 | 2 | 2 | 3 | 2 |
| *Headquarters* | | | | | | | | | | | | |
| Scouting | .. | .. | .. | .. | .. | .. | 11 | 11 | .. | .. | .. | .. |
| Farm Products | .. | .. | .. | .. | .. | .. | 4 | 3 | 2 | .. | .. | .. |
| Nursery and Greenhouse | 8 | 8 | 8 | 8 | 8 | 8 | 7 | 7 | 13 | 13 | 8 | 8 |
| Maintenance | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 |
| Totals | 10 | 10 | 10 | 10 | 10 | 10 | 23 | 22 | 16 | 15 | 10 | 10 |
| TOTAL MEN EMPLOYED AT ALL OFFICES | | | | | | | | | | | | |
| Scouting | .. | .. | .. | .. | .. | .. | 34 | 34 | .. | .. | .. | .. |
| Farm Products | .. | .. | .. | .. | .. | .. | 47 | 46 | 8 | .. | .. | .. |
| Nursery and Greenhouse | 30 | 30 | 36 | 39 | 38 | 38 | 49 | 50 | 50 | 45 | 40 | 31 |
| Maintenance | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 |
| Totals | 32 | 32 | 38 | 41 | 40 | 40 | 131 | 131 | 59 | 47 | 42 | 33 |

TOTAL AMOUNT OF ARTICLES CERTIFIED AND NUMBER OF BEETLES REMOVED IN THE STATE OF NEW JERSEY, JANUARY 1 TO DECEMBER 31, 1930

| | *Certified* | *Beetles Removed* |
|---|---|---|
| Total packages of farm produce | 1,187,586 | 17,022 |
| Total packages of cut flowers | 1,087 | 1 |
| Total bales of hay, straw and moss | 18,416 | |
| Total plants certified | 18,107,761 | |
| Total carloads of sand, soil, etc. | 5,764 | |
| Total carloads of manure | 92 | |
| Totals | 19,320,706 | 17,023 |

## THE NEMATODE PARASITE OF THE JAPANESE BEETLE*

### I. INTRODUCTION

In the spring of 1929, a nematode (or round worm) was found by Henry Fox, of the Bureau of Entomology, United States Department of Agriculture, and the writer parasitizing many Japanese beetle grubs at the Tavistock golf course near Haddonfield, N. J. Preliminary experiments with healthy grubs clearly demonstrated that the nematode possessed great reproductive and lethal capacities, and, therefore, might prove valuable if distributed throughout the territory infested with the Japanese beetle. Many specimens of this nematode were sent to Dr. G. Steiner, nematological specialist of the United States Department of Agriculture. Dr. Steiner informed us that the nematode was, undoubtedly, a parasite and not a saprozoic free-living form. It belongs to the family Oxyuridae, and has been described by Steiner as a new genus and species under the name of *Neoaplectana glaseri*.†

To date (August, 1931), the nematode appears to be naturally localized at the Haddonfield point. Since the original discovery, *Neoaplectana glaseri* was recovered from this locality during the spirng of 1930, the autumn of the same year, and the spring of 1931. Many other places in New Jersey and Pennsylvania heavily infested with beetle grubs have been examined during the past two years, but the parasite has not been found except in the vicinity of Haddonfield.

### II. THE CULTURE OF *NEOAPLECTANA GLASERI*

Two methods for the economic use of the nematode presented themselves. First, healthy grubs could be infected with nematodes taken from parasited grubs and then be liberated. This would, however, constitute

*By Dr. R. W. Glaser. †J. Wash. Acad. Sci., 1929, 19, 436.

an extremely laborious and time-consuming procedure. Second, an attempt could be made to culture the nematode on artificial media. If this were possible, the number of nematodes available would be unlimited. This procedure seemed more hopeless than the first, because no parasitic nematode of any sort has heretofore reproduced in artificial media, notwithstanding many attempts by parasitologists.

