

STATE OF NEW JERSEY  
DEPARTMENT OF AGRICULTURE

W. H. ALLEN, *Secretary*



Twenty-sixth Annual Report  
OF THE  
New Jersey  
State Department of Agriculture

July 1, 1940 — June 30, 1941

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Trenton, N. J., December, 1941

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STATE OF NEW JERSEY  
DEPARTMENT OF AGRICULTURE

W. H. ALLEN, *Secretary*

TRENTON

December 1, 1941.

*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-sixth Annual Report of the New Jersey Department of Agriculture, for the fiscal year ended June 30, 1941.

Respectfully yours,

*W. H. Allen*

**TWENTY-SIXTH ANNUAL REPORT OF THE  
NEW JERSEY STATE DEPARTMENT OF AGRICULTURE  
July 1, 1940 to June 30, 1941**

*Report of the Secretary of Agriculture*

W. H. ALLEN

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Reverberations of the European war have been heard and felt in American agriculture as well as in American industry. Cessation of normal exporting activities has closed some avenues of marketing and created temporary surpluses of certain products. The development of the lend-lease program and the "Food for Freedom" plan can be counted upon to bring about a new order in agriculture. The armed forces and industry will continue to require and absorb greater numbers of men. All these developments have had a profound influence in changing our thinking, our methods and needs of crop production, and our consideration of current problems.

Agriculture in New Jersey has not shifted to the extent it has, or will, in some other areas of production. In our diversified and highly specialized farming, the logical trend is toward concentration of even greater efficiency in our present operations which already represent substantial investments in time, labor and capital. Surpluses of the so-called basic commodities do not exist in this state. In fact we are a consumer of grains, for example, which must be bought in the form of feed by some of our poultrymen and dairy farmers because they are concerned solely with the production of milk or eggs.

Intensity of production in New Jersey is best indicated by the fact that we ranked ahead of all other states in income per acre in 1940. Many factors enter into this accomplishment. Good farm management—the No. 1 factor—embraces the use of better seed, knowledge of soil adaptability and deficiency, wise fertilizing practices, revitalization of soils, and efficiency in the use of labor-saving machinery. Just as important a factor is the need for larger income per unit of operation in order to meet the greater overhead expenses of investment, taxes and labor naturally existing by reason of our location within a highly industrialized and heavily populated area.

Elaborated elsewhere in this report is the accomplishment of some 11,000 farmers who, by cooperative enterprise, have succeeded in further promoting the advantages of selling their goods by auction. Over \$8,000,000 worth of produce, eggs, poultry and livestock were sold in this manner through 11 produce auctions, 5 egg and poultry markets and 1 livestock

center last year. These farmer owned and farmer controlled organizations have been influential in improving grading and packaging, and, through their low selling costs, in netting larger returns to their members and patrons. The Department of Agriculture has been associated with each of these groups since their inception, and has aided in both the legal organizing and the supervision of quality standards.

As a public agency, the department has not been unmindful of service to those with whom it does not come in direct contact. The issuance of periodic crop reports, market news information, survey data, subject matter publications, and news releases has been widespread, contributing to more efficient marketing as well as to a more thorough understanding of one of New Jersey's great industries.

### ANIMAL DISEASE CONTROL

Continuance of a regular program of testing the cattle of the state in the maintenance of freedom from bovine tuberculosis marked the basic effort in the control of animal diseases. Since the beginning of this work on an organized basis in 1916, and especially since attaining the status of a "modified accredited state" twenty years later, continuous testing has been recognized not only as the logical method of control, but also as the means of safeguarding the long-time indemnification investment which has been made.

More than 270,000 tuberculin tests were made in the last fiscal year, with only one animal in about every 260 tests showing any evidence of the disease. The resulting percentage of 0.38 is slightly lower than the reaction of the previous year.

Passage of legislation during the year providing for payment of indemnity to owners for cattle reacting to tests for Bang's disease was a definite step toward further progress in combatting this disease. Dairymen have cooperated in mapping out a sound course of procedure providing for several methods of control, all on a voluntary acceptance basis. These, coupled with indemnification, have stimulated interest in the control of this malady. By the end of the year, 22,077 cattle were under state or federal supervision in the eradication program. This number represented a little over 10 per cent of the cattle population, and is an increase of some 4,000 over the number of a year ago.

An important service inaugurated for the protection of dairymen was the testing of all inshipped cattle for Bang's disease, due to the presence of infection in some lots previously checked at random. With nearly 30,000 cattle imported into the state last year, there has been an opportunity for further introduction of the disease in spite of efforts by authorities in the respective states of origin. In the few months that this testing at destination has been carried out, infection in inshipped cattle has dropped to a negligible figure.



## MARKETING

The marketing of the products of our farms is the final chapter in our agricultural enterprise. Some producers—the dairyman and the poultryman—are constantly engaged in selling their output; others, including the fruit and vegetable grower and the general farmer, have but one crop a year from which to realize the costs of production plus a living from the land. Although differing widely in character, the problem involved and the methods followed are all in the general field of marketing. It is in this field that the department has endeavored to be of the utmost assistance to agriculture during the current period of unusual world-wide influences.

Grades and standards, often called the measuring stick of quality, are recognized more and more widely as a sound foundation on which to build efficient distribution of perishable products. The voluntary use of such standards has been on the increase in several branches of agriculture. Certification of eggs and milk has enabled consumers to purchase a superior article with confidence. The grading of certain fruits and vegetables, with their quality likewise certified, has placed growers in a position to sell their product more favorably in a highly competitive market.

Supporting the merchandising of these products has been a well-developed advertising program carried on by the New Jersey Council with the advisory and financial cooperation of commodity organizations. Various media have been employed, all of which are deemed to have made a substantial contribution in advancing the interests of these groups and their identified products.

Active purchasing by the Surplus Marketing Administration of the federal government helped in relieving the pressure in the marketing of a large crop of potatoes and apples. More than 1,100 carloads of potatoes and about 200 cars of apples were bought in New Jersey for relief purposes.

## PLANT INDUSTRY

The control and eradication of plant diseases and insects is an essential activity which must be constantly maintained in order to prevent economic loss by destruction of crops or seriously reducing their value. Obviously, much of this work is carried on under regulatory procedure.

Dutch elm disease and the Japanese beetle infestation have required greater attention, more man hours, and larger funds than any other projects of this character. The federal government has cooperated financially to a large degree in both. Although the area of Dutch elm disease infestation has expanded, marked progress can be reported in this drive toward eradication; fewer diseased trees were found in this wider area than in the more restricted area of former years.

Maintenance of a certification service under the Japanese beetle quarantine provisions enabled growers and shippers to utilize markets beyond the quarantine borders for fruits, vegetables, nursery and floral stock and other

products which require inspection. Progress, too, was made in the parasitical approach to the beetle suppression problem. Much experimentation has been done with a view to establishing colonies of parasites which would effectively reduce the beetle population in those areas most affected.

The use of good seed has long been recognized as the cornerstone of production. The certification of grain, tomato seed and seed potatoes has developed superior strains of high yielding, disease resistant stock primarily for use on New Jersey farms. This project, as well as some others, has been carried on advantageously in cooperation with the Agricultural Experiment Station.

Surveys made and statistical reports issued by the Bureau of Plant Industry have filled a need in supplying information to aid in furthering departmental activity along sound lines as well as to acquaint the public on agricultural matters. The crop and livestock reports, the farm labor survey, and the investigation of food storage facilities for use in the National Defense program, are but a few of the important studies made during the course of the year.

### LICENSING AND BONDING

The Department of Agriculture is entrusted with the enforcement of Article 1, Chapter 12, Title 4 of the Revised Statutes (1937), more commonly known as the Milk Dealers' Licensing and Bonding Act; Article 2, Chapter 11, Title 4, known as the Produce Dealers' Licensing and Bonding Act; and Article 1, Chapter 11, Title 4, known as the Cattle Dealers' Licensing Act.

#### MILK DEALERS' LAW

The summary at the end of this section shows that there has been a constant decline in the number of milk dealers licensed during the past five years. However, the number and value of bonds filed have increased, thus affording greater protection to the dairymen of the state. The \$1,507,400 in bonds filed for the fiscal year 1940-41 is by far the greatest amount ever filed under this act.

There are several reasons for the degree of success attained in the enforcement of this statute. Farmers generally are more interested in doing business with licensed dealers. Experience has shown them that in case of default in payment, their best method of obtaining redress has been from the proceeds of bonds deposited with the department. Furthermore, dealers have become more familiar with the requirements of the act and have shown a willingness to comply, rather than attempting to evade compliance; many dealers themselves have acknowledged that this legislation is beneficial to both producers and dealers.

The various surety companies that write this type of bond have now had years of experience in this particular line of underwriting, and have made it much easier for those dealers who are required to file bonds to obtain them.

## TWENTY-SIXTH ANNUAL REPORT

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A number of dealers who, for one reason or another, usually due to their financial condition, are unable to obtain a surety bond or to deposit acceptable collateral, have become sub-dealers. As such, they need not file bonds because their purchases are made from a dealer and not from farmers. The primary dealer increases his purchases from producers, and his bond is therefore increased accordingly. The farmer not only has a market for his milk, but at the same time has a safer one.

During this year the department received approximately \$3,423 for dairymen, and additional claims totalling \$24,806.52 are pending settlement. These latter claims have been filed against surety bonds. It was necessary in only three instances to impose penalties against dealers for violation of the act. One dealer's license was revoked, due to his persistent failure to pay his producers. Licenses were issued to 285 dealers who filed bonds aggregating \$1,507,400.

## NUMBER OF LICENSEES UNDER MILK DEALERS' LAW

County	Licenses Issued	Bonds Filed	Amounts of Bonds
Atlantic	2	2	\$ 35,000
Bergen	7	7	37,100
Burlington	21	21	70,600
Camden	8	7	37,000
Cape May	2	1	1,000
Cumberland	21	21	35,600
Essex	15	15	170,900
Gloucester	11	11	11,500
Hudson	2	1	4,000
Hunterdon	9	9	141,000
Mercer	26	26	90,800
Middlesex	18	18	82,000
Monmouth	26	26	94,400
Morris	33	29	73,100
Ocean	3	3	7,000
Passaic	21	18	71,300
Salem	10	6	14,600
Somerset	14	14	56,200
Sussex	3	3	4,500
Union	10	10	51,700
Warren	13	13	62,100
Out-of-State	10	10	356,000
Totals	285	271	\$1,507,400
Totals: 1940-41	285	271	\$1,507,400
1939-40	298	276	1,254,200
1938-39	301	269	1,183,900
1937-38	310	265	1,095,400
1936-37	331	248	977,900

## PRODUCE DEALERS' LAW

In reviewing the work of the 1940-41 licensing term, the efforts of the State Police stand out as a noteworthy aid in reducing the number of unlicensed produce dealers traveling about the state in search of farmers who

would be willing to sell their produce for a profered check or on credit. This splendid cooperation of Colonel Kimberling and his men in tracing down these buyers is hereby acknowledged.

One of the most common complaints in non-payment cases concerns some persons who are engaged in inter-state hauling. Potato growers in the central New Jersey area frequently have been solicited by truckers returning empty from metropolitan deliveries in their endeavor to make up a return load. These deals, where the buyer is not licensed, have often resulted in losses to the producers, for the purchaser in some instances does not return to pay for the potatoes, or else the checks often go to protest. This year the number of losses due to this method of operating was reduced, and the number of local unlicensed dealers was likewise lower.

During the licensing term several small complaints were received amounting to about \$1,708. Each complaint was given prompt attention and was settled by payments in full to the producers involved.

Some producers withheld filing claims until the last day of the 90-day period of grace provided by the act, in the hope that the dealers themselves would take care of the obligation. Those who were not successful in this regard forwarded their complaints to the department; at the close of the grace period these amounted to \$14,278.64.

Licenses were issued to 332 dealers who filed bonds totaling \$996,000. This is the greatest amount filed during the past eight years. It was necessary for the department to prosecute five dealers for failure to obtain licenses.

#### NUMBER OF LICENSEES UNDER PRODUCE DEALERS' LAW

County	Licenses Issued	Bonds Filed	Amounts of Bonds
Atlantic	32	32	\$ 96,000
Burlington	5	5	15,000
Camden	4	4	12,000
Cumberland	34	34	102,000
Essex	40	40	120,000
Gloucester	31	31	93,000
Hudson	4	4	12,000
Mercer	9	9	27,000
Middlesex	5	5	15,000
Monmouth	24	24	72,000
Passaic	12	12	36,000
Salem	10	10	30,000
Somerset	1	1	3,000
Union	1	1	3,000
Warren	3	3	9,000
Out-of-State	117	117	351,000
Totals	332	332	\$ 996,000
Totals: 1940-41	332	332	\$ 996,000
1939-40	314	314	942,000
1938-39	312	312	936,000
1937-38	321	321	963,000
1936-37	303	303	909,000

## CATTLE DEALERS' LAW

Of the various complaints filed against our licensed dealers, only nine were of a troublesome nature. These were finally settled to mutual satisfaction upon replacement of stock or a cash settlement.

A hearing was held in the case of one licensee who had been charged with using improper identification tags. A penalty of \$100 was paid by the dealer for his violation of the statute.

Licenses were issued to 205 dealers.

## NUMBER OF LICENSEES UNDER CATTLE DEALERS' LAW

County	Licenses Issued
Bergen	1
Burlington	11
Camden	4
Cape May	5
Cumberland	13
Essex	9
Gloucester	5
Hudson	2
Hunterdon	17
Mercer	8
Middlesex	3
Monmouth	8
Morris	16
Ocean	6
Passaic	14
Salem	18
Somerset	13
Sussex	24
Union	7
Warren	17
Out-of-State	4
Total	205
Totals: 1940-41	205
1939-40	207
1938-39	207
1937-38	205
1936-37	204

## AGRICULTURAL WEEK

Each year most of the commodity organizations in the state, as well as some other agricultural groups, hold series of meetings during a period which has become known as "Agricultural Week". The initial meeting is the annual convention of delegates chosen from the agricultural organizations specified by law to elect annually two members to the State Board of Agriculture. This year the convention occurred on January 28, with Agricultural Week comprising the last four days of the month.

The New Jersey Farm Show was staged in the Trenton Armory during the week of January 25-31, 1941. It was the largest and most successful

of Agricultural Week. This exposition reflected the varied character of New Jersey agriculture through the many exhibits of modern farm machinery, farm services, educational features, and competitive displays of apples, baby chicks, corn, eggs and sweet potatoes.

## PUBLICITY AND PUBLICATIONS

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

The "Farm Service News," prepared for farmers and containing general agricultural information, was continued on a bi-monthly basis.

Throughout the year, exhibits of 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 during the past fiscal year:

Circular No. 321—Dealers Licensed Under the Milk Dealers' Licensing and Bonding Act; Produce Dealers' Licensing and Bonding Act; Cattle Dealers' Licensing Act.

Circular No. 322—Live Poultry Supplies and Prices at the Flemington, Vineland and Mount Holly Auction Markets.

Circular No. 323—County Boards of Agriculture and State Agricultural Organizations for 1941.

Circular No. 324—Supplement to the National Poultry Improvement Plan.

Circular No. 325—New Jersey Cattle: Number and Breeds.

Circular No. 326—Important Nursery Insects of New Jersey.

Circular No. 327—Some Vanishing Phases of Rural Life in New Jersey.

Circular No. 328—Marketing Sweet Potatoes: New Jersey and Competing States.

Circular No. 329—New Jersey the Garden State.

Handbook—Breeding Flocks and Hatcheries Under Official Supervision in New Jersey, 1941.

Revised Circular No. 266—The Treatment of American Foulbrood.

Handbook—Official Grades for New Jersey Fruits and Vegetables.

Folder—For Your Drinking Milk Change to New Jersey Grade A, Grade B.

Twenty-fifth Annual Report of the New Jersey Department of Agriculture, 1939-1940.

Agricultural Week Programs, Women's Agricultural Week Programs, Farm Week Chaff, and Premium List for the New Jersey Farm Show and Agricultural Week,

Six issues of bi-monthly publication Farm Service News,



## COOPERATION WITH NEW JERSEY COUNCIL

An allotment of funds, amounting to approximately \$19,000, was provided by the New Jersey Council for the promotion of New Jersey agricultural products. For the fourth consecutive year this fund was disbursed under the supervision of the Department of Agriculture in cooperation with the commodity organizations concerned, each of which appropriated private funds to match those allotted by the New Jersey Council. Under this plan cooperative advertising projects were conducted with the New Jersey Association of Nurserymen, New Jersey Official Grade Milk Dealers Association, Tri-County Cooperative Auction Market Association, Jersey Chick Association, New Jersey Poultry and Egg Cooperative Association, New Jersey Asparagus Growers Association, Swedesboro Asparagus Growers Association, Jersey Fruit Cooperative Association and the Blueberry Cooperative Association.

## THE NEW JERSEY JUNIOR BREEDERS' FUND

During the fiscal year ending June 30, 1941, 111 livestock loans, totaling \$6,243.70, were made, and in addition 35 loans were made for poultry feed and agricultural products, amounting to \$746.89. This represents a decrease from the previous three years. However, there is indication of a spread of interest in several new areas. Passaic and Ocean counties had one loan each, which were the first that had been made in these counties for several years. The total outstanding at the close of the year amounted to \$12,347.93 as compared with \$13,517.41 a year ago.

The beef cattle project was the only one to show an increase during the year, 40 loans having been made totaling \$2,309.10. There were 34 dairy loans, amounting to \$2,503.50, and 32 poultry loans, totaling \$1,265.90. Only three swine loans were made, probably owing to the losses which had been incurred in the previous year.

Deaths of dairy animals resulted in the Calf Emergency Fund having a deficit of \$218.82 at the close of the year, and the Swine Emergency Fund was also in the red to the extent of \$23.50. No losses were incurred in the poultry projects and the Poultry Emergency Fund showed a credit at the end of the year of \$14.00. The increase in delinquent accounts made it necessary to increase the Reserve for Bad Debts. The financial statement at the close of the year showed a net loss of \$256.77. The amount that had been set aside for agricultural loans was necessarily reduced from \$1,000 to \$900, in order to make up this loss and leave a small balance of \$65.26 in Undivided Profits to meet emergencies that may arise.

Entries at the New Jersey State Fair were limited in number, and premiums for the year amounted to only \$88.75. Rosettes were awarded for the best male and female animal in each breed at the local fairs. At a meeting of the Board of Trustees held on April 15, action was taken to eliminate

cash awards at the State Fair this year, this decision being made following a conference with club agents, who recommended the change so that the money would be available for other purposes.

The interest in keeping production records was maintained and a further increase in the number qualifying for certificates resulted in the awarding, at the annual dairy banquet during Agricultural Week in January, of 73 production certificates. This compared with 51 certificates issued the previous year.

The by-laws of the Fund were amended at a meeting of the Board of Trustees on April 15 to include a number of recommendations made by the 4-H Club Agents. The principal changes were a reduction in the maximum amount of loans for swine to \$50 and an increase in the maximum amount for beef loans to \$75; inclusion of the requirements that 60 per cent of the feed for swine must be home grown and that all pigs must have been vaccinated against hog cholera before purchase; the limitation of emergency coverage to exclude cases where the cause is mastitis and to exclude losses from Bang's disease where the entire herd is not under state and federal supervision for Bang's disease control under Plans 1 or 2; an increase in the dairy calf emergency fee to \$1.50 for every \$25 or fraction thereof borrowed and an increase in the swine emergency fee to \$1.25 for every \$25 or fraction thereof borrowed; the removal of the requirement that premiums be offered at the New Jersey State Fair, and any awards to be offered left to the discretion of the trustees, and the inclusion of the requirement that the family must have had some experience with the kind of livestock to be purchased, except in the case of baby beef purchases.



A complete record of both the livestock loans and agricultural loans that were made each year since the Fund was established follows:

# LIVESTOCK LOANS

Fiscal Year	Dairy Loans		Beef Cattle		Pig Loans		Chicken Loans		Turkey Loans		Total Livestock Loans	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	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
1937-38	43	4,366.00	..	...	8	492.50	29	1,614.82	2	\$30.00	82	6,503.32
1938-39	45	3,740.00	21	\$1,050.00	28	1,377.00	27	1,243.14	5	156.10	126	7,566.24
1939-40	36	3,680.00	35	2,012.20	9	303.00	44	2,012.92	5	201.00	129	8,209.12
1940-41	34	2,503.50	40	2,309.10	3	110.00	32	1,265.90	2	55.20	111	6,243.70
Totals	1,072	\$93,791.00	96	\$5,371.30	264	\$14,833.28	425	\$19,484.10	14	\$442.30	1,871	\$133,921.98

## AGRICULTURAL LOANS\*

	Poultry Feed Loans		Pig Feed Loans		Agricultural Prod. Loans		Miscellaneous Loans		Total Agricultural Loans	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount
1934-35	3	\$38.38	..	...	..	...	..	...	3	\$38.38
1935-36	..	...	..	...	..	...	..	...	..	...
1936-37	6	63.70	..	...	..	...	..	...	6	63.70
1937-38	11	239.74	3	\$36.50	..	...	..	...	14	276.24
1938-39	22	423.72	5	27.32	9	\$128.43	..	...	36	579.47
1939-40	40	599.02	3	129.43	7	199.08	1	\$8.02	51	935.55
1940-41	29	506.63	..	...	6	240.26	..	...	35	746.89
Total	111	\$1,871.19	11	\$193.25	22	\$567.77	1	\$8.02	145	\$2,640.23

\*The number of agricultural loans shown represents actual loans made, rather than number of borrowers, as in most cases more than one loan was made to a single borrower.

# TWENTY-SIXTH ANNUAL REPORT

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## AMOUNT LOANED BY COUNTIES TO DATE

County	Amount
Atlantic	...
Bergen	\$75.00
Burlington	10,877.71
Camden	...
Cape May	938.75
Cumberland	7,600.63
Essex	335.95
Gloucester	3,617.30
Hudson	...
Hunterdon	8,324.83
Mercer	22,997.31
Middlesex	15,925.62
Monmouth	10,975.55
Morris	5,279.00
Ocean	2,356.00
Passaic	166.25
Salem	18,133.63
Somerset	4,843.00
Sussex	11,949.18
Union	...
Warren	12,166.50
Total	<u>\$136,562.21</u>

# Report of the Bureau of Animal Industry

DR. R. A. HENDERSHOTT, *Chief*

## TUBERCULOSIS ERADICATION

At the close of the fiscal year ending June 30, 1940, there were under state and federal cooperative supervision in New Jersey, 17,364 herds comprising 206,187 cattle. At the close of the fiscal year, June 30, 1941, there were 16,695 herds, or a reduction of 669. However, an increase of 2,036 in the number of cattle maintained in these herds brought the total to 208,223.

It will be noted that during the last few years there has been a constant decrease in the number of herds under supervision and an increase in the number of cattle maintained in these herds.

During the past year, all cattle in the state were subjected to tuberculin test. A total of 270,991 individual tuberculin tests was made, resulting in 1,028 reactors, or .38 per cent reaction. This is a slight decrease in the percentage of reaction disclosed last year.

