

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



Twenty-second Annual Report  
of the  
New Jersey  
State Department of Agriculture

July 1, 1936—June 30, 1937

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1936-1937

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

Trenton

November 19, 1937.

*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 Twenty-second Annual Report of the New Jersey Department of Agriculture, for the fiscal year ended June 30, 1937.

Respectfully,

*W. B. Duryee*

# TWENTY-SECOND ANNUAL REPORT OF THE NEW JERSEY STATE DEPARTMENT OF AGRICULTURE

July 1, 1936—June 30, 1937

## *Report of the Secretary of Agriculture*

WILLIAM B. DURYEE

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New Jersey farms ranked third in the United States in gross receipts per farm, being exceeded only by California with its intensified farming operations and Nevada with its very extensive ranch acreage included in each farmstead. On a farm-acreage basis, the gross returns in New Jersey exceed those of any other state. New Jersey's farmers are confronted, however, with a high tax cost, with high labor costs and with certain other hampering factors which offset to some degree the efficient farming methods which its rank among the states in gross receipts clearly establishes.

Despite the fact that New Jersey farms produce more wealth than any other industry in the state, there only recently has been a recognition of the value of agriculture in the state's economy. The current helpful aid and interest being manifested by the State Chamber of Commerce, local chambers of commerce and other business groups will be decidedly beneficial in securing a state-wide movement for the betterment of agriculture. There is developing a far greater public consciousness of the necessity of cooperation and balance between business and agriculture in the state. Heretofore, there has been a lack of understanding and appreciation of the problems of both vocations and there has been some effort to shift costs of government from one group to the other. Since the number of persons engaged in agriculture is far below the number employed in other vocations, it is difficult, if not impossible, for agricultural interests alone to improve their lot in the economic life of the state. If, however, the industrial and professional interests in the state unite to make agriculture a greater asset, not only to itself but to other interests as well, then real progress can be made.

During the past year there was a continuance of the trend toward centralization of agricultural activities at Washington. To a greater degree than ever before, the farmers of the state were on the federal payroll. Payments were made for compliance with certain soil improvement processes. This centralization in Washington developed, in the first place, a dependence upon the United States government, and, second, it tended to minimize the dependence which previously had been placed on opportunities for self-help in the community, county and state. As a general rule, the further the seat

of authority and administration is removed, the greater is the cost and the less the efficiency of the procedure. We sincerely believe that decentralization of activities under well-established and clear-cut policy controls will result in more economical and more efficient administration of any national program for agriculture.

There must be recognition of the fact that the interests of a state which imports products and livestock may be quite different from those of an exporting state. For example, it is to the interest of New Jersey to receive only disease-free, high quality cattle for its fluid milk production, whereas, it may be very much to the interest of a state with cattle to export to get rid of those which are undesirable. There is much that can be done in the regulation of interstate commerce, as distinct from intrastate activities, which federal agencies can and should do to promote well-being among the states.

Partly because of increased recognition of the existence of common problems, occasional meetings of the secretaries and commissioners of agriculture of the northeastern states have been held. This group has endeavored to reach a common ground in dealing with the farm program established by the federal government as it affects the welfare of the farmers in this section of the country. Its members hope to develop, through concerted action, policies which will be for the betterment of agriculture in the entire northeastern area of the country.

Reference was made in the last annual report to the Milk Control Board and to the amount of time and energy which this work required of the secretary. During the past year it seemed desirable that he should withdraw from this board so that his full time could be devoted to the Department of Agriculture. One of the outstanding results of association with that Board was the cooperative spirit which was manifested toward common agricultural problems by all those in the dairy industry.

#### ANIMAL DISEASE CONTROL

During the year the department lost one of its most faithful and efficient staff members, Dr. John H. McNeil, Chief of the Bureau of Animal Industry. His association with the department, which began in 1917, marked the beginning of effective and constructive animal disease control in New Jersey. He set high standards in every line of work that he undertook and adhered to them. The department and the state have suffered a heavy loss in his passing.

As this report is written, the eradication of bovine tuberculosis in the state is nearing completion. It appears that by September 1, the state will be accredited by the federal government. This means that the infection will be reduced to a status of less than one-half of one per cent of the cattle population in each of the counties of the state. It has been the objective for twenty years to bring about this satisfactory condition, and its near accomplishment is a source of gratification. During the peak of the eradication work, the tuberculin tests showed an infection as high as 68 per cent in some areas.

Most of the reactors that now occur are in herds where one or more animals were kept following the original test. While the use of tuberculin as a testing agent is nearly 100 per cent effective, there are occasional animals which for one cause or another do not show the recognized reaction. It is highly important, therefore, that testing be continued annually in all herds of cattle in the state. In order to detect these hold-over infectious cases, to safeguard the expenditure of the money already invested, and to prevent recurring losses to dairymen which are certain to appear if the disease is given a chance to spread, the ultimate objective must be the complete eradication of the disease.

In every instance in which a high percentage of animals reacted to the test, a thorough investigation has been made of all the circumstances surrounding the herd. Every possible cause of infection is checked to make sure, so far as that is humanly possible, that there shall not be further recurrences in these herds.

The dairymen of the state, and the state itself, are facing a serious problem in connection with the handling of Bang's disease, sometimes known as contagious abortion, in cattle. In many states appropriations are now being made for state-wide campaigns against this disease on the same basis as those for tuberculosis eradication. The department regulations prohibit the shipment of animals affected with this disease into the state, but there is a considerable degree of infection already existing and some program must be adopted to cope with it. It appears that there is some possibility of relief by vaccination, particularly when calves are treated, but it seems equally well established that mature animals affected with this disease must be eliminated by the costly test-and-slaughter method.

Attention should be directed to the control of livestock auction markets in order to prevent the dissemination of diseased animals—cattle, hogs and poultry—to a number of farms. During the year a tentative program for such control was worked out with the cooperation of an auction sales establishment in Salem County. In this instance the department was fortunate to have the active cooperation of the management in developing a system of control. On the basis of this test, it is recommended that legislation be adopted giving the Board of Agriculture and the department the necessary authority and funds to fully regulate these sales places.

That dairying in the state was increasing in importance was indicated by the number of cattle imported into the state for milk production during the year. For the year ending June 30, 1937, 28,472 cattle were brought into the state as replacements for worn-out cattle, and probably for some herd additions, as compared with a total of 24,626 imported during the previous year.

#### MARKETING

In the field of marketing, definite progress was made. More and more attention has been given to the grading of farm products on the basis of federal and state standards. The products of the state are taking a preferred

place in markets as the result of this better grading procedure coupled with the freshness and high quality which is inherent in New Jersey products.

The services relating to market information were strengthened during the year, partly through improvement in previous lines of service and partly through the development of certain new methods of disseminating information. These new methods include the use of a so-called "talking tape" which reproduces up-to-date market information by telephone to those who make a call for it to the central office. Further, a teletype service is being installed to facilitate communications of the latest data on prices and commodity movements to fruit and vegetable auction markets and to county agents' offices, when it is requested.

New Jersey has led other states in the development of methods for disseminating information to consumers. In view of the large urban population in this state, it is essential for the Department of Agriculture to give consumers complete and unprejudiced information on food supplies and food costs. The success of this project has been due in a large degree to the cooperation of distributing agencies, the press and other commercial channels which have been made available to us without cost.

The cooperative sales markets in the state, commonly called auction markets, continued to increase in efficiency and in the scope of their service to farmers. During the past year, the volume of business represented in sales through these markets exceeded \$5,000,000. Some degree of control was exercised over these markets by the department as a means of systematizing the accounting procedure and of assuring patrons of adequate market information at all times.

It is noteworthy that not once since these markets have been established has there been any question of the honesty of their operations in their dealings with their members or patrons. Consequently, a high degree of confidence has been developed which has served to increase the usefulness of these auction markets as important distributing centers for New Jersey's fruits, vegetables, eggs and livestock. By the system of local management, supplemented by the supervision of the department, a system of marketing has been developed in New Jersey which has become a model for the rest of the country.

#### PLANT INDUSTRY

In the field of plant industry, progress was made in a number of projects that have been continued from previous years. Especial effort was made to secure seed of standard quality and breed on farms in the state. This was done in cooperation with research work by the Agronomy Department of the Agricultural Experiment Station for the development of good seed types. This project holds great possibilities for improving farm incomes in the state through the selection of certified seed and through the increased yields obtained per acre when good seed is used.

Of the newer undertakings, real progress may be reported in combating Dutch elm disease. Most of the cost of this work was financed by the federal

government through regular appropriations to the Department of Agriculture and by emergency grants. New Jersey is the battle front in the fight against this disease. Should the disease be allowed to progress into other states, including those in the New England section, the loss of urban and suburban land values as the result of elm depopulation cannot be estimated.

In New Jersey the responsibility for operating against this disease rests with this department, probably in part, because of the quarantine and control authority vested in the department, and in part because of the previous successful campaigns against plant pests.

### AGRICULTURAL WEEK

The annual "Agricultural Week," January 26 to 29, was an outstanding event in the department and throughout the state. This marked the twenty-second annual convention of authorized delegates from various agricultural organizations in the state, prescribed by law to elect two new members to the State Board of Agriculture. Following the convention most of these organizations held a series of meetings which, because of their programs and speakers, attracted many farmers.

The New Jersey Farm Show, which was held in the Second Regiment Armory in Trenton as a part of Agricultural Week, experienced one of its most successful affairs. With space at a premium, the entire floor was devoted to various types of exhibits embracing all phases of New Jersey agriculture. In addition to the several competitive exhibits staged by producers of apples, corn, eggs and baby chicks, many types of modern power and hand machinery used in farming operations were displayed, together with a variety of farm supplies and materials related to the business of agriculture. More than 15,000 persons visited the Farm Show while it was in progress. This event has attracted not only farmers, but more urban residents each year who are interested in modern agriculture and its development in New Jersey.

### LICENSING AND BONDING

The Department of Agriculture for some years has been vested with authority by the Legislature to enforce acts which provide for the licensing and bonding of milk and produce dealers and for the licensing of cattle dealers. Definite progress has been shown in the principal objective of these statutes; namely, the creation and development of financially responsible groups of buyers for farm products in the state.

At the close of the fiscal year, the department had in its possession surety or government bonds aggregating nearly \$2,000,000 which were filed by the milk and produce dealers in conformity with the provisions of the respective acts. These bonds were posted to insure, at least in part, the payment of obligations which, through business failure, might otherwise not be met.

## THE MILK DEALERS' LICENSING AND BONDING ACT

(Chapter 74, Laws of 1917)

Although business conditions generally were not on a par with what they were in the years immediately preceding the depression, nevertheless great advances were made in the past year, and the milk industry was greatly benefited by the increased work in other lines of employment. During the past several years nearly all the milk dealers' financial statements showed that they were carrying large amounts on the debit side of their ledgers which for the most part were due to inability to collect milk bills from customers. With increased employment in most businesses, these amounts were greatly reduced so that it was possible for many licensees to expand their milk business, invest in necessary improvements to their plants, pay their producers more promptly, and obtain surety bonds or purchase United States government securities with greater ease than had been the case for several years.

After two years' experience with the amendments that were made to this act in 1935, it is obvious that all four amendments added that year were advantageous to the producers of this state, were more easily understood by all those affected by the statute, and reduced confusion in the enforcement of the act, with the result that the licensing year 1936-37 proved to be the most successful year experienced since the act became effective.

The number of licensed dealers last year was not as great as in the two previous years. This was accounted for by the continued trend of producer-dealers to increase their own herds sufficiently to produce all the milk necessary to supply their trade so that it was no longer necessary for them to purchase from other farmers.

Complaints were received occasionally against some licensees for failing to keep their payments up to date, but in almost every instance of this kind the dealers reimbursed their producers promptly upon notification from the department, so that it was necessary to hold only two hearings during the entire year.

It was necessary for the department to penalize sixteen dealers for failure to comply with the requirements of the act. Penalties amounted to \$575.00 during the year. Through the efforts of the department, approximately \$5,900.00 was recovered for the producers, either directly from the dealers or from the proceeds of the bonds on file with the department.

Licenses were issued to 331 dealers who had filed bonds totaling \$977,900.00.

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## NUMBER OF LICENSES UNDER MILK DEALERS' LAW

County	Licenses Issued	Bonds Filed	Amount of Bonds
Atlantic .....	2	2	\$16,000.00
Bergen .....	10	5	23,300.00
Burlington .....	21	17	38,400.00
Camden .....	10	9	29,500.00
Cape May .....	4	1	1,000.00
Cumberland .....	20	17	20,400.00
Essex .....	21	13	96,750.00
Gloucester .....	15	11	13,900.00
Hudson .....	3	1	9,000.00
Hunterdon .....	10	10	88,500.00
Mercer .....	27	26	63,100.00
Middlesex .....	20	17	51,500.00
Monmouth .....	28	24	49,600.00
Morris .....	34	26	57,700.00
Ocean .....	2	2	4,000.00
Passaic .....	30	15	51,300.00
Salem .....	11	7	14,000.00
Somerset .....	18	14	35,250.00
Sussex .....	3	3	3,500.00
Union .....	20	7	45,700.00
Warren .....	11	10	20,500.00
Outside of New Jersey .....	11	11	245,000.00
Totals 1936-37 .....	331	248	\$977,900.00
1935-36 .....	350	234	937,450.00
1934-35 .....	366	224	765,650.00
1933-34 .....	327	173	518,050.00
1932-33 .....	204	163	513,575.00

## THE PRODUCE DEALERS' LICENSING AND BONDING ACT

(Chapter 93, Laws of 1930)

Since a large number of produce dealers purchasing in New Jersey had their places of business located outside the state, it was necessary to continue investigations through the earlier months of the 1936-37 fiscal year in order that the survey might be as complete as possible. It was felt that the greater the number of dealers contacted and licensed, the greater would be the amount of protection afforded to farmers. Approximately 40 per cent of the licensees were out-of-state dealers.

Penalty action was taken against six dealers for failure to obtain licenses. Eighteen farmers filed complaints against various dealers for non-payment for produce amounting to \$3,495.85.

Licenses were issued to 303 dealers, who filed bonds in the amount of \$909,000.00.

## NUMBER OF LICENSES UNDER PRODUCE DEALERS' LAW

County	Licenses Issued	Bonds Filed	Amount of Bonds
Atlantic .....	22	22	\$66,000.00
Burlington .....	5	5	15,000.00
Camden .....	2	2	6,000.00
Cape May .....	1	1	3,000.00
Cumberland .....	34	34	102,000.00
Essex .....	38	38	114,000.00
Gloucester .....	25	25	75,000.00
Hudson .....	2	2	6,000.00
Mercer .....	10	10	30,000.00
Middlesex .....	4	4	12,000.00
Monmouth .....	16	16	48,000.00
Passaic .....	9	9	27,000.00
Salem .....	13	13	39,000.00
Somerset .....	1	1	3,000.00
Union .....	3	3	9,000.00
Outside of New Jersey .....	118	118	354,000.00
Totals 1936-37 .....	303	303	\$909,000.00
1935-36 .....	296	296	888,000.00
1934-35 .....	268	268	804,000.00
1933-34 .....	265	265	795,000.00
1932-33 .....	306	304	914,000.00

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## THE CATTLE DEALERS' LICENSING ACT

(Chapter 28, Laws of 1931)

For the past three years a detailed record of each dairy animal bought, sold, or exchanged by licensed dealers has been required under a regulation of the Secretary of Agriculture. Since this regulation became effective it has proved to be a valuable factor in settling misunderstandings between dealers and farmers. As some dealers were neglecting to keep their records up to date, it was deemed advisable this year to check the records of as many dealers as time would permit, and investigation showed that with few exceptions licensees had made an honest attempt to comply in full with this regulation.

Licenses were issued to 204 dealers.

## NUMBER OF LICENSES UNDER CATTLE DEALERS' LAW

County	Licenses Issued
Bergen .....	6
Burlington .....	10
Camden .....	4
Cape May .....	5
Cumberland .....	13
Essex .....	10
Gloucester .....	4
Hudson .....	4
Hunterdon .....	13
Mercer .....	8
Middlesex .....	7
Monmouth .....	9
Morris .....	16
Ocean .....	3
Passaic .....	14
Salem .....	16
Somerset .....	8
Sussex .....	26
Union .....	10
Warren .....	16
Outside of New Jersey .....	2
Totals 1936-37 .....	204
1935-36 .....	201
1934-35 .....	203
1933-34 .....	193
1932-33 .....	187

## THE NEW JERSEY JUNIOR BREEDERS' FUND

During the 12-months period ending June 30, 1937, there was a total of 67 loans made to boys and girls for the purchase of purebred livestock. An increase was noted in the number of pig loans, which reached a total of 14, the largest number since 1930. There were 32 loans made for calves and 21 for poultry during the year. The numbers and amounts of loans for calves, pigs and poultry for each year since the establishment of the fund are listed in the following table:

## SUMMARY OF LOANS BY YEARS

Fiscal Year	Calf Loans		Pig Loans		Poultry Loans		Total Loans	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount
1920-21.....	30	\$2,815.00	..	.....	..	.....	30	\$2,815.00
1921-22.....	92	7,985.00	16	\$1,074.98	16	\$824.25	124	9,884.23
1922-23.....	81	6,365.00	21	1,267.25	13	636.25	115	8,268.50
1923-24.....	96	8,670.00	10	409.50	14	932.00	120	10,011.50
1924-25.....	81	7,065.00	26	1,320.00	17	1,183.50	124	9,568.50
1925-26.....	71	6,639.50	25	1,684.30	32	1,563.10	128	9,886.90
1926-27.....	83	7,444.00	19	1,240.00	28	1,112.50	130	9,796.50
1927-28.....	54	4,644.00	10	620.00	31	890.70	95	6,154.70
1928-29.....	55	4,960.00	13	805.00	15	680.65	83	6,445.65
1929-30.....	37	3,317.50	15	876.00	17	692.20	69	4,885.70
1930-31.....	38	3,467.50	12	769.00	7	308.00	57	4,544.50
1931-32.....	38	2,875.00	8	415.00	9	394.00	55	3,684.00
1932-33.....	24	1,820.00	10	426.75	8	323.00	42	2,569.75
1933-34.....	30	2,310.00	9	295.00	24	940.43	63	3,545.43
1934-35.....	46	4,169.00	3	110.00	23	1,174.49	72	5,453.49
1935-36.....	26	2,050.00	5	297.00	18	797.85	49	3,144.85
1936-37.....	32	2,905.00	14	941.00	21	894.40	67	4,740.40
Totals ...	914	\$79,501.50	216	\$12,550.78	293	\$13,347.32	1,423	\$105,399.60

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The number of loans by counties during the year and for all the previous years is shown in the following summary:

County	Calf		Swine		Poultry		Total
	Previous	1936-37	Previous	1936-37	Previous	1936-37	
Atlantic .....	..	..	..	..	..	..	..
Bergen .....	..	..	1	..	..	..	1
Burlington .....	37	4	16	2	13	9	81
Camden .....	..	..	..	..	..	..	..
Cape May .....	7	..	..	..	4	..	11
Cumberland .....	61	..	10	1	25	..	97
Essex .....	..	..	..	..	19	..	19
Gloucester .....	24	1	2	..	7	3	37
Hudson .....	..	..	..	..	..	..	..
Hunterdon .....	88	6	3	..	4	..	101
Mercer .....	150	6	76	5	21	..	258
Middlesex .....	103	1	1	1	40	1	147
Monmouth .....	66	5	12	..	83	1	167
Morris .....	49	..	1	..	6	..	56
Ocean .....	17	..	..	..	9	..	26
Passaic .....	..	..	..	..	1	1	2
Salem .....	77	1	75	4	24	3	184
Somerset .....	32	..	1	..	..	..	33
Sussex .....	78	3	1	1	13	1	97
Union .....	..	..	..	..	..	..	..
Warren .....	93	5	3	..	3	2	106
Totals .....	882	32	202	14	272	21	1,423

Interest among vocational high school students has been constantly increasing, and during the year loans were made to 26 students, of which 18 were for poultry, 6 for pigs and 2 for calves. There were 41 loans to 4-H Club members, of which 30 were for calves, 8 for pigs and 3 for poultry.

The amount outstanding at the close of the fiscal year was \$7,950.33. Of this amount, \$1,229.50, or 15.47 per cent, was delinquent.

Charges against the emergency fund during the year totaled \$205, of which \$195 was charged against calf emergency and \$10 against swine emergency.

At a meeting of the Board of Trustees of the fund on April 12, it was decided that the emergency fee should be reduced by 50 per cent and a corresponding decrease made in the amount of prize money offered at the Trenton Fair. The reduction in the emergency charge was made retroactive to October 1, 1936, and the individual accounts concerned were credited with the amount of the reduction, which totaled \$123.45.

Awards totaling \$401 were given to winners at the New Jersey State Fair held in September, 1936. A silver loving cup for the animal having the best production record was won by Carl Katzenstein, of Andover, on his animal "Essex Dandy Glory." The second highest record of production was made by Jack Morris, of Farmingdale, who was awarded a rosette.

The auditor's report for the calendar year 1936 showed a net profit of \$2.46. This compared with a net loss in the previous year of \$141.66. The interest rate for borrowers has continued at 4 per cent.

All attempts to make a profitable animal out of the heifer which had been taken over by the fund in the previous year having failed, the animal was sold in May, 1937, with a beef value of \$95. The original cost and maintenance charges, however, brought the total loss to \$115.24.

A meeting of the advisory committee of the fund with members of the Board of Trustees was held in Trenton on August 4, 1936, when matters of interest to the fund were considered. A number of recommendations made at that time were put into effect during the year. These included permission to go outside of the state for livestock when satisfactory animals could not be found readily within the state; the awarding of a banner and cash prize for the best animal at each of the local fairs; and the issuance of production certificates for dairy animals attaining a specified number of pounds of butterfat. Preliminary arrangements for the issuance of such certificates were approved by the Board of Trustees at a meeting held on April 12, 1937.

A conference with representatives of the Extension staff of the State College of Agriculture was held on March 11, 1937, for the purpose of working out the details for the awarding of production certificates, which it was felt should be started in the fall, the certificates to be awarded possibly during Agricultural Week in Trenton each year. The final arrangements were left for action by a committee of three to be appointed by the Secretary of Agriculture and the Director of Extension.

A regional meeting to advertise the fund and afford personal contact with borrowers was held at Flemington on the evening of April 23, 1937. The program included addresses by four members or former members, who presented the results of their experiences in borrowing money.

## PUBLICITY AND PUBLICATIONS

Information on activities of the department and reports containing useful agricultural data of various kinds were issued to the press of the state from time to time during the year. Through the cooperation of the newspapers, the department was thus able to acquaint farmers and consumers with timely agricultural facts and to call attention to various services and facilities available for their assistance.

The State Department Service, a publication prepared for farmers and containing general agricultural information, was continued on a monthly basis. The department prepared and distributed several issues of a mimeographed publication, the New Jersey Dairy Bulletin.

Throughout the year, exhibits delineating the department's work were staged at conventions, agricultural meetings and the state and county fairs.

Following is a list of the printed publications issued:

- Circular No. 265—Nematode Culture for Japanese Beetle Control.
- Circular No. 266—The Treatment of American Foulbrood.
- Circular No. 267—New Jersey Agriculture.
- Circular No. 268—Records of Breeding Flocks and Hatcheries Under Official Supervision in New Jersey, 1937.
- Circular No. 269—The Development of Cannery Asparagus Grading in New Jersey.
- Circular No. 270—The Canning Industry in New Jersey During the 1936 Season.
- Circular No. 271—Roster of County Boards of Agriculture and State Agricultural Organizations for 1937.
- Circular No. 272—Spraying for the Control of the Japanese Beetle on Ornamentals and Non-Commercial Fruit Holdings.
- Circular No. 273—The Poultry and Egg Auction Markets of New Jersey.
- Circular No. 274—Important Nursery Insects of New Jersey.
- Circular No. 275—Marketing Apples—New Jersey and Competing States.
- Circular No. 276—Buying Purebred Livestock Through the New Jersey Junior Breeders' Fund, Inc.
- Circular No. 277—Laws, Rules and Regulations Pertaining to the Shipment of Nursery Stock Out of New Jersey.
- Circular No. 278—The New Jersey Science Fair—1937.
- Circular No. 279—The Beekeeping Industry in New Jersey.
- Circular No. 280—New Jersey Retail Prices of Foods, 1913-1936.
- Circular No. 281—Philadelphia and New York as Markets for New Jersey Fruits and Vegetables.
- Circular No. 282—Questions and Answers About The Produce Dealers' Act, The Milk Dealers' Act, The Cattle Dealers' Act.
- “Buy New Jersey Foods” Series—Asparagus; Eggs; Peaches; Summer Apples; Fall and Winter Apples; Sweet Potatoes; Milk.
- Folder—New Jersey Wholesale and Retail Grades and Standards for Eggs. New Jersey Fresh Egg Law.
- Folder—Healthful Foods and How to Buy Them.
- Folder—Official New Jersey Grade A Milk.
- Folder—New Jersey Eggs, Chicks and Breeding Flocks Under State Supervision.
- Folder—New Jersey Science Fair Announcement.
- Twenty-first Annual Report of the New Jersey Department of Agriculture, 1935-1936.
- Twelve issues of monthly publication State Department Service.

## COOPERATION

In previous annual reports recognition has been given to the fine spirit of cooperation that has been manifested toward the department by other agencies and a great number of individuals. As time goes on, the value of this cooperation is demonstrated more effectively and this renewed word of cordial thanks is expressed to all those who have thus manifested their friendliness and desire to help.

We are indebted too to the members of the State Board of Agriculture for their interest and aid in planning our work and establishing the policies for our guidance. Especial mention should be made of the loyal and unselfish efforts of the chiefs of bureaus and of the assistance of the entire staff of the department who have made it possible for this report of progress to be recorded.

# Report of Bureau of Animal Industry

R. A. HENDERSHOTT, *Chief*

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The work of animal disease control herein reported was carried on for the first two and a half months of the fiscal year under the direction of Dr. J. H. McNeil, and after his death was continued along the same lines and policies.

## TUBERCULOSIS ERADICATION

During the fiscal year ending June 30, 1937, the following counties were added to the list of those designated as "Modified Accredited Tuberculosis-Free Areas":

Ocean	Burlington	Mercer	Bergen
Warren	Sussex	Essex	Hunterdon
Somerset	Monmouth	Morris	Union

Camden, Hudson and Gloucester counties were re-accredited, having passed the retests with less than one-half of one per cent of reaction. In the two remaining counties to be accredited, Salem and Middlesex, the incidence of tuberculosis reaction is being rapidly lowered, so that the entire state will soon be eligible for accreditation.

To designate any area as "Accredited" does not mean that tuberculosis in such area is a dead issue. Particularly is this true in importing states such as New Jersey. The fact that the number of cattle imported into this state annually approximates 12 per cent of the entire cattle population makes it imperative to continue testing in order to maintain the ground gained in eradicating this disease.

It will be necessary to continue for a number of years to subject each animal to an annual tuberculin test. This will necessitate the appropriation of funds for both services and indemnities. The carrying out of this procedure will enable the dairymen to meet the demand of milk companies which require that all herds supplying milk to their stations be tested annually.

The percentage of reaction on all tests increased from 75 per cent for the year 1935-1936 to 82 per cent for the year 1936-1937. During the past fiscal year, 28,472 cattle were imported as compared with 24,626 during the previous year.

Following is a monthly summary of the average net returns to the owner for salvage for reactors sold in New Jersey as compared with those sold in competition on the New York City Stock Yards:

	July	August	September	October	November	December
New Jersey .....	\$40.46	\$35.89	\$30.85	\$33.53	\$33.25	\$35.05
New York .....	28.72	26.83	25.17	23.17	24.98	28.56
	January	February	March	April	May	June
New Jersey .....	\$38.38	\$38.55	\$45.07	\$45.41	\$47.22	\$48.66
New York .....	28.35	29.27	29.81	31.45	33.04	34.69

The amount of state indemnity paid during this fiscal year for reactors condemned increased from an average of \$44.38 for the fiscal year 1935-1936 to \$49.36 for the last fiscal year.

Following is a brief summary of the work accomplished in tuberculosis eradication during the year ending June 30, 1937:

At the close of the fiscal year ending June 30, 1936, there were under state and federal cooperative supervision in New Jersey, 19,718 herds comprising 196,672 cattle. At the close of the fiscal year ending June 30, 1937, there were under supervision 18,823 herds consisting of 196,774 cattle. This is a decrease in the number of herds under supervision and a slight increase in the number of cattle. This is due evidently to the fact that a number of one and two-animal herds have either been moved away, discontinued, or for some other reason have not had a cow to be tested when the bureau's representative called to make the customary annual test.

During the past 12-month period, 232,275 tuberculin tests were made of cattle under supervision, with 1,912 animals, or 82 per cent, reacting.

A number of new herds not previously tested were placed under supervision during the fiscal year, 1,780 initial tests of 7,661 cattle having been reported. On the initial test 101 animals, or 1.32 per cent reacted. This is a decrease in the percentage of reaction found the previous year, when 2,514 herds of 9,850 animals were initially tested with 274, or 2.78 per cent, reacting.

The percentage of reactors found in out-of-state cattle added to herds under supervision during the fiscal year 1935-1936 was 1.3 per cent. Of 16,360 cattle tested, 214 reacted. During the year 1936-1937, 17,488 cattle were tested and 322, or 1.84 per cent, reacted.

On second, third and subsequent retests of herds already under supervision, 188,690 animals were tested during the fiscal year 1935-1936, and 1,302, or .69 per cent, reacted. During the fiscal year 1936-1937, 207,126 animals were tested on retest and 1,489, or .72 per cent, reacted.

During the year 1935-1936, indemnity was paid for 1,344 reactors, of which 104 were registered animals and 1,240 grade animals. During the year 1936-1937, indemnity was paid for 1,543 reactors, 130 of which were registered and 1,413 grade animals.

## TWENTY-SECOND ANNUAL REPORT

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Following is the total amount received by dairymen and breeders for 1,543 reactors condemned and slaughtered as a result of tuberculin testing during the fiscal year 1936-1937:

Amount received from salvage of reactors .....	\$61,647.59
Amount paid by the State of New Jersey in indemnities .....	76,159.81
Amount paid by the United States Government in indemnities..	32,540.33
Total .....	\$170,347.73

This is an average of \$110.40 per head.

TOTAL STATE INDEMNITY PAID, BY COUNTIES,  
JULY 1, 1936—JUNE 30, 1937

Atlantic .....	\$1,292.08
Bergen .....	192.45
Burlington .....	6,437.66
Camden .....	411.18
Cape May .....	.....
Cumberland .....	1,672.43
Essex .....	1,260.22
Gloucester .....	1,129.60
Hudson .....	.....
Hunterdon .....	3,455.92
Mercer .....	3,762.57
Middlesex .....	3,633.14
Monmouth .....	4,137.17
Morris .....	3,224.33
Ocean .....	142.01
Passaic .....	245.86
Salem .....	9,545.70
Somerset .....	1,233.69
Sussex .....	23,799.22
Union .....	1,894.74
Warren .....	8,689.84
State .....	<u>\$76,159.81</u>

## STATE DEPARTMENT OF AGRICULTURE

TOTAL STATE INDEMNITY PAID, BY COUNTIES, FROM THE  
BEGINNING OF ACCREDITED HERD WORK IN 1916  
TO JUNE 30, 1937

Atlantic .....	\$8,094.08
Bergen .....	32,183.77
Burlington .....	309,827.41
Camden .....	13,581.64
Cape May .....	10,312.28
Cumberland .....	72,498.77
Essex .....	34,755.22
Gloucester .....	61,937.98
Hudson .....	4,455.78
Hunterdon .....	326,172.91
Mercer .....	175,502.73
Middlesex .....	70,308.72
Monmouth .....	110,804.49
Morris .....	123,454.12
Ocean .....	27,111.71
Passaic .....	32,537.82
Salem .....	334,448.20
Somerset .....	210,852.23
Sussex .....	888,303.63
Union .....	34,555.18
Warren .....	352,456.37
State .....	<u>\$3,234,155.04</u>

The following summary indicates the amount of state indemnity paid for reactors resulting from the tuberculin test during the year ending June 30, 1937:

Class of Cattle	Number of Animals	Amount Paid
Registered Animals .....	130	\$10,949.62
Grade Animals .....	1,413	65,665.19
Registered and Grade .....	1,543	<u>\$76,159.81</u>

## Average State Indemnity Paid Per Head—

Registered Animal .....	\$80.73
Grade Animal .....	46.47
Registered and Grade .....	<u>49.36</u>

## TWENTY-SECOND ANNUAL REPORT

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The following summary indicates the amount of salvage received by owners for reactors resulting from the tuberculin test during the year ending June 30, 1937:

Class of Cattle	Number of Animals	Amount Paid
Registered Animals .....	130	\$6,068.66
Grade Animals .....	1,413	55,578.93
	1,543	\$61,647.59
Average Salvage Received Per Head—		
Registered Animal .....		\$46.68
Grade Animal .....		39.34
Registered and Grade .....		39.95

The following summary gives the total federal indemnity received by owners of condemned cattle:

Class of Cattle	Number of Animals	Amount Paid
Registered and Grade .....	1,543	\$32,540.33

The following summary shows the total amount of money received by owners of condemned animals:

Total Amount Received by Owners for Reactors (Sum of salvage, federal and state indemnity) .....	\$170,347.73
Average Amount Received per Head by Owners for Reactors ....	110.40

HERDS AND CATTLE UNDER STATE AND FEDERAL SUPERVISION, JUNE 30, 1937

County	Herds Under Supervision	Herds Fully Accredited	T. S.	Number of Cattle Under Supervision 6/30/37			Number of Cattle Fully Accredited 6/30/37		
				P. B.	Grades	Total	P. B.	Grades	Total
Atlantic .....	318	274	..	1	544	545	3	419	422
Bergen .....	252	220	2	178	2,770	2,948	178	2,574	2,752
Burlington .....	1,364	1,201	4	1,693	19,702	21,395	1,578	18,033	19,611
Camden .....	369	289	..	238	1,370	1,608	260	1,199	1,459
Cape May .....	267	228	2	68	903	971	77	798	875
Cumberland .....	1,332	1,134	12	520	6,234	6,754	504	5,507	6,011
Essex .....	165	125	..	197	2,455	2,652	189	1,388	1,577
Gloucester .....	1,213	1,012	1	757	4,732	5,489	761	4,320	5,081
Hudson .....	25	22	..	....	128	128	....	132	132
Hunterdon .....	2,304	2,058	10	2,425	23,507	25,932	2,227	21,917	24,144
Mercer .....	1,007	910	3	1,044	8,476	9,520	927	6,836	7,763
Middlesex .....	1,438	1,228	6	766	7,369	8,135	589	4,301	4,890
Monmouth .....	1,557	1,298	5	855	8,109	8,964	781	6,891	7,672
Morris .....	1,039	892	2	1,720	10,259	11,979	1,694	9,311	11,005
Ocean .....	405	341	..	21	1,748	1,769	22	1,506	1,528
Passaic .....	250	227	..	52	2,903	2,955	45	2,352	2,397
Salem .....	1,362	1,205	8	1,101	13,790	14,891	1,080	12,259	13,339
Somerset .....	1,232	1,109	6	2,351	9,403	11,754	2,220	8,767	10,987
Sussex .....	1,287	1,102	21	2,539	29,345	31,884	1,750	24,403	26,153
Union .....	267	209	..	68	3,747	3,815	62	1,237	1,299
Warren .....	1,370	1,236	20	1,749	20,937	22,686	1,363	19,589	20,952
Total .....	18,823	16,320	102	18,343	178,431	196,774	16,310	153,739	170,049

## TWENTY-SECOND ANNUAL REPORT

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INITIAL TESTS MADE AND REACTORS RESULTING, BY COUNTIES,  
JULY 1, 1936—JUNE 30, 1937