Beginning September, 1930, a serious attempt was made to propagate *Neoaplectana*. After many failures, it was finally found that the nematodes reproduced luxuriantly under the following conditions: The nemas are cultivated on standard meat infusion agar plates containing one per cent dextrose, and having a reaction of pH 7.4. Gravid, ovoviviparous females from infected grubs are placed on the surface of the plates together with a water suspension of an actively growing yeast. After two days at room temperature, the surface of the plates swarms with larval nematodes which soon mature. From four to five days are consumed in the development of each generation and transfers are usually made after the second generation. Many cultures of the nematode have been grown on this artificial medium for as long as five and one half months, transfers being made every ten days to two weeks. At the end of six months the worms failed to reproduce and the majority died. A number of Japanese beetle grubs were infected at intervals and when the artificial cultures became weak, new cultures were started from the infected stock. These again grew well upon the artificial medium for a period of months. During the warm months good cultures can also be initiated at any time by obtaining fresh parasitized material from the field, near Haddonfield.

During the cultivation of these strains, the nematodes were repeatedly shown to be capable of producing fatal infection. A culture after six months on media and which had seemingly lost its ability to grow, was still capable of infecting beetle larvae. The forms obtained from these again produced good cultures. It might be added that beetle grubs were always infected indirectly, *id est,* by infecting their environment, the soil.

## III. PATHOGENICITY EXPERIMENTS

Many elaborate experiments in the laboratory were made to determine whether the nematodes were actually parasitic themselves or whether our cultures harbored some other pathogenic agent, the worms acting merely in a secondary capacity. These experiments involved centrifuging and sedimenting the worm cultures in water and infecting grubs with the bottom and with the top layers. Suffice it to say, that infections were only obtained when the worms were present.

The worms have four stages. The first stage, a minute clear form; the second stage, a larger, active, dark form; the pre-adult; and the adult male and female. We infected healthy grubs with pure strains of each of these four stages and found that the active, second stage, dark, larval form was the only stage capable of producing infection. In other words, the second stage represents the invasive, free living soil form which seeks out the host. This represents an important point for parasitologists because all parasitic worms, like hook-worms and others, have an infective stage. Later we had much confirmatory proof of this question in our field work for we also then found that the second stage form was the invasive form and was capable of living in the soil many weeks without changing until it found a beetle grub. If one infects with first stage nematodes, with pre-adults or with adults, the worms die; if one infects with second stage forms, the worms live until a host is found.

The second stage forms enter the beetle through the mouth parts and rapidly develop into pre-adults and adults in the alimentary tract of the grub. The female nematodes are ovoviviparous and within the alimentary tract of the beetle give birth to from ten to twenty first-stage larvae. When these mature, a second generation usually follows, and, when most of these nematodes are in the second stage, the host dies. The alimentary canal and other tissues of the grub disintegrate due to the feeding nemas. When one observes a grub at this time it is dead, flaccid, of a rusty or reddish brown color and swarming with nemas, the majority in the second stage ready to invade the soil in order to seed a fresh host. In performing infections, cultures can be so timed that on a given date only second stage nematodes prevail.

Infection experiments were performed with given doses of worms prepared by counting. The doses were varied from 25 to 1,000 second-stage worms per grub. When 15 grams of soil containing one grub are infected with from 200 to 1,000 nemas the grub usually dies in five days to one week. If fewer nemas are used, death occurs in about 10 days to two weeks. Death was obtained when 25 nemas per 15 grams of soil were used.

When grubs were infected with 50 second-stage nematodes anywhere from 1,000 to 2,500 nematodes were recovered at death. This gives an indication of the rate of increase.

## IV. INFECTION EXPERIMENTS ON OTHER INSECTS

An attempt was made to infect army worms, silkworms, housefly maggots and Lachnosterna beetle grubs with *Neoaplectana glaseri*. In no case

did these insects become infected. This demonstrates a degree of specificity for the nematode which one would expect of a parasite.