Initial tests were made on 1,332 herds of 7,287 cattle and 25, or .34 per cent, of the cattle reacted. The percentage of reactors found in out-of-state cattle added to herds under supervision during the 1940-1941 fiscal year was 1.66; of 10,692 cattle tested, 178 reacted.

As is customary, annual retests are made on all dairy herds under supervision. During the 1939-1940 fiscal period 247,108 animals were tested on retest and 959, or .39 per cent, reacted. During 1940-1941, 253,012 animals were tested on retest and 825 or .33 per cent reacted.

During 1939-1940, indemnity was paid for 816 reactors, 52 of which were registered and 764, grade animals. In the past year, indemnity was paid for 830 reactors, 48 of which were registered and 782, grade animals.

As the result of an improved method of testing infected herds, 40 infected animals were removed which otherwise might not have shown a reaction for some time.

Following is the total amount received by the dairymen and breeders, during the 1940-1941 fiscal year for 830 reactors condemned and slaughtered as a result of the tuberculin test:

Amount received from salvage of reactors	\$38,756.75
Amount paid by the State of New Jersey in indemnities	30,114.73
Amount paid by the United States Government in indemnity	15,239.57
Total returns to the owners	\$84,111.05
Average return to the owner	\$101.34

## NEW SYSTEM OF DIAGNOSIS INTRODUCED

In an endeavor to reduce the number of infected herds within the state, a study has been made during this year of the blood picture of animals being maintained in infected herds. Similar work has been done by research workers in human medicine and also by the veterinary research workers in foreign countries. However, members of this bureau were the first in the United States to apply the method in a practical manner to cattle.

The system followed consists of obtaining a smear of blood from cattle suspected of having tuberculosis, then injecting these animals with subcutaneous tuberculin and making blood smears again at the end of twenty-four hours following injection. A comparison of the various cellular elements of the blood found in the post-injection smears and the pre-injection smears has brought to light the fact that in animals infected with tuberculosis there is a decided constant change in the cell picture.

During the past six months, work has been done in several herds. A summary of this work indicates that of 87 animals removed as a result of the diagnosis obtained through this method, 82, on post-mortem examination, have proven to be infected; 47 of these animals also reacted to the tuberculin test. Three of the 47 failed to show lesions of tuberculosis. Of the 40 animals which failed to react to the tuberculin test but which were condemned as tuberculous as a result of the blood test, 38 revealed gross lesions of tuberculosis on post-mortem, and 2 failed to show lesions.

It will be seen, therefore, that through this means of diagnosis it is possible to remove infected animals sooner than if such infection were disclosed through the application of the tuberculin test. It is hoped that through a study of the hematological picture of animals in infected herds, reaccreditation will be possible at an earlier date, and the removal of all animals showing lesions will place the reaccreditation of such herds on a sounder basis than could be achieved under the old method.

It is not thought that the blood survey method can be substituted for the routine tuberculin testing of herds, as the former is time-consuming and would require considerable additional laboratory personnel. It does have its application in those herds in which infection is disclosed as a result either of the tuberculin test or post-mortem findings on culled animals.

Further studies of this method are being made in order to introduce improvements in this means of diagnosis during the ensuing year.

A report of the work done since February was made to the American Veterinary Medical at the annual meeting in Indianapolis, and was favorably received both by research workers and livestock sanitary officials. The federal government also has been interested in the new procedure for diagnosis and has closely observed its progress in New Jersey.

Following is a summary by months of the average net returns to the owner for salvage of tuberculous 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	\$46.08	\$46.00	\$48.96	\$42.95	\$35.95	\$40.46
New York	34.79	38.02	33.66	33.99	32.14	35.08
	January	February	March	April	May	June
New Jersey	\$44.13	\$47.13	\$50.43	\$46.23	\$58.64	\$56.90
New York	37.36	39.86	38.67	38.84	42.45	41.40

The amount of state indemnity paid during this fiscal year for reactors condemned decreased from an average of \$38.27 for the fiscal year 1939-1940 to \$36.28 for 1940-1941. During the year 29,650 cattle were imported as compared with 26,040 during the previous year.

The following summary indicates the amount of state indemnity paid for reactors resulting from the tuberculin test during the year ending June 30, 1941.

Class of Cattle	Number of Animals	Amount Paid
Registered animals	48	\$ 2,577.41
Grade animals	782	27,537.32
Registered and Grade	830	\$30,114.73

#### Average State Indemnity Paid Per Head:

Registered animal	\$53.70
Grade animal	35.21
Registered and Grade	36.28

The following summary indicates the amount of salvage received by owners for reactors resulting from the tuberculin test during the year ending June 30, 1941.

Class of Cattle	Number of Animals	Amount Paid
Registered animals	48	\$ 2,460.63
Grade animals	782	36,296.12
Registered and Grade	830	\$38,756.75

#### Average Salvage Received Per Head:

Registered animal	\$51.26
Grade animal	46.41
Registered and Grade	46.69

The following summary indicates the amount of federal indemnity paid for reactors resulting from the tuberculin test during the year ending June 30, 1941.

Class of Cattle	Number of Animals	Amount Paid
Registered animals	48	\$ 1,270.31
Grade animals	782	13,239.57
Registered and Grade	830	\$15,239.57

#### Average Federal Indemnity Paid Per Head:

Registered animal	\$26.46
Grade animal	17.86
Registered and Grade	18.36

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

Total amount received by owners for reactors (sum of salvage, federal and state indemnity)	\$84,111.05
Average amount received per head by owners for reactors	\$101.34

#### TOTAL STATE INDEMNITY FOR TUBERCULOSIS PAID BY COUNTIES

July 1, 1940 to June 30, 1941

Atlantic	\$ 146.35
Bergen	256.52
Burlington	5,300.47
Camden	3.34
Cumberland	422.72
Essex	212.50
Gloucester	183.34
Hunterdon	3,729.11
Mercer	465.07
Middlesex	771.41
Monmouth	1,220.76
Morris	3,459.94
Ocean	53.34
Passaic	265.53
Salem	1,511.56
Somerset	980.75
Sussex	8,320.89
Union	1,064.95
Warren	1,746.18
State	<u>\$30,114.73</u>

#### TOTAL STATE INDEMNITY FOR TUBERCULOSIS PAID BY COUNTIES, FROM THE BEGINNING OF ACCREDITED HERD WORK IN 1916 TO JUNE 30, 1941

Atlantic	\$ 8,579.46
Bergen	33,464.30
Burlington	325,034.12
Camden	14,070.36
Cape May	10,819.80
Cumberland	75,796.14
Essex	36,205.92
Gloucester	63,543.41
Hudson	4,455.78
Hunterdon	341,760.27
Mercer	178,570.47
Middlesex	76,340.32
Monmouth	126,637.65
Morris	131,203.26
Ocean	30,560.40
Passaic	33,206.92
Salem	354,020.06
Somerset	217,294.21
Sussex	949,713.41
Union	37,626.06
Warren	368,558.54
State	<u>\$3,417,460.86</u>

## STATE DEPARTMENT OF AGRICULTURE

## INFECTED HERD RECORD

County	No. of Infected Herds in New Jersey, 6-30-41	No. of Cattle in Infected Herds 6-30-41
Atlantic	2	13
Bergen	5	259
Burlington	21	685
Camden	1	3
Cape May	....	....
Cumberland	4	170
Essex	1	96
Gloucester	1	4
Hudson	....	....
Hunterdon	15	338
Mercer	8	201
Middlesex	8	753
Monmouth	40	554
Morris	8	551
Ocean	6	67
Passaic	6	148
Salem	27	889
Somerset	9	165
Sussex	111	5,295
Union	5	1,860
Warren	35	1,114
State	313	13,170

CATTLE HERDS UNDER STATE AND FEDERAL SUPERVISION  
FOR TUBERCULOSIS

June 30, 1941

County	Herds Under Super- vision	Herds Fully Accred- ited	No. of Cattle Under Supervision 6-30-41			No. of Cattle Fully Accredited 6-30-41		
			P. B.	Grades	Total	P. B.	Grades	Total
Atlantic	267	231	1	542	543	...	480	480
Bergen	245	243	167	2,773	2,940	161	2,411	2,572
Burlington	1,241	1,085	1,544	20,675	22,219	1,524	19,019	20,543
Camden	317	299	327	1,398	1,725	320	1,395	1,715
Cape May	189	179	40	732	772	38	698	736
Cumberland	1,118	1,012	456	6,602	7,058	447	6,125	6,572
Essex	135	122	230	2,051	2,281	230	1,844	2,074
Gloucester	1,027	871	695	4,855	5,550	690	4,609	5,299
Hudson	15	15	2	111	113	2	111	113
Hunterdon	2,086	1,864	2,530	24,848	27,378	1,854	23,563	25,417
Mercer	880	794	1,161	8,809	9,970	1,035	7,378	8,413
Middlesex	1,170	1,065	894	6,889	7,783	803	4,697	5,500
Monmouth	1,423	1,173	1,281	8,532	9,813	1,052	7,344	8,396
Morris	996	828	2,096	11,051	13,147	1,904	10,180	12,084
Ocean	325	282	2	1,628	1,630	2	1,416	1,418
Passaic	214	192	71	2,643	2,714	58	2,457	2,515
Salem	1,255	1,136	640	15,808	16,448	511	14,532	15,043
Somerset	1,113	1,024	2,258	9,699	11,957	2,212	8,508	10,720
Sussex	1,224	975	2,438	33,222	35,660	1,896	25,073	26,969
Union	210	188	68	3,611	3,679	68	1,657	1,725
Warren	1,245	1,103	1,469	23,374	24,843	1,386	21,060	22,446
State	16,695	14,681	18,370	189,853	208,223	16,193	164,557	180,750



## TWENTY-SIXTH ANNUAL REPORT

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INITIAL TUBERCULOSIS TESTS MADE AND REACTORS RESULTING,  
BY COUNTIES

July 1, 1940 to June 30, 1941

County	Number of Herds Tested	<i>Animals Tested</i>		<i>Animals Reacting</i>		<i>Percentage Reacting</i>		Total Animals Tested	Total Animals Reacting	Per Cent of Total Reacting
		Registered	Grade	Registered	Grade	Registered	Grade			
Atlantic	35	...	44	...	...	...	...	44	...	...
Bergen	21	...	58	...	1	...	1.72	58	1	1.72
Burlington	89	11	391	...	2	...	.51	402	2	.50
Camden	35	5	59	...	1	...	1.69	64	1	1.56
Cape May	19	...	25	...	...	...	...	25	...	...
Cumberland	125	26	294	...	...	...	...	320	...	...
Essex	10	...	29	...	...	...	...	29	...	...
Gloucester	76	2	144	...	...	...	...	146	...	...
Hunterdon	137	21	875	...	...	...	...	896	...	...
Mercer	67	41	330	...	...	...	...	371	...	...
Middlesex	91	24	144	...	...	...	...	168	...	...
Monmouth	124	8	386	...	2	...	.52	394	2	.51
Morris	95	70	379	...	2	...	.53	449	2	.45
Ocean	22	...	80	...	...	...	...	80	...	...
Passaic	15	...	75	...	...	...	...	75	...	...
Salem	79	4	674	...	1	...	.15	678	1	.15
Somerset	78	8	429	...	...	...	...	437	...	...
Sussex	109	26	1,724	...	14	...	.81	1,750	14	.80
Union	14	...	19	...	...	...	...	19	...	...
Warren	91	21	861	1	1	4.76	.12	882	2	.23
State	1,332	267	7,020	1	24	.37	.34	7,287	25	.34

# CATTLE TESTED FOR TUBERCULOSIS UNDER THE ACCREDITED HERD PLAN BY VETERINARIANS ON THE STAFF OF THE STATE DEPARTMENT OF AGRICULTURE

July 1, 1940 to June 30, 1941

	INITIAL TESTS					HERD ADDITION TESTS					OTHER TESTS				
	Lots	Tested		Reactors		Lots	Tested		Reactors		Lots	Tested		Reactors	
		Reg.	Gr.	Reg.	Gr.		Reg.	Gr.	Reg.	Gr.		Reg.	Gr.	Reg.	Gr.
1940															
July	59	34	143	..	..	3	1	81	..	3	573	597	7,001	..	10
August	44	2	109	..	..	1	1	40	..	..	418	324	4,613	1	4
September	40	..	211	..	..	..	..	160	..	4	649	816	8,200	1	32
October	49	2	269	..	..	1	..	120	..	3	600	718	6,328	1	21
November	55	7	185	..	2	3	..	166	..	1	633	1,079	9,561	3	4
December	52	1	174	..	1	2	..	233	..	8	656	288	7,438	3	42
1941															
January	27	3	178	..	1	1	..	152	..	9	558	667	7,834	3	64
February	43	1	134	..	..	7	7	58	..	14	461	1,220	6,938	..	49
March	30	4	297	..	..	2	1	8	..	3	264	764	5,354	..	31
April	13	5	95	..	..	2	1	3	..	2	240	228	2,539	4	7
May	10	..	46	..	..	2	..	34	..	1	126	559	2,811	..	3
June	29	23	210	..	1	..	..	55	..	5	311	280	5,192	..	57
Totals	451	82	2,051	..	5	24	11	1,110	..	53	5,489	7,540	73,809	16	324
Percentage of Reactors				..	.24				..	.48				.21	.44
Average Percentage				.23					.47					.42	

STATE DEPARTMENT OF AGRICULTURE

# CATTLE TESTED FOR TUBERCULOSIS UNDER THE ACCREDITED HERD PLAN BY VETERINARIANS ON THE STAFF OF THE UNITED STATES DEPARTMENT OF AGRICULTURE

July 1, 1940 to June 30, 1941

	INITIAL TESTS					HERD ADDITION TESTS					OTHER TESTS				
	Lots	Tested		Reactors		Lots	Tested		Reactors		Lots	Tested		Reactors	
		Reg.	Gr.	Reg.	Gr.		Reg.	Gr.	Reg.	Gr.		Reg.	Gr.	Reg.	Gr.
1940															
July	8	1	10	..	..	..	..	55	..	..	99	28	517	..	..
August	9	..	10	..	..	3	..	81	..	..	120	6	589	..	1
September	6	..	8	..	..	..	..	12	..	..	106	29	699	..	5
October	13	3	21	..	..	..	..	86	..	..	91	9	1,050	..	3
November	6	..	12	..	..	..	..	42	..	1	34	155	2,955	..	..
December	3	..	..	..	..	..	..	78	..	..	71	32	1,309	..	2
1941															
January	..	..	..	..	..	..	..	62	..	..	42	11	960	..	5
February	6	..	8	..	..	1	..	79	..	..	156	30	1,620	..	1
March	6	..	9	..	..	..	..	95	..	10	98	32	1,842	..	17
April	2	..	1	..	..	..	..	78	..	1	37	..	2,495	..	..
May	5	..	49	..	..	..	..	40	..	..	27	16	961	..	..
June	13	..	23	..	..	..	..	82	..	..	109	240	872	..	7
Totals	77	4	151	..	..	4	..	790	..	12	990	588	15,669	..	41
Percentage of Reactors				..	..				..	1.52				..	.26
Average Percentage				..					1.52					.25	

TWENTY-SIXTH ANNUAL REPORT

# CATTLE TESTED FOR TUBERCULOSIS UNDER THE ACCREDITED HERD PLAN BY VETERINARIANS ACCREDITED BY THE STATE DEPARTMENT OF AGRICULTURE

July 1, 1940 to June 30, 1941

	INITIAL TESTS					HERD ADDITION TESTS					OTHER TESTS				
	Lots	Tested		Reactors		Lots	Tested		Reactors		Lots	Tested		Reactors	
		Reg.	Gr.	Reg.	Gr.		Reg.	Gr.	Reg.	Gr.		Reg.	Gr.	Reg.	Gr.
1940															
July	68	3	211	..	2	27	1	252	..	3	603	299	4,774	2	11
August	37	2	260	..	5	41	33	468	..	1	522	434	8,190	3	16
September	60	10	522	..	1	57	12	647	..	15	1,437	700	12,948	..	43
October	68	18	539	..	1	29	25	1,004	1	13	951	651	12,067	2	36
November	47	2	331	..	1	39	9	1,095	..	10	719	1,293	12,077	..	22
December	61	5	415	..	2	55	7	758	..	10	755	691	9,440	1	55
1941															
January	60	52	450	..	1	55	2	573	..	3	751	996	9,321	3	22
February	35	18	229	..	3	56	16	539	..	12	865	1,508	14,113	2	61
March	54	5	439	..	1	60	24	1,065	..	16	1,046	1,116	15,730	5	70
April	79	14	347	..	..	37	21	973	1	11	1,198	4,253	15,408	4	52
May	135	17	707	..	1	26	33	733	..	12	2,941	2,600	13,394	..	20
June	100	35	368	..	1	34	7	484	..	5	1,059	725	12,475	..	14
Totals	804	181	4,818	..	19	516	190	8,591	2	111	12,847	15,266	139,940	22	422
Percentage of Reactors				.55	.39				1.05	1.29				.14	.30
Average Percentage				.40					1.29					.29	

# TWENTY-SIXTH ANNUAL REPORT

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## SUMMARY OF CATTLE TESTED FOR TUBERCULOSIS UNDER ACCREDITED HERD PLAN

July 1, 1940 to June 30, 1941

### INITIAL TESTS

	Registered Animals	Grade Animals	Total
Tested	267	7,020	7,287
Reacted	1	24	25
Percentage of Reactors			.34

### HERD ADDITION TESTS

	Registered Animals	Grade Animals	Total
Tested	201	10,491	10,692
Reacted	2	176	178
Percentage of Reactors			1.66

### OTHER TESTS

	Registered Animals	Grade Animals	Total
Tested	23,394	229,618	253,012
Reacted	38	787	825
Percentage of Reactors			.33

### TOTAL

Tested	270,991
Reacted	1,028
Percentage of Reactors	.38
Percentage of Reactors Based on Cattle Population	.49

## SUMMARY BY COUNTIES SHOWING PER CENT OF TUBERCULOSIS INFECTION BASED ON TESTS MADE AND ON THE CATTLE POPULATION

July 1940 to June 1941

County	No. Animals Under Super- vision	No. Animals Reacting	Per Cent Reaction on Total Cattle Pop- ulation	No. Tests Made	Per Cent Reaction on Tests Made
Atlantic	543	5	.92	549	.91
Bergen	2,940	21	.71	4,428	.47
Burlington	22,219	146	.66	28,326	.52
Camden	1,725	3	.17	2,134	.14
Cape May	772	..	..	828	..
Cumberland	7,058	14	.20	6,854	.20
Essex	2,281	26	1.14	2,668	.97
Gloucester	5,550	7	.13	6,272	.11
Hudson	113	..	..	150	..
Hunterdon	27,378	116	.42	28,861	.40
Mercer	9,970	18	.18	13,822	.13
Middlesex	7,783	25	.32	12,005	.21
Monmouth	9,813	32	.33	13,757	.23
Morris	13,147	118	.90	16,526	.71
Ocean	1,630	3	.18	1,629	.18
Passaic	2,714	18	.66	3,588	.50
Salem	16,448	77	.47	21,301	.36
Somerset	11,957	44	.37	13,327	.33
Sussex	35,660	270	.76	55,419	.49
Union	3,679	19	.52	7,345	.26
Warren	24,843	66	.27	31,202	.21
State	208,223	1,028	.49	270,991	.38

## TUBERCULOSIS IN PHEASANTS

During the past year a case of tuberculosis in pheasants maintained at the Hackettstown plant of the State Fish and Game Commission was reported to this office. The diagnosis resulted from autopsies conducted by Dr. F. R. Beaudette of the Experiment Station, New Brunswick, on several birds submitted to his laboratory for post-mortem examination.

Immediately upon receipt of a report from Doctor Beaudette, the birds in the pens involved, totaling approximately 900, were quarantined, and the entire pen subjected to a tuberculin test to which 98 birds reacted. Of these, 45 were removed from the premises and brought to the laboratory of the Bureau of Animal Industry for post-mortem examination. As a result of this, 31 showed gross lesions of tuberculosis in the spleen, liver and intestinal tract, while 14 showed no visible lesions.

Since tuberculosis is rarely, if ever, spread through the egg to chicks, permission was granted the Chief of the Game Commission to maintain this breeding pen and to hatch eggs from the breeders. At the termination of the hatching season, all birds remaining in the pen were to be slaughtered and examined for post-mortem lesions of tuberculosis.

At the end of the season, 338 birds remaining in the quarantined pen were destroyed and examined for tuberculosis, resulting in 277 reactors and 61 negatives.

The veterinarians in the vicinity of the Hackettstown plant were asked to make inquiry among the hunters in that region relative to findings in the birds they killed. During the season, Dr. James Savage of Hackettstown reported that he received five cases of tuberculosis which were brought to him for examination by hunters in that area.

This outbreak of tuberculosis in pheasants becomes important largely because birds so infected may, through association with cattle, cause the cattle to become sensitive to the tuberculin test for a period as long as six months.

Experimental work done on this problem was carried out in a herd maintained in close contact with tuberculous chickens. Perhaps an occasional contact with pheasants would not produce the same result; however, if any appreciable number of infected pheasants inhabited the barnyard and soiled it with their infected droppings, the ground might, because of that fact, serve as a source of increased sensitiveness to the dairy animals maintained on the premise.

A program has been set up whereby the supervisor of the Fish and Game Commission's farm at Hackettstown will see that pheasants disposed of either through natural causes or slaughtered, are examined for tuberculosis and the findings reported.

## TWENTY-SIXTH ANNUAL REPORT

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## BANG'S DISEASE CONTROL

With the passage by the Legislature of Senate Bill No. I, introduced by Senator Foran and approved by Governor Moore on December 16, 1940, it became Chapter 231 of the Laws of 1940 and amended the Bang's law, known as Article 3, Chapter 5, Title 4 of the Revised Statutes. The law included provisions for the payment by the state of indemnity to cattle owners for reactors disclosed as a result of the test for Bang's disease. An appropriation of \$50,000 was made.

After several meetings of the Dairy Advisory Committee, which was appointed to consider methods of carrying out the provisions of the law, three plans were drafted under which the bureau is operating.

Plan I provides for test, immediate slaughter of all reactors found on test and the payment of indemnity by both the state and federal governments. Plan II has the same provisions but in addition permits the use of Bang's vaccine in animals between the ages of four and eight months, under supervision of this bureau. Plan III provides for the testing of herds by the state and the segregation under quarantine of animals not giving a negative reaction to the Bang's test, but it does not require their immediate slaughter. This is particularly interesting to a number of breeders who desire to keep certain of their animals for the continuation of valuable blood lines. Under this plan, the use of Bang's vaccine in the immunization of calves between the ages of four and eight months is optional and no indemnity is paid by either the state or federal government for reactors which are moved to slaughter.

Under all three plans, suspicious and positive reacting animals are immediately quarantined. They may be moved to slaughter only under written authorization from this bureau, and then they must go to an establishment maintaining veterinary inspection in order that a post-mortem report of the findings may be obtained.