	Number of Herds Tested	Animals (Tested)		Animals (Reacting)		Percentage (Reacting)		Total Animals Tested	Total Animals Reacting	Percentage of Total Reacting
		Registered	Grade	Registered	Grade	Registered	Grade			
Atlantic .....	43	..	55	..	1	..	1.82	55	1	1.82
Bergen .....	20	..	62	..	2	..	3.23	62	2	3.23
Burlington .....	121	25	775	..	6	..	.77	800	6	.75
Camden .....	73	..	153	..	1	..	.65	153	1	.65
Cape May .....	..	..	..	..	..	..	..	..	..	..
Cumberland ....	142	2	278	..	5	..	1.8	280	5	1.79
Essex .....	19	1	98	..	..	..	..	99	..	..
Gloucester .....	200	6	478	..	7	..	1.46	484	7	1.45
Hudson .....	3	..	10	..	..	..	..	10	..	..
Hunterdon .....	184	108	1,012	..	3	..	.3	1,120	3	.27
Mercer .....	82	16	266	2	7	12.5	2.63	282	9	3.19
Middlesex .....	137	6	226	..	4	..	1.77	232	4	1.72
Monmouth .....	191	30	405	..	10	..	2.47	435	10	2.3
Morris .....	115	21	486	..	8	..	1.65	507	8	1.58
Ocean .....	4	..	34	..	..	..	..	34	..	..
Passaic .....	22	..	89	..	..	..	..	89	..	..
Salem .....	92	4	457	..	7	..	1.53	461	7	1.52
Somerset .....	107	94	445	..	4	..	.9	539	4	.74
Sussex .....	90	83	1,176	5	14	6.02	1.19	1,259	19	1.51
Union .....	47	..	92	..	2	..	2.17	92	2	2.17
Warren .....	88	5	663	..	13	..	1.96	668	13	1.95
	1,780	401	7,260	7	94	1.75	1.29	7,661	101	1.32

CATTLE TESTED IN NEW JERSEY UNDER THE ACCREDITED HERD PLAN BY VETERINARIANS ON THE STAFF  
OF THE UNITED STATES DEPARTMENT OF AGRICULTURE,  
JULY 1, 1936—JUNE 30, 1937

	INITIAL TESTS					HERD ADDITION TESTS					OTHER TESTS				
	Lots	Tested—		Reactors—		Lots	Tested—		Reactors—		Lots	Tested—		Reactors—	
Registered		Grade	Registered	Grade	Registered		Grade	Registered	Grade	Registered		Grade	Registered	Grade	
1936—															
July .....	16	1	27	..	..	1	..	626	..	4	130	6	1,602	..	..
August .....	2	..	3	..	..	..	6	433	..	29	106	17	1,127	..	34
September .....	23	1	59	..	..	..	2	449	..	4	139	93	836	..	4
October .....	13	13	59	..	..	..	..	262	..	4	82	37	1,029	..	6
November .....	14	..	67	..	..	..	3	261	..	9	139	47	1,162	..	6
December .....	9	..	23	..	..	..	3	271	..	5	74	26	2,337	2	20
1937—															
January .....	12	..	40	..	..	..	14	310	..	4	64	200	1,323	1	9
February .....	11	5	39	..	1	..	5	109	..	..	96	79	829	..	2
March .....	26	1	93	..	1	..	51	311	..	7	141	218	2,018	3	21
April .....	8	3	61	..	..	..	21	255	..	1	135	103	3,386	..	4
May .....	26	13	41	..	1	1	..	352	..	2	191	211	1,683	..	9
June .....	17	..	84	..	2	..	18	106	..	3	150	80	1,052	3	..
Totals .....	177	37	596	..	5	2	123	3,745	..	72	1,447	1,117	18,384	9	115
Percentage of															
Reactors .....	..	..	..	..	.84	..	..	..	..	1.92	..	..	..	.81	.63
verage Percentage..	..	..	..	..	.79	..	..	..	..	1.86	..	..	..	..	.64

CATTLE TESTED IN NEW JERSEY UNDER THE ACCREDITED HERD PLAN BY VETERINARIANS ON THE STAFF  
OF THE STATE DEPARTMENT OF AGRICULTURE,  
JULY 1, 1936—JUNE 30, 1937

	INITIAL TESTS					HERD ADDITION TESTS					OTHER TESTS				
	Lots	Tested—		Reactors—		Lots	Tested—		Reactors—		Lots	Tested—		Reactors—	
		Registered	Grade	Registered	Grade		Registered	Grade	Registered	Grade		Registered	Grade	Registered	Grade
1936—															
July .....	91	38	375	..	3	4	6	628	..	11	560	346	4,699	..	29
August .....	26	3	145	..	3	2	7	806	..	13	399	348	3,510	..	21
September .....	103	15	359	..	7	33	24	483	..	4	459	1,149	5,306	4	26
October .....	82	7	421	..	2	..	8	458	1	14	550	893	8,882	2	67
November .....	42	9	197	..	3	..	7	224	..	1	413	905	4,910	4	29
December .....	47	..	134	..	1	1	10	324	..	4	631	793	6,080	1	55
1937—															
January .....	37	6	203	..	1	3	16	497	..	23	513	1,118	6,346	9	84
February .....	26	1	122	..	3	1	14	577	..	6	355	1,066	6,186	8	52
March .....	49	14	276	..	6	..	8	465	..	6	521	806	6,725	4	33
April .....	53	..	305	..	14	2	5	205	..	10	612	1,293	8,948	12	78
May .....	65	4	235	..	11	..	5	74	..	2	519	1,267	5,147	1	25
June .....	65	..	284	..	..	1	..	135	..	5	433	719	5,009	12	10
Totals .....	686	97	3,056	..	54	47	110	4,876	1	99	5,965	10,703	71,748	57	509
Percentage of															
Reactors .....	..	..	..	..	1.77	..	..	..	.91	2.03	..	..	..	.53	.71
Average Percentage..	..	..	..	..	1.72	..	..	..	..	2.01	..	..	..	..	.69

CATTLE TESTED UNDER THE ACCREDITED HERD PLAN BY VETERINARIANS ACCREDITED BY  
THE UNITED STATES DEPARTMENT OF AGRICULTURE,  
JULY 1, 1936—JUNE 30, 1937

	INITIAL TESTS					HERD ADDITION TESTS					OTHER TESTS				
	Lots	Tested—		Reactors—		Lots	Tested—		Reactors—		Lots	Tested—		Reactors—	
Registered		Grade	Registered	Grade	Registered		Grade	Registered	Grade	Registered		Grade	Registered	Grade	
36—															
July .....	79	21	329	..	1	63	58	673	..	21	987	1,169	9,912	4	43
August .....	58	15	161	..	1	47	36	512	..	12	860	808	7,352	3	57
September .....	161	16	695	1	4	74	12	713	..	13	1,207	649	9,219	1	13
October .....	98	20	371	..	6	97	19	722	..	7	897	867	9,573	11	62
November .....	83	37	198	4	..	89	29	706	..	8	625	911	6,401	11	59
December .....	49	3	149	1	2	110	24	703	1	10	510	548	4,848	3	47
37—															
January .....	52	56	188	..	3	118	12	826	..	8	489	693	4,291	4	32
February .....	31	..	167	..	2	78	66	849	1	8	440	761	6,554	..	73
March .....	51	4	247	..	..	53	18	625	1	16	949	791	10,742	8	111
April .....	119	84	506	1	6	72	17	859	..	24	1,346	1,215	12,191	10	131
May .....	103	10	479	..	7	46	19	605	..	17	1,000	918	9,764	4	83
June .....	33	1	118	..	3	47	20	511	..	3	585	419	4,578	3	26
Totals .....	917	267	3,608	7	35	894	330	8,304	3	147	9,895	9,749	95,425	62	737
Percentage of															
Reactors .....	..	..	..	2.62	.10	..	..	..	.91	1.77	..	..	..	.64	.77
Average Percentage..	..	..	..	1.08		..	..	..		1.74	..	..	..		.76

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SUMMARY OF CATTLE TESTED UNDER ACCREDITED HERD PLAN  
JULY 1, 1936—JUNE 30, 1937

	Registered Animals	Grade Animals	Total
<b>INITIAL TESTS</b>			
Tested .....	401	7,260	7,661
Reacted .....	7	94	101
	Percentage of Reactors—1.32		
<b>HERD ADDITION TESTS</b>			
Tested .....	563	16,925	17,488
Reacted .....	4	318	322
	Percentage of Reactors—1.84		
<b>OTHER TESTS</b>			
Tested .....	21,569	185,557	207,126
Reacted .....	128	1,361	1,489
	Percentage of Reactors—.72		
<b>TOTAL</b>			
Tested .....			232,275
Reacted .....			1,912
Percentage of Reactors .....			.82

TESTS MADE ON NATIVE CATTLE NOT UNDER STATE AND FEDERAL SUPERVISION,  
 JULY, 1936—JUNE, 1937

*Tested by Private Veterinarians*

	HERD TESTS				TESTS FOR EXPORT				OTHER TESTS			
	Number of Lots	Animals Tested	Animals Reacted	Per Cent Reacted	Number of Lots	Animals Tested	Animals Reacted	Per Cent Reacted	Number of Lots	Animals Tested	Animals Reacted	Per Cent Reacted
36—												
July .....	2	3	..	..	1	4	..	..	..	..	..	..
August .....	3	20	..	..	..	..	..	..	..	..	..	..
September .....	1	3	..	..	..	..	..	..	2	20	..	..
October .....	2	2	..	..	..	..	..	..	..	..	..	..
November .....	1	11	..	..	..	..	..	..	..	..	..	..
December .....	1	11	..	..	..	..	..	..	..	..	..	..
37—												
January .....	1	23	..	..	..	..	..	..	..	..	..	..
February .....	..	..	..	..	..	..	..	..	..	..	..	..
March .....	5	19	..	..	..	..	..	..	..	..	..	..
April .....	6	77	..	..	..	..	..	..	..	..	..	..
May .....	7	34	..	..	..	..	..	..	..	..	..	..
June .....	4	12	..	..	2	6	..	..	..	..	..	..
Totals .....	33	215	..	..	3	10	..	..	2	20	..	..

## TWENTY-SECOND ANNUAL REPORT

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## INSPECTING AND RELEASING INSHIPPED CATTLE

The inspection and release of cattle shipped into New Jersey as required by law reveals that during the fiscal year 1936-37 there was an increase of 3,846 animals imported over the number for the previous year, or a total of 28,472 in the past fiscal year as compared with 24,626 for the previous year.

The health charts of all cattle shipped into New Jersey are scrutinized very closely and in a number of instances during the past year inshipped cattle were quarantined for retest and those which failed to meet the requirements were ordered to be slaughtered. This is imperative in order to protect the investment the state has made in this control program and also to guarantee to the dairymen of New Jersey healthy animals for replacements.

Following is a summary of the cattle shipped into New Jersey by months, those condemned on tuberculin test and those shipped out of the state during the year ending June 30, 1937:

Month	Number of Cattle Shipped into New Jersey	Number of Cattle Condemned on Tuberculin Test	Number of Cattle Shipped out of New Jersey
July .....	2,285	116	58
August .....	3,150	173	35
September .....	2,835	81	76
October .....	4,165	182	50
November .....	2,325	134	62
December .....	2,303	152	127
January .....	1,776	178	47
February .....	1,448	156	32
March .....	1,695	217	49
April .....	1,983	291	76
May .....	1,928	162	82
June .....	2,579	70	41
Totals .....	28,472	1,912	735

## IMPORT CATTLE RECEIVED FROM VARIOUS STATES FOR DAIRY AND BREEDING PURPOSES, 1936-1937

POINT OF ORIGIN	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Athenia (Quarantine) . . .	...	...	...	...	...	...	...	...	94	125	92	...	311
Canada .....	98	33	52	190	88	68	47	21	85	66	117	23	888
Connecticut .....	1	1	1	2	3	1	...	...	...	7	2	5	23
Delaware .....	...	...	1	1	...	9	...	...	5	...	...	2	18
Illinois .....	...	...	...	...	...	50	...	3	...	...	27	62	142
Indiana .....	...	...	...	...	...	1	...	...	...	...	...	...	1
Kentucky .....	...	15	...	...	17	...	...	...	...	...	...	2	34
Lancaster Yards .....	83	456	243	181	66	68	27	20	20	96	44	71	1,375
Maine .....	...	...	5	...	...	...	...	...	...	...	...	2	7
Maryland .....	90	164	133	134	68	56	26	82	66	111	145	198	1,273
Massachusetts .....	...	...	...	...	...	3	3	...	3	...	...	2	11
Michigan .....	229	365	474	840	357	436	252	157	308	309	312	375	4,414
Minnesota .....	...	...	...	...	1	...	44	...	...	...	...	55	100
Mississippi .....	...	21	...	...	...	...	...	...	...	...	...	...	21
Nebraska .....	...	...	...	46	...	...	...	...	...	...	...	...	46
New Hampshire .....	...	...	...	...	...	...	...	...	3	...	...	...	3
New York .....	18	39	32	59	35	75	67	74	68	60	80	43	650
North Carolina .....	...	...	...	...	...	5	...	...	...	...	...	14	19
Ohio .....	657	733	677	806	542	460	510	387	472	458	326	532	6,560
Pennsylvania .....	358	253	305	426	279	278	286	218	223	308	279	243	3,456
South Carolina .....	...	...	...	...	...	...	...	...	...	...	...	15	15
Tennessee .....	74	64	100	...	...	...	...	...	...	...	...	27	265
Vermont .....	5	68	25	...	...	...	...	5	...	...	10	25	138
Virginia .....	28	57	23	33	24	23	27	...	...	...	14	39	268
Wisconsin .....	644	881	764	1,447	845	770	487	481	348	443	480	844	8,434
	2,285	3,150	2,835	4,165	2,325	2,303	1,776	1,448	1,695	1,983	1,928	2,579	28,472

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CATTLE SHIPPED OUT OF THE STATE DURING THE FISCAL YEAR  
1936-1937

Month	Number of Lots From Inshipped Cattle	Number of Animals From Inshipped Lots	Number of Lots From Herds Under Supervision	Number of Animals From Herds Under Supervision
July .....	8	23	17	35
August .....	4	10	10	25
September .....	5	25	8	51
October .....	2	16	11	34
November .....	9	47	8	15
December .....	7	45	16	82
January .....	5	26	9	21
February .....	5	21	9	11
March .....	5	26	8	23
April .....	4	9	22	67
May .....	4	20	24	62
June .....	..	..	18	41
Totals .....	58	268	160	467

## BANG'S DISEASE CONTROL

An increasing number of inquiries have come to the department during the past year relative to control of Bang's disease among cattle. At present the program consists largely of testing and the elimination of those animals which show a positive reaction to the blood test.

An increased amount of aid has been given by the Federal Department of Agriculture in connection with the administration of this program in herds whose owners have signed a federal agreement. That department has detailed to New Jersey for this work one full-time field veterinarian. This assignment considerably lightened the load which an inadequate state budget for the control of Bang's disease heretofore was obliged to carry.

During the past months, considerable time was devoted to this control program and a number of meetings were held at which the subject received full discussion. At present the program as followed in New Jersey is one mainly for the breeder of purebred livestock, as it is necessary for him to have a Bang's disease-free accredited herd in order to maintain a market for his stock.

The control of Bang's disease is becoming increasingly more important as time goes on, as evidenced by the endeavor being made by states surrounding New Jersey in eradicating this disease. It is pertinent to note that New York, Pennsylvania, Maryland and Delaware, the states which bound New Jersey, have all appropriated considerable sums of money for the indemnification of farmers for reactors to the blood test.

It will be necessary for states which make a great number of importations annually to protect themselves by means of regulations governing the introduction of cattle, such as New Jersey now has, until such time as there

are a sufficient number of Bang's disease-free herds established in states from which our importations originate to guarantee a constant source of supply of absolutely negative stock. It is important also that New Jersey keep pace with the progress being made in exporting states so that infection will not be present in the herds to serve as a menace to clean cattle which will be imported.

The New Jersey Veterinary Medical Association has been requested to appoint an advisory committee to confer with the chief of the Bureau of Animal Industry relative to the various programs which might be offered to the dairymen of New Jersey to assist them in preparing their herds in such a way that imports from Bang's disease-free herds will not be a liability. It is expected that this committee, together with the Animal Industry Committee of the State Board of Agriculture, will provide such programs for the control and eradication of Bang's disease as may seem to them to be applicable to conditions within the state.

A recent act of the Legislature provided funds for a study of both Bang's disease and mastitis. It is expected that the results of this study will provide the information necessary to inaugurate a more comprehensive control program.

At the close of the fiscal year 1936-37 there were under supervision for the eradication of Bang's disease 231 herds of 10,939 cattle. Of this number 121 herds of 6,426 cattle were also under federal supervision for the eradication of Bang's disease. One hundred and four herds have passed a sufficient number of clean tests to become accredited.

The following summary shows the work accomplished since the inauguration of the program for the control of Bang's disease in the state in 1926:

Total number of animals bled since the work commenced .....	198,014	
Total number of animals showing positive reaction .....	10,795—	5.45%
Total number of animals showing negative reaction .....	175,054—	88.4 %
Total number of animals bled on initial test since the work commenced .....	21,543	
Total number of animals showing positive reaction .....	4,650—	21.58%
Total number of animals showing negative reaction .....	16,893—	78.42%

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## HERDS AND ANIMALS UNDER STATE SUPERVISION FOR THE ERADICATION OF BANG'S DISEASE AND HERDS ACCREDITED AS BEING FREE OF IT, BY COUNTIES, JUNE 30, 1937

County	Number of Herds Under Supervision	Number of Herds Fully Accredited	Number of Animals Under Supervision
Atlantic .....	..	..	..
Bergen .....	8	2	278
Burlington .....	14	6	514
Camden .....	4	2	122
Cape May .....	6	3	118
Cumberland .....	7	3	385
Essex .....	3	1	150
Gloucester .....	6	2	341
Hudson .....	..	..	..
Hunterdon .....	18	5	615
Mercer .....	32	23	1,260
Middlesex .....	17	1	2,482
Monmouth .....	19	11	537
Morris .....	15	3	1,305
Ocean .....	1	..	37
Passaic .....	4	2	280
Salem .....	5	1	170
Somerset .....	60	35	1,639
Sussex .....	4	1	362
Union .....	2	1	7
Warren .....	6	2	337
State .....	231	104	10,939

## AGGLUTINATION BLOOD TESTS MADE IN THE BUREAU LABORATORY FOR BANG'S DISEASE

County	Number of Tests	Negative Reactions	Positive Reactions	Suspicious Reactions
Atlantic .....	1	..	1	..
Bergen .....	1,158	1,062	24	72
Burlington .....	2,190	2,075	24	91
Camden .....	207	197	..	10
Cape May .....	358	333	3	22
Cumberland .....	1,833	1,635	65	133
Essex .....	511	458	24	29
Gloucester .....	1,790	1,743	9	38
Hudson .....	..	..	..	..
Hunterdon .....	2,299	2,141	44	114
Mercer .....	6,257	5,682	179	396
Middlesex .....	2,167	2,044	42	81
Monmouth .....	2,392	2,322	21	49
Morris .....	8,160	7,680	91	389
Ocean .....	202	194	1	7
Passaic .....	2,664	2,477	75	112
Salem .....	792	687	62	43
Somerset .....	4,812	4,531	81	200
Sussex .....	1,941	1,735	87	119
Union .....	63	56	1	6
Warren .....	1,569	1,405	67	97
State .....	41,366	38,457	901	2,008

EXPERIMENTAL VACCINATION OF CALVES

In the work of experimental vaccination of calves to immunize the young stock against Bang's disease, 913 calves in 121 herds have been vaccinated in New Jersey. The major portion of this work has been conducted by veterinarians in private practice who are interested enough to devote their time without expense to the state. The vaccine used in the attempted immunization of calves has been supplied by the Bureau of Animal Industry of the United States Department of Agriculture.

Following the injection, samples of the blood of these calves have been examined at monthly intervals until the blood titre has returned to negative, at which time they are released for breeding. Of the total of 913 vaccinated, 614 have been released.

A number of the vaccinated calves have passed through their first gestation period and have subsequently been blood tested, the results being as follows:

Number of calves bled .....	289
Number of calves giving negative reaction .....	205
Number of calves giving positive reaction .....	21
Number of calves giving highly suspicious reaction .....	34
Number of calves giving slightly suspicious reaction .....	29

RECORD BY COUNTIES OF THE NUMBER OF HERDS AND CALVES  
VACCINATED AS A PROTECTION AGAINST BANG'S DISEASE  
JUNE 30, 1937

County	Number of Herds Vaccinated	Number of Calves Vaccinated	Number of Calves Released for Breeding
Atlantic .....	..	..	..
Bergen .....	..	..	..
Burlington .....	7	113	53
Camden .....	..	..	..
Cape May .....	2	8	6
Cumberland .....	25	64	57
Essex .....	..	..	..
Gloucester .....	15	78	58
Hudson .....	..	..	..
Hunterdon .....	24	295	204
Mercer .....	2	86	38
Middlesex .....	1	4	4
Monmouth .....	1	8	8
Morris .....	1	8	8
Ocean .....	..	..	..
Passaic .....	..	..	..
Salem .....	35	154	122
Somerset .....	5	77	42
Sussex .....	3	18	16
Union .....	..	..	..
Warren .....	..	..	..
State .....	121	913	616

## VETERINARY SUPERVISION OF LIVESTOCK AUCTION MARKETS

To protect the health of farm herds and to conserve the investment of public funds already expended for eradicating animal diseases, a plan for more strict sanitary supervision of the livestock auction markets has been developed in New Jersey. The project, inaugurated by the State Board of Agriculture, aims to prevent the movement of diseased livestock from the auction markets to farm herds and so serves to supplement the general disease eradication program of the state.

Before launching state-wide veterinary supervision of all livestock auction markets, the voluntary cooperation of the proprietor of one southern New Jersey sales company was accepted. An agreement was formally executed whereby all cattle which entered the market for sale must pass a minimum health examination. All cattle sold for inclusion in farm herds must come from fully accredited tuberculosis-free herds. In addition, all cattle presented for sale which have not been satisfactorily tested for tuberculosis within sixty days prior to sale must be retested before the new owner may remove them from the market. Cattle sold in this manner are accompanied by a health chart issued by a representative of the department. Subsequently, when the animal is presented for the tuberculin test, the owner is entitled to indemnity, should it react in the same manner as for any older member of his herd.

Swine consigned to this market for sale and sold for delivery to New Jersey farms must be simultaneously treated with anti-hog cholera serum and virus before being removed from the yards.

All livestock consigned to the sale and sold for immediate slaughter is permanently identified to insure prompt disposal for slaughter.

It is recommended that adequate laws be passed which would make it mandatory that all livestock auction markets be licensed by the State Department of Agriculture and be supervised by veterinarians under the direction of the Bureau of Animal Industry.

Following is a summary of the livestock examined by the supervisor assigned to this sales yard since this supervision was inaugurated, March 23, 1937:

Number of Cattle Checked	Number of Cattle Tuberculin Tested		Number of Cattle Ear Punched for Slaughter	Number of Cattle Bled for Bang's Test	Number of Swine Treated	
	<i>Tested</i>	<i>Reacted</i>			<i>Single</i>	<i>Double*</i>
40	179	1	33	48	90	840

\* Whenever double treatment was employed, swine were also given a protective inoculation of mixed infection bacterin.

ENCEPHALOMYELITIS

Encephalomyelitis, or brain fever, in horses, has occurred in sporadic outbreaks in some sections of the United States, including New Jersey. The disease in the western part of the United States differs from that seen in New Jersey in the virulence of the virus involved, and also in the parasite that is responsible for its spread. In New Jersey one known vector is the salt water mosquito.

This disease is not transmitted by direct contact, which accounts for the fact that often only one of a stable of horses is afflicted.

Through the cooperation of the Rockefeller Institute for Medical Research a vaccine has been developed for the eastern strain of this virus. It is the belief of research workers that the method of vaccination used in New Jersey will confer lifetime protection to horses in which it is employed.

During the past fiscal year we have treated 1,376 horses on 325 premises in southern New Jersey with this vaccine. The permanency of the immunity can only be definitely established by a bona fide outbreak of encephalomyelitis in the area that has been thus treated.

No cases of encephalomyelitis occurred in the state during the past year.

SWINE DISEASE CONTROL

In the fiscal year 1936-37, as in previous years, the immunization of hogs as a protection against cholera was carried out by private veterinarians who reported vaccinations made as follows:

NUMBER OF HOGS INOCULATED AS A PROTECTION AGAINST CHOLERA INFECTION, BY MONTHS, JULY, 1936, TO JUNE, 1937

Month	Number of Hogs Given Single Treatment	Number of Hogs Given Double Treatment
July .....	2	527
August .....	25	299
September .....	..	206
October .....	28	491
November .....	..	192
December .....	..	177
January .....	12	109
February .....	9	162
March .....	..	307
April .....	..	92
May .....	..	440
June .....	..	206
Totals .....	76	3,208
Total Single .....	76	
Total Double .....	3,208	
Grand Total .....	3,284	

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HOGS INOCULATED AS A PROTECTION AGAINST CHOLERA  
INFECTION, BY COUNTIES, JULY, 1936—JUNE, 1937*Vaccinations Made by Private Veterinarians*

	Single Treatment	Double Treatment
Atlantic .....	..	..
Bergen .....	..	..
Burlington .....	..	99
Camden .....	..	..
Cape May .....	1	517
Cumberland .....	..	..
Essex .....	..	..
Gloucester .....	..	..
Hudson .....	..	..
Hunterdon .....	..	..
Mercer .....	..	58
Middlesex .....	10	596
Monmouth .....	18	285
Morris .....	..	244
Ocean .....	..	5
Passaic .....	..	..
Salem .....	..	..
Somerset .....	1	467
Sussex .....	..	119
Union .....	46	774
Warren .....	..	44
State .....	76	3,208
Total Single .....	76	
Total Double .....		3,208
Grand Total .....		3,284

STATE DEPARTMENT OF AGRICULTURE

GLANDERS

Of the 107 horses tested for glanders, reports for which were forwarded to this bureau, no positive cases were reported. Of this number 102 were tested to enter the state, 4 were tested for export and one animal was tested privately within the state.

MALLEIN TESTS CONDUCTED AND REPORTED,  
JULY 1, 1936—JUNE 30, 1937

*Tests Made by Private Veterinarians*

Month	Negative	Positive
July .....	11	..
August .....	3	..
September .....	4	..
October .....	9	..
November .....	7	..
December .....	..	..
January .....	..	..
February .....	15	..
March .....	4	..
April .....	25	..
May .....	15	..
June .....	14	..
<b>Total .....</b>	<b>107</b>	<b>..</b>

ANTHRAX

Anthrax is a peculiar organism in its ability to maintain its virulence in the face of extremely adverse conditions. It is a soil contaminant and outside the animal body it encases itself in a protective spore that is very resistant to drying, cold, heat and chemicals.

It is history that in anthrax districts severe outbreaks of the disease follow seasons of drought. Cattle deprived of succulent grass ravenously attack meadows following the spring rains, and grazing close to the soil, their intake of anthrax spores is great, resulting in a severe outbreak.

LIVESTOCK SOLD AT THE JERSEY CITY STOCK YARDS,  
JULY 1, 1936—JUNE 30, 1937

Animal	Calves	Sheep	Cows	Bulls	Steers	Total
No. Sold .....	12,777	12,851	4,206	1,012	1,700	32,546

## STALLION REGISTRATION

In compliance with the provisions of Chapter 212, Laws of 1908, a license must be procured from the Bureau of Animal Industry for stallions whose owners wish to use them for public service. Before a license can be issued, each stallion must be examined as to physical fitness by a representative of this bureau. The original license fee is \$5 and the fee for renewal is \$2. Each license covers the calendar year in which it is issued. During the past year, 25 stallions were examined and licensed.

## STALLIONS LICENSED, BY BREEDS, JULY 1, 1936—JUNE 30, 1937

Belgian (Purebred) .....	3
Clydesdale (Purebred) .....	1
Percheron (Purebred) .....	10
Shire (Purebred) .....	1
Suffolk (Purebred) .....	2
Grade Drafts* .....	7
Pony (Grade—Breed not known) .....	1
	25
Total .....	25

\* Includes grade Percheron, Belgians, and Jackasses.

## STALLIONS LICENSED, BY COUNTIES, JULY 1, 1936—JUNE 30, 1937

Atlantic .....	..
Bergen .....	..
Burlington .....	2
Camden .....	1
Cape May .....	..
Cumberland .....	3
Essex .....	..
Gloucester .....	1
Hudson .....	..
Hunterdon .....	8
Mercer .....	..
Middlesex .....	1
Monmouth .....	..
Morris .....	1
Ocean .....	..
Passaic .....	..
Salem .....	3
Somerset .....	1
Sussex .....	..
Union .....	..
Warren .....	4
	25
State .....	25

## FOWL POX AND LARYNGOTRACHEITIS VACCINATION

Permits were issued to poultrymen making requests for permission to vaccinate their personally owned flocks as a protection against fowl pox and laryngotracheitis.

Following is a record of the permits issued during the calendar year 1936:

Fowl pox permits .....	492
Laryngotracheitis permits .....	100

## POULTRY INSPECTION

Inspection of carlots of poultry arriving at the railroad terminals throughout the state was continued. The health of the poultry shipped has been greatly improved, as evidenced by the fact that no condemnations were necessary during the past fiscal year. This is encouraging in comparison with conditions prevailing a number of years ago when this inspection service was inaugurated. The improvement noted can be credited to the fact that close inspection is made of all live poultry shipped to New Jersey.

Following is a summary of the number of carlots of poultry received during the year and the points of origin of such consignments:

CARLOTS OF POULTRY FROM VARIOUS STATES RELEASED AT RAILROAD TERMINALS IN  
NEW JERSEY, JULY 1, 1936—JUNE 30, 1937

PLACE OF ORIGIN	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Alabama .....	..	..	..	..	4	..	3	3	..	4	2	..	16
Arkansas .....	12	7	6	3	5	5	..	..	..	..	1	..	39
Connecticut .....	3	..	4	6	3	5	6	10	7	8	9	10	71
Delaware .....	9	2	6	8	8	6	7	7	10	8	10	11	92
Georgia .....	..	..	..	..	..	..	..	..	..	1	..	..	1
Illinois .....	23	23	19	21	33	24	12	12	14	9	12	16	218
Indiana .....	22	13	11	30	16	22	13	11	9	10	16	25	198
Iowa .....	4	1	1	..	..	1	1	..	..	..	..	..	8
Kentucky .....	..	2	4	..	..	..	..	..	1	3	1	..	11
Maine .....	..	..	..	..	..	..	1	..	..	..	..	..	1
Maryland .....	3	..	5	3	5	6	2	..	1	..	1	..	26
Massachusetts .....	5	2	2	1	3	1	..	..	1	4	6	5	30
Mississippi .....	..	..	..	..	1	..	..	..	..	..	..	..	1
Missouri .....	15	8	11	8	14	8	..	..	..	..	1	..	65
Nebraska .....	..	..	..	..	1	..	..	..	..	..	..	..	1
New Hampshire ..	3	..	8	8	4	11	4	2	3	1	3	7	54
New York .....	2	1	4	5	..	2	2	..	3	3	1	1	24
North Carolina ..	..	..	..	..	4	..	2	..	..	..	..	..	6
North Dakota ....	..	..	1	..	..	..	..	..	..	..	..	..	1
Ohio .....	14	18	23	26	38	38	20	14	12	8	19	17	247
Oklahoma .....	..	..	..	..	..	..	1	..	..	..	..	..	1
Pennsylvania .....	5	1	2	4	6	8	3	4	5	6	5	5	54
Rhode Island .....	..	..	..	..	..	..	..	..	..	..	..	1	1
South Carolina ...	..	..	..	..	..	..	2	1	..	1	..	..	4
South Dakota .....	6	4	6	9	5	3	1	2	4	5	6	8	59
Tennessee .....	3	..	..	1	40	14	3	9	2	15	41	4	132
Texas .....	..	..	..	..	..	..	..	..	2	..	..	..	2
Virginia .....	3	1	3	2	18	9	3	7	3	7	4	6	66
Totals .....	132	83	116	135	208	163	86	82	77	93	138	116	1,429

CARLOTS OF POULTRY RELEASED AT THE VARIOUS RAILROAD TERMINALS IN NEW JERSEY,  
JULY 1, 1936—JUNE 30, 1937

Month	C. R. R. N. J. J. C.	C. R. R. Nrks.	D. L. & W. Boonton	D. L. & W. J. C.	Erie Caldwell	Erie Nrks.	Erie Paterson	Erie Whkn.	Pa. J. C.	Pa. Nrks.	Total
July .....	8	..	..	34	..	58	..	..	..	32	132
August .....	3	..	..	26	..	29	..	..	4	21	83
September .....	10	..	..	17	..	45	..	..	9	35	116
October .....	1	4	..	14	..	60	..	..	10	46	135
November .....	43	..	12*	15	14*	49	..	..	8	67	208
December .....	14	1	..	15	..	60	..	..	4	69	163
January .....	6	..	..	2	..	37	..	..	3	38	86
February .....	10	..	..	..	..	34	..	..	3	35	82
March .....	1	9	..	..	..	43	..	..	1	23	77
April .....	14	..	..	..	..	48	..	..	..	31	93
May .....	2	..	..	..	..	103	1	..	..	32	138
June .....	..	..	..	..	..	65	..	2	..	49	116
Totals .....	112	14	12*	123	14*	631	1	2	42	478	1,429

\* Carlots of turkeys and geese.

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

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
New Jersey .....	132	83	116	135	208	163	86	82	77	93	138	116	1,429
New York .....	249	204	265	381	428	502	504	358	381	375	186	208	4,041

## PULLORUM DISEASE CONTROL

During the past year the bureau has continued to render service to the poultry interests of the state through the testing of breeding stock for the detection of pullorum disease carriers.

Since there is a more or less nation-wide controversy over the comparative value of the whole blood field test and the tube agglutination test, it was thought advisable to offer the poultrymen their choice of either or both of these methods of poultry disease control. This was done during the past season and will be done in the future. By providing a choice of service to the industry, a program is offered in which all poultrymen can and should participate.

A laboratory check test of field readings has been continued in order that there may be close correlation in New Jersey between the two tests.

NUMBER OF FOWLS BLOOD-TESTED FOR PULLORUM DISEASE  
NUMBER AND PERCENTAGE REACTING, BY COUNTIES,  
JULY 1, 1936—JUNE 30, 1937

County	Number of Fowls Tested	Number of Fowls Reacting	Per Cent Reacting
Atlantic .....	784	22	2.81
Bergen .....	2,741	..	...
Burlington .....	7,153	106	1.48
Camden .....	....	..	...
Cape May .....	1,111	1	.09
Cumberland .....	10,197	209	2.05
Essex .....	1,522	10	.66
Gloucester .....	8,752	113	1.29
Hudson .....	....	..	...
Hunterdon .....	9,852	133	1.35
Mercer .....	9,462*	261	2.76
Middlesex .....	498	..	...
Monmouth .....	2,232	135	6.05
Morris .....	7,555	73	.97
Ocean .....	854	9	1.05
Passaic .....	....	..	...
Salem .....	2,893	121	4.18
Somerset .....	3,475	91	2.62
Sussex .....	4,090	113	2.76
Union .....	....	..	...
Warren .....	....	..	...
State .....	73,171**	1,397	1.91

\* Of this number 5,277 birds were subjected to the tube agglutination test only.

\*\* Included in this number are re-bleedings of 825 fowls from one hatchery.