## V. INFECTION EXPERIMENTS ON CERTAIN PLANTS

Many nematodes pathogenic to plants exist. If Neoaplectana is to be generally distributed, it is important to determine whether plants are affected or not. Parasitologists made fun at these experiments because they are accustomed to host specificity with their parasites. However, actual experiments are safer than speculations.

Greenhouse-reared tomatoes, cabbages, lettuce and corn were treated with heavy doses of second stage *Neoaplectanas*. In no case were these plants affected. Later, field experiments further demonstrated that not only are wheat, rye and other grasses not affected, but their growth is furthered because the nematode destroys the grubs of the Japanese beetle.

## VI. FIELD EXPERIMENTS

Field experiments were instituted to determine whether the nematodes could be established in new territory and whether they would effect a heavy mortality among Japanese beetle grubs in their natural environment. Permission to run the experiments was obtained on two farms separated by about three miles and where a heavy infestation of Japanese beetle grubs existed in pasture land. A control plot and an experimental plot were chosen on each farm. These plots were separated one from the other by about 150 yards. Each control plot and each experimental plot was three feet in length by two feet in width. Boards were driven into the ground to a depth of six inches to prevent lateral migration . During the summer months, vertical migration of more than six inches does not occur. Counts of the grubs present in the four plots were then made and a slight amount of equalization practiced so that two of the plots in one farm contained exactly 600 grubs each and two of the plots on the other farm, 450 each. All of the plots were then sowed in rye, screened and protected against cattle and pigs. It must be mentioned that at this time all of the grubs appeared to be entirely healthy.

During the middle of May, large Petri plate cultures containing about 160,000 second-stage nematodes were suspended in water and by means of a watering can sprinkled on the surface of each experimental plot. One Petri plate culture (or approximately 160,000 worms) was used for each plot (six square feet). The two control plots remained untreated.

Following the nematode introduction, each control plot and each ex-

perimental plot was visited once each week. The soil in each plot was carefully examined and the dead and living grubs counted. In neither control plot did we encounter any deaths due to nematodes. Indeed, deaths from any cause were exceedingly uncommon. In the two experimental plots, however, we encountered a steady, heavy grub mortality after three weeks. All dead grubs were taken to the laboratory for microscopic determination of the cause of death. The cause of the deaths in the experimental plots was invariably due to the nematodes. Grubs, prepupae and pupae were attacked by the nematodes in about the same degree.

The extent of adult emergence constituted a second bit of valuable evidence on the grub mortality. During the latter part of July and early August, one treated plot yielded only one adult; the other just a few against a heavy emergence in both control plots.

The character of the vegetation in the treated and in the control plots yielded another bit of indirect evidence. After the mortality became heavy within the treated plots, the grass assumed a healthy green and luxuriant aspect and grew to the top of the cages, whereas the grass in the control plots appeared sickly and much shorter.

## VII. SURVIVAL OF THE NEMATODES IN THE FIELD

This phase of the subject is still under investigation. After complete emergence, fresh gravid females were placed in the cages in order to determine whether parasitism of fresh grubs will again occur this fall and next spring without introducing more nematodes. The nematodes were experimentally introduced the middle of May. During early August, 300 grams of soil were taken from each experimental plot. This soil was sedimented in water and in a few hours many second-stage forms of *Neoaplectana* were collected. From these some new cultures were started. This shows that the second stage form can exist within the soil for a time, at least in the absence of its natural host. We expect the nematode to survive through the fall and winter.

## VIII. ANTICIPATED EXPERIMENTS

During September and October, the spring experiments will be repeated on a larger scale with slight variations. Among other things, we hope to obtain good photographable differences in the vegetation between treated and untreated plots. The nematodes will be grown in bulk on an extremely inexpensive medium and will be introduced in a simpler manner.

## IX. GENERAL OUTLOOK

Should the autumn field experiments also prove encouraging, the State Department of Agriculture should certainly feel justified in introducing the nematode generally during the next season. The parasite has so far proven excellent and can now be cheaply reared in bulk and readily introduced. A general introduction during one season would be sufficient. Then it would be well to "let things ride" and see how the worm establishes itself.