After the appropriation was made available and the necessary arrangements completed for the payment of indemnity, it was possible to approve and pass claims for all animals removed and slaughtered on and after December 16. Up to the end of the fiscal year, June 30, indemnity was paid on 416 animals, 102 of which were registered and 314, grades.

There were 216 herds of 4,096 cattle initially tested during the year, with 334, or 8.15 per cent, giving a positive reaction. This was an increase of 77 herds and 1,302 cattle over the number initially tested last year when 139 herds of 2,794 cattle were tested with 286, or 10.24 per cent, positive.

One hundred forty-six herds, comprising 4,385 animals, were submitted to an informative test. Of this number 563, or 12.84 per cent, gave a positive reaction, 70 or 1.6 per cent gave a highly suspicious reaction, 427 or 9.74 per cent gave a slightly suspicious reaction and 3,325 or 75.82 per cent gave a negative reaction.

On June 30, 1941 there were 616 herds of 22,077 cattle under state and state-federal cooperative supervision for the eradication of Bang's disease as compared with 437 herds of 17,605 cattle a year ago.

A total of 82,157 Bang's tests was conducted in the bureau laboratory during the year on herds under supervision. Of this number, 76,598 gave a negative, 1,822 a positive and 3,737 a suspicious reaction.

The number of fully accredited Bang's free herds in the state on June 30, 1941 was 259, as compared with 206 on June 30, 1940.

Periodic blood tests have been made of animals in which the use of Strain 19, Brucella Abortus Bang's vaccine has been used. During the year 6,126 tests have been made of these animals. In addition to these, 1,617 tests have been made on goats, 14 tests on horses and 2 on swine. Private veterinarians have submitted samples from 1,372 animals not under supervision for test, and 61 tests have been made of animals residing out of the state. Agglutination tests were also made on 131 animals owned by 4-H club members, on 40 milk samples, and on 7 deer, making a total of 102,610 agglutination tests conducted in the bureau laboratory during the year.

During the latter part of the year, an effort was made to ascertain if deer were carriers of Bang's infection. In order to secure blood for test, this bureau solicited aid from the Department of Conservation and Development and the New Jersey State Police to obtain samples from deer captured or killed by passing motorists. Of the seven deer so tested, none gave any reaction to the agglutination test.

In order to protect the local dairymen and farmers, in March the bureau inaugurated a plan of retesting for Bang's disease occasional shipments brought in from other states and by various dealers. Infection was found in a number of those tested, and in April of this year the practise was started of retesting all cattle shipped into the state.

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 tests made since the work commenced		506,642
Total number of tests showing positive reaction	16,989—	3.35%
Total number of tests showing negative reaction	464,885—	91.76%
Total number of tests showing suspicious reaction	24,768—	4.89%
Total number of animals bled on initial test since the work commenced		31,410
Total number of animals showing positive reaction	5,606—	17.85%
Total number of animals showing negative reaction	25,804—	82.15%



## TWENTY-SIXTH ANNUAL REPORT

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CATTLE HERDS UNDER SUPERVISION FOR THE ERADICATION  
OF BANG'S DISEASE AND THOSE ACCREDITED FREE OF IT

June 30, 1941

County	Number of Herds Under Supervision	Number of Animals Under Supervision	Number of Herds Fully Accredited	Number of Animals in Herds Fully Accredited
Bergen	8	226	7	224
Burlington	34	1,675	16	664
Camden	13	241	8	169
Cape May	27	198	8	125
Cumberland	35	1,083	11	287
Essex	6	389	2	12
Gloucester	27	853	11	510
Hunterdon	39	1,909	19	840
Mercer	92	2,366	38	664
Middlesex	33	2,891	9	182
Monmouth	51	1,202	22	514
Morris	46	2,849	21	1,002
Ocean	4	44	1	36
Passaic	4	307	2	17
Salem	48	1,113	8	186
Somerset	111	3,200	68	1,646
Sussex	9	794	4	339
Union	4	51	..	..
Warren	25	686	4	156
State	616	22,077	259	7,573

**RECORD BY COUNTIES OF THE NUMBER OF BANG'S REACTORS APPRAISED, THEIR APPRAISED VALUE,  
THE TOTAL AND AVERAGE AMOUNTS RECEIVED BY OWNERS FROM SALVAGE,  
STATE AND FEDERAL INDEMNITY**

December 16, 1940 to June 30, 1941

County	<i>No. of Reactors Appraised</i>			<i>Appraised Value</i>			<i>Total Amount Paid to Owners (Salvage, State and Federal Indemnity)</i>			<i>Average Amount Paid Owners Per Head</i>		
	Reg.	Gr.	Total	Reg.	Grade	Total	Reg.	Grade	Total	Reg.	Grade	Total
Bergen	..	1	1	..	\$ 100.00	\$ 100.00	..	\$ 96.28	\$ 96.28	..	\$96.28	\$ 96.28
Burlington	20	17	37	\$ 3,280.00	1,795.00	5,075.00	\$ 2,905.43	1,642.10	4,547.53	\$145.27	96.59	122.91
Cape May	..	1	1	..	90.00	90.00	..	80.50	80.50	..	80.50	80.50
Cumberland	3	14	17	420.00	1,480.00	1,900.00	383.82	1,367.11	1,750.93	127.94	97.65	103.00
Essex	..	13	13	..	1,175.00	1,175.00	..	1,101.41	1,101.41	..	84.72	84.72
Gloucester	2	14	16	300.00	1,380.00	1,680.00	275.32	1,276.61	1,551.93	137.66	91.19	97.00
Hunterdon	4	3	7	625.00	300.00	925.00	557.84	266.66	824.50	139.46	88.88	117.79
Mercer	3	46	49	445.00	4,960.00	5,405.00	395.40	4,556.31	4,951.71	131.80	99.05	101.06
Middlesex	13	78	91	1,895.00	8,110.00	10,005.00	1,702.72	7,405.96	9,108.68	130.98	94.95	100.10
Monmouth	8	24	32	1,350.00	2,425.00	3,775.00	1,222.80	2,185.93	3,408.73	152.85	91.08	106.52
Morris	11	12	23	1,570.00	1,170.00	2,740.00	1,387.69	1,069.73	2,457.42	126.15	89.14	106.84
Salem	2	35	37	295.00	3,480.00	3,775.00	264.83	3,219.38	3,484.21	132.42	91.98	94.17
Somerset	8	28	36	1,190.00	2,920.00	4,110.00	1,065.32	2,674.43	3,739.75	133.17	95.52	103.88
Sussex	19	7	26	3,210.00	825.00	4,035.00	2,855.55	752.76	3,608.31	150.29	107.54	138.78
Union	..	3	3	..	290.00	290.00	..	272.25	272.25	..	90.75	90.75
Warren	9	18	27	1,420.00	1,915.00	3,335.00	1,249.85	1,743.68	2,993.53	138.87	96.87	110.87
State	102	314	416	\$16,000.00	\$32,415.00	\$48,415.00	\$14,266.57	\$29,711.10	\$43,977.67	\$139.87	\$94.62	\$105.72

RECORD BY COUNTIES OF THE NUMBER OF BANG'S REACTORS APPRAISED, THE AMOUNT OF SALVAGE RECEIVED  
AND THE STATE AND FEDERAL INDEMNITY PAID

December 16, 1940 to June 30, 1941

County	No. of Reactors Appraised			Amount of Salvage Received			Amount of State Indemnity Paid			Amount of Federal Indemnity Paid		
	Reg.	Gr.	Total	Reg.	Grade	Total	Reg.	Grade	Total	Reg.	Grade	Total
Bergen	..	1	1	..	\$ 77.68	\$ 77.68	..	\$ 11.16	\$ 11.16	..	\$ 7.44	\$ 7.44
Burlington	20	17	37	\$1,033.00	878.00	1,911.00	\$1,123.50	458.49	1,581.99	\$ 748.93	305.61	1,054.54
Cape May	..	1	1	..	33.00	33.00	..	28.50	28.50	..	19.00	19.00
Cumberland	3	14	17	203.00	803.00	1,006.00	108.50	338.50	447.00	72.32	225.61	297.93
Essex	..	13	13	..	733.78	733.78	..	220.59	220.59	..	147.04	147.04
Gloucester	2	14	16	152.00	760.00	912.00	74.00	310.00	384.00	49.32	206.61	255.93
Hunterdon	4	3	7	222.17	100.00	322.17	201.41	100.00	301.41	134.26	66.66	200.92
Mercer	3	46	49	147.50	2,581.75	2,729.25	148.75	1,189.12	1,337.87	99.15	785.44	884.59
Middlesex	13	78	91	741.50	3,917.25	4,658.75	576.75	2,096.36	2,673.11	384.47	1,392.35	1,776.82
Monmouth	8	24	32	587.00	1,071.00	1,658.00	381.50	677.00	1,058.50	254.30	437.93	692.23
Morris	11	12	23	476.93	568.40	1,045.33	546.46	300.81	847.27	364.30	200.52	564.82
Salem	2	35	37	114.00	1,915.00	2,029.00	90.50	782.50	873.00	60.33	521.88	582.21
Somerset	8	28	36	442.11	1,481.06	1,923.17	373.94	719.41	1,093.35	249.27	473.96	723.23
Sussex	19	7	26	1,178.39	391.92	1,570.31	1,015.76	216.53	1,232.29	661.40	144.31	805.71
Union	..	3	3	..	183.65	183.65	..	53.16	53.16	..	35.44	35.44
Warren	9	18	27	425.09	909.03	1,334.12	497.45	502.96	1,000.41	327.31	331.69	659.00
State	102	314	416	\$5,722.69	\$16,404.52	\$22,127.21	\$5,138.52	\$8,005.09	\$13,143.61	\$3,405.36	\$5,301.49	\$8,706.85

TWENTY-SIXTH ANNUAL REPORT

The following summary indicates the amount of state indemnity paid for reactors resulting from the Bang's test during the year ending June 30, 1941.

Class of Cattle	Number of Animals	Amount Paid
Registered animals	102	\$ 5,138.52
Grade animals	314	8,005.09
		<hr/>
Registered and Grade	416	\$13,143.61
Average State Indemnity Paid Per Head:		
Registered animals		\$50.38
Grade animals		25.49
Registered and Grade		31.60

The following summary indicates the amount of salvage received by owners for reactors resulting from Bang's test during the year ending June 30, 1941.

Class of Cattle	Number of Animals	Amount Paid
Registered animals	102	\$ 5,722.69
Grade animals	314	16,404.52
		<hr/>
Registered and Grade	416	\$22,127.21
Average Salvage Received Per Head:		
Registered animal		\$56.10
Grade animal		52.24
Registered and Grade		53.19

The following summary indicates the amount of federal indemnity paid for reactors resulting from the Bang's test during the year ending June 30, 1941.

Class of Cattle	Number of Animals	Amount Paid
Registered animals	102	\$3,405.36
Grade animals	314	5,301.49
		<hr/>
Registered and Grade	416	\$8,706.85
Average Federal Indemnity Paid Per Head:		
Registered animal		\$33.39
Grade animal		16.88
Registered and Grade		20.93

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

Total amount received by owners for reactors (sum of salvage, federal and state indemnity)	\$43,977.67
Average amount received per head by owners for Bang's reactors	\$ 105.72

#### INSHIPPED CATTLE

The cattle population of the state continues to increase and the number of herds, decrease. This is evidenced by the fact that on July 1, 1940, there were 17,364 herds of 206,187 cattle in the state. On June 30, 1941, there were 16,695 herds of 208,223 cattle in the state. This year 29,650 cattle were imported as compared with 26,040 during last year, an increase of 3,610 animals.

## TWENTY-SIXTH ANNUAL REPORT

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As noted previously, in March the Bureau of Animal Industry started to retest for Bang's disease a few loads of inshipped cattle from various states. At the end of April, 76 lots of 1,138 cattle had been blood tested with 46, or 4.04 per cent, giving a positive reaction. It was then thought best to retest all inshipped cattle. This has been done, with the result that, until the end of the fiscal year, 485 lots of 6,568 cattle were retested with 113 or 1.72 per cent giving a positive reaction to the test.

It will be noted that the reaction found reduced from 4.04 per cent the first month to 1.72 for the three months. Dealers and dairymen became more cautious in making purchases of cattle, knowing that unless a negative reaction to the test was given on arrival, the animals must go to immediate slaughter.

## RECORD OF BLOOD TEST ON INSHIPPED ANIMALS TO JULY 1, 1941

State of Origin	No. Lots Tested	No. Cattle Tested	No. Reactors Disclosed
Canada	51	568	7
Connecticut	1	5	..
Delaware	3	26	..
Georgia	1	2	..
Indiana	6	114	..
Maryland	63	374	10
Massachusetts	1	2	..
Michigan	35	750	9
Minnesota	1	5	..
Missouri	1	5	..
New York	106	951	30
North Carolina	1	9	..
Ohio	40	857	28
Pennsylvania	60	480	3
Rhode Island	1	12	..
South Carolina	1	17	..
Vermont	3	22	..
Virginia	5	62	..
Wisconsin	105	2,307	26
Totals	485	6,568	113 (1.72 per cent)

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, 1941.

Month	Number of Cattle Shipped into New Jersey	Number of Cattle Shipped out of New Jersey
July	3,585	52
August	2,947	56
September	3,685	65
October	2,968	91
November	2,437	110
December	2,164	88
January	2,278	43
February	1,931	46
March	1,181	58
April	1,984	49
May	2,382	100
June	2,108	34
Totals	29,650	792

Following is a comparison of the number of cattle shipped into New Jersey during the past five years:

1936-1937	1937-1938	1938-1939	1939-1940	1940-1941
28,472	27,338	25,968	26,040	29,650

IMPORT CATTLE RECEIVED FROM VARIOUS STATES AND CANADA  
FOR DAIRY AND BREEDING PURPOSES, 1940—1941

Origin	Totals
Athenia (Quarantine)	52
<b>Canada</b>	<b>1,949</b>
Connecticut	53
Delaware	60
Georgia	38
Illinois	43
Indiana	437
Iowa	12
Kansas	131
Lancaster Yards	588
Maine	54
Maryland	1,539
Massachusetts	30
Michigan	3,755
Minnesota	39
Mississippi	17
Missouri	179
Nebraska	8
New Hampshire	1
New York	3,732
North Carolina	9
Ohio	4,678
Oklahoma	11
Pennsylvania	2,041
Rhode Island	13
South Carolina	17
South Dakota	1
Tennessee	24
Texas	41
Vermont	76
Virginia	353
Washington	1
Wisconsin	9,668
<b>Totals</b>	<b>29,650</b>

### MASTITIS

During the past year several herds whose owners were willing to cooperate with the bureau in a control program for mastitis have been surveyed, chiefly to determine a method of examination which might be applied by the veterinary profession to dairy cattle throughout the state.

In cooperation with Dr. Ralph Little of the Rockefeller Institute for Medical Research, milk samples in duplicate were collected in sterile vials from two herds in the state. One set was consigned to the bureau laboratory through regular mail channels, the other set was brought to the Rockefeller Institute by Doctor Little. There he plated them to determine the bacteriological flora of each of the quarters sampled.

On receipt of the samples consigned to the bureau laboratory, the examination made by Doctor Little was duplicated, following which a comparison of results was made. These were in such close harmony that it is hoped that with additional equipment such as glassware and metal caps for the glass tubes, more work can be done by the bureau laboratory through the veterinary profession in assisting farmers to control mastitis in their herds.

The Bureau of Animal Industry plans to continue this work in a small way during the ensuing year with those cooperators who are interested in a profound program for mastitis control and prevention. To date the results obtained are very encouraging.

### PHYSICAL EXAMINATIONS OF DAIRY HERDS

Herds supplying New Jersey grades of milk were given physical examinations twice during the year, in the spring and again in the fall, and all animals condemned were removed from the herds for slaughter. Those isolated were re-examined before they were permitted to return to the milking line. Six hundred herds comprising 16,758 animals were examined under supervision of the Bureau of Animal Industry. Of these, 236 animals were condemned, 438 isolated, and 16,084 passed.

### GOATS

Testing for both tuberculosis and Bang's disease in herds of goats whose owners requested it was continued. Following is a summary of the number of herds and animals under supervision and those fully accredited free, by counties.

County	TUBERCULOSIS				BANG'S DISEASE			
	<i>Under Supervision</i>		<i>Fully Accredited</i>		<i>Under Supervision</i>		<i>Fully Accredited</i>	
	Herds	Animals	Herds	Animals	Herds	Animals	Herds	Animals
Atlantic	..	..	..	..	1	13	1	13
Bergen	12	85	6	49	10	92	6	43
Camden	2	17	..	..	5	40	2	23
Cumberland	3	61	3	61	2	48	1	47
Essex	2	3	2	3	3	19	3	19
Gloucester	3	15	..	..	6	24	3	11
Hunterdon	1	4	..	..	7	129	4	112
Mercer	..	..	..	..	2	7	1	6
Middlesex	1	6	..	..	3	29	2	25
Monmouth	5	34	..	..	9	70	2	20
Morris	25	274	10	219	50	351	19	237
Passaic	5	67	1	38	5	64	3	45
Salem	1	4	..	..	..	..	..	..
Somerset	5	29	1	4	7	30	2	12
Sussex	1	25	1	25	2	26	2	26
Union	3	17	1	10	7	53	2	14
Warren	2	13	..	..	3	10	2	9
State	71	654	25	409	122	1,005	55	662

All of the animals under supervision for tuberculosis were tuberculin tested once during the year.

## STATE DEPARTMENT OF AGRICULTURE

RECORD OF BLOOD TESTS MADE ON GOATS UNDER SUPERVISION  
FOR BANG'S DISEASE BY COUNTIES

July 1, 1940 to June 30, 1941

County	Number of Herds Tested	Number of Goats Tested
Atlantic	1	13
Bergen	14	209
Camden	5	87
Cumberland	2	89
Essex	3	28
Gloucester	7	50
Hunterdon	4	14
Middlesex	3	39
Monmouth	9	139
Morris	45	500
Passaic	6	118
Somerset	8	54
Sussex	2	40
Union	8	186
Warren	5	51
State	122	1,617

## LIVESTOCK AUCTION SALES MARKETS

Veterinary supervision of animals sold through the Harris Sales Company Auction Market was continued. The results of this work for the year follow.

Number of Cattle Checked	Number of Cattle Tuberculin Tested	Number of Cattle Ear Punched for Slaughter
49	Inshipped cattle 108 Local cattle 1,010	125
Number of Cattle Bled for Bang's Test	Number of Swine Treated	
	Single Double Total	
10 Inshipped cattle		
51 Local cattle	510 1,698	2,208

TOTAL SALES BY MONTHS OF LIVESTOCK SOLD AT THE  
JERSEY CITY STOCK YARDS

July 1, 1940 to June 30, 1941

Month	Calves	Sheep	Cows	Bulls	Hogs	Steers	Totals
July	6,472	17,882	3,834	1,547	903	450	31,088
August	7,343	12,353	4,330	1,355	1,128	2,068	28,577
September	2,356	9,272	4,776	1,464	884	1,834	20,586
October	9,817	11,056	5,992	1,035	602	3,981	32,483
November	5,813	10,983	6,178	666	217	2,338	26,195
December	2,709	11,442	4,896	346	387	2,354	22,134
January	8,630	2,163	6,975	1,077	562	1,441	20,848
February	8,019	10,294	5,695	681	259	1,520	26,468
March	3,313	661	6,023	776	460	942	12,175
April	4,422	2,495	6,183	1,044	1,582	843	16,569
May	5,930	3,199	4,861	1,410	1,355	948	17,703
June	4,371	8,793	1,410	523	567	572	16,236
Totals	69,195	100,593	61,153	11,924	8,906	19,291	271,062



## PULLORUM DISEASE CONTROL

A new departure in the program for the control of pullorum disease was inaugurated during the past year, namely, the approval of flock selecting and flock testing agents under the United States Poultry Improvement Plan.

Under this program, several flock testing agents were approved for conducting the pullorum tests of flocks of three of the hatcheries in the state. These agents conducted the field test for pullorum disease under the supervision of this bureau and sent to the laboratory a representative number of samples from the flocks subjected to field test. These samples consigned to the laboratory are subjected to the tube agglutination test. In this manner a close check has been kept over the work of flock testing agents.

It is planned during the coming season, to examine critically pullorum antigen produced by biologic houses and offered for sale to cooperators within the state. In this way the bureau seeks to determine worthy antigens for sale to flock testing agents. This should aid in decreasing the number of disagreements found between the field method and the laboratory or tube method of testing.

During the past year blood was drawn from 64,654 birds by bureau representatives and field tested; 501, or .77 per cent, gave a positive reaction. In addition, 4,285 birds were bled for the tube method test alone and 97, or 2.26 per cent, gave a positive reaction, making the total number of birds tested by bureau representatives by both field and tube method, 68,939 with 598 or .87 per cent giving a positive reaction.

Flock testing agents applied the field method to 157,578 birds; 2,094 or 1.33 per cent gave a positive reaction. Of this number, 9,471 were bled and the blood sent to the laboratory for check test. The number bled included all reactors and a certain percentage of those giving a negative reaction.

### FOWLS BLOOD-TESTED BY BUREAU REPRESENTATIVES FOR PULLORUM DISEASE

#### NUMBER AND PERCENTAGE REACTING, BY COUNTIES

July 1, 1940 to June 30, 1941

County	Number of Fowls Tested in Field	Number React- ing	Per Cent React- ing	Number Fowls Tested in Laboratory	Number React- ing	Per Cent React- ing	Total Fowls Tested	Total Fowls Re- acting	Per Cent Reacting
Atlantic	1,097	..	..	695	3	.43	1,792	3	.17
Bergen	3,083	10	.32	..	..	..	3,083	10	.32
Burlington	10,276	100	.97	..	..	..	10,276	100	.97
Essex	1,017	6	.59	..	..	..	1,017	6	.59
Gloucester	13,973	59	.42	370	24	6.49	14,343	83	.58
Hunterdon	1,304	6	.46	1,335	61	4.57	2,639	67	2.54
Mercer	7,629	80	1.05	1,533	9	.59	9,162	89	.97
Monmouth	5,504	6	.11	..	..	..	5,504	6	.11
Morris	6,437	60	.93	7	..	..	6,444	60	.93
Ocean	1,549	16	1.03	24	..	..	1,573	16	1.02
Passaic	807	18	2.23	..	..	..	807	18	2.23
Salem	3,049	61	2.00	..	..	..	3,049	61	2.00
Somerset	5,349	48	.90	..	..	..	5,349	48	.90
Sussex	2,568	7	.27	..	..	..	2,568	7	.27
Warren	1,012	24	2.37	321	..	..	1,333	24	1.80
State	64,654	501	.77	4,285	97	2.26	68,939	598	.87

#### POULTRY INSPECTION

A representative in Newark, maintained by the Bureau of Animal Industry, continued to inspect all poultry arriving in car and truck load lots at the poultry terminals. During the year, shipments totaled 2,476 car loads. As there are approximately 4,000 birds in a car, there were about 9,904,000 birds inspected. Of this number, about 67,106 birds were condemned as unfit for human consumption and were immediately destroyed.