WORK DONE IN THE BUREAU LABORATORY

In addition to conducting agglutination blood tests for Bang's disease, the following work was performed in the laboratory of the Bureau of Animal Industry:

TESTING OF MILK SAMPLES FOR PRESENCE OF AGGLUTININS FOR B. ABORTUS (BANG'S DISEASE)

Number of samples of milk received .....	66
Number of positive tests .....	..
Number of negative tests .....	66

TESTING OF BLOOD SAMPLES FROM CALVES VACCINATED AS PROTECTION AGAINST BANG'S DISEASE

Number of tests set up and read .....	2,692
Number giving positive reaction .....	568
Number giving highly suspicious reaction .....	245
Number giving slightly suspicious reaction .....	358
Number of samples hemolyzed .....	2
Number giving negative reaction .....	1,519

TESTING OF BLOOD SAMPLES FOR PRESENCE OF PULLORUM DISEASE IN POULTRY

Number of tests set up and read .....	8,511*
Number of tests positive .....	1,137
Number of tests suspicious .....	367
Number of samples hemolyzed .....	14
Number of tests negative .....	6,993

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

BACTERIOLOGICAL EXAMINATIONS

Animal	Material	Number	Condition Suspected	Finding
Avis (Poultry)	Chicks	15	Pullorum Disease	Salmonella Pullorum
Bovine (Cow)	Uterine discharge and milk	1	Bang's Disease	Cocci
Avis (Poultry)	Chick	1	Pullorum Disease	Negative
Bovine (Cow)	Lung, Ear, Spleen	1	Anthrax	Negative

MICROSCOPIC EXAMINATIONS

Animal	Material	Number	Condition Suspected	Finding
Bovine (Cow)	Mediastinal Node	1	Tuberculosis	Negative
Bovine (Cow)	Subcutaneous Nodes	1	Tuberculosis	Negative
Bovine (Cow)	Intestines and Mesenteric gland	1	Johne's Disease	Negative
Bovine (Cow)	Bronchial Lymph Node	1	Tuberculosis	Negative
Caprine (Goat)	Lung and two Lymph Nodes	1	Tuberculosis	Acid-Fast Bacilli

POSTMORTEM EXAMINATIONS

Animal	Number	Condition Suspected	Finding
Avis (Poultry)	4	Unknown	Coccidiosis
Avis (Poultry)	4	Pullorum Disease	Negative
Swine	1	Dietary Insufficiency	Nutritional Anemia
Swine	3	Cholera	Enteritis (Inflammation of Intestines); Ascariasis (Infestation with round worms)

# *Report of the Bureau of Markets*

WARREN W. OLEY, *Chief*

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## INTRODUCTION

As another year comes to a close, general agricultural conditions appear to be improving. Such a situation develops a feeling of optimism. The farmer is usually an optimist, but poor returns and loss of capital, if not actual loss of farms during the past few years, have made many a farmer a pessimist. The feeling that better times are ahead has been in mind in reviewing the work of the bureau. Looking back at the struggles made to overcome obstacles in profitable production and marketing, it is realized that those struggles have brought forth a measure of success which, now that conditions are improving, can be made of even greater value to the people.

In each of the reports of the bureau for the past seven years, reference was made to a depression and to the bureau's contribution in combating the increased burdens of the farmers. In those years agriculture was in the throes of an economic depression. Now there seem to be indications of recovery.

Better prices in general prevailed for agricultural products sold during the period covered by this report, but prices were also much higher for the things the farmers had to buy. Each group, recognizing better times, has felt that it must take every opportunity to recoup past losses wherever possible. The dairymen and the poultrymen have felt this situation more strongly than others. Labor unrest was another factor affecting the farmers of the state.

Costs of producing and marketing the products of New Jersey farms have increased, while the increased returns have not in many cases overcome total costs. Therefore, in this report where higher prices are indicated the reader should bear in mind the higher cost of production.

There is no doubt but that the country has developed a grade consciousness to a much higher degree than formerly. Buyers everywhere talk and deal in terms of United States grades. This move toward a system of standardization is evident in every branch of agricultural marketing. In New Jersey, it is recognized in poultry work, in dairy work, in the marketing of fruits and vegetables. New grades have been established. In some of these grades, such as in the live poultry grades and in a special peach grade, it was necessary to set up definite New Jersey standards. These grades are having wide use within the state.

Grading has received greater recognition in New Jersey because of the similar activities in many other states. In New Jersey, grades after they are promulgated are permissive in character. This means that packers or shippers can elect to use them if they wish. If they do use the grade marks, however, they must live up to the requirements. In many states the use of grades is mandatory. In thirty-four states the grade is required, either by statute or regulation, to be marked on the package before it is offered for sale. This applies in some states to only one commodity, while in other states it applies to all fruits and vegetables. Eighteen states have such branding requirements for closed packages of potatoes. This action on the part of states to which New Jersey products are shipped has forced the grading and branding of such products.

One important change in bureau personnel was made during the year. Leon Todd was selected to fill the vacancy caused by the death of Alben E. Jones. Mr. Todd is now supervisor of poultry products marketing.

The bureau's relations with other state agencies and with the "trade" continued on a friendly basis. Close cooperation was maintained with various commercial organizations in the marketing of poultry, dairy, and fruit and vegetable products.

Cooperative marketing continued to be the most valuable market outlet activity. In 1936, there were 60 country produce auctions in the eastern part of the United States. Nine of these were located in New Jersey. Among poultry cooperative auctions, the five in New Jersey were among the leaders. It is of special interest to note that of the 60 country produce auctions, 25 were of the cooperative type, 16 being incorporated farmers' cooperative associations. Thirty-five of the 60 were privately operated and were owned, in almost all cases, by the buyers. The nine New Jersey markets were farmer-owned incorporated cooperative associations.

The outlined project work of the bureau continued along lines similar to those of other years, but with some new developments and in nearly all cases with increases in services rendered. The detailed report of each project follows:

### CROPS AND MARKETS INFORMATION SERVICE

Since the establishment of the market news service over 20 years ago, there have been many changes in the produce industry of the country. New areas of production have become important, while some of the older areas have shifted to other industries. Methods of transportation have been radically changed. The motor truck, with all its advantages and disadvantages, has become the important carrier for short hauls. Methods of sale have changed, with many growers now selling through shipping point auctions rather than by shipping on consignment. All these changes have necessitated an adjustment in the type of market news reports released. Rail shipments alone are no longer of importance, for during the active marketing season for New Jersey farm products the volume of produce moving by truck is the true indicator of supply.

New Jersey's proximity to the large consuming centers of the northeastern part of the United States calls for a different type of market report than that used by growers and shippers in Texas and California. Spot news is of the utmost importance to New Jersey farmers, for their crop can be quickly moved to market. Such information as carlot passings at diversion points or reconsignments from large terminals is of little value to the producers of this state except in rare instances.

The crops and markets information service as it is now set up has two definite objectives. These are: first, to supply the farmers of the state with timely, unbiased and accurate information on current supplies, existing demand, and prevailing prices at leading markets; and second, to furnish the growers of farm products with economic information concerning conditions in New Jersey and competing areas. During the 1936-37 fiscal year these two objectives were kept in mind. New services carried on during the year included the publication of the "Auction News;" publication of the "Grain Pit;" development of special articles on New Jersey crops for use in produce trade papers; the publication of two circulars, "Marketing Apples in New Jersey and Competing Areas" and "Philadelphia and New York as Markets for New Jersey Fruits and Vegetables;" and a study of the possibility of using the teletype service in connection with the daily market reporting project.

At the close of the year, the mailing list for market news reports totaled nearly 3,000 names. This included 1,650 names for the "Weekly Market Review," 550 names for "Market Conditions," 500 for the "Auction News," and 100 for the "Grain Pit." Reports were sent only to those requesting them, with no attempt made to solicit additions to the mailing lists.

The "Auction News" was started late in the fiscal year of 1935-36. This sheet was published weekly for the aid of the cooperative produce auction markets of the state. The report had a two-fold objective: first, to tie together more closely the various directors of the auction markets operating throughout the state; and second, to inform buyers and prospective buyers of the volume and variety of produce available to them at each auction market. The costs of mailing were paid for by the several auction markets.

The "Grain Pit" was published at the request of the Field Crop Improvement Association of New Jersey. This report consisted of a concise review of the crop conditions on grains, a brief analysis of the important grain markets, and a table of prices at representative markets, together with comparisons. This was the first attempt to help the growers of field crops directly.

The two circulars published were prepared during the winter months, when time was available for such studies. The first, entitled, "Marketing Apples in New Jersey and Competing Areas" was a revision of the mimeographed report of two years ago. The figures were brought up to date and some descriptive matter was added to the previous material. The purpose of the circular was to give the apple growers of this state a source book of statistical material on their crop, both in this state and in other leading apple-growing sections of the United States.

The second circular, entitled, "Philadelphia and New York as Markets for New Jersey Fruits and Vegetables" was published to show the relative importance of this state in supplying these two great cities with farm produce, and also to show the importance of these two large markets as channels for the disposal of New Jersey fruits and vegetables. It is very interesting to note the high rank that this relatively small state holds in supplying these two markets with farm products. In many commodities, New Jersey is the leading source of supply throughout the year at Philadelphia, while at New York this state ranks first in several items during the active marketing season.

The produce papers represented the best means by which the members of the trade could become acquainted with the relative importance of the various production areas of the country. During the past year, arrangements were made with two of the leading produce papers of the country to furnish them with special articles on New Jersey crop conditions. Favorable attention was given to these articles and considerable space was allotted to them.

#### DAILY MARKET NEWS SERVICE

The cooperative arrangement between the Bureau of Agricultural Economics of the United States Department of Agriculture, and this department, for carrying on daily market reporting was carried on as usual during the past fiscal year. Since its inauguration several years ago, this has proved to be the most economical method of collecting and disseminating daily market information.

Daily information again was disseminated entirely through the newspapers of the state. The project was carried on in conjunction with the Philadelphia and New York offices of the United States Department of Agriculture. Cooperative employees at these markets prepared an early morning report on New Jersey conditions, released the information to one of the press agencies who, in turn, released it to the member newspapers. Thus information was available to most farmers of the state late in the same day on which it was sent out. Over 35 newspapers of the state and several metropolitan dailies made use of this service.

The personnel of the service at both New York and Philadelphia remained unchanged throughout the year. Under the latest arrangement, the man in charge of the office at both these markets is the cooperative employee of this department, and is responsible for obtaining adequate information on New Jersey crops at his particular market.

#### WEEKLY MARKET SUMMARIES

In addition to the "Auction News" and the "Grain Pit," two weekly summaries of New Jersey agricultural conditions were issued. These were entitled "Market Conditions" and the "Weekly Market Review."

"Market Conditions" was a concise and accurate report on conditions concerning each of the most important New Jersey crops in competing

areas, and was issued for the information of the growers. Approximately 200 "Market Conditions" reports were issued during the year. These included: white potatoes, 37 reports; apples, 36; sweet potatoes, 31; peaches, 17; asparagus, 14; strawberries, 11; lettuce, 10; spinach, 9; tomatoes, 9; onions, 8; and miscellaneous truck crops, 19. The last-named reports contained information on snap beans, lima beans, cabbage, peppers, eggplants, and various other crops.

Most of the information published in these reports was obtained through correspondence and personal contact. In exchange for information given, the produce trade, growers, dealers and officials in other states, cooperated in supplying the necessary information.

The "Weekly Market Review" was issued regularly every Thursday throughout the year. It presented a digest of prevailing prices for New Jersey products in eastern markets. In addition to the statistical table started two years ago, a short summary in condensed form was added giving conditions prevailing during the week issued. Several weekly newspapers of the state used this summary from time to time.

The "Weekly Market Review" contained prices on grains, feedstuffs, hay, straw, eggs, live poultry, dressed poultry, livestock, fruits, vegetables, and egg and poultry quotations at the auction markets of the state. A large part of the space was given to poultry information since the majority of requests for information came from poultrymen. The fruit and vegetable growers were interested primarily in the "Market Conditions" report.

### SPECIAL SERVICES

#### HIGHTSTOWN POTATO INFORMATION OFFICE

This was the ninth year the department operated a market news field office at Hightstown during the active marketing season for white potatoes. The office was established and maintained to aid potato growers of central New Jersey in the orderly marketing of their crop, and to serve growers of potatoes in all other sections of the state. Information was collected and distributed daily on carlot movement, primary destinations for the previous day, f.o.b. prices throughout the potato belt, prices at leading city markets, and conditions in competing areas. During the past year a new service was added: that of securing daily track holdings for the leading loading stations in the central potato belt. Close cooperation was maintained with dealers, railroad companies, the office of the Bureau of Agricultural Economics of the United States Department of Agriculture at Philadelphia, and the Riverhead, Long Island, office of the New York State Department of Agriculture and Markets.

The office was opened during the week of July 13, 1936, and was operated for a period of nine weeks, closing on September 12. The nature of the services rendered was much the same as in previous years. During the first week, the agent in charge spent his time in field work, contacting growers and dealers and obtaining a clear outline of the potato situation before the active marketing of the crop began.

The season was generally satisfactory. The crop was not quite as large as that of 1935, but yields were generally good. Prices were between \$1.75 and \$1.95, with a few as high as \$2.00, and a very few early sales as high as \$2.25 per 100 pounds. Extreme heat damaged the crop to some extent, causing sun scald during a period of heavy loadings. This hurt the market and resulted in lower prices. Distribution was exceptionally good, with the demand in the midwest the best in several years. Drought damage in Wisconsin opened markets west of Chicago, and New Jersey potatoes went into Minnesota for the first time in several seasons. Southern movement was good also, with nearly all states except Florida reporting heavier unloads than at any time in the past ten years. The New England outlet was only fair, as trucking took care of most of that territory. However, total rail movement was the largest of any season since 1924, with 7,880 cars reported.

#### AUCTION MARKET QUOTATIONS

During the active marketing season for fruits and vegetables, the department was called upon to furnish the growers patronizing the produce auction markets of the state with a daily report on prices at New York.

During the past fiscal year, certain of the auction markets in the southern part of the state, and also the Tri-County Auction Market at Hightstown, were supplied shortly after 8:00 A. M. with a daily report of market prices and conditions. In the case of the markets in the southern part of the state, the service was transmitted to the county agricultural agent's office at Bridgeton, and from there relayed to the various auction markets.

Near the close of the year, the possibility of making use of the teletypewriter system of the telephone was under consideration. It was believed that early in the next fiscal year, this type of service would be available to all the produce auction markets of the state.

#### HAMMONTON BERRY MARKET

In cooperation with the Philadelphia office of the United States Bureau of Agricultural Economics, the bureau furnished the berry growers of Hammonton and vicinity with the daily price of raspberries, blackberries and huckleberries throughout the active shipping season. These prices covered sales at New York, Philadelphia, Boston and Pittsburgh, and were available to the growers using the market shortly after noon each day.

#### DAIRY PRODUCTS MARKETING

The objective of the dairy products marketing project was to aid in the development of a practical milk marketing program for the state. The major activity of the program was the supervision of the production and distribution of milk under the New Jersey official grades and the expansion of the sale of such milk. These grades represent the effort to recognize and identify milk of definite quality standards. Other activities included cooperation

with the Milk Control Board, the New Jersey Dairymen's Council, the New Jersey Junior Breeders' Fund and other agencies, and the operation of a surplus-milk exchange where milk listed as surplus could be placed with dealers needing it and where markets could be found for producers with no outlets.

New Jersey dairymen enjoyed their most successful year in a decade. Operating under a stabilized price structure, and with a genuine cooperative spirit between producers and distributors developed as a result of that stabilization, the return per hundred pounds of milk averaged \$2.80 for the year, ranging from a low of \$2.45 per hundred for July, 1936, to a high of \$2.98 per hundred for November, 1936. These prices were the net weighted average for all milk sold in the state based on returns submitted by dealers to the Milk Control Board. A strong contributing factor was the increase in consumption, undoubtedly due to increased buying power of the consuming public.

Continuation of this favorable dairy situation depends on several factors that have become of increasing importance and that will inevitably react upon a long-time program of milk marketing for New Jersey. Foremost is the interstate milk problem. The success of the stabilization program of the Milk Control Board is due principally to the fact that New Jersey is a deficiency state, and inasmuch as all court rulings to date have tended to make more liberal the regulations governing the interstate shipment of milk, some means will have to be devised to prevent New Jersey from becoming the dumping ground for surplus milk from other states as well as for fluid milk attracted by favorable price conditions. Federal legislation has been proposed to govern interstate shipments of milk, but at the same time adjoining states have passed legislation to protect their own producers so that the prospect of an agreement based on restricted markets seems remote. The State of New York, whose exports of milk into this state are nearly ten times the volume of imports from New Jersey, abolished its Milk Control Board and is depending upon cooperative effort to maintain prices to the producers. At the same time sanitary restrictions on imported milk have been strengthened. In the light of existing conditions, it behooves the dairy interests of New Jersey to keep vigilant watch on developments in surrounding states. Production in this state should not become too large. This is a matter to be handled by the producer himself, as no satisfactory production control method has been devised. The continued effort to stimulate consumption is equally important. A coordinated long-time plan for the milk industry should, if possible, be formulated without delay to obviate the evils which the dairy industry has suffered since the World War.

#### NEW JERSEY OFFICIAL GRADES

The New Jersey official grades continued to be the principal project of the milk marketing work. There are two grades, "New Jersey Grade A Raw" and "New Jersey Grade A Pasteurized," and there are no sub-grades.

Use of the New Jersey grades is elective. They are used by those dealers who choose to be under the supervision which grading entails and who agree to pay an inspection fee, varying from 35 to 50 cents per thousand quarts produced, dependent on volume. The fees are paid entirely by dealers and involve no expense to the producers of graded milk.

At the close of the fiscal year there were 60 dealers processing 52,128 quarts of milk daily under the New Jersey official grades, a net decrease in volume of 7.53 per cent. This was the first decrease since the grades were promulgated. Of these 60 dealers, 28 sold raw milk only, 15 sold pasteurized milk only, and 17 dealers sold both raw and pasteurized milk. The volume of milk distributed was 64.92 per cent pasteurized and 35.08 per cent raw. The number of producers involved in the production of this milk was 197, a decrease of 22 since last year.

The 60 dealers processing New Jersey Official Grade A Milk sold to 213 sub-dealers, the milk being distributed to 209 municipalities of the state.

When the New Jersey official grades were established, a rigid herd inspection system was introduced, and at the present time serves as a model for several other inspection agencies, both within and without the state. During the fiscal year ending July 1, 1937, this involved the inspection of 11,321 cattle, the work being supervised by a representative of the bureau and paid by fees collected from the New Jersey Official Grade A dealers.

The accompanying table indicates the physical examinations of cattle during the fiscal year 1936-37 by counties, and the results of those examinations.

PHYSICAL EXAMINATION OF CATTLE, FISCAL YEAR 1936-1937,  
BY COUNTIES

County	Number of Herd Examinations	Number of Animal Examinations	Number of Animals Passed	Number of Animals Isolated	Number of Animals Condemned
Burlington .....	19	531	458	37	36
Cape May .....	1	24	22	1	1
Cumberland .....	16	286	262	17	7
Essex .....	10	129	116	7	6
Hunterdon .....	96	2,799	2,528	113	158
Mercer .....	12	402	330	41	31
Middlesex .....	4	260	230	15	15
Monmouth .....	5	98	87	6	5
Morris .....	100	3,038	2,842	85	111
Salem .....	26	609	570	17	22
Somerset .....	77	1,637	1,512	72	53
Sussex .....	4	115	107	4	4
Union .....	6	182	166	12	4
Warren .....	29	1,211	1,098	68	45
Totals .....	405	11,321	10,328	495	498

TWENTY-SECOND ANNUAL REPORT

SUMMARY

Number of herd examinations made .....	405
Number of herds in which all animals passed .....	132—32.59%
Number of herds in which animals were isolated .....	76—18.77%
Number of herds in which animals were condemned .....	58—14.32%
Number of herds in which animals were both isolated and condemned.	139—34.32%
Number of animals passed .....	10,328—91.23%
Number of animals isolated .....	495— 4.37%
Number of animals condemned .....	498— 4.40%

Another requirement of the New Jersey official grades for milk was the physical examination twice each year of all employees of farms producing New Jersey Grade A Raw milk, and of employees of bottling plants handling New Jersey Grade A Pasteurized milk, as well as New Jersey Grade A Raw milk plants. This involved the examination of 550 individuals and medical certificates placed on file. Each man taking these medical examinations was required to be examined by a physician twice during the year, and pronounced by the examining physician a safe individual to handle milk. When the individual met these requirements, a card of identification was furnished to that effect. Laboratory examinations of specimens submitted by physicians in connection with these physical examinations were made by the New Jersey Department of Health.

The importance of microscopic analysis of samples of milk in determining causes of defect was amply demonstrated by the methods used in policing the New Jersey official grades. By this method much of the guess-work was taken out of the routine work, and while the expense of the microscopic work was high, it was justified by results. During the six years of this close microscopic supervision of the New Jersey official grades for milk, not one case of infectious disease has been traceable to this milk supply. During the year, 1,838 samples were collected for analysis. The net weighted average of the butterfat content of these 1,838 samples was 4.056 per cent.

The New Jersey Grade A project was self-supporting to a considerable degree. Fees were based on a sliding scale according to the amount of milk processed by the distributor. The income to the bureau from fees averaged \$22.34 daily, and the total income collected for the fiscal year was \$8,154.28.

In order that a comparison of the volume of work accomplished by this project by years may be secured, a summary of the progress is presented:

	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
No. of Cooperating Dealers	21	30	37	35	50	57	60
No. of Producers .....	..	102	121	125	210	219	197
Daily Production of Milk..	..	24,709	23,300	30,070	53,328	56,372	52,128
No. of Cows Examined							
Annually .....	1,064	2,864	3,203	3,238	11,090	11,942	11,321
No. of Employees Examined Annually .....	..	259	357	317	409	516	550
Samples Collected for							
Analysis .....	..	401	835	876	1,116	1,231	1,838
Butterfat Average .....	..	3.74%	3.92%	4.11%	4.08%	4.10%	4.06%
Average Daily Fee .....	\$5.85	\$12.35	\$11.65	\$15.03	\$22.77	\$23.74	\$22.34

The New Jersey official grades program has demonstrated its soundness as a means of marketing high quality New Jersey milk. The project has been conducted on a commercial marketing basis and the above summary is testimony to the soundness of the program as a means of serving conscientious producers and dealers as well as discriminating consumers.

A monthly publication entitled "The New Jersey Dairy Bulletin" was first issued in January, 1937, and continued monthly thereafter. The purpose of this publication is to keep the producers and distributors of New Jersey Official Grade A milk in closer touch with the milk situation in New Jersey, and, in addition, to promote the mutual interests of the producer and distributor of those grades of milk. Problems pertinent to the production and distribution of quality milk are presented. Much interest has been displayed by both dealers and producers in this publication.

#### SPECIAL SERVICES

##### NEW JERSEY DAIRYMEN'S COUNCIL

Cooperation was continued with the New Jersey Dairymen's Council and members of the staff of the bureau appeared on their program throughout the year.

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

Cooperation was extended to the trustees of the New Jersey Junior Breeders' Fund, Inc., by supplying the services of the supervisor of dairy products standardization in carrying out certain of the field activities necessary in the administration of this fund. This necessitated 31 farm visits during the year.

#### MILK EXCHANGE

The activities of the milk exchange, conducted by the bureau for several years, were curtailed to some extent by the appearance of other agencies in this field of activity. During the past year, however, the bureau was instrumental in securing markets for six farmers who had lost theirs for various reasons.

#### CONSUMER INFORMATION SERVICE

Since November, 1932, a consumer information project has been operating on a very modest scale. The objectives of the service are two-fold: first, to promote the increased use of New Jersey agricultural products as an aid to producers; and second, to furnish consumers with timely and seasonal information on New Jersey agricultural products in order to aid in economical food purchasing.

The program was conducted with limited funds, and each year has witnessed a steady growth in the project, particularly in obtaining extended circulation of newspaper articles and leaflets. In the absence of additional funds, it was necessary to depend upon the voluntary cooperation of state agencies, the press, trade organizations, a few consumer groups, and a number of interested individuals.

Continued improvement in consumer buying capacity has made food buying a less acute problem in many homes, although recent advances in retail food prices restored the factor of economy as essential in the food buying problem in many New Jersey households.

Per capita consumption of fresh milk has risen, but remains far below the average recommended to maintain health and normal growth. Consumption of evaporated milk continued to increase, and the success of the intensive campaigns conducted by food manufacturers and food processors was not at all conducive to increased consumption of the raw, natural and unprocessed products of New Jersey farms.

Many producers of New Jersey milk, eggs, fruits and vegetables were inclined to consider as competitors only those farmers shipping these same items into our markets. While such competition is intense and is often difficult to meet, recognition must be given to the fact that all food products, regardless of their farm or factory origin, are true competitors for the housewife's food dollar. On this basis, it is evident that expenditures for such processed foods as mayonnaise, bread, bacon, breakfast foods, or coffee, are actually competing with New Jersey farm products for a share of the food dollar, as much as are the farm products shipped to our markets from other areas.

That disbursements by the housewife are influenced to a considerable degree by the promotional efforts of processors and manufacturers is clearly evident to an observer in any grocery store. More favorable consideration is given to those products whose sponsors have already identified themselves to the housewife through advertising. She is naturally partial to branded products with which she is acquainted, and is inclined to spend her money accordingly, responding to the appeal of those who are constantly reaching her eye or her ear.

In the past year or two, this competition has been intensified by efforts from other quarters. In state after state, particularly those which were more distant from their markets, producers and shippers of farm products recognized the need for, and the value of, promotional work to gain and hold their retail market outlets. To date, 18 states are listed as making an organized effort to gain consumer good-will for their products. Some states have adopted legislation providing for the use of public funds, or of funds collected for advertising from growers through public agencies. Others are operating under voluntary assessments on each package, or with funds collected as contributions.

Already the influence of some of these campaigns has had its effect on New Jersey consumers and also on retail merchants. Housewives are asking

for the brands or types of fruits and vegetables about which they have learned as a result of these campaigns. The retailer naturally responds to such requests because he recognizes that sales aids and advertising bring him more business and a more rapid turn-over.

Serious consideration of similar campaigns to promote New Jersey products is long overdue, and continued delay can mean only a decreasing share of the housewife's food dollar. The efforts made to date, although very limited, indicate that there are exceptional opportunities for promoting New Jersey products, and that both distributors and consumers will be receptive to such an approach.

In reviewing the consumer information project, it might be stated that one of the serious handicaps confronted in the attempt to promote New Jersey farm products was the absence of specific brands, grades or other identifying marks which could be emphasized and fixed in the minds of retailers or consumers to the extent that the products bearing such marks would be recognized at the time of purchase by the retailer or consumer. This shows the need of more general use of official grades and the adoption of uniform packs distributed under standard brand labels, instead of the miscellaneous individual packs under which most of the farm products of the state are shipped today.

#### PROGRAM

The past year was the fifth under which the cooperative arrangement with the Milk Research Council, Inc., of New York City, continued and made possible the operation of the consumer information service. In the absence of public funds to provide for the supplies and contingent expenses involved in the issuance of the newspaper articles, that agency printed the clip sheet releases, paid for photographs and engraving, and provided mats. Supported by producers and distributors, the Milk Research Council is primarily interested in promoting the consumption of milk through cooperating with public agencies. However, milk received only its proper share of mention and space in the publicity issued by the consumer information service. There were no restrictions as to the circulation of releases and literature, which included distribution in all parts of the state as well as in nearby out-of-state areas.

At the close of the fiscal year, public funds in the department appropriation were available for the publication of a number of consumer leaflets in a "Buy New Jersey Foods" series. These were prepared on fresh milk, the fresh egg law, peaches, summer apples, winter apples, asparagus and sweet potatoes. All included recipes.

#### METHODS OF CIRCULATION AND DISTRIBUTION

The means and channels used for publicity included illustrated newspaper feature stories furnished in clip sheet form with mats, newspaper "spot" news releases, radio talks, leaflets, circulars, posters, exhibits and talks before consumer groups. Details as to how they were used follow:

1. *The Press.* The most effective results in terms of circulation and coverage were obtained through the cooperation of the newspapers. Weekly illustrated feature stories were furnished in clip sheet series, each including six weekly articles dated for release each Monday throughout the year. These were mailed to all newspapers in the state and a few in neighboring states, as well as to a number of trade journals, with an inclosed return postal card on which requests were made for mats of the releases. The mats were furnished free to those papers requesting them and saved the time and expense of setting type and obtaining cuts.

At the end of the fiscal year there were 200 newspapers using mats regularly and 318 other publications, news syndicates and interested individuals receiving only the clip sheets. A year ago only 174 newspapers used the mat service. Accurate reports on actual circulation of the weekly articles were difficult to obtain without the paid services of a clipping agency, but estimates furnished by the Milk Research Council indicated that the coverage circulation of the newspapers using the articles totaled about 4,400,946 each week, or about 26,-405,696 for each clip sheet of six articles.

This circulation was obtained in competition for reading column space, which has become keen, due to the previously mentioned paid advertising of manufactured foods and of the promotion of the farm products of certain other areas. However, a permanent place throughout the year in the columns of many newspapers was gained, and this very valuable cooperation on the part of the press is recognized.

The small weekly box feature, "Food Facts," was continued as part of each clip sheet. Each box contained four or five odd or informational facts about foods, one of which pertained to milk or other dairy products. These were widely used as fillers and resulted in some very interesting correspondence from distant points in Cuba, Mexico and central states. A few "spot" news stories on New Jersey products were also issued to the press.

Owing to consumer interest in advancing retail food prices, a monthly release was issued on data compiled by the Bureau of Plant Industry on 83 principal food items. This release was well received and gained wide coverage.

2. *Leaflets.* As already mentioned, copy for seven small two-fold consumer leaflets was prepared at the end of the fiscal year as a "Buy New Jersey Foods" series. These included art work and recipes approved by the extension food specialist at the College of Agriculture. They were devoted to asparagus, eggs, milk, sweet potatoes, summer apples, winter apples and peaches. Two of these, on asparagus and eggs, were delivered before the close of the fiscal year. To date 9,580

copies of the asparagus leaflet, and 59,445 copies of the egg leaflet were placed in circulation. The poultry auctions have used or plan to use most of the egg leaflets. Other channels of distribution for the series included extension home demonstration agents, retail stores and milk dealers. Judging from the enthusiasm with which this material was received, it is evident that more literature of the same type is needed.

During the year, 42,000 copies of "Healthful Foods—How to Buy Them" were distributed.

3. *Radio Talks.* Only five radio talks were given during the past year on New Jersey products, three on Station WOR, one on Station WGY, and one on Station WPG. These broadcasts were given on invitation in a special program or by guest speakers.
4. *Stores.* Realizing the need for obtaining recognition of New Jersey products in retail stores, an effort was made to gain the interest of grocery store owners and employees in establishments handling fresh vegetables. To that end a chart, called "Sales Tips," measuring 33 x 24 inches, was prepared, giving information on points to observe when buying or receiving, how to retain quality and avoid waste, suggestions for display, selling points, and other sales items suggested for 23 important New Jersey vegetables. This poster was sent by request to 5,680 stores in New Jersey and adjacent states, with instructions that it be posted in the rear of the store for the information of store managers, owners and clerks, on the assumption that an informed sales staff would be better qualified and more interested in promoting the sale of local fresh vegetables. Here, again, the field is open for more missionary work in order to gain the cooperation of the stores in stimulating sales. Practically every store can be enlisted in such a project if posters, leaflets and displays can be provided. The organized voluntary groups, corporate chains, and many individual operators have volunteered their aid.
5. *Exhibits.* Exhibits of New Jersey products were made at several fairs, at meetings of consumer groups in Millburn, Elizabeth, Summit and Newark, and at two schools.

#### SUMMARY

Since its inauguration in November, 1932, each successive year's operation of the consumer information service has witnessed a growth and furnished convincing evidence of the need and field for such a service. However, although the department has furnished personnel and some supplies, the project continues to be supported to a considerable degree by the aid of the Milk Research Council. With the groundwork already established, with so

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many opportunities available, with similar work being done in New Jersey markets by producers of other areas, and with local growers facing serious market problems as well as higher costs of production, it would appear that the project warrants recognition with adequate funds appropriated specifically for the purpose of promoting the sale of New Jersey products. The trend of New Jersey farmers toward grading and standardization and the improved buying power of New Jersey consumers are favorable developments.

The food trade has demonstrated its willingness to cooperate, even though the aid offered by the consumer service has been very limited compared to that rendered by others seeking its cooperation. Reader columns of the press have been regularly reserved for the releases, indicating recognition on the part of the editors who, in turn, reflect the sentiments of their readers. Further recognition of the need for such a service is found in the cooperation extended by the New Jersey State Chamber of Commerce as demonstrated by its sponsorship of a state-wide meeting at Trenton on May 18, attended by 150 representatives of the industrial and commercial interests of the state, at which time support was pledged to New Jersey's agriculture. These and other similar developments point to the Department of Agriculture as the logical agency in which to strengthen and expand the present consumer information service as a means of promoting the sale and consumption of the farm products of the Garden State.

CLASSIFICATION OF WEEKLY CLIP SHEET ARTICLES  
JULY 1, 1936—JUNE 30, 1937

Fruits and Vegetables .....	17
Eggs and Poultry Products .....	8
Milk and Dairy Products .....	17
Canned Foods .....	5
Miscellaneous .....	5
	—
Total .....	52

## CIRCULATION OF CLIP SHEET ARTICLES

Average Circulation Per Week .....	4,400,946
(Based on clipping service report to Milk Research Council for the clip sheet covering the period of March 22 to April 26, 1937)	
Estimated Total Circulation for Fiscal Year .....	228,849,192

## LEAFLETS—POSTERS—CIRCULARS DISTRIBUTED

Total for Fiscal Year .....	170,385
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## FRUIT AND VEGETABLE MARKETING

The fruit and vegetable industry in New Jersey ranks first in importance among the agricultural divisions. A larger proportion of cultivated land in the state is devoted to these commodities than is the case in all other states, with the possible exception of two or three. New Jersey is listed as an industrial state, with 95 per cent of her people engaged in industry or commerce or the professions. At the same time, New Jersey is one of the chief agricultural states in the production of vegetables for market, holding fourth place in this list, and is superseded only by California, Texas and Florida. The state holds first place in the production of four vegetables for market, and second in several others.

Because fruit and vegetable producers live close to great consuming centers, transportation charges have been low, and in the past sales have been made largely on the farm or in nearby markets. This has hindered the general trend toward better grading and packing. Today, however, competition is forcing growers to prepare their products for market in such a way that they may more readily compete with products from distant areas. New Jersey's auction markets have been very helpful in teaching the grower the value of grading.

Sufficient rainfall, good soil, and proper management have combined to enable New Jersey farmers to obtain good yields of high quality produce. The work in marketing, therefore, was chiefly limited to the development of farmers' markets, patronized by buyers from nearby points, and to encourage the use of better, more attractive packs, and standardized grading. Efficient selling on the part of the wholesaler or retailer depends largely on uniformity and quality of the goods he receives.

One of the most valuable outlets for New Jersey vegetables was the processing plants. Quick freezing is developing into an industry comparable with the great canning factories in the state. For use in quick freezing, uniformity in quality is required. This new industry has instigated better quality in production and has encouraged payment on that basis. In 1936 New Jersey led all other states in the volume of tomatoes delivered, and paid for on the basis of quality, by canners.

The innovation, a few years ago, of using tomato juice as a beverage also required the use of tomatoes of high interior color. The canneries prepare millions of cases of this product each summer, and the quality of the New Jersey product ranks high. The demand for "quality" tomatoes for canning and processing has been responsible to a large extent for the delivery of better quality raw tomatoes.

## CERTIFYING CANNERY TOMATOES

The first inspections of cannery tomatoes in New Jersey were made in 1929. The work at that time was largely experimental and educational, with payment on a "flat rate" basis and certain premiums granted to growers with

high average grades for the season. Since that time, canners and growers in the state have contracted the major portion of the tonnage grown on the basis of grade, with payment according to the quality of each load as determined by inspectors employed by the department. During the past season, approximately 75 per cent of the acreage was contracted on this basis.

As on other fruits and vegetables, tomato grading was based on a sample inspection. In making an inspection, two or more baskets, believed to be representative of the load being graded, were selected. These samples were graded into U. S. No. 1, U. S. No. 2, and Culls. Each grade was weighed, and the percentage of each grade, as found in the sample, was used in establishing the price and value of the load.

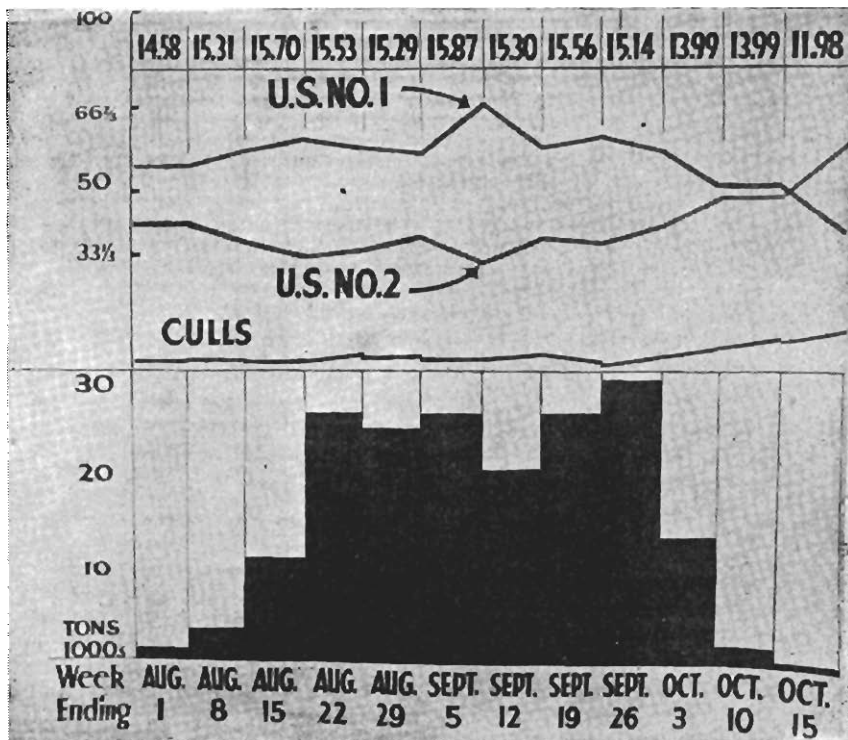
The 1936 cannery tomato season was unusual. Prospects during July were unfavorable for production of a large crop. At that time, there was a heavy infestation of aphid in all sections of the state, temperatures were abnormally high, and the rainfall was exceedingly low. A large percentage of the first pickings were scalded and of very poor quality. After August 1, weather conditions were more favorable and plants apparently produced a second growth with a heavy setting of tomatoes. The changing weather caused variations of setting of the tomatoes on the vines and resulted in two periods of peak delivery to canners during the season. The first peak came during the first week of September, and the second during the week ending September 26. The past season was the first since 1932 when growers have not suffered heavy loss from damage by storms.

The volume inspected in the state during the season was the largest for any year. The average grades, slightly higher than those of the 1935 season, were the highest for any season on record in this state.

The following table shows the number of tons graded weekly and the percentage of U. S. No. 1, U. S. No. 2, and Culls each week for the 12 weeks' harvest season:

Week Ending	Total Tons	U. S. No. 1 Per Cent	U. S. No. 2 Per Cent	Culls Per Cent
Aug. 1 .....	1,088.97	54.40	42.39	3.19
8 .....	3,586.65	62.40	34.54	3.05
15 .....	11,798.33	66.29	31.03	2.66
22 .....	26,081.47	64.69	32.42	2.88
29 .....	24,993.71	62.54	34.08	3.37
Sept. 5 .....	26,025.24	67.99	29.50	2.49
12 .....	20,119.00	62.85	33.55	3.59
19 .....	26,149.61	64.93	32.19	2.87
26 .....	29,449.33	61.37	34.88	3.73
Oct. 3 .....	12,445.66	59.52	36.87	3.59
10 .....	1,238.50	50.29	44.28	5.42
15 .....	50.90	32.27	58.38	9.24
Season .....	183,027.00	63.71	33.12	3.17
Totals—1935 .....	120,524.00	61.88	35.45	2.67
1934 .....	91,060.50	58.00	39.00	3.00
1933 .....	62,979.50	52.00	44.00	4.00
1932 .....	151,140.50	58.00	39.00	3.00

The following chart shows weekly variations in deliveries and percentages of U. S. No. 1, U. S. No. 2 and Culls, and the average price per ton paid to growers who delivered stock contracted on the basis of grade.



### CERTIFYING CANNERY ASPARAGUS

Until the past few years, the canning of asparagus was limited largely to the white or blanched product. Recently, however, there has been a greatly increased demand for the green product. New Jersey canners have been very successful in preparing green asparagus for market, and have developed a reputation for "Jersey" canned asparagus unequaled by any other section of the country. The volume processed in 1937 greatly exceeded the nearly 6,000,000 pounds handled by the inspectors in 1936. A comparison of growers' loads shows that in 1936, 7,616 loads were inspected, while in 1937, the inspected loads totaled 12,854.

Circular 269, issued by the department in March, 1937, included a detailed report of the development of the cannery asparagus industry in New Jersey, and of buying and selling on the basis of official state grades. This bulletin also gave the results of the grading work from 1933 to 1936, inclusive.

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During the 1937 season, two firms contracted with growers for between 20 and 30 per cent of the total asparagus acreage in the state. All contracts were for delivery and payment according to the official state grades, with quality and value of each lot determined from examination by bureau inspectors. The canning season extended from May 1 until July 10. During this period, as previously stated, inspection was made and certificates issued for 12,854 growers' loads. This volume was considerably larger than that inspected during any previous season.

The quality of asparagus delivered by growers varied according to conditions of temperatures and humidity. The asparagus beetle caused severe damage during most of the season and greatly decreased returns to many growers. This severe loss resulting from decreased production and inferior quality indicated the need for development of efficient methods to eradicate this pest.

Formerly canners contracted with growers for delivery of stock to the canneries. During the past season, however, one canner received the stock at several loading stations located at points convenient to the growers. This eliminated the expense and loss of time incurred by the growers located at a distance from the cannery.

Buying and selling asparagus on the basis of the official state grades, with inspection and certification by an impartial agency, has generally proved satisfactory to both the canner and the grower, and is regarded as conducive to the profitable continuation of this industry in the state.

The following table shows the number of loads inspected and the average grades each week during the 1937 season:

Week Ending	Lots Inspected	N. J. No. 1 Large Per Cent	N. J. No. 1 Medium Per Cent	N. J. No. 1 Small Per Cent	Culls Per Cent	Butts Per Cent
May 8 .....	622	21	40	3	16	20
15 .....	1,202	28	34	2	13	23
22 .....	1,278	32	32	2	11	23
29 .....	1,699	27	33	3	13	24
June 5 .....	1,721	25	31	3	12	29
12 .....	1,598	21	32	3	14	30
19 .....	1,516	20	36	4	12	28
26 .....	1,453	20	39	5	8	28
July 3 .....	1,197	21	38	5	9	27
10 .....	568	17	41	3	12	27
Season .....	12,854	24	35	3	12	26

## CERTIFYING PRODUCE FOR MARKET

Farmer shippers and produce dealers who sold fruits and vegetables in interstate commerce found that such trading was most satisfactorily done on the basis of recognized standards of grade, condition and pack. In order to insure compliance and delivery in accordance with sale contracts, a number of growers and dealers had shipments inspected and certified by inspectors.

Federal-state certificates issued on such shipments were admitted as prima facie evidence in all federal courts and New Jersey courts. Such certificates were used to determine whether or not the shipper had delivered stock of the kind and quality specified in the sale contracts or brokers' memoranda. The certificates were also valuable in the adjustments of disputes and claims against buyers and common carriers and as a basis of collection and payment when lots were shipped with drafts accompanying bills of lading.

During the past winter the Bureau of Agricultural Economics of the United States Department of Agriculture, in cooperation with the administration of the Federal Food and Drug Act, started to enforce a clause in the Food and Drug Act which prohibits misbranding. The administrators of the Food and Drug Act turned over to the Fresh Fruit and Vegetable Division of the Bureau of Agricultural Economics certain phases of the enforcement of this clause. The objective of the Bureau of Agricultural Economics was to protect and make more effective the United States grades, which are standard over the whole country. During the last few months of the year, hundreds of warnings and many seizures of lots of produce moving in interstate trade were made. This resulted in an increased respect for the United States grades, and was of great advantage to the "trade." It also increased that "grade consciousness" mentioned in the introductory paragraphs.

While the actual carlot and trucklot inspections in New Jersey were relatively small, there were indications that the service would be greatly extended during the 1937 summer months as a means of protection to shippers and growers. This would naturally start in July with potatoes. In anticipation of this, potato dealers were brought together during the spring months and the need for more care in the sale of potatoes on the basis of U. S. No. 1 grade was emphasized.

Potatoes comprised the largest volume inspected during the 1936 season. Twenty-three farmers and dealers had 323 carlots or trucklots certified during the season. Practically all of the lots inspected were shipments to receivers demanding official certification of grade, or to receivers who habitually rejected purchases without reasonable cause. This work proved satisfactory, and rejections because of size and quality factors were eliminated.

With a short apple crop and favorable domestic prices, the movement of apples for export was limited. Inspections were made chiefly on lots being packed for storage for later sale on the domestic market.

A number of growers requested the bureau to inspect stock being packed and stored at harvest time for sale during the spring months. This inspection at the time the apples were packed gave a constant check on each day's pack, and ensured grading in accordance with the official state grades. Certificates on lots in storage were valuable in making sales, as the certificates accurately described the quality and size and gave the prospective buyer an indication of quality and value.

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In addition to inspections made on potatoes and apples, a number of other commodities were inspected and certified for grade for growers and shippers in various sections of the state.

## TEN-YEAR RECORD OF SHIPPING-POINT INSPECTIONS BY PRODUCTS

Product	1927-28	1928-29	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
Apples .....	25	13	1	549	168	230	91	94	333	160
Beans .....	..	..	..	11	33	40	162	91	17	43
Celery .....	..	..	..	..	..	1	..	..	..	..
Corn .....	..	..	..	..	..	..	1	..	..	..
Lima Beans .....	..	..	..	..	..	..	75	1	..	3
Mixed Fruit .....	..	..	..	..	11	9	1	..	..	..
Onions .....	..	..	2	16	30	223	36	55	42	..
Peaches .....	154	..	83	4	24	2	2	..	..	1
Pears .....	..	..	..	29	14	15	5	..	16	..
Peas .....	..	..	..	4	..	1	20	2	2	..
Peppers .....	..	..	..	..	..	..	18	3	..	..
Potatoes .....	757	789	312	911	217	10	20	40	121	323
Spinach .....	..	..	..	..	..	..	1	..	..	..
Strawberries .....	..	..	..	47	23	152	125	1	1	1
Sweet Potatoes .....	..	..	1	..	6	..	..	..	..	..
Cabbage .....	..	..	..	..	..	..	..	..	1	..
Cucumbers .....	..	..	..	..	..	..	..	..	1	..
Totals .....	936	802	397	1,557	512	490	744	268*	547*	573*

\* Does not include inspections at auction markets for which no certificates were written as included in the columns for 1932-33 and 1933-34.

## INSPECTIONS ON AUCTION MARKETS

The inspection service which has been in operation at the Cedarville Auction Market since the beginning of the 1933 season was continued this year at the request of the market officials. The regular federal-state shipping-point inspection service was provided on general fruits and vegetables. All strawberries and onions were inspected and classified according to the New Jersey standards before sale and were checked for uniformity of quality and pack when delivery was made to the buyer. All other commodities sold through the market were checked for uniformity of pack and quality when delivered to the buyer after being sold on the basis of samples selected at random from the lot.

When requested, federal-state certificates showing grade, size, quality and condition were issued to growers or buyers for car or trucklots sold through the market.

The inspection work carried on by the department at this market evidently has been a factor in maintaining the uniform quality and pack of produce sold there, since the market has gained widespread recognition in many receiving markets.

The following is a list of the quantities of different commodities covered in 16,531 growers' lots inspected during the 1936-37 fiscal year:

Green Beans .....	180,888 bushels
Onions .....	89,808 50-lb. sacks
Lima Beans .....	90,951 bushels
Strawberries .....	15,520 32-qt. crates
Peppers .....	33,283 bushels
Peas .....	12,681 bushels
Miscellaneous .....	22,554 packages
Total .....	445,685 packages

The inspection service at the Hightstown, Beverly, Glassboro, Swedesboro and Vineland auction markets was continued during the year. The inspectors stationed at these markets acted chiefly as arbitrators between buyer and grower in disputes on uniformity of quality and pack of lots sold on the markets. Buyers on all these markets bought lots by samples, and when the buyer insisted that the sample was not of the same pack or quality as the lot delivered, the inspector acted as an experienced impartial arbitrator.

The inspectors, by working with growers both at the market and on farms, assisted many growers in making changes in methods of packing, grading, and harvesting which increased their net returns.

On the Hightstown market, the inspector made grade inspections on all lots sold on the "platform sale." Lots sold on this platform were all inspected, and the quality or grade was announced on each lot before sale. This method of selling produce on the basis of the official state grades proved profitable and beneficial to a number of growers on the market and was increasingly popular.

The Vineland market sold sweet potatoes on the basis of the official state grades during November, December and January. All lots of sweet potatoes sold through the market were inspected by an inspector from the department and were sold on the basis of the grade established by the inspection. This method of selling proved generally satisfactory from the buyer's standpoint. Demand for U. S. No. 1 grade, with the market "V. P. A. U. S. No. 1" label, was very strong, and apparently a large volume of this quality and grade could have been sold each day. V. P. A. stood for Vineland Produce Auction. However, as many growers did not feel that a sufficient premium was being paid by buyers to justify grading to meet the quality and size requirements of the U. S. No. 1 grade, and did not offer sufficient volume through the market to cover costs of operation, the sale was discontinued.

#### PEACH INSPECTIONS

In cooperation with the State Horticultural Society, certificates were issued to growers permitting them to pack special varieties of peaches developed in New Jersey under the official "Garden State" department label.

Inspectors stationed in Cumberland, Gloucester, Burlington and Mercer counties systematically checked shipments packed under this label to see that they were N. J. Fancy or N. J. No. 1 quality, which is required when such labels are used. The use of the official department label and the high quality maintained on stock packed under the label, was a great factor in establishing the value and merit of the varieties developed at the New Jersey Agricultural Experiment Station. The use of the label in 1936 was limited by the small volume of peaches available. Eight growers cooperated during that season. All indications were that the label would have very wide use in August, 1937. Before the close of the fiscal year more than 50 growers had applied for the use of the special grade.

### SHIPPING POINT MARKETS

Close cooperation with the auction markets in the state has continued. All of the markets were organized with the aid of the department, and all of them continued to rely upon it for help and advice when problems arose. The services of one man were supplied for about six months during the year. His time was spent in assisting market masters and association directors to solve market problems. During the past year this man attended most of the directors' meetings, drew plans for new construction work on four markets, and generally helped each market.

The Cooperative Marketing Associations in New Jersey, Inc., was organized as a parent association to coordinate the work of all auction markets in the state. The monthly meetings of this association started at the beginning of the year. Eight meetings were held. The attendance, made up of directors, market masters, county agents, and representatives of the Farm Bureau and Bureau of Markets, was very good. The association purchased office supplies for the local associations cooperatively, effecting a saving of several hundred dollars. Through its subordinate association membership, the association paid for the envelopes and postage of the "Auction News," mentioned under Crops and Markets Information Service. The present membership in the association is made up of the nine produce auctions and the Vineland and Flemington poultry and egg auctions. Each subordinate association has one representative on the board of directors of the parent association.

The market masters organized themselves into an association early in the 1937 season, and held occasional meetings at which common problems and possible new methods of operation were discussed.

The following table shows the volume of business carried on by the produce auction markets during the 1936 season and gives the corresponding figures for the 1935 season, for purposes of comparison. A study of the summary figures at the bottom of the table indicates that prices were 7.57 per cent higher, in general, than in 1935, average prices per package for 1936 being 71 cents, and 66 cents, the average for 1935.

## SUMMARY OF SALES AT FRUIT AND VEGETABLE AUCTION MARKETS

Market	Season of 1933		Season of 1935	
	Number of Packages Sold	Value of Sales	Number of Packages Sold	Value of Sales
Beverly .....	194,063	\$111,366.81	166,491	\$78,212.20
Cedarville .....	445,685	476,212.31	424,250	444,572.17
Cologne .....	.....	.....	9,518	4,184.13
Glassboro .....	803,227	433,729.95	644,011	268,392.95
Hammonton .....	94,946	184,509.85	66,713	139,668.43
Hightstown .....	478,596	312,698.34	632,580	286,666.65
Landisville .....	489,942	292,560.65	519,762	368,768.64
Rosenhayn .....	43,066	70,218.51	67,841	130,251.40
Swedesboro .....	116,892	52,791.33	75,676	37,319.46
Vineland .....	458,768	274,448.88	373,320	209,092.67
Totals .....	3,125,185	\$2,208,536.63	2,980,162	\$1,967,128.70

The first auction markets were organized in 1928. A table showing the growth year by year of this method of selling New Jersey's fruits and vegetables follows:

NINE YEARS' RECORDS OF SALES AT  
NEW JERSEY PRODUCE AUCTIONS

Year	Packages	Gross Sales
1928 .....	160,656	\$274,711.09
1929 .....	246,925	455,532.98
1930 .....	594,062	816,712.08
1931 .....	902,637	839,604.32
1932 .....	1,311,929	937,417.94
1933 .....	2,064,055	1,243,074.69
1934 .....	2,324,838	1,557,797.04
1935 .....	2,980,162	1,967,128.70
1936 .....	3,125,185	2,208,536.63
Totals .....	13,710,449	\$10,300,515.47

## MUNICIPAL MARKETS

Financial cooperation with municipal markets was discontinued in 1932. The market masters in Atlantic City and in Trenton continued their cooperation without pay since that time, and sent weekly a daily summary of sales on their markets. These figures were valuable as a means of checking prices and understanding the volume of produce passing through these two markets in cities so different in their character of industry. The following table summarizes the daily reports from these market masters:

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## TRENTON AND ATLANTIC CITY MARKETS

July 1, 1936—June 30, 1937

Market	Bushels or Packages of Produce	Dozens of Eggs	Pounds of Poultry	Value of Sales
Atlantic City .....	620,231	163,416	109,674	\$769,973.83
Trenton .....	161,190	63,170	179,155	236,650.00
Totals .....	781,421	226,586	288,829	\$1,006,623.83

## FARMERS' CITY MARKETS

The cooperation with farmers' associations owning and operating their own markets has continued. Annual meetings of the Paterson Market Growers' Cooperative Association, Inc., the Newark Farmers' Market, Inc., and the North Shore Market Growers' Association were attended. The Paterson association reported that its net worth had increased since organizing in 1933 from \$59,000 to \$94,000. Its income increased and its surplus reserve was very favorable. The Newark Farmers' Market, Inc., also continued to prosper, and this year paid a worth-while dividend to its stockholders. Its annual financial statement showed a surplus of more than \$176,000, which was more than one-third of its total liabilities, capital and surplus. Upon the request of the editor of "New Jersey Municipalities," an article was prepared giving the history of farmers' markets in Newark and the present services rendered by the farmer-owned Newark Farmers' Market. This article was printed in the June issue of the magazine.

## DEMONSTRATIONS AND EXHIBITS

**HUNTERDON COUNTY:** A demonstration of the requirements of the "U. S. Standards for Tomatoes for Manufacture of Strained Tomato Products" was given in co-operation with the county agricultural agent, to acquaint growers with the grade requirements of tomatoes being delivered under contract to canneries in the state.

**ATLANTIC CITY:** At the annual meeting of the Horticultural Society in December, packages recommended for small fruits and berries were displayed; and lots of apples, illustrating the commercial pack of New Jersey apples as found on the Philadelphia market, with price comparisons, were shown.

**TRENTON:** At the New Jersey Farm Show, an apple packing contest was conducted for vocational agricultural students. Apple and sweet potato exhibits were supervised. An interesting feature of the apple exhibits was the new class for commercial packs of apples. Apples entered in this class were from commercial packs stored in cold storage. Samples displayed were selected at random by representatives of the department.

**FLEMINGTON AND  
SWEDESBORO:** In co-operation with agricultural teachers at vocational schools, apple packing demonstrations were held and instruction was given to pupils and adults on modern packing methods which are recommended.

## PUBLICATIONS

Circular 269, "The Development of Cannery Asparagus Grading in New Jersey," was mentioned in the report on the inspection of canning crops. This circular gives the history of the development of this increasingly important agricultural industry in the state, the development of the grades, and of buying on grades. The tabulations of the results of grading have proved of interest and value to growers in the state.

A mimeographed circular issued March, 1937, giving the results of the grading of cannery tomatoes during the 1936 season, has been of interest and benefit to growers. This circular gives the results of the grading during the 1936 season, with volume inspected each week, the average percentage of U. S. No. 1, U. S. No. 2, and Culls each week; also, a comparison of the season's average grade each year from 1933 to 1936, inclusive.

A mimeographed circular, issued March, 1937, showing the grade and average prices for each grade on approximately 90,000 sacks of onions inspected during the 1936 season, clearly indicated to interested growers the serious damage and loss caused by decay.

A suggested method of packing market tomatoes in climax baskets was shown in a mimeographed leaflet dated June, 1937, which was issued after considerable study and experiments in working out a practical pack. This was done at the request of auction market officials and growers in the state.

## POULTRY PRODUCTS MARKETING

The poultry products marketing work was continued on a basis similar to that of previous years. Certain minor changes were made, resulting in greater efficiency and service to the poultry interests of the state. The breed improvement and pullorum disease control program established a standard for the farm production of poultry meat and eggs. The poultry and egg auction markets provided a means for selling large quantities of poultry products, while the fresh egg law opened the way for a direct and useful service to consumers of these products through a proper recognition of quality in eggs.

The new supervisor of this project assumed his duties on January 1. The work was carried on effectively following the death of Alben E. Jones on May 16, 1936, thereby causing no interruption in the work during the absence of a supervisor.

For the second year, the breed improvement and pullorum disease control work was carried on in conjunction with the National Poultry Improvement Plan. Only a few minor changes were necessary in order to be in accord with the federal program. In fact, the poultry breeders and hatcheries participating in the program were able to maintain certain higher standards than those required in the National Poultry Improvement Plan. New and effective forms of publicity were given to this work and an agreement was signed to continue cooperation with the federal improvement work for the third year.

During the past fiscal year, there were 31 hatcheries under official supervision with a total incubator capacity of 623,164 eggs, or an increase in incubator capacity of approximately 8 per cent. These hatcheries produced 1,033,014 chicks, or 4.4 per cent less than were produced under official supervision in New Jersey during the 1936 hatching season.

The Record of Performance work was carried on in the same manner as in previous years, with an increase of two flocks in the trapnest project and 13 more breeding flocks. A decided increase in interest was observed in the Record of Performance work which should materially help the demand for Record of Performance stock.

The five poultry and egg auctions handled a substantially larger volume of both eggs and live poultry during the last fiscal year. This was due to an increase in membership and also to the heavier production of eggs which occurred during the winter months and continued without interruption during the spring and early summer. Each year these auctions have shown an increase in the volume of eggs and live poultry handled, thus demonstrating the value of this form of distributing poultry products.

With the extremely unfavorable feed-egg price ratio which existed during the entire fiscal year, the auction markets were of even greater service to producers. The higher net prices received for the poultry products **through** the auctions may be called "new money," and certainly were an important item to all poultrymen. Several outstanding improvements were made to the physical equipment and operating facilities of the auctions. **Even with** the largest volume in the history of each auction, no difficulties were experienced in selling all consignments to full advantage. The attitude of the trade toward the New Jersey poultry and egg auctions was exceptionally fine and worked to the advantage of all concerned.

The New Jersey fresh egg law was handled in the usual manner to complete the third year of this phase of the project. The inspections of retail stores, routes, etc., and the recording of all such inspections were continued. After careful consideration was given to the reports showing non-compliance with the law, the violations were turned over to the administrative branch of the department. That division conducted informal hearings in an impartial manner. Four full-time inspectors were employed during the year, and one temporary inspector was employed during July, August, September, March, April, May and June. These inspectors made 23,768 inspections during the year, or only 76 fewer than were made during the previous year.

The relatively high feed prices, compared with the prices received for eggs, made it necessary for poultry producers to consider every possible source of additional revenue.

## POULTRY STANDARDIZATION

Poultry breed improvement and pullorum disease control work were carried on in the regular manner, completing the second year of cooperation with the National Poultry Improvement Plan. It was necessary to carry the flock selection work into December because of the shortage of manpower in this division. The several classes for breed improvement and pullorum disease control were as follows:

N. J.-U. S. Approved	N. J.-U. S. Pullorum-Tested
N. J.-U. S. Certified	N. J.-U. S. Pullorum-Passed
N. J.-U. S. Record of Performance	N. J.-U. S. Pullorum-Clean
N. J.-U. S. Register of Merit	

Additional publicity was given to the standardization work during the year. A folder describing the basis of the standardization work was issued in December. Cooperating breeders and hatcherymen used the folder in their correspondence, and in dealing directly with prospective buyers. An advance list of breeders and hatcheries was prepared by the inspectors and distributed during Agricultural Week. It was also used in answering numerous requests for the list of cooperators.

The official list of breeders and hatcheries, with the records of their flocks, was published in Circular 268, which was issued in March. It proved desirable to publish the outline of the standardization plan in a separate circular, and this was delayed until the official copy of the National Poultry Improvement Plan was available.

All flocks entered in the breeding stages of the standardization work were required to be tested for pullorum disease. Both the tube agglutination and the stained-antigen whole-blood tests were offered last year, with the cooperator choosing the test to be used on his or her flock. The same arrangements were made for the coming season, with the addition that flocks may be tested for pullorum disease under state supervision without the breed improvement stages being used. All pullorum disease testing in the standardization work was under the supervision of the Bureau of Animal Industry.

A summary of the standardization work is shown in the accompanying tables. There was a substantial increase over the previous year in the number of flocks and hatcheries under official supervision. There were 159 flocks in the work as compared with 142 flocks in the previous year. The 159 flocks contained 78,494 birds, or approximately 10,000 more birds were inspected than during the 1935-36 season. There were approximately 1,500 more birds rejected this year, which would be expected because of the increased number of birds handled.

A total of 259 flock inspections and 172 sanitary inspections were made to protect the rules and regulations of the breed improvement program. There were also 35 hatchery inspections made during the year. There were

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263 additional farm visits made in connection with all the poultry work carried on by the department.

The total incubator capacity of the 31 cooperating hatcheries was 623,164 eggs. Twenty-five of these hatcheries were considered breeder-hatcheries with a capacity of 263,164 eggs, and six were commercial hatcheries having an incubator capacity of 360,000 eggs. The 31 hatcheries produced for sale during the year a total of 1,033,014 chicks.

The accompanying tables show the distribution of the work according to the major breeds, and the classifications according to the several classes of the program. As would be expected, most of the birds were Single Comb White Leghorns. The proportion of each breed under supervision remained the same as in the previous year. The crossbred flocks, as listed in the table, were those flocks tested for pullorum disease, but which were not selected for breed characteristics. Plans were made to change this phase of the work to a pullorum disease tested class, without reference to any breed classification.

The Record of Performance project was quite successful with 33,173 Record of Performance eggs set, from which 19,082 Record of Performance pedigree chicks were produced. From these chicks will be produced the New Jersey-U. S. Record of Performance males which will head the Certified flocks during the coming season. The pullets will be used to further the Record of Performance program and some will be placed in official egg laying contests. Each year more breeders are studying the performance of families rather than individual birds. One breeder made up a New Jersey-U. S. Register of Merit mating during the past season. There were 90 Record of Performance inspections made during the year. Egg weights were taken by the breeder for three consecutive days each month, beginning in January and continuing for the remainder of the record year. The body weight of each Record of Performance candidate was taken twice during the year by the inspector.

Chick box labels were prepared and made available for the 1937 hatching season. These labels include a description of the grade concerned, along with an outline of the State of New Jersey super-imposed on the National Plan emblems. The labels were gummed, thus making it easier for the chick producer to use them.

CLASSIFICATION AND DISTRIBUTION OF BIRDS UNDER SUPERVISION IN THE  
POULTRY STANDARDIZATION PROGRAM

County	No. of Flocks	NUMBER OF BIRDS						New Jersey Crossbred	Totals
		N. J.-U. S. Approved			N. J.-U. S. Certified				
		Pullorum Tested	Pullorum Passed	Pullorum Clean	Pullorum Tested	Pullorum Passed	Pullorum Clean		
Atlantic .....	2	762	...	...	...	...	...	...	762
Bergen .....	4	1,756	...	630	...	...	...	355	2,741
Burlington .....	12	1,006	...	...	3,371	...	...	2,403	6,780
Cape May .....	1	1,110	...	...	...	...	...	...	1,110
Camden .....	25	2,633	...	...	7,729	...	...	...	10,362
Cape May .....	3	...	...	...	1,021	...	...	491	1,512
Camden .....	7	2,692	...	...	4,628	...	...	1,346	8,666
Camden .....	8	7,589	...	63	...	...	...	2,180	9,832
Camden .....	34	4,213	...	387	2,087	...	2,121	1,034	9,842
Camden .....	2	141	...	...	357	...	...	...	498
Camden .....	5	499	...	...	...	...	...	323	822
Camden .....	11	5,367	749	...	...	...	...	1,384	7,500
Camden .....	1	845	...	...	...	...	...	...	845
Camden .....	14	482	...	...	...	...	...	2,094	2,576
Camden .....	12	560	...	...	2,696	...	...	111	3,367
Camden .....	18	2,116	...	353	...	...	...	1,512	3,981
Totals .....	159	31,771	749	1,433	21,889	...	2,121	13,233	71,196

NUMBER OF BIRDS INSPECTED BY COUNTIES AND BREEDS

County	No. Flocks Inspected	S. C. White Leghorns	R. I. Reds	Barred Rocks	White Rocks	White Wyandottes	Light Brahmas	Jersey Black Giants	New Hampshires	New Jersey Crossbred *	Totals
Atlantic .....	2	855	...	...	...	...	...	...	...	...	855
Bergen .....	4	2,899	...	...	...	...	...	...	...	373	3,272
Burlington .....	12	3,610	...	281	388	...	...	481	...	2,563	7,323
Cape May .....	1	...	...	...	...	...	...	...	1,169	...	1,169
Camberland .....	25	10,339	9	...	199	...	...	...	503	...	11,050
Cass .....	3	1,227	...	...	...	...	...	...	...	570	1,797
Gloucester .....	7	7,327	...	...	...	...	...	...	365	1,485	9,177
Hunterdon .....	8	4,638	1,603	2,534	...	...	...	...	...	2,182	10,957
Mercer .....	34	4,535	1,055	2,818	173	...	25	804	337	1,150	10,897
Middlesex .....	2	683	...	...	...	...	...	...	...	...	683
Monmouth .....	5	324	...	306	...	14	...	...	...	397	1,041
Morris .....	11	5,692	67	927	...	...	...	...	...	1,411	8,097
Ocean .....	1	1,130	...	...	...	...	...	...	...	...	1,130
Olden .....	14	...	...	...	518	...	...	...	...	2,307	2,825
Somerset .....	12	3,086	71	543	...	...	...	...	141	...	3,841
Sussex .....	18	2,768	...	...	...	...	...	...	...	1,612	4,380
Totals .....	159	49,113	2,805	7,409	1,278	14	25	1,285	2,515	14,050	78,494

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\* "New Jersey Crossbred" class—not inspected for breed characteristics.

## STATE DEPARTMENT OF AGRICULTURE

## POULTRY AND EGG AUCTION MARKETS

Each of the poultry and egg auction markets of New Jersey handled the largest total volume of sales in its history, during the fiscal year. The five auctions handled \$3,253,303.74 worth of eggs and live poultry during that period. There were 288,865 cases of eggs sold, compared with 225,721½ cases for the 1935-36 season, as shown in the accompanying table. This increase of 63,143½ cases was considerably higher than the increases for the two previous years. The value of the eggs sold in the 1936-37 fiscal year amounted to \$2,530,387.36.

The auction markets sold 81,358 crates of poultry, weighing 3,877,124 pounds, for a total of \$722,916.38. During the previous year, 59,438 crates of live poultry were sold, weighing 2,815,167 pounds and which returned \$582,974.05. The volume and value of poultry products sold at the auction markets, during the last four years were as follows:

Year	Number of Cases of Eggs	Number of Crates of Poultry	Total Combined Value
1936-37 .....	288,865	81,358	\$3,253,303.74
1935-36 .....	225,721½	59,438	2,598,942.69
1934-35 .....	177,908	47,845	2,022,357.29
1933-34 .....	144,321½	37,060	1,336,292.49

The increase in volume of business was attributed to the extremely heavy production of eggs during the winter and spring, and to a total increase of approximately 800 in the membership of four of the five auctions. Factors tending to decrease the auction receipts were the decrease in the number of winter broilers produced and the rapid decline in egg prices experienced during the winter months. An analysis of the egg sales at the auctions showed that the average sale price was \$8.76 per case as compared with \$8.93 for the 1935-36 fiscal year. These figures were based on the total volume of eggs sold on the auction markets of the state for the two respective years.

Further consideration of the table giving the distribution of members shows an increase in practically every county served by the auction markets. This is evidence that this method of marketing eggs and live poultry has become an established marketing agency for New Jersey poultry producers. In some cases there was an increase in the number of buyers attending the sales. In many instances, the regular buyers increased the volume of purchases made.

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## AUCTION MARKET MEMBERSHIP, BY COUNTIES

County	Flemington Auction	Hightstown Auction	Mount Holly Auction	Paterson Auction	Vineland Auction	Total
Atlantic .....	..	..	..	..	232	232
Bergen .....	1	..	..	65	..	66
Burlington .....	4	13	649	..	..	666
Camden .....	1	..	17	..	4	22
Cape May .....	..	..	..	..	44	44
Cumberland .....	1	..	..	..	460	461
Essex .....	7	..	..	9	..	16
Gloucester .....	..	..	..	..	129	129
Hudson .....	1	..	..	..	..	1
Hunterdon .....	1,633	..	..	..	..	1,633
Mercer .....	138	122	2	1	..	263
Middlesex .....	13	50	..	1	..	64
Monmouth .....	5	104	4	1	..	114
Morris .....	34	..	..	76	..	110
Ocean .....	4	10	10	..	1	25
Passaic .....	1	..	..	131	..	132
Salem .....	..	..	..	..	67	67
Somerset .....	215	..	..	..	..	215
Sussex .....	14	..	..	31	..	45
Union .....	3	..	..	2	..	5
Warren .....	220	..	..	21	..	241
Totals .....	2,295	299	682	338	937	4,551

Records kept by the Bureau of Markets showed that the returns for eggs through the auction markets were above the New York quotations for eggs of similar quality. The accompanying table shows that the five auction markets returned to their members \$154,585.20 more than the New York highest quotation for the same grade of eggs. The increased return for live poultry amounted to \$12,861.95. This was more than double the increase received for poultry during the previous year. This may be called "new money" in the pockets of poultry producers. The auction markets offered a more convenient and less expensive method of selling eggs. The fact that these auctions kept a relatively large volume of high quality eggs away from the New York market, plus the likely price increase to encourage direct shipping, no doubt affected these figures. Furthermore, producers did not always receive New York quotation prices for their eggs before the auctions were established by the Department of Agriculture. Complete and prompt payments to producers, together with the advantages of producer control of their marketing agency, also became attractive features of the auction markets.

The advantages of the cooperative selling agency for producers were thoroughly demonstrated at one of the large auction markets during a poultry buyers' strike. The buyers' group demanded certain changes in the method of selling and requested other privileges. The directors of the auction did not see fit to grant any of these demands, and as a result the sales were continued on what was considered a fair and business-like basis. In this instance, the producers were protected in carrying on a sound business.