The numbers of carlots of poultry released at the New Jersey terminals and New York City terminals during the past fiscal year were 2,476 and 3,770 respectively.

TWENTY-SIXTH ANNUAL REPORT

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CARLOTS OF POULTRY FROM VARIOUS STATES RELEASED  
 AT POULTRY TERMINALS IN NEW JERSEY

July 1, 1940 to June 30, 1941

Origin	Totals
Alabama	1
Connecticut	129
Delaware	496
Georgia	9
Indiana	207
Iowa	3
Kentucky	61
Maine	14
Maryland	102
Massachusetts	86
Mississippi	1
Missouri	1
Nebraska	1
New Hampshire	44
New Jersey	210
New York	192
North Carolina	112
Ohio	56
Pennsylvania	280
Rhode Island	51
South Carolina	4
South Dakota	64
Tennessee	109
Virginia	241
West Virginia	1
Washington, D.C.	1
Totals	2,476

POULTRY CONDEMNED AT POULTRY TERMINALS

July 1, 1940 to June 30, 1941

	Number of Birds Condemned	Approximate Weight in Pounds
1940		
July	4,837	19,000
August	3,488	13,400
September	4,863	19,500
October	4,631	18,524
November	6,748	50,446
December	6,159	40,502
1941		
January	4,849	19,396
February	6,333	25,232
March	5,187	20,800
April	6,494	25,680
May	6,763	25,000
June	6,754	25,000
Totals	67,106	302,480

## STATE DEPARTMENT OF AGRICULTURE

## SWINE SUPERVISION

HOGS INOCULATED AS A PROTECTION AGAINST  
CHOLERA INFECTION, BY MONTHS

July 1940 to June 1941

Vaccinations Made by Private Veterinarians

Month	Number of Hogs Given Single Treatment	Number of Hogs Given Double Treatment
July	110	732
August	2	473
September	..	602
October	23	869
November	6	589
December	..	608
January	..	174
February	..	141
March	..	492
April	..	405
May	..	544
June	..	806
Totals	141	6,435

HOGS INOCULATED AS A PROTECTION AGAINST  
CHOLERA INFECTION, BY COUNTIES

July 1940 to June 1941

Vaccinations Made by Private Veterinarians

County	Number of Hogs Given Single Treatment	Number of Hogs Given Double Treatment
Atlantic	18	784
Burlington	..	147
Camden	..	4
Cape May	52	1,223
Cumberland	..	66
Gloucester	6	65
Hunterdon	..	775
Mercer	..	145
Middlesex	..	384
Monmouth	65	2,044
Morris	..	555
Ocean	..	188
Somerset	..	46
Warren	..	9
State	141	6,435

## ANTHRAX

As is customary, the annual vaccination of horses and cattle in Salem County in cooperation with the county agricultural agent, was carried out this year. Protective inoculations of intradermal anthrax vaccine were given to 1,007 cows, 63 calves and 73 horses. No cases of anthrax were reported from that section.

One case of suspected anthrax was reported in a cow owned by Duncan Campbell, Skillman, in Montgomery Township, Somerset County. An examination of the ear of the animal was made in the bureau laboratory, and the diagnosis confirmed. In order to protect the remaining cattle on the premise, the bureau purchased and administered 36 doses of intradermal anthrax vaccine; no further losses were reported.

## SUPERVISION OF HORSES

### INFECTIOUS ABORTION IN MARES

An outbreak of infectious abortion in a band of 100 mares in Somerset County occurred during the past year. The owner of the farm is engaged in the production of pregnant mares' urine, from which the estrin is extracted by biologic houses.

Abortions started to occur in March and continued until thirty of the animals aborted their foals. The Department of Agriculture, in cooperation with a local veterinarian, made cultures of the genital organs of the brood mares on this farm and set up a program of control. Examination of cultures indicated infection from two organisms responsible for the breeding difficulty.

### ENCEPHALOMYELITIS

Because the incidence of encephalomyelitis in New Jersey for the past two years has decreased, only 80 horses were immunized as a protection against this disease, according to reports submitted by private veterinarians to this office.

The following summary indicates by counties the number of horses vaccinated during 1940-1941:

Camden	9
Cape May	2
Cumberland	18
Gloucester	7
Ocean	44
State	80

Three suspected cases were reported this year and the brain of one horse was submitted for laboratory test. It was forwarded to the Bureau of Animal Industry, Washington, D. C., but no evidence of the disease was found.

The other two cases were investigated by representatives of this bureau, but the symptoms were not entirely typical of encephalomyelitis, and the owners were not willing to have the horses killed and the heads brought in for brain examination. One of the two recovered; the other died, but the owner refused to permit removal of the head for examination.

## GLANDERS

Reports of 15 mallein tests for glanders were received at this office during the year. Three were made on horses to be brought into New Jersey and 12 on horses within the state which were to be exported.

Because of the absence of glanders within the state for many years, owners have not found it necessary to immunize their horses as a protection against this disease.

## STALLION LICENSES

During the 1941 calendar year to date, \$116 has been collected in fees for stallion licenses. The initial fee for a stallion license is \$5 and during the year \$10 has been collected from owners who had neglected to forward the 1940 fee; \$45 was collected for 9 initial licenses; \$60 for 30 renewals and \$1 for a transfer of license.

All stallions standing for public service in the state must be examined and licensed under the provisions of the law and such examinations are made at the owner's request.

The following table shows the registration by breeds as well as by counties:

## STALLIONS LICENSED, BY BREEDS

July 1, 1940 to June 30, 1941

Belgian (purebred)	3
Morgan (purebred)	3
Percheron (purebred)	8
Saddle (purebred)	4
Suffolk (purebred)	4
Thoroughbred (purebred)	11
Grades*	6
<b>Total</b>	<b>39</b>

\*Includes Arabian, Belgian, Palomina, Percheron and one Spanish breed.

## STALLIONS LICENSED, BY COUNTIES

July 1, 1940 to June 30, 1941

Burlington	3
Camden	2
Cumberland	1
Essex	3
Hunterdon	6
Mercer	3
Middlesex	1
Monmouth	7
Morris	2
Passaic	1
Salem	5
Somerset	2
Sussex	1
Warren	2
<b>State</b>	<b>39</b>

## WORK DONE IN THE BUREAU LABORATORY

In addition to conducting agglutination tests for Bang's disease on herds under supervision, on inshipped cattle, on calves in the experimental vaccination program and other samples submitted, as well as testing for pullorum disease, the following work was performed in the laboratory of the Bureau of Animal Industry during the year.

## MILK SERA TESTS

Samples received	100
Tests set	100
Tests read	100
Positive	13
Highly suspicious	1
Slightly suspicious	13
Negative	73

## BACTERIOLOGICAL, MICROSCOPIC AND POST-MORTEM EXAMINATION

Animal	No.	Material	Condition Suspected	Findings
Bovine	1	Semen	Pathogenic bacteria	Contaminated—no diagnosis
Bovine	1	Pharynx and surrounding glands	Causative organisms	<i>Actinobacillus lignieresii</i>
Avian	3	Pigeons	Cause of death	<i>Capillaria columbae</i>
Bovine	1	Ear	Anthrax	Negative
Bovine	1	Uterine exudate	<i>Trichomonas fetus</i>	Negative
Avian	1	Chicken	Fowl cholera	No diagnosis
Bovine	2	Cultures	Bacteria	Streptococci, Staphylococci, gram negative rods and mold
Avian	45	Pheasants	Tuberculosis	31 displayed gross lesions of tuberculosis, 14 no visible lesions.
Bovine	2	Feces	Parasites	Unable to demonstrate parasitic ova.
Bovine	160	Quarter milk samples	Routine examination	38 quarter samples streptococci agalactiae. 1 quarter sample micrococcus. 1 quarter sample diptheroids. 28 quarter samples increased number leucocytes. 15 quarter samples short chain streptococci and leucocytes. 14 quarter samples staphylococci and leucocytes. 1 quarter sample long chain streptococci and leucocytes. 62 quarter samples negative.
Porcine	2	Entire animal	Infectious enteritis	Infectious enteritis.
Avian	3	Entire bird	Laryngotracheitis	Infectious laryngotracheitis

Animal	No.	Material	Condition Suspected	Findings
Equine	4	Cultures from genital tract	Routine breeding examination	3 cultures no pathogenic organisms demonstrated. 1 culture one colony staphylococcus albus.
Bovine	18	Blood smears		Routine study of blood picture in tuberculosis
Bovine	3	Uterine exudate	Trichomoniasis	1 negative. 2 positive Trichomoniasis
Avian	2	Chicken	Coccidiosis	Positive coccidiosis
Bovine	1	Ear and spleen	Anthrax	Positive B. anthracis
Avian	4	Chickens	S. pullorum	Negative
Avian	1	Turkey	S. pullorum	Negative
Bovine	1	Uterus	Trichomoniasis	Positive Trichomoniasis
	1	Brucella abortus vaccine	Routine check	Brucella abortus recovered in pure culture. Growth fair
Bovine	1	Blood smear and lymph gland	Tuberculosis	Positive mycobacterium tuberculosis
	1	Pullorum antigen	Routine check	Unfit for use in pullorum testing
Porcine	1	Shoat	Swine erysipelas	Positive swine erysipelas
Bovine	303	772 Blood smears	Tuberculosis	109 showed typical blood picture of tuberculosis. Remainder negative
Porcine	1	Shoat	Cause of emaciation	Ascaris lumbricoides
Equine	9	18 cultures	Routine breeding examination	No pathogenic organisms, 2 cultures contaminated
Avian	4	Baby chicks	Cause of death	Infectious chick bronchitis
Avian	13	Baby chicks	S. pullorum	Unable to isolate S. pullorum
Bovine	3	Composite milk samples	Routine mastitis examination	Streptococci agalactiae
Avian	1	Leghorn hen	Cause of death	Ruptured oviduct and extensive peritonitis
Equine	18	Cultures	Routine breeding examination	5 cultures showing pseudomonas aeruginosa. 8 cultures showing Edward's type A streptococci. 5 cultures negative
Equine	13	26 cultures	Routine breeding examination on agar slants, Edward's broth and blood agar plates	6 cultures streptococcus pyogenes. 2 cultures many contaminants. 2 cultures Streptococcus pyogenes and E. coli. 10 cultures Staphylococcus aureus. 4 cultures no growth. 2 cultures E. coli
Equine	28	28 cultures	Pathogenic bacteria	3 cultures no growth. 25 cultures contaminated
Bovine	1	Tissue	Tuberculosis	Acid fast organisms were demonstrated



# *Report of the Bureau of Markets*

WARREN W. OLEY, *Chief*

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This nation faces profound changes in the agricultural industry. Changes have been continuous since the early days of the country when colonies produced nearly all their needs on their own nearby farm lands until now when certain areas produce special crops which are marketed in all states and many foreign countries. But the changes of today are due to world-wide influences of wars, disrupted foreign and domestic markets, changes from debtor to creditor status, as well as unusual production changes caused by new scientific developments.

Much has been written about surpluses. Three important conditions have caused them in recent years. These are favorable growing conditions and improved production methods; changes in consumer demand, due to living conditions and the philosophy of food requirements; and decline in general buying power, due to lessened earning power and loss of foreign markets.

Two years ago when the present war began, there was a short flurry of buying up household needs, especially some food products, in anticipation of a skyrocketing market. It was pointed out at that time that there was no need for such action. This country was not directly involved in the war and, basing judgments on records of the world war and food holdings, it was thought that there would be no reason for much higher prices on food for months or perhaps years to come. Certainly, based on the facts, there probably would be no reason unless this country became involved in the European conflict.

Two years have passed and only during the past few months has there been any out-of-the-ordinary price rises. These have been due to several causes and probably are justified. Labor conditions, because of intense preparedness moves and high industrial activity, have caused increased prices for everything the farmer has had to buy and for the labor he employs, and in addition have greatly increased purchasing power and consequent demand for more and better food. Since the passage of the Lend-Lease Act, some foods have been placed on the list of essential supplies for Britain and have created a much greater world demand.

Two years ago there were adequate supplies of important foods, such as cereals and meats, for months to come. As this fiscal year closes, the wheat surplus is the largest ever known. The total carry-over on July 1, 1941, was about 395,000,000 bushels. This, together with the anticipated harvest for 1941, makes a prospective total supply of 1,250,000,000 against domestic requirements of 650,000,000 bushels. The carry-over of corn into the next

crop will also be a new high record, probably well over 700,000,000 bushels. Some of the surplus corn undoubtedly will be used in the expected expansion in hog, dairy and poultry production.

It is hard for agricultural people in the East, who have to purchase large volumes of feedstuffs, to reconcile increasing prices for grains with the knowledge of large surpluses. The increases are undoubtedly due to governmental regulations. At the same time, the eastern farmer is requested by the government to expand his production of many other food essentials in order to produce a large supply which will tend to keep costs of food down. It is true that certain of these foods will be purchased under the Lend-Lease law for aid to warring countries. It has placed many farmers in a state of perplexity.

Labor prices in industry and in agriculture are constantly advancing. Purchasing power is greater than ever before, and still there is a movement to hold down food prices. This undoubtedly will permit more money to be spent for other purposes. Some of it will be paid in higher taxes; some may be loaned to the government. When there is a scarcity of commodities and plenty of money, inflation is almost inevitable. It is here that the New Jersey farmer is in a quandary. How shall he protect his own business?

Few of the questions that arise can be solved through the Bureau of Markets. Duties of the bureau are specific. Aside from purely regulatory work, the Bureau of Markets aims to aid farmers in obtaining the best prices possible under existing conditions for the crops grown on their farms. Economic laws are often shoved into the background in times of emergency. Economics of the old school are not always the practical application for rules of today.

Probably the bureau has cooperated more closely with other agricultural agencies, both public and private, than in any other year. Representatives of this bureau have been placed on committees of many agricultural groups. Bureau members have cooperated with the various departments of the State College of Agriculture; with commodity groups, such as the State Horticultural Society, State Poultry Association and State Dairy Council; with the Farm Bureau, and other organizations.

The organization of the State Marketing Council has greatly aided in coordinating all lines of marketing work in public agricultural agencies. This council formed in March 1940, is made up of a representative of the College of Agriculture, the Extension Division, the county agents, home demonstration agents, club workers and vocational teachers in agriculture, and the Bureau of Markets. Meetings have been held monthly and the marketing activities of each group discussed and coordinated. This bureau has taken a leading part in developing marketing programs of the council members.

The report of the bureau covers the past year's work in the various projects, and incidental accomplishments. It also supplements reports of former years.

## CROPS AND MARKETS INFORMATION SERVICE

One of the essentials of any constructive and sound marketing program is a practical and accurate crops and markets news service. In analyzing marketing problems and attempting to arrive at practical solutions, it is first necessary to turn to facts and figures for a proper basis upon which to work. Statistical information, together with adequate interpretations, form the basis of an efficient market news service, and it is this statistical material that is used in discovering various marketing problems and arriving at sound conclusions.

The crops and markets news service of the Bureau of Markets has three general objectives: first, to supply the farmers of this state with timely, unbiased and accurate information on current supplies, existing demand and prevailing prices of the various commodities at leading markets; second, to furnish the growers of New Jersey with information concerning conditions in competing areas; and third, to supply to the produce trade, information of value on crop movement and supplies, so that they may make their purchases within this state in season.

## DAILY MARKET REPORTING

Several years ago, a cooperative agreement was made with the United States Department of Agriculture whereby the collection of daily market information would be carried on by its representatives at leading markets, with special attention being given to New Jersey fruits and vegetables in season. This agreement was continued during the past fiscal year. It represents the most economical and practical method of securing daily price quotations, prevents duplication of efforts, and gives this bureau access to the widespread facilities of the federal Department of Agriculture.

No written daily reports are issued by this bureau, for the distribution is likewise taken care of by the Agricultural Marketing Service of the federal department. Most of the dissemination is carried on through the daily press.

Special reports are released to the press and the radio networks early each day, and in addition this office is supplied with a report for use by the produce auction markets of the state. These early morning data have been of special benefit to the growers of this state, for in most instances farmers know, before starting their day's operations, what the market situation is at New York City. This large terminal market largely controls the price movement at shipping point, not only in New Jersey, but also in practically all parts of the country.

Information is obtained on daily truck receipts of fruits and vegetables at Philadelphia, New Jersey being the leading source of supplies by truck at that large market.

## WEEKLY MARKET SUMMARIES

The largest portion of service is devoted to issuing weekly summaries on crop and market conditions. These reports go a step further than the usual daily market report, in that they are an attempt to analyze the situation, and give some of the reasons for price changes and probable time of crop movement from competing areas.

The report entitled "Market Conditions" is the chief weekly summary published. This report is limited to one crop an issue, and more detailed information is given on this particular crop than would be possible by including several crops in a single report. During the past year the reports issued were as follows: White potatoes, 39; apples, 37; sweet potatoes, 29; peaches, 14; asparagus, 12; strawberries, 10; tomatoes, 10; lettuce, 9; onions, 8; and spinach, 8. This makes a total of 176 reports.

Most of the information contained in these reports was secured through correspondence or personal contact. In order to secure some of the information from competing areas, it was necessary to reach commercial sources, in addition to state and government officials. Cooperation on the part of growers and shippers in this and other states was excellent.

Apple growers with a comparatively large crop found it difficult to market their harvest successfully, because of the loss of export outlets. Sweet potato prices were relatively good at harvesting time, but demand became slow after the crop went into storage and winter prices were disappointing to many growers. Peach growers produced a very large crop which sold at rather low prices, because of heavy competition from other areas, particularly Virginia and Pennsylvania. The onion growers reported a successful season, with a crop of excellent quality and comparatively light competition from other areas.

Dry weather damaged the 1941 strawberry crop considerably, and prices and demand for the crop were disappointing. Asparagus sold well, with the season opening early this past spring. Lettuce growers were fairly successful with their spring crop, but the fall crop of 1940 was marketed under difficulties, because of severe competition from competing sections. There has been a decided shift in varieties of lettuce grown in this state during the past few seasons. During the past season, most of the acreage has been devoted to the Iceberg type, as the demand for the Boston type is no longer satisfactory. The summary of white potato conditions is treated separately in this report.

The "Weekly Market Review" was issued regularly during the year. It presents a digest of prevailing prices of New Jersey farm products at eastern markets. The report contains prices on grains, foodstuffs, hay, straw, eggs, live and dressed poultry, livestock, fruits and vegetables. The quotations cover sales at important terminal markets and also at the egg and poultry auction markets of this state. This past year livestock sales at the Flemington and the newly-formed Hackettstown auction markets were carried for the first time.

Requests for this report continue to increase weekly, for growers find that it is concise and complete for egg and poultry, and other quotations. At the close of the year the report was going to approximately 1,400 farmers, most of whom were poultry and dairy producers.

"Auction News" is a regular service of this bureau, although seasonal in nature. This report is issued during the active marketing season for fruits and vegetables, from April to mid-October. Its purpose is to advertise the produce auction markets of the state to buyers and potential buyers. In addition to the mailing list of buyers, which totaled approximately 800 names at the close of the year, this report is also sent to directors of the various auction markets, in order that they may be informed as to the general progress of this type of marketing. As in the past, mailing charges were paid by the auction markets.

Another seasonal report, now a regular part of the service, is entitled "NEW JERSEY FRESH PRODUCE." This is issued for the benefit of the growers of northern New Jersey who patronize the Newark and Paterson farmers' markets. The mailing list consists chiefly of produce buyers in the metropolitan section of north Jersey, and its object is to keep this buying trade informed on the leading items moving through these large outlets during the active marketing season. Mailing lists are kept up-to-date through the courtesy of the officials of both markets. The total list amounted to approximately 1,500 names at the close of the fiscal year.

A year ago, a new report was issued, which is called "NEW JERSEY TRUCK CROP NEWS." It is prepared in cooperation with the Agricultural Marketing Service of the United States Department of Agriculture. The object of this report is to keep the truck farmers of the state informed as to the progress of the fruit and vegetable crops in various sections of this state, and also in competing areas of the country. The report is mailed under the franking privilege of the United States Department of Agriculture, with the material prepared by members of this bureau and the Agricultural Marketing Service. "NEW JERSEY TRUCK CROP NEWS" is issued weekly, and is going to approximately 1,400 growers and buyers in this state.

## SPECIAL SERVICES

### AUCTION MARKET QUOTATIONS

Each year during the active marketing and shipping season, this bureau is asked to obtain current quotations for leading fruits and vegetables at New York City, for the produce auction markets of the state. During the past year, this service was operated from May 1 to killing frost, which occurred around October 15.

In order to facilitate the dissemination of this information, the typewriter was again used. Three of the leading auction markets and the county agricultural agent's office at Bridgeton were connected in the service. Daily information was secured from the cooperative employee at New York



at 8:00 A. M. and immediately relayed by teletypewriter to the points hooked up in the service.

The county agent's office uses the information for distribution to growers in his territory, and managers of the various auctions were kept informed of conditions on the biggest terminal markets of the country, which always have a tremendous influence on prices paid at shipping point.

#### ANNUAL POTATO SUMMARY

The chief characteristics of the 1940 potato deal in New Jersey were: First, the delayed planting period, because of cold and rainy weather; second, the increased acreage; third, favorable growing conditions, which resulted in large yields of exceptionally good quality; fourth, heavier competition and restricted outlets; fifth, a long and draggy deal, accompanied by low prices, both at shipping point and terminal markets; sixth, the use of the truck as the leading means of distributing the crop; and seventh, the need of assistance to the growers of government relief purchases by the Surplus Marketing Administration.

In spite of the fact that the seed went into the ground about ten days to two weeks later than normal, the acreage grown in 1940 was much larger than the preceding year. Official estimates by the Federal-State Crop Reporting Service placed the total plantings of potatoes in New Jersey at 58,000 acres, compared with 55,000 acres in 1939, and 49,000 acres as the ten-year average plantings, 1930-1939. The increase over 1939 amounted to 5 per cent, and was 20 per cent above the ten-year average.

Yields per acre were exceptionally good, with the average for the entire state being reported at 175 bushels, compared with 136 bushels in 1939, and 167 bushels as the ten-year average. Many of the larger growers, who are strictly commercial potato producers, exceeded this state average by a wide margin, with yields as high as 250 bushels per acre.

This combination of larger plantings and high yields naturally resulted in a much larger production than for several seasons. The estimated total crop was 10,150,000 bushels, compared with 7,430,000 bushels the previous season, and 8,262,000 bushels as the ten-year average. The early commercial crop, which is that part of the total crop grown for market purposes, amounted to 8,820,000 bushels, compared with 6,398,000 bushels the previous season, and 7,010,000 bushels as the ten-year average.

Growing conditions in areas south of New Jersey were unfavorable up to the time Virginia had potatoes ready for market, and these conditions resulted in shipping periods later than usual for many states, with resultant over-lapping of deals. The condition of the market, at the time New Jersey was ready to open its harvesting season, was dull and prices were low. Supplies were heavy and competition was keen in all sections of the country.