## STATE DEPARTMENT OF AGRICULTURE

SALES ON A GRADED BASIS AT NEW JERSEY'S EGG  
AUCTION MARKETS

July, 1936—June, 1937

Market	Number of Cases	Gross Price at Auction	New York Quotation	Difference in Favor of Auction
Flemington .....	117,580	\$1,030,494.33	\$959,522.56	\$70,971.77
Hightstown .....	30,807	268,760.55	251,933.61	16,826.94
Mount Holly .....	12,462	105,793.89	100,592.67	5,201.22
Paterson .....	25,294	225,633.73	209,077.38	16,556.35
Vineland .....	102,722	899,704.86	854,675.94	45,028.92
Totals .....	288,865	\$2,530,387.36	\$2,375,802.16	\$154,585.20

## SALES AT NEW JERSEY'S POULTRY AUCTION MARKETS

July, 1936—June, 1937

Market	Number of Crates	Pounds of Poultry	Gross Price at Auction	New York Quotation	Difference in Favor of Auction
Flemington .....	48,952	2,273,022	\$425,866.17	\$417,425.66	\$8,440.51
Mount Holly .....	13,705	748,213	151,665.94	146,128.25	5,537.69
Paterson .....	6,895	341,924	62,747.37	62,153.30	594.07
Vineland .....	11,806	513,965	82,636.90	84,347.22	—1,710.32
Totals .....	81,358	3,877,124	\$722,916.38	\$710,054.43	\$12,861.95

SUMMARY OF SALES AT EGG AND POULTRY AUCTION MARKETS

July, 1936—June, 1937

Market	Cases of Eggs	Value of Eggs	Crates of Poultry	Pounds of Poultry	Value of Poultry	Total Value	Difference in Favor of Auctions*
Emmington .....	117,580	\$1,030,494.33	48,952	2,273,022	\$425,866.17	\$1,456,360.50	\$79,412.28
Lightstown .....	30,807	268,760.55	.....	.....	.....	268,760.55	16,826.94
Bount Holly .....	12,462	105,793.89	13,705	748,213	151,665.94	257,459.83	10,738.91
Clifton .....	25,294	225,633.73	6,895	341,924	62,747.37	288,381.10	17,150.42
Deland .....	102,722	899,704.86	11,806	513,965	82,636.90	982,341.76	43,318.60
Totals .....	288,865	\$2,530,387.36	81,358	3,877,124	\$722,916.38	\$3,253,303.74	\$167,447.15

\* Computed by subtracting total value at auctions from total highest quotation for eggs on the New York market and the average New York prices for poultry.

## ENFORCEMENT OF STATE GRADES AT THE AUCTION MARKETS

The New Jersey wholesale grades for eggs were used at each of the auction markets in order to assure buyers of a uniform high quality product and to provide a basis for returning proper values to producers. The grades and standards for eggs, or for any farm product, are of value only to the extent that the grade requirements are rigidly upheld and made uniform on all markets. To this end, the inspectors at the auction markets were selected because of proved ability in their work, and were employed with the approval of the supervisor of poultry products marketing. Their work was checked by an inspector of the department, and this resulted in a more uniform interpretation of the grades, and also kept the bureau in closer touch with the detailed egg marketing problems. The chief inspector made 85 check inspections on the auction grading. Sixty-four other inspections were made at the auction markets in connection with services in any phases of their activities.

During the year, state grades for live poultry were developed and approved by the Board of Agriculture. These grades will be put into use at two of the auctions as soon as certain needed supplies are received. It was felt that the grades for live birds would encourage the production of high quality poultry meat in New Jersey and would assist the auction inspectors in dealing fairly with both producers and buyers. With uniform grades, inspectors will have a basis for making decisions on birds of various qualities. The standards for the grades are listed herewith. The "No. 1" birds will be identified with a coop tag printed in blue, and the "No. 2" birds will be marked with red ink on the coop tag.

New Jersey No. 1—To qualify as New Jersey No. 1, live birds must be full fleshed, full feathered, straight keels, free from tears, bruises and deformities, soft meated for the class, extremely large abdomens or broken bones not permitted, and free from external evidence of disease.

New Jersey No. 2—To qualify as New Jersey No. 2, live birds must be fairly well fleshed, fairly well feathered, free from tears, bruises and deformities, broken bones not permitted, and free from external evidence of disease. (Small blisters, not exceeding 1½ inches, and/or slightly crooked breast bones allowed.)

It is necessary that producers give increasing attention to the quality of their products. Since New Jersey is located between two of the best markets in the country, namely, New York City and Philadelphia, a natural advantage is enhanced by the selling of the highest quality eggs and poultry. The producer who has low quality products is at a distinct disadvantage. The department, therefore, is anxious to maintain high standards for New Jersey products, and thereby assist producers in maintaining their high quality outlets.

## FLEMINGTON EGG AND POULTRY MARKET

The Flemington Auction Market Cooperative Association, Inc., handled the largest volume of poultry and eggs during the year. The egg sales were increased by more than 23,000 cases, and the poultry sales were increased 745,553 pounds. The average selling price for eggs was  $29\frac{1}{4}$  cents a dozen, and the cost of selling eggs averaged 4.6 per cent of the gross receipts. The average selling price received for live poultry was  $18\frac{3}{4}$  cents a pound, with a selling cost of 4.5 per cent of the gross receipts. Several improvements were made in the physical plant at this auction, including a new heating unit, additional candling space, and egg storage and office space. A projector lantern was installed to show each egg sale offering on a screen, eliminating the necessity of writing each individual sale on a blackboard. This market, with the aid of the bureau, held an educational meeting for its employees which proved to be helpful to both the management and the workers.

## HIGHTSTOWN EGG AUCTION MARKET

The Hightstown Market was operated by the Tri-County Cooperative Auction Market Association, Inc. The direct responsibilities for the egg auction market were given to one man, and the market showed an increase in both volume and quality of eggs handled. The eggs were sold for an average price of 29 cents a dozen, with a selling cost of 3.85 per cent of the gross egg receipts. This association approved plans for the construction of a new building, which will have facilities for selling live poultry. The egg holding room will be air conditioned to provide optimum conditions for the eggs while at the market.

## MOUNT HOLLY POULTRY AND EGG AUCTION MARKET

Even though the Burlington County Cooperative Poultry Auction Association, Inc., was established as a live poultry auction, the association did a splendid business in selling eggs last year. The live poultry was of fine quality and of the meat breeds. The average price received for the poultry was  $20\frac{1}{4}$  cents per pound, and the selling cost amounted to 3.6 per cent of the gross poultry sales. The eggs sold for an average of  $28\frac{1}{4}$  cents a dozen, and the cost of selling amounted to 3.54 per cent of the gross egg receipts. Some improvements were made to the building. Beginning in March, the poultry was sold on a basis of No. 1 and No. 2 birds. This association had a substantial increase in the volume of both poultry and eggs handled.

## PATERSON EGG AND POULTRY AUCTION MARKET

The North Jersey Cooperative Egg Auction Association, Inc., was located in an area where a large number of independent egg routes operated. Because of this, the Paterson Auction usually received the highest gross price for

its eggs. The average price received was  $29\frac{3}{4}$  cents a dozen, and the selling cost was 4.4 per cent of the gross egg receipts. The average selling price for poultry was  $18\frac{1}{3}$  cents a pound, and the charges were 4.25 per cent of the gross poultry receipts. This market also had a substantial increase in the volume of business handled. Several fine improvements were made to the physical plant.

#### VINELAND EGG AND POULTRY AUCTION MARKET

The Vineland and South Jersey Cooperative Egg Auction and Poultry Association, Inc., completed a most important year. This association erected a new building at a cost of \$35,000. It was dedicated on March 8, with an excellent program. The building was one of the most convenient of its kind in the northeast. The records show that the egg sales were increased by 17,843 cases, which sold for an average of  $29\frac{1}{4}$  cents per dozen. The cost of selling the eggs amounted to 3.67 per cent of the gross egg sales. The live poultry sales were increased by 31,647 pounds. The average price received for the live poultry was 16 cents a pound, and the selling cost was 4.97 per cent of the gross poultry receipts.

The five poultry and egg auction markets in New Jersey seemed to be especially well located to serve all the major poultry producing sections of the state.

A circular describing the markets was prepared during the year. This circular tells about each market, the state grades and how to buy poultry and eggs at the auctions. It will be distributed among buyers as soon as it is available.

#### NEW JERSEY FRESH EGG LAW

The New Jersey fresh egg law has been in operation for three years and has been of decided benefit to producers, distributors and consumers. The law, administered by the Bureau of Markets, has eliminated the selling of low quality eggs as fresh eggs. Eggs now sold as "fresh" in New Jersey are of known high quality, and a large percentage qualifies as New Jersey Grade A or better.

Through the enforcement of the law, many retail distributors of eggs gained valuable information about egg quality, and therefore applied sound principles in the merchandising of eggs. It was observed that more retailers were becoming interested in the advantages to be gained by selling eggs as "fresh." An attempt is being made to assist egg distributors with their egg quality problems, so that all interests will be working towards the same end.

The inspectors made daily reports. These were carefully checked, and if no complaint was evident the report was recorded and filed with previous reports from the same retail unit. When definite violations were found, the report was then submitted to the administrative officers in the department

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for further action. Informal hearings were held in Newark for those located in northern New Jersey, and in Trenton for retailers located in the southern part of the state.

Of the 225 hearings, there were 174 warnings issued and 50 cases were penalized, the penalties amounting to \$290. This amount included one case turned over to the Attorney General's office, but which was settled out of court. One case was dismissed. The following table shows the number of inspections made, together with the total number of violations recorded during the year.

## OPERATION OF NEW JERSEY FRESH EGG LAW

July, 1936—June, 1937

INSPECTIONS		
Type		Number
Wholesale Stores .....		51
Retail Stores .....		22,659
Roadside Markets .....		659
Retail Routes .....		399
		<hr/>
Total Inspections .....		23,768
Total Violations Detected .....		2,897

DOZENS OF EGGS INSPECTED ACCORDING TO DISTRICTS  
SHOWING NUMBER WHICH MET THE FRESH EGG LAW REQUIREMENTS

July, 1936—June, 1937

Month	Number of Stores Inspected	Newark District		Rural District		Seashore District		Philadelphia District		Total Volume		Per Cent		Weekly Volume of Eggs Sold per Store	
		1*	2**	1	2	1	2	1	2	1	2	1	2	1	2
July	2,033	29,534	45,711	6,125	3,908	40,381	48,069	1,511	1,674	77,551	99,362	43.84	56.16	38.15	48.87
Aug.	1,737	23,260	46,107	1,905	240	27,494	35,220	464	1,833	53,123	83,400	38.91	61.09	30.58	48.01
Sept.	1,960	19,478	71,735	8,145	6,036	9,347	8,384	4,501	11,754	41,471	97,909	29.75	70.25	21.15	49.95
Oct.	1,635	15,758	57,650	3,728	5,372	361	618	9,510	22,472	29,357	86,112	25.43	74.57	17.96	52.67
Nov.	1,448	18,507	46,482	81	804	2,032	2,031	5,552	28,370	26,172	77,687	25.20	74.80	18.07	53.64
Dec.	1,396	13,735	39,486	3,853	2,315	6,366	8,149	4,288	9,899	28,242	59,849	32.06	67.94	20.23	42.87
Jan.	1,601	26,796	54,958	10,225	6,151	6,531	4,003	5,847	8,783	49,399	73,895	40.06	59.94	30.85	46.15
Feb.	1,466	20,151	46,779	3,493	2,225	1,538	846	12,699	18,697	37,881	68,547	35.59	64.41	25.84	46.76
Mar.	2,148	37,900	99,055	3,498	3,513	1,012	1,806	9,333	24,824	51,743	129,198	28.60	71.40	24.09	60.15
Apr.	2,044	26,099	73,316	5,885	4,451	10,159	6,851	5,194	8,224	47,337	92,842	33.76	66.24	23.15	45.42
May	1,903	26,325	74,602	10,722	6,249	7,739	4,615	3,677	7,541	48,463	93,007	34.26	65.74	25.47	48.87
June	2,141	22,168	66,900	6,181	4,718	13,494	17,660	2,846	4,464	44,689	93,742	32.28	67.22	20.87	43.78

\* The number 1 indicates the number of dozens of eggs which would meet the fresh egg law requirements.

\*\* The number 2 indicates the number of dozens of eggs which would not meet the fresh egg law requirements.

The administration of the fresh egg law required a large amount of office work. In this work an effort was made to obtain additional data relative to the effectiveness of the law. The volume of each grade of eggs sold by each retail unit was recorded, and this provided information on the number of dozens meeting the requirements of the fresh egg law. These figures are shown, according to districts, in the accompanying table.

It is of special interest to note that a comparatively high percentage of the eggs reported were "in-grade" during July and August when the temperature was high. A decrease in the percentage of eggs "in-grade" was expected during the high egg price period. The percentage of eggs "in-grade" went back to around 40 per cent in January. This was undoubtedly due, in part at least, to the relatively low price of eggs which occurred during that month.

These data also show a slight decrease in the consumption of high quality eggs during the period of highest prices. Beginning in December, the average number of dozens of eggs "in-grade" came back to what apparently has been a normal consumption of high quality eggs in New Jersey during the past two of three years.

An exhibit showing the advantages of buying fresh eggs was prepared. This exhibit indicated the quality factors found in fresh and non-fresh eggs. Plans were made to have the exhibit displayed in large store windows as well as at other points where it would be observed by large numbers of consumers.

In order to determine the influence of average retail store temperature on deterioration of egg quality, a study was made to compare the decrease in quality of eggs held in a refrigerator with that of eggs held on the floor. The eggs were from the same flock and all graded New Jersey Fancy when placed in the store. Fifteen dozens were placed in each location. The results are presented in the accompanying table.

The New Jersey fresh egg law continued to be enforced in the usual manner. This state has been considered one of the leaders among the states having fresh egg laws. With the continued cooperation of all egg marketing agencies, it should be possible to maintain this enviable position.

#### MISCELLANEOUS SERVICES

The annual New Jersey Chick and Egg Show was conducted during the year and assistance was given for the Egg Show at the Poultry Industries Exposition in New York City. Considerable effort was also put into committee work to develop a terminal for live poultry in New York City. Such a terminal would result in a greater net return to producers for live poultry and, therefore, is worthy of much attention.

A poultry mailing list, for use in the crop reporting service, was prepared during the year. Several talks were given relative to poultry work, and a program for the coming year was planned.

PERCENTAGE OF EGGS IN EACH GRADE DURING EIGHT-DAY PERIOD  
OF KEEPING EGGS IN A GROCERY STORE

Day and Date	REFRIGERATOR *				FLOOR OF STORE **			
	No. Doz. Graded	Per Cent "Fancy"	Per Cent "Grade A"	Per Cent "Standard"	No. Doz. Graded	Per Cent "Fancy"	Per Cent "Grade A"	Per Cent "Standard"
Thursday, July 8 .....	15	100	....	...	15	100	....	...
Friday, July 10 .....	3	75	22.2	2.8	3	58.8	35.3	5.9
Saturday, July 12 .....	3	50	44.5	5.5	3	8.3	86.2	5.5
Sunday, July 14 .....	3	50	47.2	2.8	3	8.3	47.2	44.5
Monday, July 16 .....	11	28.8	67.4	3.8	11	1.5	37.9	60.6

(New Jersey Fancy and Grade A grades meet the New Jersey Fresh Egg Law requirements.)

\* Average refrigerator temperature 40 degrees Fahrenheit.

\*\* Average floor temperature 78 degrees Fahrenheit.

Average relative humidity in store 74 degrees.

# *Report of the Bureau of Plant Industry*

HARRY B. WEISS, *Chief*

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## STATISTICAL AND RELATED WORK

### CROP REPORTS

In the present era the trend of economic life is not described in terms of philosophical doctrines, but is measured by count. This is true in regard to industry as well as agriculture. Each state of the union is at work the year round counting and recounting, checking and rechecking acreages of every commodity planted, yields per acre, number of livestock, total production, farm price per unit and total farm value of agricultural commodities raised. These data are gathered and sent to a central point, the United States Department of Agriculture, where a summary for the entire country is made. In this way, the economic condition of farmers in each state and in the country as a whole is ascertained. Moreover, through these constant efforts the people and their government are well informed about the present and potential food supply in the nation.

New Jersey is doing its share of this work. Through the Crop Reporting Service the people of the state and the nation are informed every month as to what is happening to New Jersey as a farming state and what is going on in other states of the union. In December an annual summary of the crop season is prepared.

### NEW JERSEY FARM PRICES AND THEIR INDEX NUMBERS

Monthly farm prices for 31 commodities produced in New Jersey were gathered, and index numbers of these prices were tabulated. Such index numbers of farm prices serve as a correct indicator of the upward or downward price movement. These price and index numbers were published monthly in the Crop Report.

### CURRENT FARM WAGES AND SUPPLY OF FARM LABOR

Four times during the year, namely, on July 1, October 1, January 1, and April 1, information on prevailing farm wages and the supply and demand of farm labor on New Jersey farms was collected. This information also was published in the Crop Report.

## PEACH AND APPLE INDUSTRY IN NEW JERSEY

Since 1933 New Jersey has passed through several unusually cold winters. The unfavorable weather weakened and destroyed the tender varieties of peach trees and also affected the apple trees to some extent. In order to determine the extent of reduction of numbers of peach and apple trees in the state, a survey of the industry was made. The number of trees by varieties and ages in commercial orchards was recorded and also the number of trees removed and trees planted since January 1, 1935.

The field work of this survey has been completed. Altogether 3,195 orchards were covered, of which 885 were peach orchards and 2,310 were apple orchards. The data will be tabulated and it is expected that the results will be published as a circular during the 1937-1938 fiscal year.

## MONTHLY RETAIL PRICES OF FOOD ARTICLES IN NEW JERSEY

A new service was inaugurated by this bureau in July, 1936, to inform consumers regarding monthly prices of 83 of the most important food articles. Not only were prices gathered, but comparisons were made of current prices with those of the previous year and the years 1932 and 1933, when prices were at a very low level.

Eleven groups of commodities were quoted each month, covering a wide range of food articles. They were: (1) cereals and bakery products; (2) meats, such as beef and beef products, pork and pork products, lamb, veal and chickens; (3) fish; (4) dairy products; (5) eggs; (6) fresh fruits and vegetables; (7) canned fruits and vegetables; (8) dried fruits and vegetables; (9) beverages and chocolate; (10) fats and oils, and (11) sugar and sweets.

## THE CANNING INDUSTRY IN NEW JERSEY DURING THE 1936 SEASON

In 1936 a survey of the canning industry was made and it was found that there were 30 active canneries in New Jersey during that season. These canneries paid to New Jersey farmers, for vegetables bought from them approximately \$4,598,000, or about 25 per cent of the total farm value of all vegetables produced in New Jersey during 1936. The estimates of money paid to farmers by canners for individual commodities in 1936 were as follows:

Tomatoes .....	\$3,614,000.00
Lima Beans .....	341,000.00
Asparagus .....	280,000.00
Snap Beans .....	150,000.00
Green Peas .....	94,000.00
Beets .....	29,000.00
Pumpkins and Squashes .....	29,000.00
Spinach .....	28,000.00
Sweet Potatoes .....	3,000.00
Miscellaneous Vegetables .....	30,000.00
Total .....	<hr/> \$4,598,000.00

The canners of the state employed approximately 7,000 persons during the peak of the packing season.

Tomatoes, as usual, led among the commodities canned during the 1936 season. Approximately 5,079,174 cases of various sizes of tomatoes were manufactured in 1936, or about 58 per cent more than in 1935 and 55 per cent more than during the 12-year average for the years 1924 to 1935. The 1936 canning output of tomatoes was one of the highest in the history of the New Jersey canning industry. It approached the peak of 1930, when 5,384,609 cases were manufactured.

An especially large increase took place in the manufacture of tomato pulp. The 1936 output of this product was 2,845,436 cases, compared with 1,803,250 cases in 1935 and 2,021,071 cases, the average annual production during the 12-year period, 1924 to 1935. Another marked increase was registered in the production of tomato juice. The 1936 output amounted to 991,603 cases, compared with 411,369 cases produced in 1935, and 341,142 cases, the average annual production during the 5-year period, 1931 to 1935. The quantity of catsup, puree and cocktail canned in 1936 exceeded the quantity manufactured in 1935, or during the 12-year period, 1924 to 1935. The quantity of whole tomatoes canned declined.

New Jersey ranked second among the states in the production of cranberries. Part of this crop moves into the canning factories for conversion into jelly and juice. Information on the output of cranberry products by canneries was not available. Figures, however, were gathered on the quantity of berries going into canneries, indicating that the cranberry canning industry was expanding rapidly, with New Jersey as its center. In 1935, for example, more than one-third of the total-crop harvested in New Jersey was bought by the canners. In 1936 the same situation prevailed. The quantity of berries harvested in New Jersey in 1936 was 75,000 barrels, of which 25,700 barrels moved into the canneries.

Information on the quantity of asparagus, lima beans, beets, spinach, sweet potatoes, strawberries, snap beans, green peas, pumpkins and squashes canned in 1936 was gathered also.

Beside the steam and cold-pack methods of vegetable and fruit canning, a new approach toward preservation of certain vegetables is being developed, through a quick-freezing method. The first quick-freezing in New Jersey was done in 1932, when a small quantity of lima beans was frozen by the Frosted Foods Sales Corporation at Bridgeton. It was a trial year with the main objective being to ascertain the commercial advantages of this system. It proved to be a success. During the years since 1932 the system has been improved and other vegetables, such as green peas and asparagus, were added. Constant research in the field of quick-freezing is being carried on, and there are signs of expansion of the industry in relation to quantity of output as well as to kinds of commodities. The quick-freezing method was not intended to replace the steam and cold-canning methods. Its purpose was to furnish the consumer with vegetables of the same freshness as those newly harvested.

Quick-freezing was a distinct advantage for New Jersey agriculture. It relieved an over-supplied market of fresh vegetables and provided a 12-months' marketing period.

The results of the survey of the canning industry were published in Circular 270 of the Department of Agriculture.

#### FARM TENANCY IN NEW JERSEY

The record of farm tenancy in New Jersey from 1900 to 1935 was encouraging. The decline in the number of farm tenants in the state during this period was evidence of the advantages enjoyed by New Jersey farmers, which have enabled many of them to become full owners of farms.

In 1900, there were 10,355 tenant farms in New Jersey, or about 29.9 per cent of the total number of farms, which was 34,650. Since that year farm tenancy has been gradually diminishing. In 1910, there were 8,294 tenant farms, or 24.8 per cent of the total; in 1920, the number decreased to 6,826, or 23.0 per cent of the total; in 1925, it decreased still further to 4,723 farms, or 15.9 per cent of the total, and in 1930, the number reached the lowest level of 3,948 farms, or 15.6 per cent of the total number of farms, which was 25,378. During the years of economic depression, i.e., from 1931 to the present time, tenancy showed a definite upward trend. Those farmers who were lured to the city during the period of prosperity by the high wages in industrial centers began to come back to the land and very frequently rented farms. Some unemployed city people with an agricultural background also undertook to operate rented farms. As a result of this movement, the number of tenant farms in 1935 increased to about 5,242, or 17.8 per cent of the total number, which was 29,375.

The period from 1900 to 1931, during which tenancy decreased steadily, may be characterized as a period of purchase of farms by tenants. Although the trend in this direction was stopped during the period of economic stress, it is fairly obvious that this is only a temporary interruption.

Of equal interest was the average size of farms occupied by tenant farmers in comparison with those of full owners. It is significant that the average size of a full owner's farm was less than that of a tenant's farm in New Jersey. Since 1900, the average size of a full owner's farm has fluctuated more or less widely, while the average size of a tenant's farm has remained more or less constant. During the 35-year period, the lowest average size of a full owner's farm was 59 acres in 1925 and the highest was 77.2 acres in 1900, while the average size of a tenant's farm fluctuated from a low of 85.2 acres in 1935 to the highest point of 95.9 acres in 1930. The difference in size between the farms of full owners and of tenants was partly explained by the fact that a tenant must have a larger area under cultivation in order to meet his costs of production, living expenses and rent, since a tenant usually cannot afford to conduct his business intensively because of a shortage of ready cash and credit.

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The following tables show the changes that have occurred in respect to farms operated by tenants and by full owners during the period from 1900 to 1935.

NUMBER OF TENANT FARMERS IN NEW JERSEY FROM 1900 TO 1935

U. S. CENSUS YEARS	TENANTS						
	Total number of farms in New Jersey (number)	Total number of tenant farms (number)	Total number of tenant farms expressed in per cent of all farms (per cent)	Number of cash tenant farms (number)	Total number of cash tenant farms expressed in per cent of all farms (per cent)	Total number of other than cash tenant farms (number)	Total number of other than cash tenant farms expressed in percentage of all farms (per cent)
1900 .....	34,650	10,355	29.9	5,299	15.3	5,056	14.6
1910 .....	33,487	8,294	24.8	3,499	10.4	4,795	14.3
1920 .....	29,702	6,826	23.0	2,983	10.0	3,843	12.9
1925 .....	29,671	4,723	15.9	1,864	6.3	2,859	9.6
1930 .....	25,378	3,948	15.6	2,049	8.1	1,899	7.5
1935 .....	29,375	5,242	17.8	not known	...	not known	...

TOTAL LAND IN NEW JERSEY FARMS, TOTAL TENANTS' LAND IN FARMS, AVERAGE SIZE OF FULL OWNER AND TENANT FARM AND PER CENT OF ALL LAND IN TENANTS' FARMS

U. S. CENSUS YEAR	Total land in farms (acres)	Total tenants' land in farms (acres)	Average size of full owners' farm (acres)	Average size of tenants' farm (acres)	Average tenant farm is larger than average full owners' farm (acres)	Per cent of all land in tenants' farms (per cent)
1900 .....	2,840,966	965,908	77.2	93.3	16.1	34.0
1910 .....	2,573,857	783,611	71.1	94.5	23.4	30.4
1920 .....	2,282,585	649,403	71.4	95.1	23.7	28.5
1925 .....	1,924,545	451,997	59.0	95.7	36.7	23.5
1930 .....	1,758,027	378,594	64.4	95.9	31.5	21.5
1935 .....	1,914,110	446,594	60.8	85.2	24.4	23.3

THE BEEKEEPING INDUSTRY IN NEW JERSEY

At the request of the New Jersey Beekeepers' Association the department made a survey of the status of the beekeeping industry in the state. Some assistance was given by the Bureau of Agricultural Economics of the United States Department of Agriculture in making this study.

The objective of the survey was twofold: first, to present a statistical description of the beekeeping industry during 1935 and 1934, showing the

number of beekeepers, number of colonies, loss of colonies, production of honey, and the extent of the utilization of bees as pollinating agents in New Jersey; second, to present marketing data on sales of comb and extracted honey by beekeepers at their own roadside markets, to neighbors, through other retail channels, and at wholesale. To make the picture clearer and more complete, the data on prices received by beekeepers for honey sold through these various channels were tabulated and compared.

The survey was completed and the results printed as department Circular 279.

#### NEW JERSEY RETAIL PRICES OF FOODS, 1913 TO 1936

The demand for information on the changes in retail food prices is growing daily. Legislators, governmental agencies, chambers of commerce, universities and colleges, social workers, private business establishments, newspapers and individuals request data on current and past costs of food. Moreover, in our present economic structure it is important to know the monthly and annual expenditure of an average family for food, because the cost of food constitutes nearly 40 per cent of the total expenditure of the family of the average wage earner, or lower-salaried worker, who represents the bulk of our population. Still another item of importance to many people is a knowledge of the quantity of each commodity consumed annually by an average family. These three problems are within the field of agriculture. To comply with the demand for these types of information, the Bureau of Plant Industry undertook, during the summer of 1936, the task of gathering data on the retail prices of 83 food articles and on the annual consumption of each of these articles. The gathering of data for the northern and southern sections of New Jersey, as well as for the state as a whole, has been completed. Due to insufficient funds, all the data accumulated could not be published during the past fiscal year. Therefore, only the Newark and the average New Jersey prices were printed, with the hope that during the next fiscal year the Philadelphia prices might be published as supplemental information. Circular 280 covers the information for Newark and the average New Jersey prices.

#### ECONOMIC STATUS OF NEW JERSEY FARMERS, JULY, 1936—JUNE, 1937

The economic condition of dairy farmers declined considerably from July, 1936, to June, 1937, due to the high price of dairy feeds and to the fact that the stability of the dairy industry, especially during April, May and June, 1937, was shattered by severe competition among dealers of the New York and Philadelphia areas, who, in order to get a market, sold milk to consumers at very low prices.

The poultry industry of the state passed through a very bad year. The prices of eggs and chicken meat were low; the price of chicken feed very high. The exchange value of eggs and meat for feeds was extremely unfavorable to the producers.

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The vegetable growers witnessed a better year from July, 1936, to June, 1937, than during the previous year; yet the July, 1936, to June, 1937 period was considerably worse than the 5-year average, 1923 to 1927, which is taken as normal.

The potato growers had a profitable year, with fair prices and good yields.

The year July, 1936, to June, 1937, for the farmers as a whole, was better than the previous year.

The following is a brief description of the economic status of the dairy, poultry, vegetable and white potato industries in the state from July, 1936, to June, 1937.

The average farm price of milk from July, 1936, to June, 1937 was higher than during the previous fiscal year, and was above the corresponding months of 1923 to 1927. This is seen in the following table where the monthly average prices for the fiscal years 1936 to 1937, 1935 to 1936, as well as the 5-year average prices for 1923 to 1927, are presented.

## AVERAGE MONTHLY FARM PRICE FOR 100 POUNDS OF MILK

Month	1936	1935	Average 1923-1927	Month	1937	1936	Average 1923-1927
July .....	\$2.45	\$2.46	\$2.44	January .....	\$2.87	\$2.62	\$2.70
August .....	2.69	2.43	2.57	February .....	2.85	2.61	2.67
September .....	2.84	2.55	2.70	March .....	2.82	2.43	2.60
October .....	2.93	2.63	2.75	April .....	2.57	2.39	2.55
November .....	2.98	2.68	2.85	May .....	2.45	2.33	2.37
December .....	2.93	2.65	2.86	June .....	2.40	2.31	2.35

The higher average price of milk during the past fiscal year does not indicate a better financial situation of the dairy industry in the state. The sharp increase in the price of dairy feedstuffs which began in July, 1936, and continued all through the fiscal year eliminated the possibility of a reasonable net income on dairy farms. Moreover, the unstable situation of the whole dairy industry in the New York and Philadelphia metropolitan areas, which manifested itself in severe price cutting of milk to consumers and competition for markets among dealers, made the industry unsatisfactory from the producers' point of view. The comparative figures on average prices of dairy concentrates in New Jersey during the two fiscal years, 1936 to 1937 and 1935 to 1936 are as follows:

AVERAGE MONTHLY PRICE PAID BY NEW JERSEY DAIRY FARMERS  
FOR 100 POUNDS OF CONCENTRATES

Month	1936	1935	Month	1937	1936
July .....	\$2.04	\$1.73	January .....	\$2.41	\$1.55
August .....	2.32	1.69	February .....	2.43	1.58
September .....	2.20	1.63	March .....	2.45	1.56
October .....	2.16	1.58	April .....	2.50	1.54
November .....	2.29	1.58	May .....	2.50	1.55
December .....	2.38	1.57	June .....	2.45	1.67

NUMBER OF QUARTS OF MILK REQUIRED TO BUY 100 POUNDS OF  
CONCENTRATES ON NEW JERSEY FARMS

(The relationship between the price received by farmers for milk and the price paid by them for concentrates is expressed in terms of the number of quarts of milk required to buy 100 pounds of concentrates.)

Month	1936	1935	Average 1923-1927	Month	1937	1936	Average 1923-1927
	<i>Quarts</i>	<i>Quarts</i>	<i>Quarts</i>		<i>Quarts</i>	<i>Quarts</i>	<i>Quarts</i>
July .....	38.73	32.71	44.97	January .....	39.06	27.52	41.42
August .....	40.11	32.35	44.98	February .....	39.66	28.13	41.66
September .....	36.03	29.73	42.35	March .....	40.41	29.86	41.69
October .....	34.29	27.94	40.86	April .....	45.24	29.97	41.43
November .....	35.74	27.42	39.18	May .....	48.42	30.94	44.26
December .....	37.78	27.55	38.77	June .....	47.48	33.62	46.02

It is evident that during the 1936 to 1937 fiscal year, New Jersey dairymen were required to exchange considerably more milk for 100 pounds of concentrates than during the previous year. Assuming that during the five-year period from 1923 to 1927 the relationship between farm price of milk and price of concentrates was normal, that is, that the dairy industry was stabilized at a level reasonably profitable to New Jersey farmers, it is evident that from July, 1936, to March, 1937, inclusive, the financial condition of the dairy industry was fair. Beginning, however, in April, 1937, the condition became unsatisfactory because the dairymen paid, for example, in April, about 9.2 per cent more milk to buy 100 pounds of concentrates than during the normal time, 1923 to 1927, etc. In the following table the per cent of the number of quarts of milk required to buy 100 pounds of concentrates is presented.

PER CENT OF THE NUMBER OF QUARTS OF MILK REQUIRED TO  
BUY 100 POUNDS OF CONCENTRATES

1923 to 1927 = 100

1936		1937	
July .....	86.12	January .....	94.30
August .....	89.17	February .....	95.20
September .....	85.08	March .....	96.93
October .....	83.92	April .....	109.20
November .....	91.22	May .....	109.40
December .....	97.40	June .....	103.17

The bureau's records since June, 1933, show that the months of April, May and June have been the poorest. The relationship between the price received for milk and the price paid for concentrates during these three months was about the same as during the ruinous months of 1932 and the first five months of 1933.

New Jersey poultrymen witnessed one of the poorest periods in history from July, 1936, to June, 1937. During that period the farm price of eggs was low and the price of chicken feeds unusually high. The following data confirm this statement.

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The average farm price per dozen eggs was as follows:

1936		1937	
July .....	\$0.303	January .....	\$0.312
August .....	.343	February .....	.273
September .....	.375	March .....	.263
October .....	.386	April .....	.273
November .....	.420	May .....	.256
December .....	.366	June .....	.265

In the following table the average retail price is given per 100 pounds of chicken feeds:

1936		1937	
July .....	\$2.16	January .....	\$2.65
August .....	2.31	February .....	2.57
September .....	2.35	March .....	2.60
October .....	2.31	April .....	2.65
November .....	2.45	May .....	2.65
December .....	2.65	June .....	2.60

The feed-egg ratio, or the number of dozens of eggs required to buy 100 pounds of chicken feeds is the best index of the financial condition of poultrymen.

The feed-egg ratio was as follows:

1936		1937	
July .....	7.13	January .....	8.49
August .....	6.74	February .....	9.41
September .....	6.27	March .....	9.89
October .....	5.98	April .....	9.71
November .....	5.83	May .....	10.35
December .....	7.24	June .....	9.81

In July, 1936, it took about 7.13 dozens of eggs to buy 100 pounds of chicken feeds; in May, 1937, it required 10.35 dozens of eggs, etc.

In comparison with the years 1923 to 1927, which are taken as normal, it is found that in July, 1936, it took 3.6 per cent more eggs to buy 100 pounds of chicken feeds than during July, 1923 to 1927. In December, 1936, farmers were obliged to pay 88 per cent more eggs for 100 pounds of feeds than during December, 1923 to 1927. The first six months of 1937 also showed a very unfavorable relation between the farm price of eggs and the price of chicken feeds. The following index expresses the July, 1936, to June, 1937 feed-egg ratio in per cent of the corresponding months, 1923 to 1927.

1936		1937	
July .....	103.6	January .....	181.0
August .....	106.5	February .....	166.3
September .....	124.2	March .....	135.1
October .....	134.7	April .....	116.7
November .....	161.5	May .....	127.5
December .....	188.1	June .....	125.6

A similar study indicates what happened to poultry meat producers in the state during the year from July, 1936, to June, 1937.

The average farm price of poultry meat per one pound was as follows:

1936		1937	
July .....	\$0.22	January .....	\$0.19
August .....	0.22	February .....	0.192
September .....	0.219	March .....	0.20
October .....	0.21	April .....	0.21
November .....	0.20	May .....	0.21
December .....	0.18	June .....	0.203

In the following table the average retail price is given per 100 pounds of chicken feeds:

1936		1937	
July .....	\$2.16	January .....	\$2.65
August .....	2.31	February .....	2.57
September .....	2.35	March .....	2.60
October .....	2.31	April .....	2.65
November .....	2.45	May .....	2.65
December .....	2.65	June .....	2.60

The feed-chicken meat ratio, or number of pounds of meat required to buy 100 pounds of chicken feeds was as follows:

1936		1937	
July .....	9.8	January .....	13.9
August .....	10.5	February .....	13.4
September .....	10.7	March .....	13.0
October .....	11.0	April .....	12.6
November .....	12.3	May .....	12.6
December .....	14.7	June .....	12.8

Expressing the July, 1936, to June, 1937 feed-chicken meat ratio as per cent of the corresponding months, 1923 to 1927, we get the following index:

1936		1937	
July .....	115.3	January .....	152.7
August .....	119.3	February .....	148.9
September .....	123.0	March .....	156.6
October .....	123.6	April .....	151.8
November .....	135.2	May .....	150.0
December .....	161.5	June .....	154.2

It is evident that the financial condition of the poultry meat producers grew steadily worse from July, 1936, to June, 1937. In June, 1937, for example, it required 54.2 per cent more chicken meat to buy 100 pounds of feeds than during the corresponding months of the 1923 to 1927 period; in December, 1936, it took 61.5 per cent more meat than during the same months of 1923 to 1927, etc.

The July, 1936, to June, 1937 economic condition of vegetable growers was slightly better than during the July, 1935, to June, 1936 period, but considerably below the five-year, 1923 to 1927, average condition. In the

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following table the index number of the average prices received by New Jersey farmers is presented. For example, in July, 1936, farm prices of vegetables were 57 per cent of the July, 1923 to 1927 prices; in June, 1937, prices were 50 per cent, or one-half of those received during June, 1923 to 1927, etc.

1923 to 1927 = 100

1936		1937	
July .....	57	January .....	52
August .....	57	February .....	55
September .....	62	March .....	50
October .....	65	April .....	58
November .....	72	May .....	49
December .....	61	June .....	50

The 1936 harvest of white potatoes was abundant and the farm prices of potatoes were good.

The average prices received by New Jersey farmers per bushel of white potatoes were as follows:

1936		1937	
July .....	\$1.35	January .....	\$1.35
August .....	1.05	February .....	1.40
September .....	1.10	March .....	1.40
October .....	1.01	April .....	1.25
November .....	1.01	May .....	1.20
December .....	1.10	June .....	1.05

The July, 1936, to June, 1937 average prices expressed in per cent of the 1923 to 1927 average prices are as follows:

1936		1937	
July .....	79.0	January .....	95.7
August .....	72.4	February .....	93.3
September .....	84.6	March .....	95.9
October .....	80.8	April .....	81.7
November .....	68.2	May .....	76.9
December .....	74.8	June .....	64.0

## NURSERY PRODUCTION COST SURVEY

Considerable interest has been manifested by the nurserymen in the last few years in the costs which go into the production of ornamental plants. In the fall of 1936 a survey was undertaken by this department at the request of the New Jersey Nurserymen's Association. Twenty-two of the larger nurseries (25 acres or more in plants) and 27 small nurseries, representing a cross section of nurseries in the state, were contacted to secure working data for the various operations going into production. Frequent visits were made to a few nurseries, which, because of their size and the multiplicity of their operations, were best able to furnish the needed labor records.

In order to simplify the analysis of cost records, the many thousands of plant species, varieties and sizes were grouped into types having similar characteristics (trees, shrubs, evergreens and their divisions) and similar requirements of culture. Furthermore, the nursery operations were considered as parts of the general work divisions for the (1) propagation and growing of plant material, (2) the selling organization, (3) the filling of orders, and (4) the delivery and planting operations. A separate study on the "Cost of Digging Evergreens (and other plants) Balled and Burlapped" was developed, mimeographed, and distributed to the nurserymen of the state. Similarly, an analysis of truck and machinery costs for delivery and nursery use was made.

Recommendations for the development of working records of costs in the various departments have aided a number of nurserymen and have shown to others that production costs can no longer be overlooked, but must be considered as a governing factor in their business policy.

#### LISTING OF IDLE FARMS FOR SALE IN NEW JERSEY

The listing of idle farms for sale in New Jersey was started in 1932 and has since been continued as one of the regular services rendered by the department. This year it was again necessary to solicit the township tax assessors for the names of owners of idle farm property from whom a new descriptive list of those for sale, along with a few of the past years' listings which had not been sold, developed. Out of 808 idle farms reported, 171 farms were offered for sale, located in every county of the state except the three metropolitan or suburban counties, Hudson, Passaic and Union.

#### FARM TAXATION STUDY

During the period from October 1, 1936, to March 5, 1937, nursery inspectors of the bureau obtained data for a revision of the study "Farm Taxation in New Jersey," published in March, 1931, as Bulletin 532 of the New Jersey Agricultural Experiment Station, (Allen G. Waller and Harry B. Weiss, co-authors). The figures on assessments for all purposes on farm properties for the years 1930 to 1936 were copied from the tax lists in the county tax offices. Thirty properties were chosen in each of 75 townships in 16 counties of the state, and the assessments noted for the years mentioned. The tax rates and composition of the rates of the townships were also noted. This study provides valuable information on the tax load carried by New Jersey farmers.

#### NURSERY INDUSTRY STUDY

A survey of the extent of the nursery industry was begun in May, 1937, to bring up to date some of the information obtained in the study made in 1933, the results of which were published in Circular 238 of this department. There has been a good improvement in the nursery business in the past two years and the new study should serve as a more accurate record of the importance of this industry in the state.

## THE NEW JERSEY SCIENCE FAIR, 1937

The third state-wide New Jersey Science Fair was held from April 13 to April 17, at the Newark Museum, Newark, N. J. As in previous years, it was arranged by the New Jersey Department of Agriculture with the cooperation of the New Jersey Department of Public Instruction and the Plan Committee for 1937. This year the fair was sponsored by and held at the Newark Museum, where the facilities and the interest and cooperation of the Museum staff contributed greatly to its success.

There was a decline in the number of exhibits for 1937 as compared with 1936, but this was due principally to changing the location from Trenton to Newark, and perhaps changing the dates of the fair from January to April. The change in location was no doubt responsible for most of the decline, as many former exhibitors from schools in the southern part of the state did not participate so freely as heretofore.

The average daily attendance for the fair during the five days it was open to the public was over 1,000. Fifty-nine classes from various schools visited the fair, 10 from Newark schools and 49 from schools in approximately 20 surrounding towns. These classes contained nearly 1,700 pupils.

For the most part the rules and regulations of the fair were similar to those of preceding years. A few changes were made in the classes set up for exhibits. Two former classes in agriculture were reduced to one. Mechanics was omitted and such exhibits were entered in the broader class entitled physics and chemistry.

Two hundred exhibits were shown from sixty schools in 20 counties of the state. A more extended account will be found in Circular 278.

## WHITE PINE BLISTER RUST CONTROL IN NEW JERSEY

From a forestry viewpoint, there is very little white pine in the state. However, it has been planted extensively as an ornamental, especially in the Red Bank and Morristown sections. Native white pine is found chiefly in the northern part of the state, especially in the townships of Montague, Sandyston, and Wallpack in Sussex County, and New Milford in Passaic County. It occurs principally in scattered small lots along the river valleys. This northern region is largely a summer resort section, and consequently the white pine has a high scenic value which exceeds its commercial worth.

## ACREAGE AND COMMERCIAL VALUE OF WHITE PINE

(Based on 1926 cartographical survey)

During the period 1932 to 1936, inclusive, the planting of white pine from the state nursery, exclusive of E. C. W. planting, was as follows: under Clark McNary law to farmers, 199,000; outside Clark McNary law but not on state land, 168,800; on state lands, 272,800—Total 640,600.



limited amount of native white pine, his activities have been confined chiefly to nursery sanitation, black currant eradication, inspection and protection of plantations, scouting, and direction of control work where needed. Regular Ribes eradication work was conducted for the first time in the state during 1934 in the townships of Montague, Sandyston, and Wallpack, one P. W. A. scout and a crew of five laborers from a CCC camp being used on the project. Control work was also conducted by one P. W. A. crew during May and June, 1935, and by one or two W. P. A. crews during July to September, 1935, and during the entire 1936 season.

RESULTS OF RIBES ERADICATION WORK, 1934 TO 1936, INCLUSIVE  
(All initial control work)

Program	Total Acreage Worked	Ribes Pulled		Total Man Days	Total Cost			Per Acre		
		Wild	Cult.		State	Govt.	Total	Cost	Ribes	Man Days
E.C.W.	381	19,795	304	247	.....	\$346.50	\$346.50	\$0.909	52.0	.65
P.W.A.	12,736	6,858	1,110	126	\$45.23	732.20	777.43	0.061	0.5	.01
W.P.A.	3,625	21,127	299	951	298.10	3,862.30	4,160.40	1.15	5.8	.26
	16,742	47,780	1,713	1,324	\$343.33	\$4,941.00	\$5,284.33	\$0.316	2.9	.08

The cost of the Ribes eradication work includes all expenditures for laborers and scouts employed in locating and pulling Ribes, including cost of crew transportation and miscellaneous expenses for trail paper, picks, etc. In the case of the E. C. W. personnel, the cost of their total time on Ribes eradication work was figured at the rate of \$1.40 per 8-hour day.

STATUS OF INITIAL RIBES ERADICATION WORK  
(December, 1936)

Acreage of Control Area	Acreage of Control Area Worked	Percentage of Control Area Worked	Acreage Still in Need of Protection
33,395	16,742	50.1	16,653

NURSERY SANITATION

In addition to the state nursery at Washington Crossing and the Soil Conservation Service nursery at New Brunswick, there are 86 commercial nurseries growing white pine. Only 28 of these private nurseries contain 500 or more trees of this species. Three of these private nurseries applied for pine shipping permits under Federal Quarantine 63 during 1933, but after a preliminary survey revealed sizable plantings of cultivated Ribes within the 1,500 protective zones, the owners decided not to take further action.

The initial eradication of Ribes in the one-mile sanitation zone around the state nursery was completed in 1932, and the few Ribes sites have been rechecked each year since that time. Initial protection was also established around the S. C. S. nursery at New Brunswick during 1936, the state co-

operating with the S. C. S. officials on this project. At the time the control work was performed there were 660,000 white pines in this nursery. The control area around the two nurseries which are maintaining sanitation zones in New Jersey aggregates 795 acres.

### RESULTS OF RIBES ERADICATION IN CONNECTION WITH NURSERY SANITATION PROJECT

(1932 to 1936, Inclusive)

Type of Erad.	Acreage Worked	Ribes Pulled		Total Man Days	Total Cost	Per Acre		
		Wild	Cult.			Cost	Ribes	Man Days
Initial .....	795	2,000	114	109	\$327.45	\$0.412	2.5	.14
Re-Erad. ....	620	619	...	9	60.30	.097	1.0	.01
	1,415	2,619	114	118	\$387.75	\$0.274	1.9	.08

These data are not included in the regular Ribes eradication summaries.

### *Ribes Nigrum* ELIMINATION

A survey of black currants was made during 1928 in Morris county and also in parts of Monmouth and Sussex counties. One hundred and two plantations of black currants were located in Morris County, 19 in Monmouth, 10 in Sussex, 1 in Warren, and 1 in Passaic counties. In the area scouted, black currants were found in only one nursery. There is an unwritten agreement among New Jersey nurseries not to sell these bushes. No systematic eradication of *Ribes nigrum* in the state has been attempted to date, but the owners of such Ribes have in a good many cases destroyed their bushes.

### PLANTATIONS

As indicated previously, exclusive of E. C. W. plantings, 640,600 white pines were distributed from the state nursery during the period 1932 to 1936. The largest white pine plantings are located in Gloucester, Morris, Cumberland, Ocean and Somerset counties. Smaller white pine plantings are found in the counties of Monmouth, Warren, Burlington, and Sussex. During 1929, an inspection was made of the sites and environs of the white pine plantings made from stock distributed during that year by the State Department of Conservation and Development. These locations were examined for wild and cultivated Ribes, and when Ribes and older pines were found nearby, these were inspected for infection. Owners in each case were advised regarding the disease and control methods. The plantations varied from 500 to 10,000 seedlings. On 30 sites examined, 323 cultivated currants and gooseberries (mostly red currants) were located, but none of these bushes was infected. Card and map records of this work were kept for future reference. Blister rust control literature is now sent to each purchaser of white pine planting stock from the state nursery.

## RIBES COMPENSATION

No compensation has been paid for the 1,827 cultivated Ribes destroyed in the state.

## FIELD SURVEYS AND STUDIES

Prior to 1929, general scouting was done during the summer months by one or two cooperative scouts to locate pine, Ribes and infection, and a state-wide survey of forest types, by towns, was made by a representative of the federal government during 1927. The details of the black currant survey conducted during 1928 are given under "*Ribes Nigrum* Elimination." A survey of nurseries growing pine and Ribes was made in 1931.

TOTAL COST OF ALL BLISTER RUST CONTROL WORK,  
1925 TO 1936, INCLUSIVE

Source of Funds	Amount Spent	Percentage of Total	
State B. R. Appropriation .....	\$14,601.01	46.0	46.1%
Other State Appropriations .....	36.80	0.1	by State
B. P. I. ....	6,271.28	19.7	
B. E. and P. Q. ....	2,189.68	6.9	
P. W. A. ....	3,081.48	9.7	53.9%
E. C. W. ....	346.50	1.1	by Gov't.
W. P. A. ....	5,024.77	15.8	
S. C. S. ....	228.00	0.7	
Total .....	\$31,779.52	100.0	

Expenditures from federal emergency funds since 1933 have amounted to 27.3 per cent of the total cost. The total expenditures for all control work include cost of administration, supervision, blister rust control agent activities, Ribes eradication, nursery sanitation, field survey and studies, and miscellaneous.

## FUTURE WORK

Future control work against white pine blister rust includes the completion of initial eradication work on 16,653 acres, the application and maintenance of adequate nursery sanitation measures, a complete survey of *Ribes nigrum* and the eradication of such bushes, eradication of all Ribes within at least 900 feet of pine plantations and ornamental pine of value, additional scouting in the northern section of the state to determine in more detail pine, Ribes and infection conditions, the keeping of adequate records and maps to show the locations of pine plantations, *Ribes nigrum*, native pine, infection, etc., and general informational work to keep the public advised regarding the disease and its control.

## SEED CERTIFICATION AND RELATED WORK

## RASPBERRY PLANT CERTIFICATION

Ten nurserymen and growers applied for inspection and certification of raspberry fields in order that they might ship into states having regulations requiring certification. Two field inspections were made of 96.5 acres, during which 10 acres were rejected as having virus diseases present. The acreage (86.5) thus passing was declared eligible for shipment with certificates.

## GRAIN SEED CERTIFICATION

A wider consumer acceptance for New Jersey certified grain seeds was noticeable during the year as larger stocks were made available. Part of this increased interest was due to the enlarged activities of the New Jersey Field Crop Improvement Association which taxed its members 1 per cent of all seed sales for promotional purposes. A newly-hired extension agronomist is placing a large number of farm field demonstrations using New Jersey certified seed in comparison with the commonly used sorts. Statistical data for the grain seed certification project are given herewith. Rejections were made wherever the field, bin or graded seed inspections did not conform to the standards.

## SEED GRAIN CERTIFICATION—1936-1937

Crop	Variety	Acre Entered	No. Growers	Acre Certified	Bushels Tagged and Sealed
Barley (Spring)	Velvet	66	6	22	284.5
Corn	N. J. Hybrid No. 2	16.75	5	16.75	126.5
"	Hulsarts Yellow Dent	7	1	7	...
"	Lancaster Sure Crop (New Jersey strain)	56	5	49	494
"	Mercer White Cap	30	2	18	324
"	Reid's Yellow Dent (Crosshaw strain)	15	1	15	55.5
"	Somerset Leaming	69	4	61	341.0
Hay	Timothy	9	1	9	10*
Oats	Kanota	63.75	6	51.75	1,352.5
"	Keystone	111.5	9	85	2,499.5
Rye	Raritan	7	2	7	105
Soybeans	Harbinsoy	68	5	68	606
"	Wilson-5	4	1	0	...
Wheat	Dawson's Golden Chaff	19	2	9	100
"	Leap's Prolific	310	16	234	2,592
		852	66	652.5	8,890.5

\* Sold unsealed.

## WHITE POTATO SEED CERTIFICATION

The production of certified white potato seed in 1936 was 45 per cent above that of 1935, despite the reduced acreage entered and passing the inspections. This amounted to 63,880 bushels, which is about 33 per cent under the average. Most of the increase over the previous year was due to slightly more favorable weather conditions, which, however, were not ideal. The absence of insects, and the late killing frosts (October 27), also helped in bringing the average yield per acre up to 148 bushels. The Bridgeton section experienced a heavy rainfall just prior to the opening planting dates, which provided ample moisture to start the crop. At Hightstown a below normal precipitation was experienced in July and August. However, the distribution of rainfall was better spaced and the crop was brought to maturity with fairly good yields. In southern New Jersey little rainfall was experienced through early September, and late planted fields grew but little, and advanced fields were retarded by the dry weather. This dry spell was broken on September 18, when a tropical storm brought beating rains. Bridgeton had 4.32 inches and Hightstown 2.00 inches of rain in that 24-hour period. The yields on some fields were materially affected by the whipping of this storm. The late planted fields were, however, greatly benefited and grew rapidly from that time until killed by frost late in October. The fields which were dug first carried considerable caked dirt, which necessitated special handling for removal. Seed dug later came from the field much freer of dirt. The sudden freezing temperatures on October 27, following rains earlier in the day, caught numerous farmers with lots of potatoes dug but not gathered. As a result a loss of more than a thousand bushels of seed potatoes in the aggregate was experienced by several growers.

As already mentioned, insects, especially aphids, were negligible factors in 1936. The very low population of aphids was surprising after the severe appearance of this pest on fields of tomatoes and other crops earlier in the summer. Whether the extremely hot days of July or the good work of parasitic and predaceous insects was responsible for the disappearance of the aphids, they disappeared and did not become a problem on the late-crop seed potatoes. Other insects were likewise not troublesome.

Early blight became noticeable on the more advanced fields, but in general was held in check by Bordeaux sprays. The value of proper and timely spraying was evident when the crop was dug. Growers who sprayed carefully usually harvested the larger yields.

One grower planted the Warba variety, which added another to the list of new varieties. The Chippewa variety showed up well again this year in comparison to the standard varieties.

Yields for the whole acreage varied from 59 to 250 bushels per acre, averaging 148.04 bushels. The lower yields were on late planted fields which also were materially affected by the tropical rainstorm. The largest yield was of the Red Skin variety.

During the past several years there has been a growing tendency to dispense with seed treatment. This year only 39.67 per cent of the seed was treated, as compared to 80 to 90 per cent three and four years ago. When the low cost of the instantaneous dip method of treatment and the insurance gained by treating are considered, it is plain that growers are being short sighted in failing to treat the seed before planting.

Fertilization of the crop was as usual, most of the growers using a standard strength fertilizer of 4-8-7 or 5-8-7 analysis. A few growers used double strength material, finding the yields comparable and less tonnage to be handled. The applications averaged 1,944 pounds to the acre, with a low application of 1,500 pounds and a high of 2,500 pounds per acre.

Following the suggestions made last year when aphids were very prevalent, most growers procured new seed stocks. More than two-thirds of the seed planted was from Prince Edward Island and Maine. The balance was home-grown stock except one small lot of Warba seed from Minnesota.

Virus diseases were more prevalent this year but in other than the rejected fields the percentages were not dangerously high. More roguing, especially in the home-grown stocks, was necessary than in several seasons. However, with careful roguing the seed was made acceptable. Leaf roll was the most common of the virus diseases, mosaic and spindle tuber being present in some of the stocks. Two entries were rejected because they were planted before the permitted planting dates.

Approximately 75 per cent of the crop was sold during the fall season, several sizeable orders going into the Lancaster County area in Pennsylvania. Growers there reported excellent results with the use of New Jersey certified seed.

#### A REVIEW OF THE INSPECTION AND CERTIFICATION WORK OF LATE CROP WHITE POTATO SEED IN 1936

##### Acres Entered for Certification:

County	Acres	Per Cent
Burlington .....	3	.64
Camden .....	4	.84
Cumberland .....	289	60.91
Middlesex .....	12.5	2.63
Monmouth .....	26	5.48
Salem .....	140	29.50
	<hr/> 474.5	<hr/> 100.00

##### Seed Source:

	Bags	Per Cent
New Jersey .....	969	30.43
Prince Edward Isle .....	1,271	39.92
Maine .....	924	29.02
Minnesota .....	20	.63
	<hr/> 3,184	<hr/> 100.00

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Seed Storage:

	Bags	Per Cent
Del Bay .....	2,019	63.41
Freehold .....	450	14.13
Salem .....	418	13.13
Millville .....	102	3.20
South River .....	60	1.88
Vineland .....	55	1.73
Woodstown .....	49	1.55
Camden .....	17	.53
Trenton .....	14	.44
	<hr/>	<hr/>
	3,184	100.00

Seed Treatment:

	Bags	Per Cent
Semesan .....	1,263	39.67
None .....	1,921	60.33
	<hr/>	<hr/>
	3,184	100.00

Previous Cropping of Field:

	Acres	Per Cent
Green Manure Crops .....	154	32.56
Fallow .....	104	21.99
Grain Stubble .....	77.5	16.38
Sod .....	60.5	12.79
Early Potatoes .....	39	8.25
Truck Crops .....	38	8.03
	<hr/>	<hr/>
	473	100.00

Fertilization:

Tons applied (473 acres) .....	459.75 tons
Acreage application per acre .....	1,944 pounds
Heaviest application per acre .....	2,500 pounds
Lightest application per acre .....	1,500 pounds

Rate of Plantings:

	150 lb. Sacks
Total number of bags of seed planted .....	3,184
Average number of bags per acre .....	6.73
Heaviest number of bags per acre .....	10
Lightest number of bags per acre .....	3.52

Calculated Weight of Seed Piece (spacing 11x32 in.—17,968 hills per acre):

Bags per Acre	Weight of Seed Piece
3.52 .....	0.470
<b>6.73</b> .....	0.899
10.00 .....	1.336

Yield Per Acre (Bushels):

Average yield .....	148.04 bushels
Lowest yield .....	59.00 bushels
Highest yield .....	250.00 bushels (Red Skins)

Preliminary Expenses Per Acre:

Seed—6.73 bags @ \$5.00 .....	\$33.65
Fertilizer—1,944 pounds @ \$25.00 per ton..	24.30
	<hr/>
	\$57.95

PRODUCTION AND DISTRIBUTION

CERTIFIED CROP OF WHITE POTATO SEED OF NEW JERSEY

	1936	1935	1934
Acres of Seed Certified .....	430	482.12	622.5
Total Yield (field run) in Bushels .....	63,880	44,422	106,823
Average Yield per Acre in Bushels .....	148.04	92.14	171.6
Bags of Certified Seed Sold .....	11,952	6,463	21,297
Bags Sold South Jersey .....	437	1,522	1,538
Bags Sold Central Jersey .....	9,978	4,503	16,209
Bags Sold Out of State .....	1,537	438	3,550
Pennsylvania .....	1,534	435	974
New York .....	3	3	3
Virginia .....	0	0	2,537
(old sacks used)			
Bags Sold Untagged (tags not allowed)....	1,538	996	2,664
Bags Sold South Jersey .....	549	405	2,210
Bags Sold Central Jersey .....	989	591	454
Total Bags of Seed Shipped .....	13,490	7,459	23,961
Bags Seed Unsold December 31 .....	5,172	6,114	21,781
Baskets of Seed Retained Own Use .....	24,805	28,224	27,451
Bushels of Seed Retained Own Use .....	15,503	17,640	17,157

Note: In 1936 seed was packed and sold in 100-pound bags. In former years 150-pound bags were used.

POTATO ACREAGE ENTERED FOR CERTIFICATION 1936

County	Growers	Cobblers	Red Skins	Chippewas	Katahdins	Warbas	Superbas	Green Mts.	Total
Burlington ...	1	3	..	..	..	..	..	..	3
Camden .....	1	..	4	..	..	..	..	..	4
Cumberland .	28	199.5	75	3.25	2.75	3	3	2.5	289
Middlesex ...	2	12.5	..	..	..	..	..	..	12.5
Monmouth ...	3	26	..	..	..	..	..	..	26
Salem .....	13	137	..	2	1	..	..	..	140
Total .....	48*	378	79	5.25	3.75	3	3	2.5	474.5

\* Actual number of growers.

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ACREAGE FAILING AND PASSING CERTIFICATION

	Acres	Per Cent
Acreage rejected at first inspection .....	1	.21
Acreage withdrawn at first inspection .....	29.5	6.22
Acreage rejected at second inspection .....	14	2.95
Total acreage rejected at end of two inspections .....	44.5	9.38
Acreage rejected at third (tuber) inspection .....	6	1.26
Acreage withdrawn and rejected three inspections .....	50.5	10.64
Acreage passing three inspections .....	424	89.36

WHITE POTATO SEED CERTIFICATION INDUSTRY

(For first 10 years see 1929 records)

Year	No. of Growers	Acres Entered	Percentage Rejection	Varietal Distribution	
1929 .....	64	621	12.64	Green Mts.	19.0
				Cobbler	584.5
				Red Skins	17.5
<hr/>					
1930 .....	64	593	12.65	Cobbler	584.5
				Green Mts.	2.5
				Red Skins	6.0
<hr/>					
1931 .....	77	904.5	5.86	Cobbler	874.5
				Green Mts.	1.0
				Red Skins	29.0
<hr/>					
1932 .....	63	729.17	1.44	Cobbler	672.0
				Green Mts.	3.5
				Red Skins	53.67
<hr/>					
1933 .....	60	784.62	6.12	Cobbler	683.50
				Green Mts.	20.00
				Red Skins	80.50
				Katahdin	.62
<hr/>					
1934 .....	64	773.50	19.50	Cobbler	717.50
				Green Mts.	14.00
				Red Skins	39.00
				Katahdins	2.00
				Superba	1.00
<hr/>					
1935 .....	47	505.12	4.54	Cobbler	444.75
				Green Mts.	5.00
				Red Skins	31.00
				Katahdins	23.75
				Chippewa	0.625
<hr/>					
1936 .....	48	474.5	9.38	Cobbler	378.00
				Red Skins	79.00
				Chippewa	5.25
				Katahdin	3.75
				Warbas	3.
Superba	3.				
Green Mts.	2.50				

SUMMARY OF INSPECTION RESULTS, 1936

	Burlington	Camden	Cumberland	Middlesex	Monmouth	Salem	Total
Acreage entered .....	3	4	289	12.5	26	140	474.5
Number of growers .....	1	1	28	2	3	13	48
Average number of acres per grower .....	3	4	10.32	6.25	8.66	10.77	9.88
Acres rejected first inspection* .....	0	0	30.5	0	0	0	30.5
Per cent rejected first inspection .....	0	0	10.55	0	0	0	6.43
Acres rejected second inspection .....	3	0	1	5	0	5	14
Per cent rejected second inspection .....	100	0	0.35	40	0	3.57	2.95
Acres rejected third inspection .....	0	0	6	0	0	0	6
Per cent rejected third inspection .....	0	0	2.08	0	0	0	1.26
Acres rejected total* .....	3	0	37.5	5	0	5	50.5
Acres certified .....	0	4	251.5	7.5	26	135	424
Per cent certified .....	0	100	87.02	60	100	96.43	89.36

\* Includes withdrawals.

VARIETAL DISTRIBUTION OF REJECTIONS AND WITHDRAWALS

	Acres Entered	Acres Rejected and Withdrawn by Inspections			Acres Certified
		First	Second	Third	
Irish Cobblers .....	378	1.5	12	6	358.5
Red Skins .....	79	26	0	0	53.0
Chippewas .....	5.25	0	2	0	3.25
Katahdins .....	3.75	0	0	0	3.75
Warbas .....	3	0	0	0	3
Superbas .....	3	3	0	0	0
Green Mountains .....	2.5	0	0	0	2.5
Total .....	474.5	30.5	14	6	424

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TOMATO SEED CERTIFICATION

The history of the tomato seed certification work is as follows:

VARIETAL DISTRIBUTION CERTIFIED TOMATO SEED ACREAGES

Year	Bonny Best	J. T. D.	Baltimore	Marglobe	Break O'Day	Rutgers	Pritchard	Total
1925	344	..	238	..	..	..	..	582
1926	274	..	171	..	..	..	..	445
1927	207	110	121	431	..	..	..	869
1928	208	55	150	329	..	..	..	742
1929	133	123	87	360	..	..	..	703
1930	363	162	250	620	18	..	..	1,413
1931	219	292	106	689	127	..	..	1,433
1932	34	61	18	562	..	..	..	675
1933	12	..	15	543	..	..	99	669
1934	28	155	91	2,046	2	..	182	2,504
1935	5	247	61	1,519.5	8	730	192.5	2,763
1936	5	109	40	1,576	21	1,001	208	2,960

The number of pounds of certified seed produced in 1936 were distributed among varieties as follows:

Break O'Day	572
Marglobe	53,566
Pritchard	6,109
Rutgers	27,464
J. T. D.	1,860
Baltimore	2,700
	<hr/>
	92,271

NURSERY INSPECTION SERVICE

Inspections were made and certificates were issued to a total of 670 nurseries during the year ending June 30, 1937. A certificate is issued only when the nursery is found, upon inspection, to be free of dangerously injurious insects and plant diseases. Following is a list of insect infestations and disease infections observed and the frequency of occurrence:

Pests	Number of Nurseries	Pests	Number of Nurseries
Juniper Scale	100	Euonymus Scale	3
Spruce Gall Aphid	87	Ash Borer	2
Oyster Shell Scale	52	Lilac Borer	2
Juniper Webworm	41	Scurfy Scale	1
Pine Leaf Scale	29	Azalea Lace Bug	1
Rhododendron Lace Bug	21	Bronze Birch Borer	1
Bagworm	17	Rose Stem Girdler	1
European Pine Shoot Moth	14	Dogwood Twig Girdler	1
San Jose Scale	10	White Pine Weevil	1
European Elm Scale	8	Hawthorne Lace Bug	1
Boxwood Leaf Miner	8	Dogwood Cambium Borer	1
Poplar and Willow Borer	5	Pine Bark Aphid	1
Peach Borer	3	Tulip Lecanium	1

In all there were 172 nurseries in which 415 infestations were found and in which clean-up measures were required before their certificates were issued.

#### DEALERS' CERTIFICATES

Certificates were issued to 84 dealers in nursery stock for the year ending June 30, 1937. Agreements were signed by these dealers to purchase stock only from listed certified nurserymen.

#### FOREIGN STOCK INSPECTIONS

There were 118 inspections made of nursery stock shipped into this state from foreign countries during the year.

#### DOMESTIC STOCK INSPECTIONS

The following inspections were made of nursery stock shipped into this state from other states of the United States:

#### DOMESTIC STOCK INSPECTIONS

	Baskets	Trucks	Bales	Cars	Cases	Packages	Bags	Crates	Barrels
Fall of 1936 .....	4	2	42	10	112	1	..	5	..
Spring of 1937 .....	..	..	122	41	459	..	7	..	5
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
Totals .....	4	2	164	51	571	1	7	5	5

#### SPECIAL CERTIFICATES

Special certificates were issued to nurserymen who desired to ship plant material to states or foreign countries which had special requirements other than those covered by the usual certificate of inspection. The special certificate attests to the freedom of the stock from insects and diseases at the time of inspection (just previous to shipment). Special certificates were also issued on request to persons not in the nursery business who desired to make a small shipment or two to some point outside the state. Three hundred and thirty-three of these certificates were issued during the 1936-1937 fiscal year.

#### REQUEST INSPECTIONS

To meet requests for advice on the control of various insects and in other nursery and horticultural problems, 43 special calls were made during the year ending June 30, 1937.

#### CANADIAN NURSERY STOCK INSPECTIONS

In compliance with Canadian regulations, 67 inspections were made of plant material for shipment from New Jersey to Canada.

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## NARCISSUS BULB INSPECTIONS

Approximately 90 acres of narcissus bulbs were inspected so that shipments could be made to those states which require inspection and treatment of such bulbs.

## CHRISTMAS TREE INSPECTIONS

In view of the rigid inspection of nursery stock originating in the gipsy moth infested area by inspectors of the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture, it was thought unnecessary to inspect shipments of Christmas trees into New Jersey.

## KIND OF STOCK GROWN IN CERTIFIED NURSERIES

Kind of Stock	Number of Nurseries
General .....	547
Perennial .....	12
Evergreen .....	41
Greenhouse .....	30
Fruit .....	1
Roots .....	8
Bulb .....	16
Aquatic .....	5
Berry .....	6
Rhododendron .....	2
Rose .....	2
Total .....	670

## STATUS OF THE EUROPEAN CORN BORER IN NEW JERSEY

Since 1932, the Division of Cereal and Forage Insect Investigations of the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture has conducted a survey annually to determine the status of the European corn borer over the area known to be infested. In New Jersey, the survey has been restricted to Monmouth, Ocean, Burlington and Atlantic counties. The last three counties have been grouped, since the corn borer count at the outset was not particularly high. In 1936, Middlesex County was added to the list of counties surveyed.

The following table shows the average number of borers per 100 plants in the fields surveyed:

	1934	1935	1936
Monmouth .....	20.4	43.4	93.7
Ocean, Burlington, Atlantic .....	3.4	33.3	19.4
Middlesex .....	...	...	6.7

The percentage of plant infestation is determined by dissecting 10 infested plants out of 100 samples in each field. The samples are taken in

orderly fashion, 25 plants in a row in each quarter of the field. It is significant that in Monmouth County where the average number of borers per 100 plants increased from 43.4 in 1935 to 93.7 in 1936, four of the 20 fields surveyed had populations of over 100 borers per 100 plants, including a maximum of 553 borers per 100 plants in one field.

### THE PHONY PEACH DISEASE

About 15 days were spent in late August and early September by an inspector of the Bureau of Entomology and Plant Quarantine and by one inspector of this bureau in scouting for phony peach disease. In view of the fact that practically all the commercial peach holdings were scouted during 1935, it was thought advisable to scout the home orchards and outlying sections during 1936. The ground, of necessity, was gone over hurriedly. The disease was not found. A great number of trees have been removed in the 11 states known to be infected, and there is every reason to hope that New Jersey will escape this disease.

### NURSERY PUBLICATIONS

Circular 274, "Important Nursery Insects of New Jersey," was published in May, 1937. This circular replaced Circular 243, the supply of which had been exhausted for some time.

Material was also prepared for a circular entitled "Laws, Rules and Regulations Pertaining to the Shipment of Nursery Stock out of New Jersey." This circular should be of considerable value to the nurserymen in the shipment of plant material in a manner satisfactory to the New Jersey Department of Agriculture, United States Department of Agriculture and the Plant Inspection officials of other states.

### GIPSY MOTH CONTROL

In cooperation with the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture, the bureau continued the immediate supervision of a force of WPA workers during the fiscal year July 1, 1936 to June 30, 1937. Fifty-five WPA workers were retained for scouting and the assembling of cages and for burlap work. About 125 cages were distributed in Mendham, Morris and Randolph townships, all in Morris County. These cages were put up in the vicinities where several gipsy moth infestations had been found in 1932 and 1934. The cages were examined regularly and one adult male moth was taken at cage No. 19 in Mendham Township not far from the site of the original infestation of over 100 new egg masses. This infestation was located in a very ledgy country, the majority of the egg masses being found beneath rocks. It is possible that a few egg masses are still hidden there, which could not be seen by the scouts when the scouting work was done last winter. The burlap bands were turned and carefully examined at regular intervals but nothing was found beneath

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them. The cages were taken up, and the burlap bands removed when the larvae and adult season ended. The scouts were then concentrated in the vicinity of the cage which attracted the male moth, and scouting work in this vicinity was continued throughout the season.