Light digging for local markets began around the middle of July, but it was not until the last week of the month that New Jersey potatoes were moved in volume. Due to the dull condition of the market, the volume

shipped during August was far below normal, and insufficient to keep the large crop in this state moving satisfactorily. The period of heaviest movement came around the middle of September, and shipments continued throughout that month and also October. Holdings on November 1, 1940, were probably the heaviest on record for this state, with many dealers reporting that at least 15 per cent of the crop remained to be sold at that time.

Distribution this past season was largely the same as during the previous two deals. The recent increase in home-grown potatoes in the Middle West has removed that section from the list of states formerly receiving the bulk of New Jersey potatoes during August and early September. Early in the deal, New England, the State of New York and Pennsylvania formed the area receiving the largest portion of potatoes from this state. After Labor Day, it is usually necessary to rely more heavily on the southern states; from then until the end of the deal, that part of the country took most of the offerings. The export demand was fairly good, and Cuba and Puerto Rico again took liberal supplies of potatoes from New Jersey. Ohio outlets were slightly better than the preceding season, because the home-grown crop of that state failed to equal the large production of 1939.

Truck shipments accounted for about 85 per cent of the total movement during the active shipping season, according to reports obtained from leading dealers. Rail movement, including boat and relief purchases, made up the remaining 15 per cent. Actual movement by rail amounted to only 1,357 cars, while boat shipments totaled 1,606 cars. Relief purchases totaled 1,168 cars.

## DAIRY PRODUCTS MARKETING

The objective of the dairy products marketing project is to aid in the development of a practical milk marketing program for the state. The major activity of the program is 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 an effort to recognize and identify milk of definite quality standards. Other activities include cooperation with the Milk Control Board, the New Jersey Dairymen's Council, the New Jersey Junior Breeders' Fund and other agencies, as well as the collection and dissemination of information of value to the dairy farmers of New Jersey.

The fiscal year ending June 30, 1941, provided the highest income to dairy farmers in New Jersey since 1936-1937. Figures taken from the reports of the Milk Control Board show a net weighted average return to all producers for all milk sold in the state of \$2.81 per hundredweight for the year as compared with \$2.61 for the previous year: a clear gain of 20 cents per hundredweight and the same net weighted average price as the fiscal year 1936-1937. This favorable situation, the trend to which developed in the

late fall and winter and continued until the end of the year, is undoubtedly due to increased buying power and subsequent increased consumption.

This enviable position enjoyed by New Jersey dairymen is due entirely to the fact that New Jersey is a deficiency production state and, for this reason, a large percentage of market milk is sold as Class I. When milk control was established in 1933, only about 47 per cent of the available supply was produced within the limits of the state; at the present time, approximately 80 per cent of the amount needed is available.

However, the production of milk on New Jersey farms is increasing much faster than the demand of consumers. This uncontrolled increase in production will soon wipe out the advantage that New Jersey producers have enjoyed for so many years.

Another cloud on the dairymen's horizon is the tendency of the larger municipalities in the New York metropolitan area to follow New York City's example of abolishing grades for milk, substituting a minimum "inspection level," below which sanitary standards may not drop, and leaving the quality standards above the minimum up to the distributors of the product. This, if adopted by a large number of municipalities, would deal a severe blow to the producers of Grade A milk, as the premiums of these producers exceeded a million dollars during the past fiscal year. Every effort is being made by the Bureau of Markets in conjunction with the New Jersey Official Grade Milk Dealers' Association to retain this Grade A market. The substitution of another term to designate high quality milk may be necessary.

The problem of out-of-state milk purchased by dealers within the state at a price much below that established by the New Jersey Milk Control Board is still a serious one. Although the administrators of the New York City Marketing Agreement have cooperated fully with New Jersey authorities in an effort to abate this practice, much low price milk is available from territories not covered by the marketing agreement. A determined effort to secure a marketing agreement for the metropolitan area of New Jersey progressed favorably during the year, and if a number of technical difficulties of administration can be solved, an agreement may be formulated that, to a great extent, would ease the pressure of this influx of out-of-state milk.

The formulation of a long-time plan to coordinate the needs of, and bring equal benefits to, the producer, distributor and consumer remains the most pressing problem of the dairy industry. Equally needed is a co-ordination of the supervisory forces of the state and municipalities so that effort along these lines will not be wasted, and regulations will be standardized to enable the producer and distributor to cut costs entailed in an effort to meet differing production requirements.

#### NEW JERSEY OFFICIAL GRADES

The New Jersey official grades continued to be the principal project of the milk marketing work. There are three grades, "New Jersey Grade A



Raw," "New Jersey Grade A Pasteurized" and "New Jersey Grade B Pasteurized." Dealers and producers concerned in the production and distribution of milk under the New Jersey grades are quite evenly distributed in all the milk producing counties of the state. The bulk of the milk is produced in Hunterdon, Burlington, Warren, Salem and Somerset counties. The heaviest distribution is in the northern metropolitan area, although southern New Jersey and seashore points are using a greater volume than in previous years. All the milk used at Fort Dix during the past year was New Jersey Grade A Pasteurized.

Use of the New Jersey grades is elective. They are used by the dealers who choose to have their supply under the supervision which grading entails, and who agree to pay an inspection fee covering not only their own plant but the producer inspection. These fees vary from 35 to 50 cents per 1,000 quarts daily produced, dependent upon volume. They are paid entirely by dealers and involve no fee expense to the producers of this graded milk.

The volume of milk sold under the New Jersey official grades, as the year closes, is 96,420 quarts daily, the highest amount ever supervised by the Bureau of Markets, and a 75 per cent increase in volume over the preceding year. There are now 53 dealers processing these 96,420 quarts of milk. Of these 53 dealers, 18 sell raw milk only, 22 sell pasteurized milk only, and 13 distribute both raw and pasteurized milk. The volume of milk distributed daily as Grade A Raw is 15,793 quarts, or 16.38 per cent of the total under supervision: 42,146 quarts, or 43.71 per cent, is New Jersey Grade A Pasteurized; and 38,481 quarts, or 39.91 per cent, is New Jersey Grade B Pasteurized. The number of producers under supervision on June 30, 1941, was 380.

The 53 dealers processing New Jersey official grade milk sell, in turn, to 245 sub-dealers, the milk being distributed in 214 municipalities of the state.

One of the important functions of the New Jersey official grade inspection is the physical examination of cattle to eliminate diseased cows. This work is done by private veterinarians designated by the Bureau of Animal Industry, the work being supervised by a representative of the Bureau of Markets and paid for by fees collected from the New Jersey official grade dealers. During the fiscal year 1940-1941, this involved the inspection of 18,934 cattle.

The accompanying table indicates the physical examination of cattle, by counties, and the results of those examinations.

PHYSICAL EXAMINATION OF CATTLE, FISCAL YEAR 1940-1941  
BY COUNTIES

County	Number of Herd Examinations	Number of Animal Examinations	Number of Animals Passed	Number of Animals Isolated	Number of Animals Condemned
Bergen	6	132	130	2	...
Burlington	202	3,560	3,448	80	32
Cumberland	36	488	476	12	...
Essex	4	238	232	6	...
Hunterdon	140	4,062	3,910	110	42
Mercer	12	274	260	10	4
Middlesex	4	220	212	6	2
Monmouth	8	200	200	...	...
Morris	108	3,814	3,714	86	14
Salem	88	1,608	1,542	50	16
Somerset	56	2,074	1,980	46	48
Sussex	8	238	236	2	...
Union	4	140	136	2	2
Warren	84	1,886	1,830	48	8
Totals	760	18,934	18,306	460	168

SUMMARY

Number of herds examined .....	760
Number of herds in which all animals were passed .....	436—57.37%
Number of herds in which animals were excepted .....	324—42.63%
Number of animals passed .....	18,306—96.68%
Number of animals isolated .....	460—2.43%
Number of animals condemned .....	168—.89%

One of the requirements of the New Jersey official grades is the physical examination twice each year of all employees on farms producing New Jersey Grade A Raw milk, and of employees of bottling plants handling New Jersey Grade A Raw milk, New Jersey Grade A Pasteurized milk and New Jersey Grade B Pasteurized milk. During the past year, this involved the examination of 503 individuals, and medical certificates containing the records of these examinations are now on file in the Department of Agriculture. Each employee was required to be examined by a physician twice during the year, and pronounced a safe individual to handle milk. When these requirements were met, 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.

During the past fiscal year, 2,481 samples of milk were collected for examination and analysis. With few exceptions, bacteria counts were maintained well below the standards promulgated for the New Jersey official grades. All counts were not only reported numerically, but the types of organisms were identified and so served as clues to factors contributing to high counts. Consequently, indications of trouble were readily traced and

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conditions immediately corrected. Counts on both New Jersey Grade A and New Jersey Grade B Pasteurized milk were also made before pasteurization in order that the bureau might know that conditions surrounding production of milk were practically the same as for New Jersey Grade A Raw. The average butterfat content of 2,373 samples of New Jersey Grade A milk (both raw and pasteurized) collected was 4.41 per cent, while the average butterfat content of 108 samples of New Jersey Grade B milk was 3.74 per cent.

All of the field work of the New Jersey official grades project is self-supporting. Fees are based on a sliding scale according to the amount of milk processed by the distributor. The income to the Bureau of Markets from fees averaged \$34.65 daily.

In order that a comparison of work accomplished by this project may be secured, a summary of progress is reported, limited to the past five years to conserve space.

	1936-37	1937-38*	1938-39	1939-40	1940-41
Number of cooperating dealers	60	62	56	55	53
Number of producers	197	184	179	170	380
Daily production of milk	52,128	55,848	55,045	55,069	96,420
Number of cows examined semi-annually	5,660	5,582	5,553	5,650	9,467
Number of employees examined semi-annually	550	525	500	500	503
Samples collected for analysis	1,838	1,816	1,874	1,739	2,481
Butterfat average	4.06%	4.10%	4.16%	4.19%	4.20%*
Average daily fee	\$22.34	\$22.91	\$25.21	\$22.36	\$34.65

\*Includes both A and B

The close of the fiscal year, June 30, 1941, also marks the completion of the tenth year of the New Jersey official grade program. The large increase in the amount of milk under supervision, and also the United States Army's recognition of the inspection service, indicated by its use at Fort Dix, are definite examples of the merits of this project.

## ADVERTISING PROGRAM

A major project continued throughout the year was the advertising program carried on in cooperation with the New Jersey Council and the New Jersey Official Grade Milk Dealers' Association.

The plan was financed through the New Jersey Farm Products Publicity Fund, the producer allowing the dealer to deduct 1 cent per 40-quart can for this advertising campaign; to this the dealer added another 1 cent per can, producer-dealers paying 2 cents per can. To the money thus raised, the New Jersey Council made generous contributions, the campaign being directed by a committee consisting of three dealers and three producers, with the supervisor of dairy products standardization of the Bureau of Markets having general supervision over the whole project.

This advertising program was very successful. Fourteen dealers participated, with their producers, and a newspaper campaign was carried on, concentrated in the metropolitan area of New Jersey, in 10 representative newspapers. A total of 48,060 newspaper lines was used. In addition, a "spot" campaign, in which the radio was also used, was carried on in Atlantic City in cooperation with one dealer, the only one cooperating with the bureau in that city. This campaign was planned exclusively by a commercial advertising agency employed by the dealer but overseen by the supervisor of dairy products standardization of the Bureau of Markets.

Another feature of the advertising program was a moving picture entitled "The Story of Better Milk" photographed in color, with sound, and depicting stages through which the official grade milk passes from farm to consumer. This film was very well received, having been shown 78 times with 8,508 people present. Showings were before parent-teacher organizations, service clubs, women's clubs, schools, industrial recreation councils and similar organizations. The cost of this film, together with projection apparatus, was defrayed from the amount contributed to the New Jersey Farm Products Publicity Fund.

The amount of money handled by the Fund during the year was \$7,363.47. The bureau wishes to acknowledge, with appreciation, the assistance of the New Jersey Council in advertising this grade of milk.

#### HACKETTSTOWN LIVESTOCK AUCTION MARKET

Another project assigned to the supervisor of dairy products standardization was to oversee the construction and operation of the Hackettstown Livestock Auction Market.

Conceived and sponsored by the Hackettstown Chamber of Commerce, this project was incorporated, with aid from this office, in August 1940, as "The Livestock Cooperative Auction Market Association of North Jersey, Inc." Plans were made immediately for obtaining the necessary property and the construction of a modern building for the handling of a livestock auction. Weekly meetings were held from August until the opening of the auction. Visits were made by a building committee to two of the outstanding auctions in Pennsylvania. The Hackettstown Chamber of Commerce donated the land on which the building was erected. Financing of the building was entirely by the issuance of five-year certificates of indebtedness covering money advanced, and the entire cost of the building was financed when it was opened. The building erected was 84 feet long by 45 feet wide, fitted with pens, and equipped with sales ring, scales, office and restaurant. The first sale was held on Tuesday, January 28, with the roads covered with a coat of ice. Nevertheless, a successful sale was conducted, the commissions more than covering expenses, as they have every sale since then. Members of the board of directors alternate in acting as market master, with an office manager responsible for the accounting.

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The 22 sales held in the period January 28 to June 30, 1941, handled 5,785 head of livestock with gross sales amounting to \$134,800.50.

In April 1941, it was quite apparent that the building was inadequate to handle the volume available, and a 49-foot addition was added to the sales pens. This was entirely financed from sales commissions.

The accompanying table gives the sales, by months, of the various classes of livestock handled by the Hackettstown auction.

SALES, BY MONTHS, HACKETTSTOWN LIVESTOCK AUCTION MARKET  
1941

	January*		February		March	
Calves	54	\$ 654.93	613	\$ 5,663.06	763	\$ 6,139.85
Cows	21	1,351.11	248	14,996.88	279	17,342.77
Goats	....	.....	26	70.40	3	10.50
Hogs	13	256.25	176	2,122.28	97	1,203.39
Sheep	....	.....	3	17.25	14	64.25
Totals	88	\$ 2,262.29	1,066	\$22,869.87	1,156	\$24,760.76

*One sale	April		May		June	
Boars	1	\$ 8.00	2	\$ 16.85	1	\$ 2.76
Bulls	13	1,372.88	19	2,049.89	16	1,699.62
Calves	970	7,942.79	630	7,143.32	718	7,146.80
Cows	318	19,209.03	272	18,922.12	244	16,548.40
Goats	13	29.25	11	31.00	3	4.00
Heifers	....	.....	1	21.60	....	.....
Hogs	63	869.14	45	904.66	22	377.11
Lambs	....	.....	6	28.50	2	10.00
Pigs	50	191.75	2	7.50	10	47.00
Sheep	27	174.75	7	32.25	7	24.50
Steers	....	.....	....	.....	2	92.11
Totals	1,455	\$29,797.59	995	\$29,157.69	1,025	\$25,952.30

## SPECIAL SERVICES

## NEW JERSEY DAIRYMEN'S COUNCIL

The Bureau of Markets continued to cooperate with the New Jersey Dairymen's Council and members of the staff of the bureau appeared on the program throughout the year.

## NEW JERSEY JUNIOR BREEDERS' FUND

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 to carry out certain field activities necessary in the administration of the Fund. This necessitated eight farm visits during the year and attendance at seven fairs in various parts of the state. The supervisor also served as a committee member with representatives of the Agricultural College and Extension Service to determine the awards for meritorious records presented by the trustees of the Fund during Agricultural Week.



## FRUIT AND VEGETABLE MARKETING

Eastern fruit and vegetable growers are still adjusting themselves to the great change in marketing caused by improved rail transportation, the advent of the motor truck, and a national highway system. The vast expansion of agriculture and the trend to commercial farming has created a competitive situation hard to overcome. It was not until about 1900 that western states began to ship large quantities of fruits and vegetables to eastern markets.

Eastern farmers have felt the effect of these changes in an ever growing degree. They have changed their methods of farming and crops grown to meet the need. They also have seen the desirability of organizing together to protect their interests. In New Jersey, cooperatives have been of great assistance; in marketing, auctions have played an important part. Through the auction associations, Garden State farmers have made it unnecessary to ship all the products of their farms to the great primary markets for redistribution. Auctions have brought the smaller city buyers to the producing areas for their supplies.

Undoubtedly there is considerable duplication in marketing facilities. This has caused some competition that has forced prices downward. Poor market facilities in the larger cities have greatly increased the cost of distribution. The bureau has cooperated with other groups to aid in correcting such conditions.

Standardization and inspection of fruits and vegetables for fresh market sales have not been as popular in New Jersey as in many states. This is due largely to the fact that New Jersey farmers produce mostly for local or nearby marketing within truck hauling distances. Much trading is done by personal contact, buyers making personal inspection of produce purchased. However, the Department of Agriculture has promulgated standards for most fruits and vegetables grown in the state. These standards are used quite extensively when produce is shipped to markets beyond the Philadelphia and New York areas. Also, more and more, growers are realizing the need for uniformity in packing produce for market. A standard pack of uniform quality generally brings increased returns and minimizes disputes between buyer and seller. It also serves to meet the competition from distant states where standard packs are universally used because of necessity.

Cooperative marketing of farm produce is becoming increasingly popular. In the United States over two billion dollars' worth of products are sold each year by about 2,000,000 farmer members. New Jersey farmers sell large quantities of produce through such farmer cooperative organizations. Lower costs, higher quality, and better services are economic functions of such organizations.

## INSPECTION WORK

An important activity of the bureau has been that of certifying the quality and grade of fresh produce for market, and of growers' loads of

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vegetables for processing plants. Although the loss of European markets reduced the amount of service rendered in some commodities, the loss was more than made up in the domestic market and cannery deals.

## CERTIFYING FRESH PRODUCE

## APPLES

With European markets generally closed to American apples, only a few lots of New Jersey apples were exported during the 1940 season. This condition was unfavorable to growers and shippers. A large crop of fruit was harvested and cold storages were mostly filled.

Certification work was largely limited to inspections of lots purchased by the Surplus Marketing Administration for relief purposes and to "condition" inspections in cold storages. Quality of fruit and keeping quality were generally good. Storage holdings remained heavy until late spring.

## ASPARAGUS

The market on fresh crated asparagus was generally good throughout the season. The Swedesboro and Bridgeton areas were the chief shipping centers. Due to a shortage of labor, some members of the Bridgeton and Swedesboro associations were afraid they would not be able to pack their asparagus to conform to specifications that permit the use of the "tags" bearing the state insignia and either contracted to canners or packed without attempting the use of "tags" in the individual bunches. However, a number of growers made special efforts to comply with regulations and with beneficial results. Growers were generally pleased with prices received throughout the season and continued to pack as long as the quality and prices permitted. One of the department's licensed inspectors was assigned to this work during May and June.

Sales of asparagus by the Garden State Asparagus Growers' Association at Bridgeton, based on reported sales to growers of "tags" to be inserted in the bunches and crate labels used, were approximately 129,000 bunches of the Colossal grade and 168,000 bunches of Extra Fancy.

## WHITE POTATOES

Inspection work on potatoes was greater than during the 1939 season. The percentage of the crop inspected was too small to determine accurately the quality of the crop as a whole. However, it was apparent from inspection made that the crop was of good quality and size.

Prices during the harvest season were generally below \$1.00 per 100 pound sack. Request was made to the government agency to begin relief purchases. The Surplus Marketing Administration began purchases in August and continued throughout the harvest season. The federal agency purchased a total of 1,167 cars or carlot equivalent during the season.

More potatoes were stored than in previous seasons. Some farmers have their own storages while others use the facilities of dealers, with a few

lots being placed in cold storages. The practice of storing some of the crop is becoming more popular. Late fall and winter markets are usually better than during July, August and early September when temperatures are generally quite high and potato consumption is low.

All purchases made by the SMA were certified. In addition, more commercial shipments were certified than during the past two seasons. Requests for inspection continued until the latter part of November.

The SMA purchased 201 cars of apples, 1,167 cars of potatoes, 26 cars of peaches, 565 bushels of beets, 35,109 climax baskets of tomatoes, 135 bushels of carrots, 2,241 bushels of corn, and 2,611 bushels of snap beans in New Jersey during the year.

The following table shows the ten-year record of shipping point inspection by products.

TEN-YEAR RECORD OF SHIPPING POINT INSPECTIONS BY PRODUCTS

Product	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38	1938-39	1939-40	1940-41
Apples	168	230	91	94	333	160	391	579	672**	611
Beans	33	40	162	91	17	43	3	1	1	...
Cabbage	..	..	..	..	1	..	...	...	...	...
Celery	..	1	..	..	..	..	...	...	...	...
Corn	..	..	1	..	..	..	...	...	...	...
Cucumbers	..	..	..	..	1	..	...	...	...	...
Lima beans	..	..	75	1	..	3	...	...	...	...
Mixed fruit	11	9	1	..	..	..	...	...	...	...
Onions	16	30	223	36	55	42	61	9	3	8
Peaches	24	2	2	..	..	1	...	...	49	26
Pears	14	15	5	..	16	..	1	2	...	...
Peas	..	1	20	2	2	..	...	...	...	...
Peppers	..	..	18	3	..	..	...	...	...	...
Potatoes	217	10	20	40	121	323	5,180	1,972	397	2,264
Spinach	..	..	1	..	..	..	...	1	6	3
Strawberries	23	152	125	1	1	1	...	...	...	...
Sweet potatoes	6	..	..	..	..	..	45	...	62	9
Totals	512	490	744	268*	547*	573*	5,681*	2,564*	1,190*	2,921*

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

\*\*Includes 101 certificates issued on "condition only" on apples in cold storages.

### CANNERY CROPS INSPECTION

#### ASPARAGUS

The 1941 season for asparagus started somewhat in advance of last year because weather conditions were very favorable to early growth, and the processors began receiving asparagus for canning on April 21.

The quality of the asparagus received during the first week of the season was seriously affected by asparagus beetles and beetle eggs; however, this was quickly overcome by grower control methods, and for the remainder of the season the quality was very good except for a few short periods of exceptionally warm and dry weather, which caused considerable seeding and branching of tips, as well as cutting down the volume of deliveries.



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There were six processors using inspection on asparagus this year, which is double the number using the service in previous years. To carry out this work properly it was necessary, for the greater part of the season, to have 11 inspectors at the 9 receiving stations.

In order to get enough asparagus to meet the tonnage desired, some of the canners purchased it on the open markets during the latter part of the season when prices for fresh crated asparagus had declined enough to make it practicable.

With the exception of one, all canneries continued the receipt of asparagus through June and into July.

Because four different methods of purchasing asparagus were used by the six processors, it is necessary to report the results in four separate tables. Tables A, B, C and D, showing the results of the 1941 season, are as follows.

TABLE A\*

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
April 26	927	23	42	2	9	24
May 3	2,218	24	40	2	9	25
10	2,575	30	36	2	7	25
17	2,314	26	42	2	6	24
24	2,448	25	42	3	6	24
31	2,434	25	40	3	5	27
June 7	2,254	20	44	4	5	27
14	2,255	18	45	4	7	26
21	2,217	19	45	4	5	27
28	2,081	18	43	4	8	27
July 5	1,076	15	37	2	17	29
12	102	14	49	3	8	26
Season	22,901	22	42	3	7	26

\*Three canneries are included in this table. Official New Jersey Grades were used, and total volume represented was 21,010,520 pounds.

TABLE B\*

Week Ending	Lots Inspected	N. J. No. 1 Large Per Cent	Culls Per Cent	Butts Per Cent
May 10	258	72	4	24
17	343	76	1	23
24	378	76	2	22
31	344	75	2	23
June 7	307	74	1	25
14	313	74	1	25
21	351	74	2	24
28	327	71	4	25
July 5	73	69	5	26
Season	2,694	73	3	24

\*Table B shows the result at one cannery at which a special canner-grower contract was the basis for grading. Total volume represented was 2,139,480 pounds.

TABLE C\*

Week Ending		Lots Inspected	N. J. No. 1 Large <i>Per Cent</i>	Culls <i>Per Cent</i>	Butts <i>Per Cent</i>
May	3	69	46	12	42
	10	225	57	4	39
	17	328	60	2	38
	24	374	61	1	38
	31	356	58	1	41
June	7	308	55	..	45
	14	359	62	..	38
	21	368	61	1	38
	28	336	58	2	40
July	5	183	54	5	41
	10	21	51	4	45
Season		2,927	57	3	40

\*Table C shows the result of one cannery at which a special canner-grower contract was the basis for grading. Total volume represented was 1,114,750 pounds.

TABLE D\*

Week Ending		Lots Inspected	N. J. No. 1 Large <i>Per Cent</i>	N. J. No. 1 Medium <i>Per Cent</i>	N. J. No. 1 Small <i>Per Cent</i>	Culls <i>Per Cent</i>	Butts <i>Per Cent</i>
May	10	28	13	37	18	10	22
	17	97	11	33	36	7	13
	24	85	8	30	44	6	12
	31	94	7	25	45	7	16
June	7	57	8	26	43	5	18
	14	84	5	23	47	9	16
	21	107	5	26	47	6	16
	28	82	4	26	42	9	19
Season		634	8	28	40	7	17

\*Table D shows the result of one cannery at which a special cannery-grower contract was the basis for grading. Total volume represented was 311,290 pounds.

## TOMATOES

Tomatoes require a large personnel force over a period of two months. More inspectors are employed on this crop than on all others combined during any like period of the year. At the peak of the deal, 40 to 42 trained licensees are employed to inspect and certify growers' lots as delivered to canneries.

As is the case each season, weather conditions are the main factor in determining the quality of tomatoes. During the 1940 season extremely high temperatures at the beginning of the harvest caused considerable injury. Sunburn and sunscald damaged the fruit in the early stages of maturity. Later, heavy rainfalls came and caused considerable cracking of the fruit. Cool weather was general and the ripening process was slow. As a result, Alternaria Rot developed in the cracks and penetrated deep into the fruit causing much damage. Excessive rains and cool nights also caused tomatoes to ripen slowly and prevented, in many cases, a good color in the

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flesh of the fruit. The season was in general a poor one for producing high quality tomatoes as can be seen by comparing the 1940 results with those of 1939.

Growers continued to use the regrade service at one plant quite frequently. The results of these regrades are encouraging to the department. The following comparisons indicate that the inspectors are thoroughly familiar with the grades, have the same general interpretation and apply such standards in a uniform manner.

	Loads	U. S. No. 1	U. S. No. 2	Culls
Original inspection	325	33%	55%	12%
Regrade inspection	325	34%	54%	12%

In view of the fact that the inspector making the regrade does not see or know the results of the original inspection until he has made his and recorded the results on the certificate, these final results of the season's averages are remarkable. Naturally some individual results vary, but that is to be expected since tomatoes delivered by growers are, in the first place, an ungraded product, and a variation of quality in different baskets must be expected.

The following tables show the results of grading cannery tomatoes in New Jersey, 1940 season, with summaries from previous years.

## SUMMARY 1940 CANNERY TOMATO SEASON WITH COMPARISONS

Week Ending	Total Tons	U. S. No. 1 <i>Per Cent</i>	U. S. No. 2 <i>Per Cent</i>	Culls <i>Per Cent</i>
July 27	5	52	46	2
Aug. 3	932	56	39	5
10	8,702	65	32	3
17	17,603	69	29	2
24	33,714	70	28	2
31	26,003	60	37	3
Sept. 7	18,497	53	42	5
14	20,234	47	49	4
21	15,046	51	45	4
28	9,987	52	44	4
Oct. 5	10,690	45	50	5
12	1,291	42	52	6
19	109	50	46	4
Total	162,813	55	41	4

Seasons	Total Tons	U. S. No. 1 <i>Per Cent</i>	U. S. No. 2 <i>Per Cent</i>	Culls <i>Per Cent</i>
1940	162,813	55	41	4
1939	176,576	65	32	3
1938	108,096	53	43	4
1937	113,380	53	43	4
1936	183,027	64	33	3
1935	120,524	62	35	3
1934	91,060	58	39	3
1933	62,979	52	44	4
1932	151,140	58	39	3

## MARKET ACTIVITIES

The produce auctions located at 11 convenient points in the principal production areas continue to be the most important outlet for growers of vegetables and some fruits. More than 5,000 farmers in New Jersey are now members of produce auction associations.

Probably one of the most noteworthy developments in New Jersey is the recognition by the average farmer that he must join with other farmers in building and supporting sound marketing and other agricultural associations. The progress in the auctions has been developed by the coordination of practical ideas of farm leaders. The growth has been such that the eyes of the communities are focused on the accomplishments of these associations.

Representatives of the bureau meet regularly with the officers and directors of these associations at their annual and monthly meetings. The state organization, The Cooperative Marketing Associations in New Jersey, Inc., includes in its membership representatives of the 11 produce auction associations and also representatives of 5 poultry and egg marketing associations. More than 11,000 farmers hold membership in the local associations, which have membership in the state association. Eight meetings of the state association were held during the year. The chief of the Bureau of Markets has been the secretary of this organization since its inception.

In order that a better picture of the activities of the produce auctions may be given, this report indicates in the following table the operations of the auctions for a calendar year.

## SUMMARY OF SALES AT FRUIT AND VEGETABLE AUCTION MARKETS

Market	Season of 1940		Season of 1939	
	Number of Packages Sold	Value of Sales	Number of Packages Sold	Value of Sales
Beverly	246,763	\$ 125,081.06	297,265	\$ 135,003.52
Cedarville	390,906	450,877.44	346,631	334,338.54
Glassboro	912,101½	519,948.99	844,169	426,284.57
Hammonton	80,821	155,919.89	58,627	121,505.56
Hightstown	492,452	250,528.96	582,496	338,412.85
Landisville	413,198	327,260.30	433,924	305,450.92
Newfield	27,054	23,883.63	39,319	21,263.63
Pedricktown	174,787	192,910.96	165,859	172,349.95
Rosenhayn	31,990½	64,981.96	23,367	53,920.65
Swedesboro	955,588	801,702.45	765,026	644,462.01
Vineland	566,877	377,166.75	476,176	300,652.48
Totals	4,292,538	\$3,290,262.39	4,032,859	\$2,853,644.68
Average price per package, 1940.				\$0.766
Average price per package, 1939				\$0.707
Per cent of increase in price per package, all commodities 1940 over 1939				8.34

A partial report showing activities of auction markets for the 1941 season can be given by comparing the season of 1940 up to June 30 with the

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spring sales of 1941 up to June 30. The spring of 1941 was very dry and the volume of produce was lighter than expected. Prices, however, were about 20 per cent better than in 1940.

During the first half of 1940 there were 860,560 packages of produce sold over the auction blocks for a total of \$1,146,774.46. During the first half of 1941 the sales were 865,083 packages and receipts were \$1,399,676.64.

## MUNICIPAL MARKETS

The bureau has cooperated closely with the farmers' markets operating in the state. In Trenton and Atlantic City municipal market masters make weekly reports to the bureau on farmers' sales. The bureau also receives regular weekly reports from the Newark Farmers' Market. This one, which is farmer-owned, is the largest market operating in New Jersey and does an annual business about five times the size of sales on the Atlantic City and Trenton markets combined. There are also farmer-owned markets at Paterson, Asbury Park and New Brunswick, and privately operated farmers' markets at Perth Amboy and Elizabeth. With the exception of the last two mentioned, the bureau has aided these establishments through advice and suggestions. An occasional meeting of directors or members has been attended by representatives of the bureau. The chief aid to the two largest markets, Paterson and Newark, has been the market news letter, "Fresh Produce News," referred to under Crops and Markets Information Service.

The summary of sales on the two city-owned markets for the past year is shown in the accompanying table.

## TRENTON AND ATLANTIC CITY MARKETS

July 1, 1940 to June 30, 1941

Market	Bushels or Packages of Produce	Dozens of Eggs	Pounds of Poultry	Value of Sales
Trenton	144,100	68,300	155,690	\$211,730.00
Atlantic City	386,154	152,050	77,920	359,322.99
Total	530,254	220,350	233,610	\$571,052.99

## NEWARK FARMERS' MARKET

Sales on the Newark farmer-owned market again showed a decided increase over the previous year. During the 1940-1941 year 16,793,796 bunches of vegetables were sold. Last year's report showed 12,997,561 bunches. Also, 2,994,668 packages of fruits and vegetables were sold in comparison with 2,961,577 packages the previous year. This past year certain other items were reported. There were 93,364 watermelons, 2,499 gallons of cider, and 69,913 pounds of horse-radish sold. A new item of interest was the plant and flower sales. There were 299,963 items reported. These consisted chiefly of flats of bedding plants, pots of flowering plants and bunches of flowers. Gross sales were estimated at \$3,790,000.

## MISCELLANEOUS

There is a definite need for more uniformity in packages used for shipping fruits and vegetables to market. This is necessary in order to attract buyers to New Jersey shipping point markets and to save on stocks of packages stored on the farms. Also, uniformity in packages is a great aid to buyers and a protection to consumers. With the cooperation of the Department of Weights and Measures, the Eastern Apple Box of 1-1/8 bushel capacity has been made legal in New Jersey. There are now three closed packages for apples in this state: the bushel tub, the standard bushel box for place-pack apples and the 1-1/8 bushel box for face and fill pack. This last type delivers one full bushel to the retailer.

Much work also has been done during the year in standardizing the 12-bunch asparagus crate, the crates used for lettuce and berries, and the package and pack for tomatoes. Decisions as to sizes, specifications and materials are made only after consultation with growers, shippers and box manufacturers, and after lengthy studies of sizes in use have been made.

The bureau cooperated in staging the fruit and vegetable departments in the Farm Show during Agricultural Week, and also in erecting exhibits at the State Fair and some county fairs.

## POULTRY PRODUCTS MARKETING

The poultry division of the Bureau of Markets has continued all lines of work established during the past few years and enlarged the services rendered by the representatives of the bureau to correspond with the growth in the poultry industry in New Jersey.

Due partly to increased government buying of eggs and also to the better purchasing power of the nation as a whole, there has been developed, especially during the last few months of the year, a more favorable relationship between the price received for poultry products and the price of feed during the year. While feed prices have risen, the fact that there are large stocks of grain on hand in this country has tended to keep the feed prices down within reasonable comparative costs. On the whole, the producers of baby chicks have had a profitable season. Between 12 and 15 per cent more chicks were produced in New Jersey during the past hatching season than the previous year. While this is not as large an increase as in other sections of the United States, New Jersey has had a steadier production of chicks in past years when other states have sharply reduced production during periods of less favorable egg-feed ratios. The demand for New Jersey chicks produced under the supervision of the department and cooperating in the National Poultry Improvement Plan has been very good.

The bureau has cooperated with the United States Department of Agriculture for the sixth year in administering the National Poultry Improvement Plan. Under the provisions of this plan, a new development was put into effect during the year through the use of flock selection and pullorum



testing agents, which enables the New Jersey Department of Agriculture to permit qualified employees of hatcherymen to do the selection and testing in the National Poultry Improvement Plan stages. The work of these testing agents is constantly checked by inspectors from the Bureau of Markets. In order to qualify as a testing agent, the applicant must fit himself for the work by attending a school at the New Jersey College of Agriculture at New Brunswick and otherwise prove his ability.

#### POULTRY STANDARDIZATION

The sixth year for administering the National Poultry Improvement Plan in New Jersey was carried on to the satisfaction of both chick producers and chick buyers. The program included breed improvement as well as pullorum disease control.

The several classes for both breed improvement and pullorum disease control operative in New Jersey were as follows:

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

With the new set-up of flock selection and pullorum testing agents, the two regular inspectors were able to do all flock inspection work without additional temporary help. As their responsibilities have been increased during the last half of the year, it is fully expected that temporary help will be necessary in carrying on the program during the coming fall months. Under the new plan it was possible for the department to reduce the charges to cooperators in the standardization program. This made the work attractive to additional producers, thereby increasing the services that the state could render.

Circular No. 324, "Supplement to the National Poultry Improvement Plan," was prepared as a reinforcement of the old standardization plan under which the project was developed. The new circular includes the general regulations and the charges for the inspection service.

There has been considerable interest in the Record of Performance phase of the National Poultry Improvement Plan, and while there has been but a modest increase in the Record of Performance work during the past year, indications are that there will be a much larger increase during the coming season.

A new pullorum class was adopted to be called "Pullorum-Controlled." This class will include flocks having less than 2 per cent infected birds. Most of the New Jersey flocks will fall in this class.

The following table gives a condensed picture of the poultry standardization program as carried on in New Jersey during the past two years. It is interesting to note the increases that have taken place in the services rendered due to the reorganization of the plan.

N. J.-U. S.	1939-40	1940-41	Per cent changes in 1941
R. O. P. Breeding Females	720	694	— 3.6
R. O. P. Trapnest Pullets	990	1,412	+ 42.6
Certified (Birds handled)	38,678	46,944	+ 21.4
Approved (Birds handled)	27,023	112,991	+318.1
Pullorum Stages Only (Birds handled)	19,260	57,173	+196.8
R. O. P. Chicks and Cockerels Sold	2,983	5,240	+ 75.7
Per cent Reaction	1.86	0.95	
Hatchery Capacity in Plan	479,830	3,083,670	+542.7
Number Hatcheries in Plan	37	45	+ 21.6
R. O. P. Chicks Produced	17,200	18,199	+ 5.8
R. O. M. Females Produced	44	22	— 50.0
R. O. M. Chicks Produced	229	53	— 76.9
Number Flock Inspections	298	254	— 14.8
Number Hatchery Inspections	42	67	+ 59.5
Number R. O. P. Inspections	32	36	+ 12.5
Number Farm Visits	370	353	— 4.6

Two tables are included which give the classification and distribution of birds under supervision and the number of birds handled by counties and breeds. Here, too, it is interesting to note the great increase in birds handled and tested. Services were rendered in three additional counties of the state. These were Essex, Passaic and Warren.

#### AUCTION MARKETS

Probably one of the most outstanding projects carried on in marketing lines in the eastern United States has been the auction market system for poultry and eggs developed in New Jersey. The original egg auction market at producer point was developed in this state, and while the number of egg auctions has not increased in recent years, there have been many requests for additional markets. These requests often come from public-spirited groups, such as Rotary or Kiwanis clubs, or trade bodies. They are usually supported by citizens who would like to see business developed by such auctions placed in their county. However, the department has taken the attitude that such markets should be placed only where they can be of greatest service to the producers.

The five egg auctions operating in New Jersey are strategically located for serving well the important egg and poultry producing areas of the state. Other such areas rely upon marketing developments like the important New Jersey Federated Egg Producers' Cooperative Association at Toms River.

During the past year, the five egg and poultry auction markets in New Jersey increased their services to members. The total amount of eggs and live poultry sold through these markets for the year was \$5,429,696.92. This was made up through the sale of 532,249 cases of eggs, compared with 478,541 during the previous year. This was an increase of 53,708 cases of eggs. The value of eggs sold amounted to \$4,394,226.92. The live poultry sold at the five auction markets included 122,679 crates, weighing 5,854,246 pounds. The value of all live poultry sold at the auctions during the year amounted to \$1,035,470, as compared with 115,224 crates of poultry valued at \$923,934.02 the previous year.



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

NUMBER OF BIRDS

County	No. of Flocks	N. J.-U. S. Certified			N. J.-U. S. Approved			N. J.-U. S.			Totals
		Pullorum Tested	Pullorum Passed	Pullorum Clean	Pullorum Tested	Pullorum Passed	Pullorum Clean	Pullorum Tested	Pullorum Passed	Pullorum Clean	
Atlantic	28	7,804	...	...	7,578	...	...	1,702	...	...	17,084
Bergen	5	...	...	...	...	...	...	3,073	...	...	3,073
Burlington	16	4,623	...	...	2,674	1,027	...	1,489	...	...	9,813
Cape May	17	6,525	...	...	5,042	...	...	...	...	...	11,567
Cumberland	124	14,363	...	...	25,301	...	...	7,341	...	...	47,005
Essex	1	...	...	...	...	...	...	912	...	...	912
Gloucester	29	2,831	10,056	...	7,308	...	...	3,222	...	...	23,417
Hunterdon	4	...	...	...	...	...	...	2,574	...	...	2,574
Mercer	45	...	...	2,139	8,651	250	2,625	1,013	...	165	14,843
Middlesex	13	363	...	...	2,323	...	...	250	...	...	2,936
Monmouth	29	...	...	...	9,016	...	...	1,383	...	...	10,399
Morris	9	...	...	...	4,533	...	...	1,851	...	...	6,384
Ocean	2	...	...	...	452	...	...	1,093	...	...	1,545
Passaic	1	...	...	...	...	...	...	789	...	...	789
Salem	82	1,066	...	...	13,447	225	...	8,284	355	...	23,377
Somerset	10	...	...	885	938	...	...	3,479	...	...	5,302
Sussex	7	...	...	...	806	443	1,296	317	...	...	2,862
Warren	3	...	...	...	791	...	...	518	...	...	1,309
Out-of-state	114	...	...	...	18,320	...	...	10,014	...	...	28,334
Totals	539	37,575	10,056	3,024	107,180	1,945	3,921	49,304	355	165	213,525

## NUMBER OF BIRDS HANDLED, BY COUNTIES AND BREEDS

County	No. Flocks Handled	S. C. White Leghorns	Rhode Island Reds	Barred Rocks	White Rocks	New Hamp- shires	Jersey Black Giants	White Wyan- dottes	Light Brah- mas	Black Mi- norcas	Turkeys	Pullorum Testing Only	Totals
Atlantic	28	13,954	1,182	190	...	484	...	...	...	55	...	2,371	18,236
Bergen	5	...	...	...	...	...	...	...	...	...	...	3,085	3,085
Burlington	16	4,008	...	1,030	461	2,233	1,007	...	...	...	...	1,543	10,282
Cape May	17	7,690	1,103	...	...	4,511	...	...	...	...	...	...	13,304
Cumberland	124	31,363	925	767	1,145	5,334	...	257	440	43	...	7,921	48,195
Essex	1	...	...	...	...	...	...	...	...	...	...	967	967
Gloucester	29	9,515	2,863	...	...	2,872	...	236	...	...	...	7,951	23,437
Hunterdon	4	...	...	...	...	...	...	...	...	...	...	2,698	2,698
Mercer	45	2,219	147	4,635	387	4,026	787	...	...	...	...	1,889	14,090
Middlesex	13	385	168	575	121	909	...	...	...	...	...	125	2,283
Monmouth	29	1,745	...	3,604	135	2,061	390	...	...	...	55	1,569	9,559
Morris	9	3,434	...	...	428	1,200	...	...	...	...	...	1,902	6,964
Ocean	2	540	...	...	...	...	...	...	...	...	...	1,110	1,650
Passaic	1	...	...	...	...	...	...	...	...	...	...	807	807
Salem	82	5,937	653	2,895	2,302	1,006	...	170	...	...	...	9,916	22,879
Somerset	10	1,778	...	119	...	114	27	...	...	...	...	3,505	5,543
Sussex	7	2,457	...	...	...	212	...	...	...	...	...	111	2,780
Warren	3	839	...	...	...	...	...	...	...	...	321	524	1,684
*Out-of-state	114	...	599	11,975	481	5,534	...	...	...	...	...	10,076	28,665
Totals	539	85,864	7,640	25,790	5,460	30,496	2,211	663	440	98	376	58,070	217,108

\*Handled by flock selection agents, supervised by New Jersey Department of Agriculture.

These poultry and egg auctions differ from the fruit and vegetable auctions in that they operate during the entire year, while the fruit and vegetable auctions are operated only during production seasons.

The total volume and the value of all poultry products sold at the five auction markets during the past six years are shown in the following table. This table conclusively demonstrates the increased service rendered.

Year	Number Cases of Eggs	Number Crates of Poultry	Pounds of Poultry	Total Combined Value
1940-41	532,249	122,679	5,854,246	\$5,429,696.92
1939-40	478,541	115,224	5,582,135	4,480,972.53
1938-39	384,345	108,395	5,191,647	4,057,113.69
1937-38	317,292	84,159	3,957,288	3,494,111.61
1936-37	288,865	81,358	3,877,124	3,253,303.74
1935-36	225,721½	59,438	2,815,167	2,598,942.69

The auction markets started without sufficient interest in the welfare of the buyers patronizing the markets. As time went on, it was very evident that buyers are part of the successful operation of an auction market; therefore, more and more time has been given to measures which definitely protect the interests of the buyers.

Undoubtedly, the grading work on the markets is one of these helps, but grading work in itself is not enough. Buyers have to be taken into the confidence of the producers, and producers have to be made to feel that any success on the buyer's part definitely reacts in favor of the producers. It is for this reason that the bureau now has in mind a program which will be aimed at improving the buyer's personal business. It is felt that the auction markets have reached a point where either increased purchases by present buyers or more buyers are needed.

The average sale price of eggs at the auctions for the entire year was \$8.26 per case, as compared with \$7.43 the previous year. This substantial increase in price, together with the growth in volume handled, means a large income to the producers and more money in the territory in which members of the associations are located.

The accompanying table shows the sales on all of the New Jersey egg auction markets during the past fiscal year. It includes not only egg but also live poultry sales.

In order to show the distribution of service to New Jersey producers by the auction markets, a table has been prepared giving the membership by counties in the various associations. A total of 5,847 poultry and egg producers hold membership in the auctions. It is interesting to note that the largest number of members is in Hunterdon County, with 1,952; Burlington County is second, with 809 members; and Cumberland County, third, with 406 members. The producers in Cumberland County average much larger flocks, which accounts for the large egg sales at the Vineland auction market. Every county in the state is represented in membership at the five poultry and egg auctions.