One small crew operated in Passaic and Essex counties to check further on the report that a heavy infestation of the gipsy moth existed in the vicinity of Cedar Grove some 10 or 12 years ago. Another small crew did some valuable checking work in Union County along the Watchung Range and in the Union County Park near Summit. The scouting conditions were ideal during nearly all of the entire scouting season. In March there was some bad weather but no snow, and the ground was frozen so slightly that complete scouting was possible. Therefore, the ground work was done with the regular scouting.

It was necessary to reduce the WPA force during the first part of February and an average of 25 workers continued for the remainder of the year. Experienced supervision and the fact that WPA workers were selected from rural districts have been two main reasons for success in scouting work.

## SUMMARY OF SCOUTING WORK, FISCAL YEAR 1937

Town	Open Country Scouted					Woodland Acres Scouted	No. of Inf.	Ground Work Acres
	Open Acres Scouted	Miles of Road	Apple Trees	Oak Trees	Shade Trees			
<b>Essex County:</b>								
Caldwell .....	235	6.75	822	938	2,407	1,000	0	0
<b>Morris County:</b>								
Chester .....	675	2.50	3,691	24	502	671	0	0
Denville .....	279	8.00	2,529	167	2,162	388	0	0
<b>Mendham</b> .....	639	8.50	3,152	57	5,011	1,107	0	190
Morris .....	553	7.00	1,249	819	5,350	800	0	159
Randolph .....	1,060	19.50	3,971	448	10,784	1,583	0	45
<b>Passaic County:</b>								
Little Falls ....	0	.75	0	0	0	38	0	0
Wayne .....	30	4.00	30	75	200	297	0	0
<b>Somerset County:</b>								
Bernards .....	3,088	18.50	10,840	160	34,610	1,125	0	0
<b>Union County:</b>								
Fanwood .....	0	0	0	0	0	41	0	0
New Providence.	1,550	4.25	409	8	36,250	648	0	0
Westfield .....	170	0	120	0	2,600	195	0	0
Grand Totals .	8,279	79.75	26,813	2,696	99,876	7,893	0	394

Total acres of all types scouted, 16,566.

## BEE INSPECTION SERVICE

The regular bee inspection work was carried on throughout the season. The need for a closer check on beekeepers and their apiary practices during the winter months was met by scouting and contacting the beekeepers when it was impossible to open live colonies for a regular inspection. Combs from the dead colonies were examined for American foulbrood. Instructions for sterilizing and putting the apiary in the proper condition to control bee diseases were given.

## APIARY INSPECTIONS

There were sufficient funds available for the employment of two men for part-time bee inspection work during the latter part of the fiscal year. Each worked 15 days in May and 10 days in June. This work was done in Morris, Sussex and Somerset counties. As this territory presents possibilities of profitable commercial honey production, much effort was made to render it safe for beekeeping.

During the 1936-1937 fiscal year 1,246 apiaries were visited and 7,678 colonies of bees were examined. Of these 167 were in hives with immovable combs and 240 were in kegs or boxes. The remainder were in some type of movable frame hive. The box hive is a serious handicap to bee disease control and its use should be discontinued.

The failure of beekeepers to carry out instructions of the department for the elimination of American foulbrood made it necessary to destroy 88 colonies of bees infected with this disease.

## MICROSCOPIC DIAGNOSIS

Eighty samples of dead bee brood were received by mail to be diagnosed microscopically. Forty-six of these samples showed the presence of *B. Larvæ*, the organism which causes American foulbrood. Thirteen showed the presence of *B. Pluton*, the organism which causes European foulbrood. Twenty-one showed no evidence of either of these diseases.

The increase in the number of samples submitted each year indicates that the average beekeeper is interested in controlling bee diseases in his apiaries.

## QUEEN REARERS' CERTIFICATES

Nine queen rearers' certificates were issued during the year, as follows:

Albert G. Hann, Glen Gardner. July 29, 1936, and April 29, 1937.

Elmer G. Carr, Pennington. July 31, 1936, and May 12, 1937.

Henry Brown, Cape May Court House. August 3, 1936, and May 19, 1937.

H. N. Conners, Stockton R-1. August 1, 1936, and May 3, 1937.

Herman Peopledorf, Clinton. June 8, 1937.

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Mr. Carr and Mr. Brown rear Italian queens. Mr. Hann, Mr. Conners and Mr. Peopledorf rear Caucasians.

CERTIFIED HONEY

After proper examination of their apiaries, permits for the use of certified honey labels were issued to two beekeepers. Each reported that the New Jersey certified honey label was an asset in disposing of their honey.

MEETINGS AND DEMONSTRATIONS

Five field meetings for beekeepers were held during the fiscal year at the following places: Glen Gardner, July 18, 1936; Lebanon State Apiary, August 25, 1936; Madison, September 17, 1936; Bridgeton, May 4, 1937, and Lamington, June 10, 1937.

An exhibit of bees and honey was staged at the Flemington Fair September 1 to 7, and a live bee demonstration was given each day at the New Jersey State Fair at Trenton from September 28 to October 3, 1936.

An observation hive and other materials were arranged for the State Teachers' College, Trenton.

APIARY INSPECTIONS BY COUNTIES, JULY 1, 1936, TO JUNE 30, 1937

County	Apiaries	Colonies	Box Hives	Cross Combs	Apiaries A.F.B.	Colonies A.F.B.	Apiaries E.F.B.	Colonies E.F.B.	Burned	Sacbrood	Brood Samples Diagnosed		
											A.F.B.	Neg.	E.F.B.
Atlantic .....	7	24	..	11	..	..	..	..	..	..	..	..	..
Bergen .....	17	107	..	..	7	37	..	..	..	..	1	..	..
Burlington .....	43	621	1	..	8	18	2	3	6	11	2	8	9
Camden .....	13	107	..	4	11	16	..	..	..	..	2	..	..
Cape May .....	13	148	5	..	3	8	..	..	1	..	1	..	..
Cumberland .....	59	325	..	..	6	11	..	..	..	28	16	2	..
Essex .....	49	203	..	..	11	20	..	..	2	5	2	3	..
Gloucester .....	19	78	..	..	3	10	..	..	1	4	..	..	..
Hunterdon .....	99	1,384	21	19	19	37	2	4	19	16	4	..	4
Hudson .....	..	..	..	..	..	..	..	..	..	..	..	..	..
Mercer .....	35	363	3	6	14	49	..	..	6	8	4	1	..
Middlesex .....	33	232	..	..	10	27	..	..	..	..	1	1	..
Monmouth .....	19	93	..	2	3	20	..	..	..	..	2	..	..
Morris .....	538	2,117	49	98	55	121	..	..	38	64	1	3	..
Passaic .....	26	118	..	..	12	41	..	..	3	2	2	..	..
Salem .....	7	7	..	..	..	..	..	..	..	..	..	..	..
Somerset .....	119	490	2	8	31	67	..	..	2	25	4	1	..
Sussex .....	86	917	148	6	3	3	..	..	2	..	2	..	..
Union .....	32	184	..	3	10	21	..	..	..	4	1	1	..
Warren .....	32	160	11	10	3	8	..	..	8	..	1	1	..
Totals .....	1,246	7,678	240	167	209	514	4	7	88	167	46	21	13

## DUTCH ELM DISEASE ERADICATION PROJECT

The Dutch elm disease eradication project for the last fiscal year was featured by the introduction of a new principle which greatly accelerated the accomplishments. Previously, trees which occurred in clean-cutting areas where all elms are removed and trees devitalized but not more than 50 per cent dead in other areas had been felled and burned as a part of the sanitation work. This procedure was costly. The principal purpose of the sanitation work is to eliminate trees in which bark beetle breed. It was found that this could be accomplished by the infiltration of certain chemicals into such trees under a method known as "silviciding." The tree is then left in situ for such disposition as the owner may choose. Copper sulphate applied as a pack in a band around the tree was used. The copper sulphate (crystals) in intimate contact with the actively functioning sapwood cells was absorbed into the sap stream and carried to the remote parts of the tree. This arrangement, although not 100 per cent effective expedited this type of work not only from the standpoint of money expended but from the standpoint of accomplishments.

In the third year of this project much favorable progress may be reported. Added experience of the previous years, together with increased federal funds arising from public approval of the project, gave added efficiency and promising results. Eradication of the disease, instead of control, and the saving of all landscape elms possible, continued to be the objective.

## INSPECTION

Approximately 10,000,000 elms in the state, north of Trenton, were scouted and inspected.

All elms which showed symptoms of Dutch elm disease, or which were devitalized or 50 per cent or more dead, were tagged and quarantined.

Aerial scouting for diseased trees was conducted during the foliar season between June 10 and October 22, 1936. Because of the reduced speed and the low flying range at which an auto-giro may be operated, this type of aircraft commended itself for the scouting for Dutch elm diseased trees. An observer with an aerial map spotted the elms that showed wilting and marked their location on a map. A ground crew located these spotted trees quickly, climbed and inspected them for obvious samples.

Aerial scouting covered 1,852 square miles in the outer zone in unsettled terrain and picked up 783 suspects of which eight were confirmed as Dutch elm diseased, and six of them in new infection centers. The cost, including the auto-giro and the expensive aerial maps, was one-quarter that of the ordinary ground scouting in that same type of terrain.

## CLEARANCE

Owners of all affected elms were located, diseased and 50 per cent devitalized trees condemned, and owners notified of contemplated eradication of their elms.

The approval of owners was secured for eradication or silviciding of other elms considered detrimental to the program, such as healthy but unsightly and valueless elms in wooded and swampy areas, elms that had no value for the owner because they were affected with other diseases, and elms which were valueless to the owner because they were in inaccessible spots.

## ERADICATION

All elms found by laboratory determination to have Dutch elm disease were promptly eradicated.

All other elms, as mentioned above, were eradicated or treated with silvicide during the winter or after all Dutch elm diseased trees were eradicated.

In scattered areas where increases in the disease were found over the previous year, intensive effort was made to remove valueless elms as promptly as possible.

## RESULTS

Work Accomplished July 1, 1936, to June 30, 1937

Inspection of .....	10,000,000 Elms
Tagging and Quarantining .....	26,128 Suspected Elms
Tagging and Quarantining .....	230,745 — 50% Devitalized Elms
Condemning and Eradicating .....	5,695 Dutch Elm Diseased Elms
Eradicating with Owners' Approval .....	700,661 Elms (clean-cutting)
Silviciding .....	551,505 Elms
Eradicating .....	17,868 Non-graphium Suspects
Reconditioned by Owners .....	260 Non-graphium Suspects

## WORK OF STATE DEPARTMENT

Notified by Mail .....	17,260 Owners
Contacted by Agents .....	30,338 Owners
Complaints and Special Inquiries Answered .....	558
Cleared for Silvicide Work .....	87,509 Acres
Cleared for Elm-free Work .....	40,651 Acres
Direct Cost of Contact Men's Work .....	.20 per Tree
Direct Cost of Typists .....	.035 per Tree
Average Clearance Cost .....	.134 per Tree
Field Supervisors on Federal Payroll .....	2,803 man days

## DUTCH ELM DISEASE INCIDENCE AND SANITATION REPORT

## Dutch Elm Diseased Trees Destroyed (Calendar Years)

County	1933	1934	1935	1936	January 1 to June 30, 1937	50% Devitalized
						Elms Removed from January 1 to June 30, 1937
Bergen .....	13	691	609	718	142	31,982
Essex .....	609	1,462	1,143	938	114	13,932
Hudson .....	9	32	16	3	3	0
Hunterdon .....	0	0	6	113	36	16,636
Mercer .....	0	1	0	3	0	10,551
Middlesex .....	2	100	230	274	22	18,194
Monmouth .....	0	0	3	8	5	3,586
Morris .....	9	497	704	1,304	130	94,332
Passaic .....	37	600	359	670	109	37,960
Somerset .....	3	96	495	1,015	148	38,128
Sussex .....	0	0	10	9	0	13,507
Union .....	58	898	534	724	62	1,919
Warren .....	0	0	3	14	8	6,843
	740	4,377	4,112	5,793	779	287,570

## SUMMARY

The principal factors responsible for the increased efficiency of the Dutch elm disease control work in the past fiscal year are in the order of their importance:

1. Aerial scouting in certain types of terrain reduced the cost by 75 per cent and allowed a better coverage of the area worked.
2. Silvicing or chemically killed trees in swampy areas, which in itself reduced the immediate cost by 75 per cent, and eliminated sources of infection and re-infection.
3. Removal of suspects by owners' reconditioning or assignment for removal, which eliminated 17,000 elms from the work of inspection and climbing, since they would undoubtedly have shown symptoms again calling for sampling.

As to general progress and results, encouragement is given in a close examination of the Dutch elm incidence report.

Over the period of four years, Essex and Union counties, which were the areas of heaviest infection, showed a progressive reduction in the number of diseased trees.

Bergen and Passaic counties are showing slight increases, which may be traced to a few spots of heavy infection.

Infections in other counties, for the most part on the outer edge of the focal center have not had the same intensive treatment as the four counties mentioned above. For the most part, heavy local infections have been found in the counties where increased incidence of the disease appeared, and it is expected that the same effort in the next two years on these outer spots will show the same successful results as in Essex and Union counties. Another favorable factor is the very slow increase, if any, in the outermost counties such as Hudson, Mercer, Monmouth, Sussex and Warren.

DUTCH ELM DISEASE WEEKLY REPORT FOR ENTIRE AREA  
FOR WEEK ENDING JUNE 26, 1937

Number of Employees	Last Week Report	Conn.	New Jersey	New York	Outside	Present Totals
Appointed Dept. Funds .....	55	11	23	17	7	58
Per Diem Dept. Funds .....	287	49	103	99	11	262
Work Relief Funds .....	3,962	294	3,022	837	142	4,295
CCC from DED Camps .....	391	0	269	95	0	364
CCC from Other Camps .....	0	0	0	0	0	0
State Appointed Personnel ...	14	0	4	10	0	14
State Per Diem Personnel ...	180	0	38	145	0	183
WPA Appointees .....	119	11	77	27	6	121
<b>Work Assignments</b>						
Scouts .....	2,866	286	1,702	1,052	140	3,180
Laboratory Technicians .....	29	0	31	0	0	31
Eradication Crew Members ..	342	0	546	25	0	571
Sanitation Crew Members ....	703	9	563	123	5	700
Chemical Treating Crew Members .....	9	0	7	0	0	7
<b>Scouting Project</b>						
Suspects Coll. This Week ...	3,579	623	1,390	1,825	369	4,207
DT Tagged This Week .....	498	0	106	97	9	212
Total DT Tagged .....	2,463,708	419,316	1,038,308	966,985	39,311	2,463,920
Sq. Mi. Scouted This Week						
First Go-over .....	673.89	78.52	1,262.05	81.2	0	1,421.77
Second Go-over .....	0	0	0	0	0	0
Third Go-over .....	0	0	0	0	0	0
Sq. Mi. Scouted to Date						
First Go-over .....	737.57	78.52	1,844.42	236.4	0	2,159.34
Second Go-over .....	0	0	0	0	0	0
Third Go-over .....	0	0	0	0	0	0
<b>Laboratory Identification</b>						
Confirmed DED This Week..	236	8	420	132	1	561
Total Elms Confirmed DED..	22,337	252	15,804	6,758	84	22,898
Total Reported Not DED ...	98,893	23,717	36,119	30,943	9,501	100,280
Suspects Unreported .....	3,729	1,096	1,714	2,616	562	5,988
Total Suspects Collected ...	124,959	25,065	53,637	40,317	10,147	129,166
<b>DED Eradication Project</b>						
DED Removed This Week ..	56	5	208	42	1	256
Total DED Removed .....	22,122	249	15,408	6,637	84	22,378
Total DED Standing .....	215	3	396	121	0	520
<b>Sanitation Project</b>						
DT Removed This Week ....	2,439	2	1,153	1,179	9	2,343
Total DT Removed .....	2,124,189	312,410	*897,301	877,510	39,311	2,126,532
Total Tagged DT Standing..	339,519	106,906	141,007	89,475	0	337,388
<b>Elms Removed in Clear Cut Area to Date .....</b>						
	1,167,035	81,466	1,085,788	7,175	0	1,174,429
<b>Total Trees Removed to Date in Clear Cutting, Eradication and Sanitation Activities ....</b>						
	3,313,346	394,125	1,998,497	891,322	39,395	3,323,339
<b>Number of Trees Treated with Copper Sulphate</b>						
This Week .....	252	0	254	0	0	254
To Date .....	624,596	73,345	551,505	0	0	624,850

## JAPANESE BEETLE SUPPRESSION

## ACTIVITIES OF THE LABORATORY FOR NEMATODE PARASITE DISTRIBUTION

With the beginning of the 1936-1937 fiscal year, an allocation of federal funds made possible a much more comprehensive plan of work than had hitherto been possible. The laboratory staff was increased to four members, who were engaged for the work over the entire year.

## IMPROVED CULTURE TECHNIQUE

Circular 265, New Jersey Department of Agriculture, issued July, 1936, describes in detail the procedures used in culturing the nematode *Neoplectana glaseri* at the close of the 1936-1937 fiscal year. The described potato culture method had certain objectionable features, mainly that it was not consistent, about one-fourth of all cultures failing to develop in a satisfactory manner. The labor requirements for this procedure were relatively high, both in the preparation of medium and in subsequent care of the cultures. Satisfactory successive cultures on potatoes were not possible, and therefore each culture required inoculation from several large agar cultures, which was a tedious and time-consuming procedure within itself. Repeated attempts were made to improve the potato cultures by the addition of a number of various substances, but no success was obtained.

Preliminary trials using ground veal as a culture medium were begun in August, 1936. It was found that ground veal, given a preliminary infusion with water so that a large proportion of the water-soluble extractives were removed, gave good cultures. Preservatives were used to repress bacterial decomposition, and by the middle of September field cultures were being produced and distributed using the veal culture medium. The entire production for the fall of 1936 was made using veal as the medium, an estimated total of 1.8 billion nematodes being produced for distribution. Less than two per cent of the cultures begun were failures. The output was approximately trebled over the previous spring work, with no additional labor required, and the cost of materials per unit of nematodes produced was actually lower when using the veal than it had been when using potatoes.

However, the veal-cultured nematodes were not capable of withstanding sudden transfer to tap water, which necessitated using an isotonic salt solution in working with the cultured material. A combination of preservatives used in the required proportions was found capable of largely overcoming this objectionable feature, and by the spring of 1937 practically all cultures were isotonic to tap water. Certain other improvements eliminated failures to culture, and improved the culture productivity to such an extent that 138 field cultures gave the same production attained in the previous fall with 227 cultures, or an increased efficiency of about 40 per cent. The materials and labor requirements were therefore proportionately less.

The predominant factors in favor of the new method of cultures were therefore:

1. Lessened materials and labor requirements.
2. Superior dependability and consistency of culture.
3. Increased culture densities, which present the same advantage as would increased laboratory facilities and required equipment.
4. The cultures are consecutively transferable on the medium.
5. The method has opened possibilities of handling the cultured material in hitherto impossible ways, because the nematodes are easily cleaned of culture debris.

Several attempts to use meats other than veal were made. It was found that ground beef may be used. It is somewhat cheaper, but the cultures are not so consistent or productive.

The culture procedures are now in a reasonably satisfactory state of advance, though there are undoubtedly improvements yet to be made, mainly in determining more satisfactory preservatives for use in the cultures.

A brief resume of the year's activities in improving the culture procedures follows:

Potato: Methods were re-checked. Addition of carrots, turnips, meat extracts, ovarian substance, veal broth, ground veal was tried; investigations were made of the influence of potato enzymes, sugar content, and changes in composition caused by storage and sprouting. No satisfactory advances were made.

Agar: A cheaper substitute for ovarian substance was developed. Attempts were made to make the agar medium less favorable for bacterial development by using various peptones, variation in veal broth content, addition of formaldehyde, nipagin, and gentian violet. No satisfactory advances were made. A technique of migrating the nematodes through lens paper or a very fine series of wire screen, in order to clean them more thoroughly, was developed and found useful.

It was found practicable to infest soil cans with nematodes and store them in the laboratory for a period of over two years, with the nematodes still recoverable and parasitic. This removed dependence upon field introduction for parasitic material, and allowed for careful selection of stock having desirable characteristics.

Veal: It was determined that infusion of ground veal in water made possible a new culture medium. Nipagin (Tegosept) was used as a preservative. The use of cheaper cuts of meat, also fillers such as sand, charcoal, paper pulp, was investigated, but none of these gave much promise. Difficulty was encountered in that nematodes were not isotonic to water. A satisfactory isotonic solution was worked out for use in the field and laboratory, and methods were developed for testing cultures for isotonic reaction. Investigations were made of the time required for the infusion of veal, the quantity of water to use, and thoroughness of de-watering the infused pulp. The influence of pH of veal medium was investigated, and also the effect of buffering the pulp against pH changes. Search was begun for more satisfactory preservatives, and procedures and methods were developed for overcoming the isotonic difficulties; the same investigations practically doubled

the productivity of the cultures. The parasitic capacity of the veal-cultured nematodes was proved. A meat press and other equipment were developed which lessened the labor involved in infusing the veal and preparation of the medium. The comparative productivity of agar, potato, and veal cultures was determined.

An attempt was made to produce cultures of controlled flora by chemical antiseptics and the use of strong ultra violet light, but no successful results were attained.

During the year an estimated total of 3.6 billion nematodes for field distribution was produced.

*Investigations on Parasitism and Survival:* A series of investigations on parasitism and nematode survival in the soil was conducted. These investigations were not exhaustive, but opened the way for future work and indicated certain problems. It was found possible to increase materially the soil survival of the cultured nematodes by storing them under certain conditions for about one week previous to soil introduction. This treatment has been called "conditioning." There were no pronounced indications that nematodes cultured in various ways differed greatly in soil survival or parasitic capacity. Nematodes isotonic to water were found to be preferable to those not so, as might be expected.

Definite proof that there are two phases of the free-living (second stage) nematode was obtained, and one was found much more resistant than the other. The ensheathed resistant phase followed the one generally obtained from culture. Apparently satisfactory procedures for converting the cultured form to the ensheathed phase were worked out. In the host the same transformation took place after all the tissues were consumed and the cadaver began to dry out; thus nematodes leaving the parasitized cadavers were generally found to be ensheathed. These investigations promise to improve materially future performances of the cultured nematodes. In one investigation, addition of lime to soil to change its pH from 5.4 to 7.0 did not affect materially the soil survival of the nematodes.

Rather moist soil conditions were apparently essential for parasitism by the nematodes. In dry soil the nematodes seemed dormant, and did not attack the host until a favorable moisture condition was established. However, excessively wet soil seemed to decrease the soil survival of the nematodes if the condition persisted for a considerable period.

#### MECHANICS OF HANDLING NEMATODES

Several problems of a mechanical nature were worked out. It was found desirable to disturb the soil as little as possible after nematodes had been introduced, because the movement of the soil particles sets up a severe grinding and crushing action, which may readily kill large numbers of the nematodes. This practically precludes the storage of nematodes in soil, since subsequent disturbance produces high mortality.

The nematodes seemed capable of withstanding considerable hydrostatic pressure, such as is set up in a centrifuge or sprayer device. Also, when in aqueous suspension they readily passed without harm, pipe bends, constrictions, valves, and impingement on smooth surface at considerable velocity. The purpose of these investigations was to collect basic information for use in designing mechanical appliances for field distribution.

An injector to lessen the labor of field introduction was designed. The injector finally built had defective valves and piston, and was inoperable. There is reason to believe, however, that a carefully constructed injector will work.

Various types of mechanical washers for cleaning the nematodes after culture were designed and tested. This procedure is required between transfers in the laboratory, and is necessary in "conditioning" the nematodes. Clean nematodes would likewise be required for storage and in long-distance transportation. A satisfactory method using a special and very fine screen was finally found, and some fair-sized equipment was built and found satisfactory. By agitation in water the debris from veal cultures was changed to a fine state of division and suspension. The suspended nematodes were then shocked until immobile with cold water, and the suspension forced to pass through the screen. The nematodes did not pass, while the fine suspended matter went through. The cycle was repeated several times, whereon the nematodes were recovered in a very clean condition. The nematodes revived without harm as soon as warmed. Tests showed that nematodes so washed cultured as well as those where the much more laborious and time-consuming sedimentation method was used. A washer capable of handling the entire laboratory output was built and tested.

Problems which may arise in transporting the nematodes over considerable distances were anticipated. After trials of a number of methods, a promising scheme was developed. Clean nematodes were packed in slightly moistened granulated charcoal and very slight ventilation allowed. While all the tests were on a small scale, the operation seemed workable. Highly concentrated shipping was possible (*about 160,000 nematodes per cubic inch of charcoal*) in very simple equipment. Nematodes withstood the treatment well. Indeed, after a few days the nematodes were found to be "conditioned." No difficulty was experienced in extricating the nematodes from the charcoal. It seems probable that large-scale storage and "conditioning" methods may be formulated along the lines indicated by these investigations.

#### POT TREATMENTS

The year's work may be conveniently split into the summer and fall of 1936 and the spring of 1937. The former work failed, probably due to an inadequate understanding of the problem. The latter work showed eliminations running from 75 per cent to 99 per cent (based on checks, with known initial grub population), and indicated certain promising methods of attack hitherto unsuspected. A complete report was prepared which presents the whole development of this project.

The fundamental idea appears to be sound, though the practical fulfillment will undoubtedly offer difficulties. Admittedly, a biologic pathogen presents complications foreign to chemical agents; on the other hand, there is no narrow degree of tolerance such as is shown both chemical and physical agencies.

#### MISCELLANEOUS DEVELOPMENTS

The inter-relation of some of the above work is evident. Some problems of importance have not been discussed in the preceding sections. Some experiments on nematode migration in soil were made. Primarily, this was considered a pot treatment problem.

Nematode migration over distances in soil was demonstrated. The pot treatment work indicated that migrations of perhaps one foot were common. Such migration is important to study both from a pot treatment standpoint and field application. The indications are that much of the inconsistency and failure in pot treatment work may result from the nematodes leaving the pots, which are *not* closed systems. Similarly, the problem may have a bearing in field work, as the nematodes through migrating may not only spread infection, but conversely, may become so distributed that a practical "extinction value" is reached. While most of this work, which was not organized for a complete solution, was directed toward lateral migration, there were indications of vertical migration and of nematode survival at a depth of six inches, while the top became dry and apparently depleted of nematodes. These migration problems merit additional study.

Several times mention has been made of quantitative estimates of nematode densities, survivals, and populations. These figures originated from quantitative studies. Methods were developed for investigating this type of problem; the work is original so far as we know, and has involved considerable study. The methods offer a powerful tool for investigating problems of an otherwise speculative nature.

Giant female nematodes are occasionally encountered in parasitized beetle larvæ. These are apparently of accidental origin, or circumstantial, and have no practical significance. No useful genetic factor has been discovered.

Work with the nematode *Neoaplectana chresima* deserves some mention. The species has been studied by Dr. Steiner, but has not been described in literature at the present writing. Drs. Larrimer and White have done some work, none of which has been published. This species was encountered in the Oak Ridge and Locust Grove golf courses (Rahway, N. J.) and in the Duke Estate (Somerville, N. J.), as parasites in Japanese beetle larvæ. The species is parasitic and lethal in grasshoppers and the catalpa sphinx caterpillar. A number of soil cans have been infested with this nematode so that it will be available for future use. Some small degree of success was attained in culturing an artificial medium. Because this species is a more general parasite than is *Neoaplectana glaseri* it deserves a more extended study. The extent of parasitism in Japanese beetle larvæ at the Duke Estate, together

with an apparently widespread distribution (Elmer, Moorestown, Somerville, Rahway, N. J.) and general parasitic potentialities (corn ear worm, European corn borer, Japanese beetle, catalpa sphinx, etc.) indicates possibilities, particularly if it can be artificially cultured in large numbers and distributed.

#### NEMATODE FIELD WORK

The cooperative arrangement with the United States Department of Agriculture permitted a large-scale field experiment involving about fourteen acres at the Duke Estate at Somerville and about ten acres on the Locust Grove Country Club at Rahway. The plots were arranged and designed in accordance with the instructions and wishes of the parasite specialists of the Bureau of Entomology and Plant Quarantine at Washington. Field introductions of nematodes were made during September, 1936. However, the soil was so dry that recovery of nematodes from sedimented soil from the plots which had been treated was negative. Accordingly, reintroduction in these plots was made during the spring of 1937. Diggings to ascertain the degree of parasitism were made during the latter part of May and early June. Due to some reason which as yet is not fully understood, the degree of parasitism in all the infested plots was far below the level which had been previously realized in the southern New Jersey plots. Several significant reasons have been advanced for the failure of the nematodes to do more pretentious work in these two field experiments. These clues will receive intensive small-scale laboratory investigation during the ensuing year.

#### TRAPPING WORK

The department's 3,000 Japanese beetle traps were distributed during the summer of 1936 principally in Salem and Cumberland counties in southern New Jersey and Hunterdon, Somerset, Union and Essex counties in northern New Jersey. The unusually low temperatures of the winter of 1935-1936 were responsible for a drastic reduction in the beetle infestation in the area south of Trenton. However, the snow-covered ground north of Trenton at the time of the sub-zero temperatures so insulated the soil that soil temperatures were not depressed to the same level as were those in the southern part of the state where there was no snow covering the ground. Heavy infestations of the beetles were recorded in the vicinity of Flemington and Ringoes and also in the vicinity of Rahway. Trappings in the Rahway vicinity were exceptionally gratifying. The Japanese beetle damage to vegetation in southern New Jersey was strikingly less than at any time during the previous six-year period.

## JAPANESE BEETLE QUARANTINE

(Calendar Year 1936)

The following account covers the Japanese beetle quarantine work conducted jointly by the Bureau of Plant Industry and the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture. More detailed records are available in the office files.

## SCOUTING

With the reduced number of Class I nurseries and greenhouses in New Jersey, one crew, consisting of a foreman and two scouts, was able to take care of this work. This crew also scouted the several humus pits located in Sussex and Warren counties.

The scouting of certified greenhouses at Class III establishments was performed by the regular personnel, along with their regularly assigned duties.

During the year, 367 scoutings were made at 71 establishments, or an average of 5.17 per establishment. There were 323 adult Japanese beetles found by the scouts, affecting the classification of 22 establishments. (Several premises where beetles were found were unclassified, and the scouting was performed at the request of the owners or lessees.)

## NURSERIES AND GREENHOUSES SCOUTED DURING 1936

Total nursery establishments scouted .....	23;	scoutings made .....	87
“ greenhouse establishments scouted .....	31;	scoutings made .....	213
“ nurs. and ghse. establishments scouted .....	17;	scoutings made .....	67
Totals .....	71	.....	367
Total nurseries where beetles were found .....	10;	beetles found .....	142
“ greenhouses where beetles were found .....	0;	beetles found .....	0
“ nurs. and ghses. where beetles were found .....	12;	beetles found .....	181
Totals .....	22	.....	323

SAND, PEAT, MANURE, ETC., ESTABLISHMENTS SCOUTED  
DURING 1936

Total sand establishments scouted .....	1;	scoutings made .....	2
“ humus establishments scouted .....	5;	scoutings made .....	18
Totals .....	6	.....	20
Total sand estab. where beetles were found .....	1;	beetles found .....	15
“ humus estab. where beetles were found .....	0;	beetles found .....	0
Totals .....	1	.....	15

## FARM PRODUCTS QUARANTINE

Inadequate state funds again made it necessary for temporary farm products inspectors to be paid from federal funds. As has been customary for the past several years, these men were employed intermittently, depending on the movement of farm produce.

Nearly 400,000 units of farm products and cut flowers were certified during the 1936 season. This represents the largest quantity certified since 1931. At that time (1931) nearly 850,000 units were certified; however, many of the shipments originated from areas where the infestation was light and certification of produce was accomplished by farm land scouting. All farm produce certified during the past year was subjected to actual inspection or fumigation.

The following table shows the number of packages of farm produce certified each year since 1931, and the number of beetles removed:

Year	No. of Packages	Beetles Removed
1936 .....	397,352	1,679
1935 .....	128,050	957
1934 .....	95,555	3,878
1933 .....	84,010	4,620
1932 .....	149,045	292
1931 .....	845,981	1,235

The certification of potatoes, beans and apples represents approximately 75 per cent of the farm products' inspection work for 1936.

The sudden demand for the certification of cabbage early in July presented another problem. In order to grant certification on this product the outer leaves had to be removed. To rate a U. S. No. 1 grade, the cabbage must have four outer leaves intact. The fumigation of cabbage with cyanide was subsequently authorized and one car was fumigated. No further shipments of cabbage were made during the season.

Several produce dealers in Bradley Beach, N. J., a shore resort, made shipments of mixed produce to Florida. Small quantities of innumerable varieties of farm products made up these carload shipments, all of which required individual handling. On the first carload, four inspectors worked from 2:00 P. M. to 8:00 A. M. the following day to complete inspection. In another instance, five inspectors worked eighteen hours inspecting a carload of miscellaneous produce.

## TWENTY-SECOND ANNUAL REPORT

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INSPECTION POINTS, NUMBER OF PACKAGES CERTIFIED,  
BEETLES REMOVED, ETC.

Location	Period Operated	Hours per Day Open	Number of Men	Packages Certified	Beetles Removed
Bloomfield Office .....	June 15-Oct. 15.....	8	1	628	..
Bradley Beach .....	Appt. only .....	..	†	2,076	23
Bridgeton .....	June 15-Sept. 21.....	8*	‡	65,437	76
Camden .....	June 15-Sept. 21.....	8*	‡	23,924	..
Cedarville .....	June 15-Sept. 21.....	8*	‡	46,569	1,489
Cranbury .....	Appt. only .....	..	†	48,300	..
Cream Ridge .....	Appt. only .....	..	†	9,658	..
Dayton .....	Appt. only .....	..	†	3,900	..
Englishtown .....	Appt. only .....	..	†	6,000	..
Glassboro Office .....	June 15-Oct. 15.....	8*	13	14,952	2
Hammonton .....	Appt. only .....	..	‡	2,375	8
Hightstown .....	Appt. only .....	..	†	17,700	..
Landisville .....	Appt. only .....	..	‡	2,126	..
Lawrence Station .....	Appt. only .....	..	†	15,600	..
Marlton .....	Appt. only .....	..	†	6,834	..
Morrisville, Pa. ....	Appt. only .....	..	†	25,579	..
Newfield .....	Appt. only .....	..	‡	2,483	21
New Lisbon .....	June 29-July 23.....	..	†	1,339	..
Pedricktown .....	Appt. only .....	..	‡	395	..
Prospect Plains .....	Appt. only .....	..	†	18,600	..
Robbinsville .....	Appt. only .....	..	†	17,400	..
Salem .....	Appt. only .....	..	‡	686	1
Swedesboro .....	Appt. only .....	..	‡	24,350	3
Tennent .....	Appt. only .....	..	†	8,125	..
Trenton (& W. H. Office) ..	June 15-Oct. 15.....	8*	14	19,910	50
Windsor .....	Appt. only .....	..	†	1,800	..
Williamstown .....	Appt. only .....	..	‡	1,870	5
Wheat Road .....	Appt. only .....	..	‡	3,636	1
Yardville .....	Appt. only .....	..	†	5,100	..
				397,352	1,679

\* All stations normally operated on an eight-hour basis. However, by previous appointment, inspection service was made available at all hours.

† These points were taken care of from the White Horse office, where a crew of 14 men was stationed.

‡ These points were taken care of from the Glassboro office, where a crew of 13 men was stationed.