## SUMMARY OF EGG AND POULTRY AUCTION MARKETS

July, 1940 to June, 1941

Market	Cases of Eggs	Value of Eggs	Crates of Poultry	Pounds of Poultry	Value of Poultry	Total Value
Flemington	180,819	\$1,483,699.91	64,371	2,952,407	\$ 531,880.39	\$2,015,580.30
Hightstown	84,006	708,752.71	12,208	663,074	111,263.24	820,015.95
Mount Holly	24,369	196,438.29	14,940	770,582	145,737.33	342,175.62
Paterson	38,283	318,676.74	11,570	580,469	101,182.86	419,859.60
Vineland	204,772	1,686,659.27	19,590	887,714	145,406.18	1,832,065.45
Totals	532,249	\$4,394,226.92	122,679	5,854,246	\$1,035,470.00	\$5,429,696.92

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## POULTRY AUCTION MARKET MEMBERSHIP, BY COUNTIES

County	Flemington Auction	Hightstown Auction	Mount Holly Auction	Paterson Auction	Vineland Auction	Totals
Atlantic	...	...	3	...	204	207
Bergen	...	...	...	83	...	83
Burlington	4	65	740	...	...	809
Camden	1	...	34	...	8	43
Cape May	...	...	...	...	50	50
Cumberland	...	...	1	...	405	406
Essex	5	...	...	18	...	23
Gloucester	3	2	7	...	125	137
Hudson	2	...	...	...	...	2
Hunterdon	1,951	1	...	...	...	1,952
Mercer	193	196	5	...	...	394
Middlesex	42	138	2	...	...	182
Monmouth	8	266	2	...	...	276
Morris	83	...	...	91	...	174
Ocean	4	42	27	1	1	75
Passaic	2	...	...	110	...	112
Salem	...	...	...	...	78	78
Somerset	348	2	...	...	...	350
Sussex	24	...	...	58	...	82
Union	36	...	...	4	...	40
Warren	353	...	...	19	...	372
Totals	3,059	712	821	384	871	5,847

## ENFORCEMENT OF STATE GRADES AT THE AUCTION MARKETS

Again, as in past years, the New Jersey Wholesale Grades for Eggs were used by four of the auction markets. The only auction not using state grades is Paterson, and this market is the smallest one in the state. The number of farmers affected by the grading work as supervised by this bureau amounts to approximately 5,500 members. The egg trade in New Jersey is thoroughly familiar with the state grades, and such continued use of these grades on the auction markets had a decidedly beneficial effect on those producers not selling through the auction channel. The auctions have established prices based on a graded product; these are used in determining prices on the farms and in other channels of trade used by non-auction producers.

In the reorganization of the poultry division of the bureau, the responsibility for uniform interpretation of state grades was placed in the hands of one man. He makes regular check inspections at all of the markets each month, and cooperates closely with the inspectors established on those markets, in order that there can be no material difference in the grade as used in any part of the state. He also cooperates with the egg inspectors at the New Jersey Federated Egg Producers' Cooperative Association at Toms River. This association also uses the state grades and sells on the basis of those grades. A licensed inspector is established there.

The state grades for live poultry were used throughout the year at three auction markets. Producers have continued to improve their poultry

grading on the farm. This has been made possible through the use of field service men by the auction markets. Buyers appear to have been well pleased with the grading program for live poultry. Their confidence in the inspection service rendered by this bureau is evident in the way they have bought their live poultry needs.

#### PRICES BY GRADES AT THE AUCTION MARKETS AND NEW YORK

The following table shows the average prices received at the different auction markets during the past year. In order to show the advantages of auction sales over the New York market price, the quoted average price for eggs of the same quality sold on the New York market has been added. This price at New York is the base price used in determining payments to New Jersey shippers and is taken from the quotations received daily. The New York price in the table for Fancy Large eggs is for Nearby and Midwestern Premium Marks. The price for Grade A Large eggs in New York is that quoted for Nearby and Midwestern Exchange Specials. The comparable price at New York with Grade B Large eggs is the Nearby and Midwestern New York price in the table for Fancy Large eggs is for Nearby and Mid-Grade B Medium in New York is that quoted for Nearby and Midwestern Exchange Mediums (70 per cent No. 1—40 lbs.).

#### AVERAGE PRICE PER DOZEN—NEW JERSEY AUCTIONS AND NEW YORK QUOTATIONS

Grade	Flemington	Hightstown	Mount Holly	Vineland	All Auctions	New York
Fancy Large	.3160	.3127	.2775	.2957	.3016	.2830
Fancy Medium	.2826	.2748	.2563	.2686	.2716	.2352
Grade A Large	.2894	.2918	.2818	.2885	.2892	.2675
Grade A Medium	.2631	.2647	.2584	.2623	.2629	.2352
Grade B Large	.2733	.2665	.2677	.2691	.2710	.2414
Grade B Medium	.2452	.2398	.2562	.2454	.2455	.2352

#### THE NEW JERSEY TURKEY GROWERS' COOPERATIVE ASSOCIATION, INC.

The production of turkeys in New Jersey has not changed materially from the preceding year. There are approximately 125,000 turkeys produced annually in this state. Practically all of the large growers of turkeys are members of the New Jersey Turkey Growers' Cooperative Association. The main function of this organization has been to assist members in the marketing of their turkeys. The use of tags to identify birds as New Jersey grown turkeys was continued. Tagged birds are popular with consumers, but in order to create a greater demand for New Jersey grown turkeys, the directors have taken steps to raise additional advertising funds through the assessment of a fee per bird. The funds collected will be used for promotional work chiefly.

## NEW JERSEY FRESH EGG LAW

The fresh egg law has been in operation in New Jersey for seven years. During the past year a decided improvement in conditions on the egg markets has been observed. The work of the inspectors has brought about a recognition, both among distributors and consumers, of the advantages of selling high quality eggs as fresh. From the daily individual store reports, as made by the field inspectors, apparent violations were reviewed by the man in charge of the work in the bureau. When it was deemed necessary that further action should be taken, these reports were passed on to the administrative office, where necessary action was determined. During the year 18 hearings were held. Fifteen warnings were issued, two penalties assessed, and one case was referred to the attorney-general's office for legal action.

The following table gives the number of inspections made in the state during the past year and the type of markets inspected. It also lists the total number of violations found by the inspectors.

## FRESH EGG LAW INSPECTIONS, 1940-1941

Number	Type
Wholesale Stores	36
Retail Stores	13,477
Roadside Markets	588
Retail Routes	276
<hr/>	
Total Inspections	14,377
Total Violations Detected	824

The following table lists the counties of the state, the 1940 population, the number of inspections made and the inspections per 1,000 population. This, in itself, would not tell the true story of the work in each county, and for that reason an additional column is added which is called "Mathematical Inspections Per Counties." This is based on the actual number of inspections made in each county and the 1940 population, using the average number of inspections per 1,000 population in the state to determine the number of inspections per county that would have been made if each county were inspected in exactly the same uniform manner. Column three, showing the actual inspections, should be compared with column five, showing the theoretical inspections. The study indicates that the inspections are on a fairly uniform basis.



## STATE DEPARTMENT OF AGRICULTURE

## INSPECTIONS BY COUNTIES

County	1940 Population	No. of Inspections	Annual Inspections Per 1,000 Population	Mathematical Inspections Per Counties*
Atlantic	124,079	1,380	11.1	570
Bergen	408,507	1,285	3.1	1,881
Burlington	96,836	496	5.1	441
Camden	255,863	1,777	6.9	1,177
Cape May	28,566	226	8.0	128
Cumberland	72,850	335	4.6	331
Essex	835,272	4,401	5.2	3,841
Gloucester	71,928	315	4.3	331
Hudson	649,798	2,834	4.3	2,990
Hunterdon	36,706	79	2.0	165
Mercer	197,124	755	3.8	906
Middlesex	216,909	890	4.1	898
Monmouth	160,212	881	5.5	736
Morris	125,268	436	3.4	575
Ocean	37,401	179	4.8	170
Passaic	309,270	1,339	4.3	1,421
Salem	41,704	151	3.6	188
Somerset	73,941	177	2.3	340
Sussex	29,506	79	2.7	133
Union	326,720	1,166	3.5	1,504
Warren	50,098	121	2.4	230

\*The average number of inspections annually per 1,000 population is 4.6, based on inspections and 1940 population.

## NEW JERSEY STATE CERTIFIED FRESH EGG PROGRAM

The New Jersey Poultry and Egg Cooperative Marketing Association, Inc., continued operations as in the past few years. The association purchased the eggs from the Flemington, Vineland, Mount Holly and Hightstown auctions, and from the New Jersey Federated Egg Producers' Association at Toms River. The eggs were immediately hauled to the association plant at Flemington where they were recandled and repacked in consumer cartons. It is generally appreciated by all of the associations selling eggs to the certified egg association that such purchases at the regular sales on each market have been very beneficial in maintaining price levels. The fact that a house buyer is able to place his bid for eggs means that the market has been strengthened. While the individual purchase on that market on any one day may not be more than from 50 to 100 cases, the buyer bids on several times that number before he fills his order.

In May 1941, the association reorganized its operating personnel. The managers of the Flemington, Vineland and Hightstown associations were loaned to the New Jersey Poultry and Egg Cooperative Association to act as a managing committee. This group carries out the policy as outlined by the directors. The managers are all practical egg marketing men. They have a dual interest: First, in serving high quality New Jersey eggs at a definite price to the consuming public; second, in representing their auction as one of those which sells these eggs to the state association. Since the change in



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management, the state association has greatly improved some of the earlier weaknesses in its operations.

The Bureau of Markets aids the association in an advisory capacity and also in the inspection service rendered in guaranteeing a high quality egg to the consumer. An individual in the bureau also has continued as secretary of the state association.

## MISCELLANEOUS ACTIVITIES

The poultry division in the bureau has cooperated closely with the New Jersey State Poultry Association and the Jersey Chick Association, and has aided in the erection of exhibits at the Farm Show during Agricultural Week and at several county fairs. It has continued to cooperate closely with the Northeastern Poultry Producers' Council. The most important event of the council in which this bureau cooperated was the convention held at Atlantic City in October 1940. Because the council came to New Jersey for this event, the state aided in supplying clerical services and gave assistance in staging the exhibits.

# *Report of the Bureau of Plant Industry*

HARRY B. WEISS, *Chief*

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## STATISTICAL AND RELATED WORK

### NEW JERSEY CROP AND LIVESTOCK REPORT

The process of enumeration and estimating begins each year during March when preliminary figures on the acreage of each commodity intended to be planted during the current year are gathered and tabulated. As the season advances, additional information is accumulated; acreage figures, in the light of new evidence, may be revised; yield per acre, total production and price added. In December the final data for the current year on acreage, yield per acre, total production and farm price for each commodity are prepared and issued. In January an inventory of livestock and livestock products is estimated and published.

#### LIVE POULTRY SUPPLIES AND PRICES AT THE FLEMINGTON, VINELAND AND MOUNT HOLLY AUCTION MARKETS

Sales of live poultry at the Flemington, Vineland and Mount Holly auction markets from April 1931 to December 31, 1939, were studied and the results published in Circular No. 322, "Live Poultry Supplies and Prices at the Flemington, Vineland and Mount Holly Auction Markets." Part I summarized the quantity and value of all live poultry disposed of at these markets; Part II discussed the supply and demand for Leghorn fowls, Rock roasters and Barred Rock broilers. Part III was devoted to the seasonal variations in quantity and price of all live poultry, and of certain varieties and classes sold at the three markets combined and each market separately, and in Part IV brief information was presented on capons.

#### NEW JERSEY CATTLE, NUMBERS AND BREEDS IN 1940

Results of the cattle survey were published in Circular 325, "New Jersey Cattle: Number and Breeds". The object of this study was to determine the number of cattle in each township, county and the state by breed and kind.

#### NUMBER OF APPLE TREES IN BURLINGTON AND GLOUCESTER COUNTIES IN 1941

The project of enumerating apple trees in Burlington and Gloucester counties was inaugurated at the request of the New Jersey State Horticultural Society. The results were published in Circular 330. The aim of the project was to ascertain the change in the number of apple trees by varieties and ages between 1937 and 1941. The survey showed that a considerable number of trees had been removed between 1937 and 1941 and that very little replanting had been done.

## FARM LABOR ON VEGETABLE AND FRUIT FARMS IN NEW JERSEY

Data were gathered on the number of migrant and local workers employed by New Jersey farmers during the harvesting season of 1940 and the potential demand for hired farm labor during 1941. The average hours per day per worker as well as average daily earnings were surveyed also.

## CANNING INDUSTRY SURVEY

The output of various commodities canned in New Jersey factories during 1940 was surveyed. Acreages of produce devoted to canning as well as price paid to farmers per unit of commodity were ascertained.

## ACREAGE OF IMPORTANT NEW JERSEY COMMODITIES

As a result of the survey covering the years 1936, 1937, 1938 and part of 1939, the Department of Agriculture has on file the names and addresses of approximately 17,000 farmers with records of their acreage devoted to the more important commodities.

QUANTITY OF FOOD REQUIRED TO FEED NEW JERSEY POPULATION,  
PRODUCTION AND STORAGE FACILITIES FOR THESE FOODS IN NEW JERSEY

The New Jersey Defense Council requested the Bureau of Plant Industry to make a study of the annual quantity of food required to feed the state's population and the production of these foods locally. The study was completed and submitted to the Council. A survey is now being made of food storage facilities in New Jersey.

SUPPLY AND PRICE OF VEGETABLES AND FRUITS AT NEW JERSEY FARMERS'  
AUCTION MARKETS FROM 1929 TO 1940

During the year, a new project was inaugurated. The primary aim was to determine: (1) The quantity of each vegetable and fruit sold weekly, monthly and annually at Cedarville, Vineland, Rosenhayn, Hammonton, Williamstown, Glassboro, Landisville, Swedesboro and Hightstown farmers auction markets; (2) The average weekly, monthly and annual price received by farmers per unit of commodity sold; (3) The comparison between price for the the same commodity and time at different markets; (4) The reasons for difference in price among markets; (5) The average weekly, monthly and annual price for the same commodity at all markets combined; (6) The seasonal trend in price and (7) The size of containers in which the same commodity is sold at the same market and the same day.

## RETAIL PRICE OF VEGETABLE SEEDS IN 1941

A survey was made of retail prices of vegetable seeds in 1941 as compared with 1940. In past years a considerable quantity has been imported by this country from Holland, Denmark, England, France, Spain, Japan

and Italy. The blockade resulting from war in Europe stopped the free flow of seeds from these countries to the United States. Therefore, there is a relative scarcity of some seeds and as a result prices went up. This upward direction in price especially affected spinach seeds, carrots, chicory, celery, cauliflower, radishes, broccoli, kale, Swiss chard, cabbage, Brussels sprouts, mustard, parsley, parsnips, salsify, peas and rutabagas.

It may be that the high price will stimulate domestic production of these seeds.

#### COST OF LIVING IN NEW JERSEY

The survey, "Cost of Living in New Jersey," has been published quarterly since October 1939 with the exception of the June 1940 issue, which was omitted due to a revision and expansion of food prices at that time.

The mailing list for this publication originally consisted of those receiving the monthly "Retail Prices of Foods." Since the inauguration of "Cost of Living," names have been added to the list, on written request, and it now contains over 450 addresses with 140 since July 1940. Some firms request as many as 20 copies for distribution among their personnel. Fifty-eight libraries in 12 states receive this publication. The Department of Agriculture received 23 requests in the last year for special breakdowns to fit specific cases or areas, and has complied whenever possible. In one instance, members of the staff from this bureau were subpoenaed in a labor arbitration which was settled to the satisfaction of both parties by the use of a special index computed for the Paterson area. Some large industrial firms have written in their wage agreements that their wage scales shall fluctuate as the cost of living, published by the New Jersey State Department of Agriculture, fluctuates.

The index prepared by the Bureau of Plant Industry is being used by many state agencies, labor relations boards, chambers of commerce, WPA, labor unions affiliated with both the CIO and A. F. of L., independent employees' unions, many departments of the New Jersey Extension Service, mediation and arbitration boards, HOLC, relief agencies in various cities, real estate boards, boards of education, vocational instructors in public schools, hospitals, dietitians and many private individuals. There has been a large amount of publicity given these studies in the newspapers.

Since the start of the war in Europe, involving defense work and wages here, food for defense programs by the government, etc., the interest in cost of living studies has been widespread. To depict more definitely the changes in the cost of living, as affected by the current war, June 1939 recently has been adopted as the base period, since this is the last quarter before the outbreak of war.

The index numbers on a June 1939 base show that during June 1941 the total cost of living had risen 6.6 per cent as compared with the earlier period. The largest relative increase, 18.3 per cent, was noted in furniture and housefurnishings, most of which occurred in the six months prior to June

1941. Clothing was up 9.5 per cent, and rents rose 8.6 per cent. All foods advanced 7.1 per cent. Fuel and light cost 1.7 per cent more and miscellaneous items were 3.1 per cent higher.

#### NEW JERSEY RETAIL PRICES OF FOODS

Average retail prices of foods in the State of New Jersey have been published monthly since September 1937. Prices during the last year have been gathered each month for 103 different items from sources which represent approximately 2,300 retail food outlets within the state. Eighty-three of the 103 items priced are used in the monthly publication. These prices are tabulated, analyzed and sent to those on the mailing list.

The average price of all foods in New Jersey from June 1940 until March 1941 inclusive, fluctuated very little, the largest increase over the preceding month being 1.03 per cent in August 1940, and the largest decrease being 1.99 per cent in September 1940. From April to June 1941 inclusive there were relatively large increases. Foods in April rose 1.64 per cent over March, May was 2.87 per cent above April, and June, 2.56 over May. In July 1941, due largely to local supplies of fresh fruits and vegetables, the price of all foods was 0.27 per cent lower than during June 1941. The average retail price of all foods in July 1941 was 5.73 per cent higher than July 1940 and 7.9 per cent above July 1939.

#### SURVEY OF LATE CROP SEED POTATOES IN COLD STORAGE

Since 1937 an annual survey of seed potatoes in storage has been made for use in connection with seed certification work. Schedules were mailed to 19 cold storage plants in 1941 and 12 plants reported potatoes in storage. There were on July 1, 1941, 15,888 150-pound bags or equivalent, as compared with 20,863 in 1940, 22,357 in 1939, 16,066 in 1938 and 26,491 in 1937.

#### STATISTICAL HANDBOOK OF NEW JERSEY AGRICULTURE

Work on a revision of Circular No. 166, "Statistical Handbook of New Jersey Agriculture," was started in 1939. All figures were checked, titles edited and many new items added. Census data since 1925 have been added as far as possible and the circular will be finished when complete census data is available. Charts have not been drawn as yet, but the complete circular is expected to be ready for printing about January 1942, and will contain all available census data from 1939 to 1940 inclusive.

#### RETAIL PRICES OF FARM SEEDS

Retail prices, as paid by farmers in New Jersey, have been gathered since 1937 for vegetable seeds, field crop seeds, plants, fruit trees, small fruits, etc.

These prices have been collected for 1941 but due to the pressure of other work they have not been tabulated. A complete tabulation for all years with comparison is expected to be available in the spring.

## SEED CERTIFICATION AND RELATED WORK

## RASPBERRY PLANT INSPECTION

Eight nurserymen and growers requested the inspection and certification of raspberry fields so that they might ship raspberry plants into states requiring special certification. During the growing season two field inspections were made for 44½ acres, all of which were declared eligible for shipment with certificate.

## GRAIN SEED CERTIFICATION

With the expectation of doubling the supply of New Jersey hybrid corn, and a decided increase in the amount of certified grain seeds sold, 1940 proved to be a disappointment. The acreage planted to make New Jersey hybrids had expanded from 138 to 311 acres. Early in October the crop prospects looked excellent, but freezing weather occurred from the 16th to the 21st and much of the corn was still too green to avoid frost injury to the germs. Attempts by growers to dry the seed artificially proved of little avail, it being apparent later that the germ had been frozen. Standard varieties of corn for seed were likewise affected, and as a consequence, no seed of these varieties was available.

In order to meet a situation in which a shortage of corn seed existed, it was decided to approve hybrid corn seed which germinated 80 per cent or better and certify that which met the certification standards including the 90 per cent germination mark. Both approved and certified hybrid corn seed are grouped together in the table below.

Additional corn dryers have been built and will be available for future use. A machine to further grade corn seed by the length of kernel was purchased and put in use. This has improved the grading of corn tremendously. The table below gives the pertinent data for this project for the year.

## GRAIN SEED CERTIFICATION, 1940-1941

Crop	Variety	Acres Entered	No. of Growers	Acres Certified	Bushels Tagged and Sealed
Barley, spring	Tall Comfort	11.5	2	7.0	174
Barley, spring	Velvet	2.0	1	1.0	18
Barley, winter	Md. Smoothawn	317.5	20	209.5	3,495
Corn, hybrid	N. J. No. 2	247.5	29	178.5	2,313.50
Corn, hybrid	N. J. No. 4	63.0	7	39.0	886.75
Corn, standard	Hulsarts Yellow Dent	20.0	1	...	...
Corn, standard	Lancaster Surecrop	52.0	4	...	...
Corn, standard	Mercer White Cap	18.0	1	...	...
Corn, standard	Somerset Leaming	15.0	2	...	...
Oats	Kanota	43.0	3	43.0	948
Oats	Keystone	104.0	7	104.0	1,063
Rye	Raritan	35.0	3	36.0	250
Soybeans	Wilson-5	20.0	2	20.0	50
Soybeans	Harbinsoy	377.5	14	377.5	3,045
Wheat	Leap's Prolific	477.0	15	368.5	5,761
		1,804.0	111	1,384.0	18,004.25

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## TOMATO SEED CERTIFICATION

The following tables indicate the scope of the tomato seed certification work during the year and the expansion of the work from 1921 until 1940.

During the 1940-41 fiscal year, 81 seed treatment declaration certificates were issued at various times to three New Jersey seedsmen so that they could comply with the requirements of Cuba, Puerto Rico and Mexico. These certificates covered 1,340 pounds of pepper seed, 8,130 pounds of tomato seed and 200 pounds of okra.

## GROWERS OF CERTIFIED TOMATO SEED AND ACREAGES CERTIFIED, 1940

Name	Mar-globe	Rutgers	Stokes-dale	Val-lant	Bonny Best	Prit-chard	Break O'Day	Totals
Joseph White Co.	360	791.5	164.5	...	...	...	...	1,316.0
Edgar Hurff Co.	245	427.5	13.0	...	12.0	16.0	...	713.5
Salem Co. Cannery	49	57.0	14.0	...	...	...	...	120.0
Geo. H. Pedrick & Sons	...	...	...	...	...	...	5	5.0
S. Tilden Ashcraft	...	...	...	...	...	5	...	5.0
Francis Stokes Co.	296	397.0	302.0	1	1	1	...	998.0
Campbell Soup Co.	232.5	174.0	...	...	...	16.5	...	423.0
	1,182.5	1,847.0	493.5	1	13	38.5	5	3,580.5

## TOMATO SEED CERTIFICATION PRODUCTION, 1940

Seedsmen	Pounds of Seed							Total
	Marglobe	Rutgers	Prit-chard	Bonny Best	Stokes-dale	Break O'Day	Valiant	
Campbell Soup Co.	1,490	2,134	...	...	...	...	...	3,624
Edgar Hurff	6,080	13,360	405	240	375	...	...	20,460
Francis Stokes	14,230	13,644	25	25	19,263	...	25	47,212
Joseph White	18,000	20,600	...	...	4,200	...	...	42,800
George R. Pedrick	...	...	...	...	...	186	...	186
Salem Co. Cannery	1,078	1,767	...	...	448	...	...	3,293
Totals	40,878	51,505	430	265	24,286	186	25	117,575



## TOMATO SEED CERTIFICATION, 1931-1940

## Varietal Distribution of Certified Tomato Seed Acreages

Year	Bonny Best	J. T. D.	Balti- more	Mar- globe	Val- iant	Break O'Day	Stokes- dale	Rut- gers	Grothens Globe	Prit- chard	Glo- vel	Total
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	1,520	...	8	...	730	...	192	...	2,763
1936	5	109	40	1,576	...	21	...	1,001	...	208	...	2,960
1937	94	100	...	1,365	17	...	67	936	24	136	7	2,746
1938	10	48	...	1,113	2	5	2	755	...	146	...	2,081
1939	18	...	...	1,658	...	3	...	1,331	...	84	...	3,094
1940	13	...	...	1,182	1	5	493	1,847	...	39	...	3,580

## STRAWBERRY PLANT INSPECTIONS

The inspection of strawberry fields to determine the presence or absence of the Red Stele disease, caused by the fungus *Phytophthora fragaria*, was continued in 1941. In order to simplify and lessen the work, growers who had raised one variety from the same stock for many years and whose fields were inspected in 1939 and 1940 with negative results were considered safe, and inspections were made only if the grower wished to sell plants. As a consequence, the number of farms where inspections were made declined.