## STATE DEPARTMENT OF AGRICULTURE

TOTAL AMOUNTS OF EACH KIND OF FARM PRODUCTS AND CUT  
FLOWERS CERTIFIED AND THE NUMBER OF BEETLES  
REMOVED FROM EACH KIND

Article	Number of Packages	Number of Beetles Removed
Apples .....	38,884	4
Bananas .....	6	0
Lima Beans .....	5,315	319
String Beans .....	69,662	1,293
Beets .....	579	1
Blackberries .....	78	4
Blueberries .....	1,340	0
Broccoli .....	7	0
Cabbage .....	892	5
Cantaloupe .....	636	1
Carrots .....	77	0
Cauliflower .....	70	0
Celery .....	10	0
Corn .....	98	11
Cranberries .....	5,125	0
Cucumbers .....	5,276	0
Egg Plants .....	1,531	0
Figs .....	8	0
Grapes .....	3	0
Kale .....	5	0
Lettuce .....	10	0
Melons .....	86	0
Onions .....	15,031	0
Parsley .....	732	16
Peaches .....	13,257	0
Peppers .....	13,347	6
Pickles .....	3,282	6
Potatoes, White .....	189,203	2
Potatoes, Sweet .....	9,412	0
Prunes .....	6	0
Quince .....	2	0
Radishes .....	25	0
Raspberries .....	321	4
Rhubarb .....	128	1
Spinach .....	118	4
Squash .....	28	0
Tomatoes .....	22,020	2
Turnips .....	16	0
Cut Flowers .....	726	0
	<hr/>	<hr/>
	397,352	1,679
	<hr/>	<hr/>

TWENTY-SECOND ANNUAL REPORT

TOTAL AMOUNTS OF PLANTS, SAND, SOIL, EARTH, PEAT, COMPOST,  
AND MANURE SHIPPED, TOGETHER WITH THE  
NUMBER OF SHIPMENTS

	Number Plants Shipped	Sand, Soil, Earth		Peat		Compost and Manure	
		Carloads	Pounds	Carloads	Pounds	Carloads	Pounds
Alabama .....	102,231	..	14,626	..	..	..	10
Arizona .....	1,390	..	3,824	..	..	..	..
Arkansas .....	3,766	1	3,741	..	..	..	10
California .....	31,461	14	26,119	1	13,540	..	25
Colorado .....	18,408	..	34,059	..	700	..	17
Florida .....	109,708	4	14,255	..	300	..	112
Georgia .....	142,772	1	27,860	..	..	..	..
Idaho .....	994	1	1,125	..	..	..	..
Illinois .....	355,396	33	53,026	..	..	..	68
Indiana .....	52,631	11	20,574	..	..	..	15
Iowa .....	104,088	1	57,594	..	..	..	16
Kansas .....	24,272	2	64,025	..	..	..	18
Kentucky .....	34,980	31	22,891	..	100	..	2,026
Louisiana .....	21,691	3	21,107	..	50	..	..
Maryland .....	81,330	26	34,764	..	..	1	..
Maine .....	169,018	19	19,604	..	..	..	15
Michigan .....	124,597	64	18,742	..	605	..	2,030
Minnesota .....	43,275	6	32,338	..	1,800	..	15
Mississippi .....	8,708	..	10,387	..	..	..	5
Missouri .....	42,580	3	41,312	..	..	..	36
Montana .....	3,522	..	12,288	..	..	..	6
North Carolina ..	291,192	11	18,688	..	250	..	4,024
North Dakota .....	2,977	..	9,348	..	..	..	..
Nebraska .....	5,948	1	28,692	..	..	..	115
Nevada .....	303	1	390	..	..	..	..
New Hampshire ..	23,846	1	402	..	..	..	..
New Mexico .....	3,773	5	3,900	..	..	..	..
New York .....	1,243,715	557	6,580	..	200	6	4,543
Ohio .....	471,679	184	76,738	..	200	..	940
Oklahoma .....	11,254	1	49,128	..	..	..	5
Oregon .....	7,858	..	771	..	..	..	15
Pennsylvania .....	122,725	95	13,206	..	..	1	..
South Carolina ...	114,788	1	3,960	..	..	..	6
South Dakota .....	3,798	..	32,341	..	..	..	..
Tennessee .....	51,339	11	71,193	..	..	..	100
Texas .....	42,668	2	33,657	..	400	..	36
Utah .....	14,801	..	8,363	..	..	..	10
Virginia .....	182,873	54	48,422	..	..	7	16
Vermont .....	91,231	4	6,633	..	..	..	2,000
Washington .....	12,239	12	17,458	..	..	..	5
West Virginia ....	1,428,113	39	38,536	..	..	..	11
Wisconsin .....	78,371	4	20,792	..	..	..	11
Wyoming .....	1,096	..	3,782	..	..	..	..
Foreign .....	57,261	367	71,409	..	5,100	..	5
Totals .....	5,740,666	1,570	1,098,650	1	23,245	15	16,266

## REFRIGERATOR CAR FUMIGATION AND INSPECTION

The fumigation of refrigerator cars with liquid cyanide began on June 22, 1936. A total of 535 cars, both empty and loaded, for the shipment of farm products was fumigated during the season under federal supervision. Fumigation requirements were lifted on September 5, yet the cars were inspected prior to being loaded with farm products until September 21, when the farm products restrictions were lifted.

Two hundred and sixty-five cars carrying 79,668 bags of white potatoes were fumigated during the season. In the Hightstown-Freehold area, by far the largest potato section of New Jersey, five two-man crews were stationed at strategic points to supervise the fumigation. The crews were equipped with gas masks, flashlight lanterns and other necessary equipment. Their activities were directed by a supervising inspector stationed at the Hightstown freight station of the Pennsylvania railroad. Arrangements were made with railroad officials to use their telephone system, making it possible to maintain constant communication with and between crews. The fumigation of potatoes in this area was short-lived. Complaints of injury, allegedly caused by cyanide, prompted the shippers to use ventilated box cars, which eliminated the necessity of fumigation.

While investigating the reports of injury caused by cyanide, it was learned that non-fumigated cars of potatoes, shipped in ventilated box cars, were going bad also and were turned down due to what was termed "scald," which is attributed to the digging and loading of potatoes during the heat of the day and allowing them to remain in the heat for several hours before they are moved. After "scalding" the potatoes rot rapidly. It is interesting to note that in southern New Jersey potatoes were fumigated throughout the entire season with no reports of injury.

From June 15 to 22, and from September 5 to 21, when the fumigation requirements were not in force, all refrigerator cars used to load certified farm products were inspected prior to loading. No records were kept of the number of cars so inspected. In most cases the cars were inspected simultaneously with the farm products; i.e., while the crew was at the farm making the necessary inspections, the foreman inspected the car and sealed it. Loading and icing were permitted only during the hours when beetles were not in flight. This usually occurred after 8:00 P. M., Daylight Saving Time. In rainy weather, or on extremely cloudy days when beetles were not in evidence, loading was permitted during the day. These same precautions were taken in the case of fumigated empty cars. At Cedarville, where the inspection platform was screened, uninterrupted loading was permitted.

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OTHER PRODUCTS COVERED BY QUARANTINE

NUMBER OF CLASSIFIED ESTABLISHMENTS DEALING IN NURSERY AND ORNAMENTAL STOCK, ETC., SHOWING CLASSIFICATION AS OF DECEMBER 31, 1936

	Class I	Class III	Class I and III	Totals
Nurseries .....	11	70	0	81
Greenhouses .....	0	26	0	26
Nurseries and Greenhouses .....	7	116	4	127
Root Growers .....	2	60	0	62
Plant Growers .....	1	22	0	23
Miscellaneous Establishments .....	3	14	0	17
Totals .....	<u>24</u>	<u>308</u>	<u>4</u>	<u>336</u>

NUMBER OF ESTABLISHMENTS, TOGETHER WITH SQUARE FEET OF GLASS AND NUMBER OF ACRES INVOLVED, WHICH WERE ADDED TO AND REMOVED FROM THE CLASSIFIED LIST DURING 1936

Number of establishments classified as of January 1, 1936 .....	343
Number of establishments added during 1936 .....	17
Number of establishments classified during 1936 .....	360
Number of establishments removed during 1936 .....	24
Number of establishments classified as of December 31, 1936 .....	<u>336</u>
Square feet of glass classified as of January 1, 1936 .....	5,283,285.5
Square feet of glass added during 1936 .....	293,346.0
Square feet of glass classified during 1936 .....	5,576,631.5
Square feet of glass removed during 1936 .....	328,817.0
Square feet of glass classified as of December 31, 1936 .....	<u>5,247,814.5</u>
Number of acres classified as of January 1, 1936 .....	9,383,659
Number of acres added during 1936 .....	221,875
Number of acres classified during 1936 .....	9,605,534
Number of acres removed during 1936 .....	361,242
Number of acres classified as of December 31, 1936 .....	<u>9,244,292</u>

STATE DEPARTMENT OF AGRICULTURE

TREATMENTS MADE DURING 1936

Articles Treated	Agent	Units Treated	Totals
Plants (Field) .....	Miscible CS <sub>2</sub> .....	3,111	
Plants (Initial Treatment) ....	Lead Arsenate .....	41,434	
Plants (Retreatment) .....	Lead Arsenate .....	62,945	
Plants (No Lead Required) ...	Lead Arsenate .....	144,721	
		<hr/>	252,211
Plants (Tank) .....	Hot Water .....	0	
Plants (Tank) .....	Miscible CS <sub>2</sub> .....	2,902	
		<hr/>	2,902
Plants .....	Paradichlorobenzene .	51,716	51,716
		<hr/>	306,829
Total Plants Treated .....			
Potting Soil .....	CS <sub>2</sub> .....	1,886.41 cubic yards	
Potting Soil .....	Steam .....	14.00 cubic yards	
Potting Soil .....	Naphthalene .....	17.92 cubic yards	
Potting Soil .....	Lead Arsenate .....	0.00 cubic yards	
		<hr/>	
Total Potting Soil Treated .....		1,918.33	
Sand .....	CS <sub>2</sub> .....	4,087.63 cubic yards	113 cars
Soil .....	CS <sub>2</sub> .....	40.35 cubic yards	0 cars
Mushroom Soil .....	CS <sub>2</sub> .....	0.00 cubic yards	0 cars
Leaf Mold .....	CS <sub>2</sub> .....	3.30 cubic yards	0 cars
		<hr/>	
Total .....		4,131.28 cubic yards	113 cars
Surface Soil .....	CS <sub>2</sub> .....	40,862.47 square feet	
Surface Soil .....	Miscible CS <sub>2</sub> .....	2,400.00 square feet	
Surface Soil .....	Naphthalene .....	13,475.00 square feet	
Surface Soil .....	Steam .....	0.00 square feet	
		<hr/>	
Total .....		56,737.47 square feet	
(Heeling-in Areas, etc.)			
Surface Soil (Initial Treat.) ...	Lead Arsenate .....	50,798.0 square feet	
Surface Soil (Retreatment) ...	Lead Arsenate .....	149,806.0 square feet	
Surface Soil (No lead Req.) ..	Lead Arsenate .....	398,575.0 square feet	
		<hr/>	
Total .....		599,179.0 square feet	
(Containing Growing Plants)			
Surface Soil (Initial Treat.) ...	Lead Arsenate .....	458,815.0 square feet	
Surface Soil (Retreatment) ...	Lead Arsenate .....	799,220.0 square feet	
Surface Soil (No lead Req.) ...	Lead Arsenate .....	1,688,228.0 square feet	
		<hr/>	
Total .....		2,946,263.0 square feet	
Total Surface Soil Treated .....		3,602,179.47 square feet	

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Articles Treated	Agent	Units Treated	Totals
Berries .....	CS <sub>2</sub>	6,349 crates	6,349 crates
Cabbage .....	HCN	452 bushels	1 car
Cucumbers .....	HCN	4,016 bushels	9 cars
Onions .....	HCN	14,464 bags	29 cars
Peppers .....	HCN	2,493 hampers	3 cars
Potatoes .....	HCN	79,668 bags	265 cars
Sweet Potatoes .....	HCN	1,493 hampers	4 cars
		27 barrels	
Tomatoes .....	HCN	1,721 baskets	2 cars
Mixed Produce .....	HCN	8,790 units	12 cars
Empty Refrigerator Cars .....	HCN	.....	210 cars
Totals .....		113,124 units	535 cars

NUMBER OF MEN EMPLOYED EACH MONTH DURING THE YEAR

	Scouting		Farm Products		Nursery and Greenhouse		Totals	
	Federal	State	Federal	State	Federal	State	Federal	State
January .....	..	..	..	..	11	15	11	15
February .....	..	..	..	..	9	14	9	14
March .....	..	..	..	..	9	17	9	17
April .....	..	..	..	..	9	17	9	17
May .....	..	..	..	..	9	17	9	17
June .....	..	..	3	1	9*	17*	12	18
July .....	3	0	24†	4	5*	13*	32	17
August .....	3	0	24†	3	5*	13*	32	16
September .....	..	..	14†	2	6*	13*	20	15
October .....	..	..	..	..	16	14	16	14
November .....	..	..	..	..	13	14	13	14
December .....	..	..	..	..	12	17	12	17

\* These men devoted some time to farm products inspection work also.

† Except for three men, all were intermittently employed.

NUMBER OF AUTOMOBILES OPERATED EACH MONTH DURING THE YEAR

	Scouting		Farm Products		Nursery and Greenhouse		Totals	
	Federal	State	Federal	State	Federal	State	Federal	State
January .....	..	..	..	..	10	10	10	10
February .....	..	..	..	..	9	7	9	7
March .....	..	..	..	..	10	16	10	16
April .....	..	..	..	..	12	18	12	18
May .....	..	..	..	..	13	17	13	17
June .....	..	..	1	2	10	14	11	16
July .....	0	1	10	6	6	10	16	17
August .....	0	1	11	8	5	8	16	17
September .....	..	..	11	8	5	9	16	17
October .....	..	..	..	..	10	17	10	17
November .....	..	..	..	..	10	16	10	16
December .....	..	..	..	..	9	18	9	18

## STATE DEPARTMENT OF AGRICULTURE

SHIPMENTS FROM NEW JERSEY CERTIFIED FOR EUROPEAN CORN  
BORER DURING THE PERIOD JULY 1, 1936, TO JUNE 30, 1937

Asters .....	13,958
Chrysanthemums .....	23,229
Cosmos .....	20
Dahlias .....	74,652
Daisy .....	135
Hollyhocks .....	482
Rhubarb .....	24,509
Zinnias .....	202
Lima Beans .....	3,625
String Beans .....	68,424
Beets .....	579
Celery .....	6,194
Straw (Carloads) .....	7
Cut Flowers .....	38,654
	<hr/>
Total .....	254,670

Total value of above shipments, \$124,514.76.

Number of certificates issued, 7,263.

# Official Proceedings of the Twenty-Second Annual State Agricultural Convention

The twenty-second annual New Jersey State Agricultural Convention was called to order in the Assembly Chamber of the State Capitol at Trenton at 9:30 A. M. Tuesday, January 26, 1937, by Herman C. Demme, President of the State Board of Agriculture. The meeting was opened with an invocation by Reverend Edward A. Morris of Trenton.

Mayor William J. Connor officially welcomed the convention delegates to Trenton.

William B. Duryee, state secretary of agriculture, called the roll of delegates. Delegates whose names are marked with an asterisk (\*) were absent and were not represented by alternates.

## DELEGATES OF THE STATE AGRICULTURAL CONVENTION

### FROM COUNTY BOARDS OF AGRICULTURE

Name	Address	Term	County
H. O. Packard	Hammonton	2 Years	Atlantic
W. J. Slack	Hammonton	1 Year	Atlantic
David Wortendyke	Woodcliff Lake	2 Years	Bergen
*Arthur Lozier	Hackensack, R. D.	1 Year	Bergen
Joseph W. Jones	Lumberton	2 Years	Burlington
*Harry R. Haines	Moorestown	1 Year	Burlington
Samuel Tomlinson	Kirkwood	2 Years	Camden
Samuel De Cou	Merchantville	1 Year	Camden
Allen McClain	Green Creek	2 Years	Cape May
C. Newton Schellinger	Green Creek	1 Year	Cape May
Milton L. Davis	Newport, R. D. 1	2 Years	Cumberland
Kenneth S. Roberts	Bridgeton, R. D. 4	1 Year	Cumberland
Herbert Francisco	West Caldwell	2 Years	Essex
Marcus W. DeCamp	Caldwell	1 Year	Essex
William Rainey	Swedesboro	2 Years	Gloucester
Ernest Sykes	Williamstown	1 Year	Gloucester
George A. Veltman	Jersey City	2 Years	Hudson
Charles Burd	Pittstown	2 Years	Hunterdon
Harold B. Everitt	Flemington	1 Year	Hunterdon
Robert M. Dilatush, Jr.	Trenton, R. D. 2	2 Years	Mercer
Russell Applegate	Robbinsville	1 Year	Mercer
Russell C. Spratford	Cranbury, R. D.	2 Years	Middlesex
James C. Ewart	Cranbury	1 Year	Middlesex
Elvin F. Morris	Farmingdale	2 Years	Monmouth
Tunis D. Smith	Freehold, R. D.	1 Year	Monmouth
William C. Spargo	Dover, R. D.	2 Years	Morris
*Scott Parks	Chester	1 Year	Morris

STATE DEPARTMENT OF AGRICULTURE

Name	Address	Term	County
Ervin J. Clement	Lakehurst	2 Years	Ocean
Raymond Block	Lakewood	1 Year	Ocean
*Henry Scherer	Paterson, R. D. 3	2 Years	Passaic
Arthur Butt	Clifton	1 Year	Passaic
Marvin H. Coombs	Salem, R. D. 1	2 Years	Salem
Dewey Elwell	Salem, R. D. 3	1 Year	Salem
David W. Amerman	Neshanic	2 Years	Somerset
Edward M. Haynes	Skillman	1 Year	Somerset
Lester Price	Lafayette, R. D. 1	2 Years	Sussex
Clinton Hardin	Newton, R. D.	1 Year	Sussex
Charles H. Brewer	Rahway, R. D. 2	2 Years	Union
John Kulp	Springfield	1 Year	Union
Norman Van Horn	Delaware	2 Years	Warren
Frank L. Pursell	Phillipsburg, R. D.	1 Year	Warren

FROM POMONA GRANGES

Martin Decker	Egg Harbor	1 Year	Atlantic
A. I. Ackerman	Fair Lawn, R. D. 1	1 Year	Bergen-Passaic
Fred Lippincott	Moorestown	1 Year	Burlington
*John Blase	Atco	1 Year	Camden
J. Reid Chambers	Delmont	1 Year	Cape May
William Spargo	Dover, R. D.	1 Year	Central District
Leon Spencer	Millville, R. D. 1	1 Year	Cumberland
J. Willard Gardiner	Mullica Hill	1 Year	Gloucester
Theodore H. Dilts	Three Bridges	1 Year	Hunterdon
*			Mercer
Harry W. Kline	New Brunswick, R. D.	2 Years	Middlesex and Somerset
Hubert Voorhees	Asbury Park, R. D. 1	2 Years	Monmouth
Wilbert S. Crispin	Salem, R. D.	1 Year	Salem
Clyde Demarest	Sussex	1 Year	Sussex
Harvey Cole	Broadway	1 Year	Warren

FROM OTHER ORGANIZATIONS

- American Cranberry Growers' Association—Theodore H. Budd, Pemberton, 2 years; James D. Holman, Whitesville, 1 year.
- New Jersey State Horticultural Society—Tunis Denise, Freehold, 2 years; Edgar D. Reid, Tennent, 1 year.
- New Jersey Association of Nurserymen—William Howe, Jr., Pennington, 2 years; Charles Hess, Mountain View, 1 year.
- New Jersey Florists' Association, Inc.—Francis W. Ruzicka, Chatham, 2 years; Frederick C. Coddington, Murray Hill, 1 year.
- New Jersey State Grange—Henry M. Loveland, Bridgeton, 1 year; William H. Blackwell, Titusville, 1 year.
- New Jersey State Poultry Association—Charles Cane, Rosemont, 1 year; Edmund H. Reeman, Vineland, 1 year.
- New Jersey Agricultural Experiment Station—Dr. Jacob G. Lipman, New Brunswick.
- New Jersey State College of Agriculture—Dr. Carl R. Woodward, New Brunswick.
- Holstein-Friesian Cooperative Association—Stanley B. Roberts, Port Jervis, R. D. 1, N. Y.

New Jersey Guernsey Breeders' Association—William M. Nulton, Jr., New Brunswick.  
 New Jersey Alfalfa Association—Franklin G. Rue, Imlaystown.  
 New Jersey Potato Association—Spencer Perrine, Cranbury.  
 Beverly Cooperative Growers' Association—Harry J. Chant, Beverly.  
 New Jersey Beekeepers' Association—Elmer G. Carr, Pennington.  
 E. B. Voorhees Agricultural Society—Dr. B. Webster Suydam, New Brunswick.

#### APPOINTMENT OF COMMITTEES

The following committees were appointed by President Demme:

#### COMMITTEE ON NOMINATIONS

Henry M. Loveland, New Jersey State Grange, Chairman.  
 Theodore Budd, American Cranberry Growers' Association.  
 Edward M. Haynes, Somerset County Board of Agriculture.  
 Franklin G. Rue, New Jersey Alfalfa Association.  
 Charles Cane, New Jersey State Poultry Association.

#### COMMITTEE ON RESOLUTIONS

Marcus W. DeCamp, Essex County Board of Agriculture.  
 William Howe, Jr., New Jersey Association of Nurserymen.  
 E. G. Carr, New Jersey Beekeepers' Association.

#### GOVERNOR'S ESCORT

Fred Lippincott, Burlington Pomona Grange.  
 Herbert Francisco, Essex County Board of Agriculture.  
 William M. Nulton, Jr., New Jersey Guernsey Breeders' Association.

#### COMMITTEE ON CREDENTIALS

C. Newton Schellinger, Cape May County Board of Agriculture, Chairman.  
 James C. Ewart, Middlesex County Board of Agriculture.  
 Harry W. Kline, Middlesex and Somerset Pomona Grange.

#### ELECTION OF BOARD MEMBERS

The nominating committee presented the names of James C. Ewart, of Cranbury, and Lester Collins, of Moorestown, for election to membership in the State Board of Agriculture.

Authorized by motion to do so, the secretary cast a ballot for Mr. Ewart and Mr. Collins as members of the State Board of Agriculture for the term July 1, 1937, to June 30, 1941.

#### CITATION

Professor M. A. Blake, of New Brunswick, was presented to the convention during the reading of the following citation for distinguished service to the agriculture of New Jersey, awarded to him by the State Board of Agriculture:

The State Board of Agriculture has asked you to appear today in the presence of the delegates to the New Jersey Agricultural Convention. The board desires thus to honor you and to summon the attention of all the people of your adopted state to your service to them.

Born in Massachusetts, you graduated with honors from the Agricultural College of that Commonwealth in 1904. Taking up the profession of research and teaching in horticulture, you came to the New Jersey Agricultural Experiment Station in 1906 at the behest of the then director, Dr. E. B. Voorhees, and became the Professor of Horticulture at Rutgers University in 1916. This position you have ever since held with distinction.

Your activities in research have been and still are numerous and varied and hundreds of students have been inspired by you to success in the horticultural field. You have been an able exponent of wholesome intercollegiate competition in the realm of sport.

Your greatest contribution has been in the breeding and development of new and better peach varieties. Starting this pioneer work in earnest in 1914 you have developed more than one hundred new varieties, of which nineteen have been named. Many others, as yet known only by numbers, have also proven their commercial merit.

New Jersey, long known as a premier peach growing state, has benefited most from your labors but your achievements are known in every part of the world where peaches are grown.

Because of your great contribution to the agriculture of this state, the board has waived the rules governing previous awards.

All the members of the board and this body of delegates from all parts of the state join with me in extending sincere appreciation as I now present you with this certificate indicating outstanding and distinguished service to our state.

May you and Mrs. Blake live long and happily among us and may every success and satisfaction attend your efforts.

#### MISCELLANEOUS

Resolutions were adopted by the convention urging that the Legislature should be requested to appropriate the money necessary for the continuance of indemnity of payments for bovine tuberculosis testing during the remainder of the current fiscal year, and urging that the term of the Milk Control Board should be continued for two additional years.

No further business came before the convention, and after a speaking program, it was adjourned by President Demme at 12:30 o'clock P. M.

# *A Brief History of Tuberculosis Eradication in New Jersey\**

W. B. DURYEE

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We are meeting here today to celebrate a great achievement, the accreditation of the State of New Jersey, after a long battle against bovine tuberculosis. The eradication of tuberculosis in New Jersey has been much more difficult than in other states of the union, many of which have preceded us in the achievement we are celebrating here.

The state has not been engaged in the raising of its own cattle to replace unfit or used-up cows in our herds. These replacements for years have been bought from without the state. The practice of buying cows to maintain our dairy industry has been carried on because our high land values and our need for continuous supplies of fluid milk have tended to strengthen this plan of maintaining a dairy industry.

In earlier days, New Jersey was undoubtedly a dumping ground for tubercular cattle, and when the program of eradication became effective, some 20 years ago, it was evident that the infection was exceedingly heavy. Our barns were breeding places for the disease in those days. Undoubtedly, heavy losses occurred, due to the emaciation of cattle seriously affected with the disease and with a reduction in milk produced per cow because of even slightly diseased conditions. It took a great deal of courage to start on this program in the face of difficulties that lay before us.

A great deal of the credit for the success of this work should be given to Dr. John H. McNeil, who became Chief of the Bureau of Animal Industry in the Department of Agriculture in 1917. It was through his conviction that the disease could be eliminated, and must be eliminated, and his unswerving purpose that we are able to have this commemoration of success today, although he is no longer with us.

If we are to get a true conception of the scientific basis for eradication, we must go back to the days of Louis Pasteur, whose researches in the middle of the last century showed the infectious cattle diseases which were caused by various types of germs. The dairy industry continues to pay tribute to the work of Pasteur by using his name in connection with the processing of milk, which destroys any disease germs that may be present in the product as it comes from the cow, a process universally known as pasteurization.

About 1865 another scientist, Villemin, proved the possibility of transmitting tuberculosis bacilli from one animal to another and from the lower animals to human beings. Immediately there developed an expansion in the

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\*The following address was given September 9, 1937, and is included here as a matter of permanent record.

field of public health whereby measures were taken to prevent the loss of human life as the result of the transmission of animal diseases through milk and meat products.

Since no means had then been found for detecting the presence of tuberculosis in cattle, the only method of preventing transmission of tuberculous germs through milk was by sterilization, which destroys the flavor and the vitamins. In 1891, Professor Gutmann, of the Veterinary Institute, Dorpat, Russia, developed a testing material to be applied to cattle, which was known as Kochs lymph. The success of this material in indicating the disease led to its use on a commercial basis.

The first test of this material, which we now call tuberculin, in the United States was made at Claremont Farms, Villa Nova, Pa., on March 16, 1892, by Dr. Leonard Pearson of the University of Pennsylvania. This was 45 years ago.

New Jersey was one of the first states to recognize the importance of this subject and the records of the State Board of Agriculture in the '90-s refer to the progress that was being made with methods for detecting and eradicating the disease. New Jersey passed an act about 1893 on the subject of tuberculosis control and in 1895 provided for indemnity to owners of cattle where reactors were found. This indemnification was based, and still is, on the proposition that the disease not only affects cattle, but by reason of its transmissibility to human beings is a subject which vitally affects the public interest.

The Legislature of 1894 provided for the appointment of a commission, known as the Commission to Investigate the Existence of Tuberculosis. This commission, which was named by the president of the State Board of Agriculture, was to procure all available information on the question of tuberculosis in animals and results of tests made to discover its existence up to that time. The commission was composed of Messrs. Isaac W. Nicholson, of Camden county; Charles Howell Cook, of Somerset; H. V. M. Dennis, of Monmouth; Dr. Joseph B. Ward, of Essex, and Dr. William C. Parry, of Burlington, who, with the president of the state board, Edward Burrough, and the secretary of the board, were made members of the commission by the act. The commission organized by electing Edward Burrough president; Charles Howell Cook, vice-president and treasurer, and Franklin Dye, secretary. It employed Professor Julius Nelson, State Biologist of the State Agricultural College, to carry on the biological work in connection with its investigations.

The first herd subjected to the lymph test was that of the State Hospital at Trenton, consisting of 48 cows and one bull. In the report mention is made that the management of the herd throughout was exceptionally good. "Of the total number of 49 injected, 28 responded to the test by giving the required rise of temperature. Of this number, 27 have been slaughtered. Of those slaughtered all but one gave clear evidence of tuberculous trouble, some of them in an aggravated form, others in a much less advanced stage."

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Later, herds to be tested were located near Plainfield, Linwood, Lebanon, Montclair, Stoutsburg and Morristown. As a result of these tests, greater confidence was gained and the work progressed more rapidly.

In that year, 1894, the following letter appears in the minutes of the board:

“State of New Jersey,  
“Office of State Board of Agriculture,  
“Trenton, February 19, 1894.

“*Hon. J. Sterling Morton, Secretary of Agriculture, Washington, D. C.:*

“DEAR SIR—The Executive Committee of the New Jersey State Board of Agriculture, acting for themselves and the State Board, respectfully ask your consideration of the inclosed resolutions, with a view to favorable action thereon by the Department of Agriculture, if the way be clear.

“As the disease named seems to be increasing and spreading by importation from State to State, the importance of some concerted movement on safe lines for its control seems to be imperative, and this, in our judgment, can be most wisely and economically done by the Department.

“Very respectfully yours,  
“FRANKLIN DYE,  
“Secretary.”

“WHEREAS, Bovine tuberculosis is believed to exist to some degree in several of our States, we respectfully ask the Hon. J. Sterling Morton, Secretary of Agriculture, to consider whether it is not feasible for the United States Government, through the Department of Agriculture, to deal with it in a manner similar to that which was adopted as to pleuro-pneumonia.

“*Resolved*, That whereas, a substance known as tuberculin is claimed to have special diagnostic value, we ask that a special commission be appointed to make full investigation as to it and such expert and extended tests of its value as scientific inquiry and practical observation demand.

“*Resolved further*, That in connection with physical examination and tuberculin tests, as means of determining the existence of tuberculosis, biological tests for the same purpose be made with a view of determining its value.

“*Resolved*, That a copy of these resolutions be transmitted to Hon. J. Sterling Morton, Secretary of Agriculture.”

I wish that time permitted some quotations from these early reports. Disagreements occurred from time to time and apparently there were many clashes among dairymen on the value of the test and its ultimate effect on their well-being.

In 1900, Dr. William H. Park, of the New York City Health Department, proved that bovine tuberculosis could be transmitted to human beings through milk. This greatly accelerated progress in the field of eradication

and stimulated both producers and distributors to renewed efforts in providing a milk supply that would be safe for consumption in the raw state.

The matter became one which aroused a great deal of agitation in Congress, and on March 4, 1917, Congress appropriated \$75,000 for a study of the disease and methods of control. Later that same year, the United States Livestock Sanitary Association adopted a uniform rule which it recommended for use in all of the states engaged in accredited herd work. Thus the work was begun on the basis of accrediting individual herds and it was not until years later that it was possible to operate on an area basis.

On October 1, 1918, the first federal indemnity fund was created and a sum of \$500,000 was made available for federal participation in carrying out the work in cooperation with the states and providing for federal indemnities.

With the reorganization of the State Board of Agriculture in 1916 and the creation of a department headed by Alva Agee, secretary, and a new Bureau of Animal Industry headed by Dr. J. H. McNeil, the dairymen throughout the state became cognizant of the fact that the program was on in earnest. It should be pointed out that the work was on a voluntary basis and most of the herds were tested under state and federal cooperation as the result of municipal ordinances requiring tuberculosis-free milk and by the orders of milk companies to their producers.

With the creation of the department, the State Tuberculosis Commission was absorbed in the department, as were a number of other activities along agricultural lines. Later there was much additional legislation on tuberculosis, providing for procedure for the payment of indemnities, for cooperation by the State Department of Health, regulations for importation of cattle into the state, the regulation of public stockyards, the requirement that tests be made by qualified veterinarians, and, finally in 1927, the passage of the Area Test Law.

Under the Area Test Law, the work was organized on a county basis, since by that time there were sufficient individually accredited herds to make this feasible. Atlantic County was the first to be accredited on August 16, 1933; Cumberland, Cape May and Camden were accredited in 1934; Hudson and Gloucester in 1935; Passaic, Ocean, Burlington, Mercer, Bergen, Warren, Sussex, Essex and Hunterdon were accredited in that order in 1936; Somerset, Monmouth, Morris and Union were accredited in 1937, and Middlesex and Salem, the last two counties to be accredited, were so established on September 1 of this year, thereby completing the roster of counties accredited.

Under the national accreditation program, a county or state to be given this recognition must show less than half of one per cent reaction in the herds in the area. The states which are not yet accredited under this program are New York, California and South Dakota.

Mention should be made of the cost of this eradication program and the investment which is represented in this final successful effort practically to eradicate the disease. The total cost to the State of New Jersey has been

\$4,585,000, of which \$3,285,000 represents indemnities. This makes a total cost of \$6,800,000 for the state, from state and federal sources, of which \$5,340,000 represents indemnity payments. During the 20-year period, nearly 2,000,000 tests have been applied to cattle in the state and there have been more than 91,000 reactors. The campaign reached its peak in 1932 when the average number of reactors on initial tests was 42.3 per cent. In that year, Sussex County, which has the largest cattle population in the state, had an average reaction of 68 per cent in all herds tested. The intensity of the disease is shown in this statement that in that year this county lost 68 out of each 100 cattle tested. During last year the reaction on initial tests was slightly over 1.5 per cent, and for the state as a whole, 1.3 per cent. In estimating the total cost of this campaign, we must not only consider the **sums** spent by the state and federal governments for indemnities and services. Full consideration must be given to the terrific losses suffered by **dairymen**.

These losses were of two distinct types, one was due to the fact that indemnity did not cover the value of the animal but was intended to help compensate for the loss sustained. The balance had to be made up by the **dairyman** himself. This loss by the **dairymen** was further aggravated by the intensiveness of the work in other sections of the country and the advance in the price of replacement cattle as a result. Another type of loss, which can hardly be estimated in money, was that caused by the disruption of breeding programs. In many instances the efforts of generations to build up the productiveness of animals on farms in the state was totally destroyed and it was necessary to begin over again with cattle of unknown ancestry and breeding. If we are to add these losses, which came about from the high percentage of reactions, to the payments by the state and federal governments, \$10,000,000 would seem to be a conservative estimate of the cost of this campaign. That the dairy industry is \$10,000,000 better off as a result of this work cannot be questioned. It is, I am sure, unnecessary to point out to you that we must continue to test regularly and with a high degree of efficiency if we are to conserve this investment and prevent our state and our **dairymen** from having to go through with this holocaust.

In submitting to you this brief report, which in no sense does justice to what has been done, I know you will not consider it as any record of achievement on my part, although I have perhaps a pardonable sense of satisfaction in this day. The happy result has been due to the cooperation of hundreds of individuals of whom you are representative. **Especial credit must be given** to those who bore the burden and heat of the day in earlier years. I refer especially to the members of the Board of Agriculture, to the splendid spirit of cooperation manifested by the State Legislature and succeeding **Governors** and to the **dairymen** who have accepted the inevitable with good grace although attended by heavy loss. The roll of those individuals who have helped in this campaign is too numerous to recall at this time, but genuine assistance has been given by the farm organizations of the state, especially the State Grange and the Farm Bureau; the State and Municipal Departments of Health, the State Anti-Tuberculosis Society, all of the veterinarians

of the state who have assisted in any way in the final result; a large number of milk dealers; the State Agricultural College and the men in the Extension Service; the State Institutions; the Rockefeller Institute, and many others. There ought to be a high degree of satisfaction in your minds today, and I hope that we may continue to have your pledge of support in further prosecution of tuberculosis control as well as in other fields of animal disease problems which are now facing us.