Two more cases of Red Stele were found than last year, but only two of the total were new cases. Of the other 14, all were on farms where the disease had been found previously or represented instances where growers had replanted susceptible varieties on land that in an earlier year showed Red Stele infection and which had not been planted to other crops for a sufficient period to starve out the disease.

The two new cases represent infections received from other states than the ones which have been shipping the disease. A field trip to the Eastern Shore Peninsula of Maryland, Delaware and Virginia showed that the authorities are active in inspecting fields from which plants are to be sold and are doing an excellent job. The Red Stele disease, however, is still present in the area, making it impossible for some growers to raise strawberries.

The control of the movement of strawberry plants within the state as regulated by quarantine against the Red Stele disease is apparently effective. No new cases of spread by the use of local plants have been found.

## STRAWBERRY PLANT INSPECTIONS

County	Number of Farms	Acreage Inspected	Number of Cases of Red Stele Found
Atlantic	14	33.25	3
Bergen	7	6.75	...
Burlington	9	35.50	...
Camden	6	15.75	1
Cape May	8	21.375	...
Cumberland	61	197.95	1
Gloucester	14	92.75	...
Hunterdon	3	3.75	2
Mercer	12	23.50	1
Middlesex	18	30.95	2
Monmouth	15	50.91	2
Morris	10	5.85	3
Ocean	6	9.50	...
Passaic	1	1.75	...
Salem	2	4.50	...
Somerset	1	.25	...
Sussex	9	7.25	1
Warren	...	...	...
Totals	196	541.535	16
1940 Totals	332	871.79	14

## WHITE POTATO SEED CERTIFICATION 1940-1941

The seed growing season of 1940 presented a set of circumstances not witnessed in many years. Starting early in September an epidemic of late blight occurred, showing in many fields and causing severe damage in some. Losses from this cause ranged from none to 100 per cent. This was followed by very early ground freezes at the time when it is normal to expect only heavy frosts. In central New Jersey the losses by freezing in the ground before harvest ranged from 10 per cent to 50 per cent, averaging around 30 per cent.

Entries were received from 71 growers for 732.99 acres. Of these, 502.49 acres passed the necessary field inspections. A total field run yield of 95,220 bushels was harvested for an average yield of 189.5 bushels per acre. Although the weather was favorable for late blight development it was also favorable for good growth and a high yield, provided the blight was controlled by spraying.

July was below normal for rainfall and temperatures in both the Hightstown and Bridgeton areas. August yielded a high rainfall of 6.15 inches at Bridgeton and 6.61 inches at Hightstown with the low temperatures being below normal. On September 1, a heavy storm covered a large part of the state bringing a heavy daily rainfall and causing extreme damage to property, washing out dams, bridges, roads and in some cases damaging buildings. The 24-hour total as recorded at Bridgeton (4.08 inches) and Hightstown (3.37 inches) does not give an accurate picture of the extremes of rain as it is highly probable that some areas located between weather stations had upward of 10 inches of rainfall in the 24-hour period.

Although the rainfall caused damage by inundation to only a few fields, the soggy condition of the soil prevented the use of spray equipment at a very critical time and late blight appeared shortly afterwards. The weather bureau records show only slight rainfall during the second and third weeks of September. However, it was at that time that the late blight spread rapidly. Temperatures recorded during that period reached levels in the 50's with some night time temperatures in the low 40's. Although the actual rainfall was scant, heavy dew occurred each night and did not dry off until nearly noon. With this set of weather conditions, cool with wet plants, the blight spread like fire.

In October the rainfall was below normal,—.88 and—.96 inches respectively for Bridgeton and Hightstown and the weather remained cool. Frost had been reported in many parts of the state earlier, although potato plants not killed previously by blight were not killed until October 18, when up to 3 inches of snow fell and temperatures dropped to just below freezing. This was followed by ground freezes on the morning of October 22 with temperatures of 26 and 22 degrees recorded at Bridgeton and Hightstown. Apparently the few degrees of difference between the two places accounts for the only slight damage by freezing in southern New Jersey as against the heavy losses experienced in the central part of the state.

Proper and adequate spraying with Bordeaux mixture proved its real worth in 1940. With a set of climatic factors ideal for late blight spread, poorly applied and inadequate sprayings as well as Bordeaux dustings failed to stop the spread of the disease. As a consequence many fields were rejected because there was little or no foliage left to inspect at the usual time for second inspections. Furthermore these same fields yielded a crop of only undersized tubers, growth having been arrested with the loss of foliage. In direct contrast, some growers who sprayed frequently and thoroughly, or who dusted at night at a suitable and propitious moment when the plants were covered with dew, were able to keep late blight entirely out of their fields or hold it to a bare minimum. Yields from these fields showed few to no tubers with late blight rot and because the foliage was held, made large yields of between 300 to 400 bushels.

Insects were not particularly troublesome, a few aphids and leaf hoppers being present. One field was rejected because of a wilt suspected of being bacterial ring rot. Laboratory tests, however, indicated that the trouble was probably southern bacterial wilt. Some fields were rejected because of high virus disease counts. This was particularly true of most of the newly purchased foundation stocks of the Chippewa variety. Home grown stocks of this variety, although showing an increase of leaf roll over that of the previous year, were rogued down to the passing tolerances.

Irish Cobblers led the varieties both as to acres planted and bushels produced. Chippewas were second in acreage planted and bushels certified but produced the largest yields per acre. Katahdins, Red Skins, Houmas and Green Mountains were next in the same order. Yields ranged from zero, fields abandoned because of late blight damage, to full crops of nearly 200 bags per acre.

Little can be accurately told regarding the influence of the previous crop because of the unusual weather. From observations made during the growing season, however, the recommendation to plant after the plowing under of a green manure crop and to keep the land harrowed till planting time is the most desirable and will produce the largest yields.

Seed disinfection was applied to 34.32 per cent of the seed, a slight gain over the 29 per cent of last year. This easily applied form of insurance is being overlooked by too many growers because they cannot always see positive results. The treating of seed with organic mercury compounds is a practice recommended by the Agricultural Experiment Station and growers not treating their seed would do well to follow it.

The usual practice of planting with a ton, more or less, of 4-8-7, 5-8-7 or of fertilizer having a similar analysis was followed. More growers, however, used double strength mixtures than in previous years. One grower experimented with the staggered twin row and with high-low placements of the fertilizer band. The staggered twin row method of planting appears to have much merit. The seed pieces are planted about  $5\frac{1}{2}$  to 6 inches apart in staggered order in rows 3 inches apart. The trend in the seed potato in-

dustury is toward smaller seed and this close planting is apparently the way to hold tubers to a desired size.

Home grown seed constituted the major part of the seedings, 53.97 per cent, with Maine furnishing 23.34 per cent, Prince Edward Isle 18.36 per cent, Nova Scotia 3.51 per cent and New York 0.82 per cent.

The fall and early winter selling season saw approximately 70 per cent of the crop sold and moved. Most of the seed was sold within the state, small amounts going into Pennsylvania and New York. Approximately 10,000 bags of seed remain to be sold in the spring.

A paragraph should be added to this report covering the certification of a small amount of seed in the early commercial crop for export to South America. An attempt is being made to develop some business in Argentina and Uruguay. It is expected that if the seed shipped gives good results in these South American countries that additional business can be obtained. A total of 4,341 bushels were shipped to Argentina in 1940.

#### WHITE POTATO SEED CERTIFICATION INDUSTRY OF NEW JERSEY

Year	No. of Growers	Acres Entered	Percentage Rejection	Varietal Distribution	
1936	48	474.50	9.38	Cobblers	378.00
				Red Skins	79.00
				Chippewas	5.25
				Katahdins	3.75
				Warbas	3.00
				Superbas	3.00
1937	77	643.45	20.12	Green Mts.	2.50
				Cobblers	455.375
				Chippewas	70.75
				Red Skins	70.45
				Katahdins	29.125
				Green Mts.	17.50
1938	45	355.5	24.47	Idaho Russets	.25
				Cobblers	165.75
				Chippewas	149.75
				Red Skins	18.00
				Green Mts.	16.00
1939	57	584.50	7.44	Katahdins	6.00
				Cobblers	257.25
				Chippewas	178.75
				Katahdins	87.00
				Red Skins	48.00
				Green Mts.	12.00
1940	74	732.99	31.45	Houmas	1.50
				Chippewas	271.53
				Cobblers	252.04
				Katahdins	142.17
				Red Skins	43.50
				Green Mts.	11.75
				Houmas	10.00
				Sebago	2.00

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## INSPECTION AND CERTIFICATION OF NEW JERSEY LATE CROP WHITE POTATO SEED, 1940

### *Acres Entered for Certification:*

County	Acres	Per Cent
Burlington	5.00	.68
Camden	10.00	1.36
Cumberland	392.74	53.59
Gloucester	6.00	.82
Mercer	55.00	7.50
Middlesex	98.75	13.47
Monmouth	19.00	2.59
Salem	146.50	19.99
Total	732.99	100.00

### *Seed Source:*

	150 lbs. Bags	Per Cent
New Jersey	2,955	53.97
Maine	1,278	23.34
Prince Edward Isle	1,005	18.36
Nova Scotia	192	3.51
New York	45	.82
Total	5,475	100.00

### *Seed Treatment:*

	150 lbs. Bags	Per Cent
Semesan	1,879	34.32
No Treatment	3,596	65.68
Total	5,475	100.00

## PRODUCTION AND DISTRIBUTION OF NEW JERSEY'S CERTIFIED CROP OF WHITE POTATO SEED

	1940	1939	1938
Acres of seed certified	502.49	541	268.75
Total yield (field run) in bushels*	95,220	91,003	46,910
Average yield per acre in bushels	189.5	168.21	174.55
Bags of certified seed sold	22,387	18,303	14,405
Bags sold within the state	22,020	17,567	13,680
Bags sold out of state	367	736	725
Pennsylvania	220	736	725
New York	147	...	...
Bags sold untagged (old sacks used) (tags not allowed)	621	1,053	140
Total bags of seed sold	23,008	19,356	14,545
Bags of seed unsold Dec. 5	10,028	7,836	3,161
Baskets of seed retained for own use	47,812	54,154	27,840
Bushels of seed retained for own use	29,883	33,846	17,400

\*An additional 4,341 bushels were certified in the early crop and exported to Argentina.

Note: Seed packed and sold in 100-pound bags.

## POTATO ACREAGE ENTERED FOR CERTIFICATION, 1940

County	Growers	Chippewas	Irish Cobblers	Katahdins	Red Skins	Green Mts.	Houmas	Sebago	Total
Burlington	1	2.50	2.00	...	...	...	.50	...	5.00
Camden	1	1.75	...	...	8.0	...	.25	...	10.00
Cumberland	*34(32)	173.45	99.04	66.50	35.5	9.00	8.25	1	392.74
Gloucester	1	4.00	...	2.00	...	...	...	...	6.00
Mercer	7	4.25	47.25	3.50	...	...	...	...	55.00
Middlesex	13	22.25	49.25	23.50	...	2.75	...	1	98.75
Monmouth	3	...	10.00	9.00	...	...	...	...	19.00
Salem	*14(13)	63.33	44.50	37.67	...	...	1.00	...	146.50
Totals	74	271.53	252.04	142.17	43.5	11.75	10.00	2	732.99

\*Actual number of growers.



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## ACREAGE FAILING AND PASSING CERTIFICATION

	Acres	Per Cent
Acreage rejected at first inspection	48.00	6.55
Acreage withdrawn at first inspection	89.75	12.25
Acreage rejected at second inspection	92.75	12.65
Total acreages rejected at end of two inspections	230.50	31.45
Acreage rejected at third tuber inspection	...	...
Acreage withdrawn and rejected three inspections	230.50	31.45
Acreage passing three inspections	502.49	68.55

## SUMMARY OF INSPECTION RESULTS, 1940

	Burlington	Camden	Cumberland	Gloucester	Mercer	Middlesex	Monmouth	Salem	Total
Acreage entered	5	10.00	392.74	6.00	55.00	98.75	19.00	146.50	732.99
Number of growers	1	1.00	34.00	1.00	7.00	13.00	3.00	14.00	74.00
Average number of acres per grower	5	10.00	11.55	6.00	7.86	7.60	6.33	10.46	9.91
Acres rejected first inspection*	...	1.75	84.50	...	4.00	19.00	...	28.50	137.75
Per cent rejected first inspection	...	17.50	21.52	...	7.27	19.24	...	19.45	18.79
Acres rejected second inspection	...	...	19.00	...	7.75	9.00	...	57.00	92.75
Per cent rejected second inspection	...	...	4.84	...	14.09	9.11	...	38.91	12.66
Acres rejected third inspection	...	...	...	...	...	...	...	...	...
Per cent rejected third inspection	...	...	...	...	...	...	...	...	...
Acres rejected total*	...	1.75	103.50	...	11.75	28.00	...	85.50	230.50
Acres certified	5	8.25	289.24	6.00	43.25	70.75	19.00	61.00	502.49
Per cent certified	100	82.50	73.64	100.00	78.64	71.65	100.00	41.64	68.55

\*Includes withdrawals.

## Varietal Distribution of Rejections and Withdrawals

*Acres Rejected and Withdrawn by Inspections*

Variety	Acres Entered	First	Second	Acres Certified
Chippewas	271.53	75.50	51.08	144.95
Irish Cobblers	252.04	40.50	15.00	196.54
Katahdins	142.17	13.75	19.67	108.75
Red Skins	43.50	3.50	...	40.00
Green Mts.	11.75	2.00	6.00	3.75
Houmas	10.00	.50	1.00	8.50
Sebago	2.00	2.00	...	...
Totals	732.99	137.75	92.75	502.49

## SUMMARY OF WEATHER CONDITIONS

	<i>Bridgeton</i>				<i>Hightstown</i>			
	July	August	September	October	July	August	September	October
Number of days during which rain fell	7	12	6	7	9	12	4	9
Heaviest daily rainfall (in inches)	.73	2.88	4.08	.93	.62	2.12	3.37	.90
Lightest daily rainfall (in inches)	.11	.03	.06	.09	.01	.01	.14	.01
Total rainfall (in inches)	2.09	6.15	5.90	2.22	1.74	6.61	5.72	2.74
Deviation from normal (in inches)	-2.36	+1.48	+2.59	-.88	-3.18	+1.59	+2.52	-.96
Average relative humidity at 7:30 A. M.*	82	86	83	82	79	85	80	76
Normal for month at 7:30 A. M.*	73	76	77	75	78	81	80	82
Per cent of possible sunshine*	58	39	63	64	79	67	79	65
Deviation from normal (per cent)*	-6	-23	±0	+1	+19	+6	+14	+7
Highest temperature reached	101	95	90	80	100	93	88	79
Average of the high temperatures	89.3	83.1	77.2	63.2	86.9	78.8	75.1	61.6
Normal of the high temperatures	87.5	85.3	79.3	68.8	85.3	82.4	76.9	66.0
Lowest temperature reached†	51	52	37	26	49	44	35	22
Average of the low temperatures	64.1	62.8	53.6	42	62.2	58.9	51.1	39.7
Normal for low temperatures	66.2	64.8	57.8	46.9	63.8	62.1	55.4	44.8

Note: Data given above are for Bridgeton and Hightstown official weather bureaus and are regarded as being more or less representative of the section in southern and central New Jersey, respectively, where certified seed potatoes are grown.

\*Philadelphia station for Bridgeton, and Trenton station for Hightstown; such data not being available for the respective stations.

†Average date of first killing frost in autumn: Bridgeton, October 22; Hightstown, October 14. Earliest: September 22 (both)

## NURSERY INSPECTION SERVICE

Certificates of inspection were issued for the year ending June 30, 1941, to a total of 642 nurseries. Issuance is made only when the nurseries are found, upon inspection, to be free of dangerously injurious insects and plant diseases. Following is a list of insect infestations observed and the frequency of occurrence.

Insect Pests	Number of Nurseries
Juniper Scale	134
Rhododendron Lace Bug	69
Spruce Gall Aphid	51
Bagworm	48
Juniper Webworm	42
Pine Sawfly ( <i>Neodiprion sertifer</i> )	38
Oyster Shell Scale	36
European Pine Shoot Moth	29
Pine Leaf Scale	16
Euonymus Scale	11
Boxwood Leaf Miner	11
Elm Scale	4
Lilac Borer	4
Oak Scale	4
San Jose Scale	3
Azalea Lace Bug	3
White Pine Weevil	2
Cedar Rust of Apple	2
Lecanium Scale	2
Willow Gall	1
Bronze Birch Borer	1
Holly Leaf Miner	1
Pine Tip Moth	1
Mealy Bug	1
Woolly Aphis	1

In all there were 227 nurseries in which 515 infestations were found, and in which clean-up measures were required before certificates were issued.

## DEALERS' CERTIFICATES

Certificates were issued to 71 dealers in nursery stock for the year ending June 30, 1941. These dealers signed agreements to purchase stock only from listed certified nurserymen.

## FOREIGN STOCK INSPECTIONS

There were two inspections made of nursery stock shipped into this state from foreign countries.

## DOMESTIC STOCK INSPECTIONS

The following inspections were made of nursery stock shipped into New Jersey from other states:

	Cases	Cars	Bales	Truckloads
Fall of 1940	732	9	777	8
Spring of 1941	1,006	26	516	13
Totals	1,738	35	1,293	21

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## SPECIAL CERTIFICATES

Special certificates are issued to nurserymen who desire to ship plant material to a state or a foreign country which has special requirements other than the copy of the 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). It is also issued on request to persons, not in the nursery business, who desire to make a small shipment or two, to some point outside of the state. A total of 330 of these certificates was issued.

## REQUEST INSPECTIONS

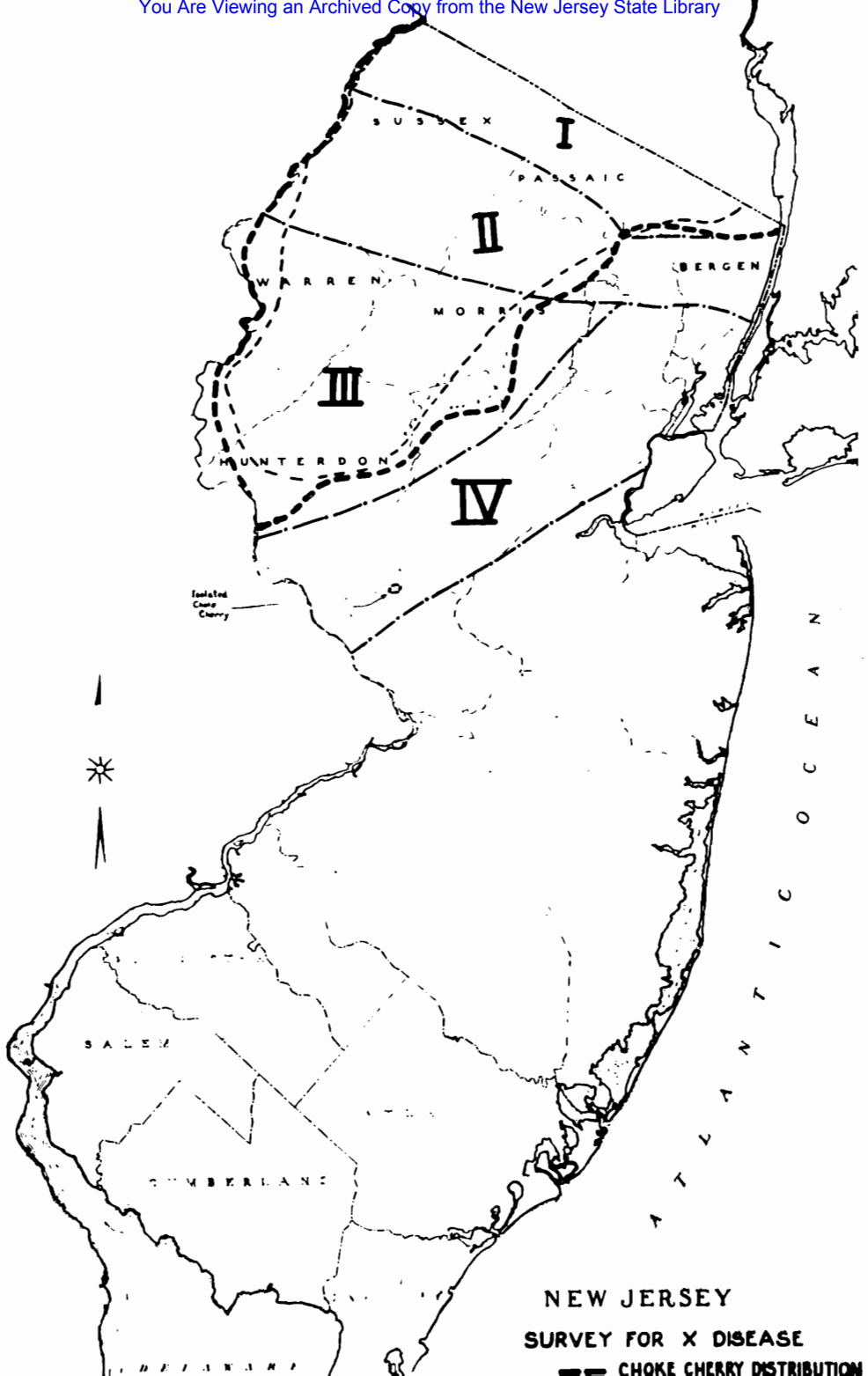
Requests are received from time to time for advice in the control of various insects and in other nursery and horticultural problems. In some cases, special calls are necessary. Seventy-one such calls were made during the year ending June 30, 1941.

## CANADIAN NURSERY STOCK INSPECTIONS

In compliance with Canadian regulations, it was necessary to make 67 inspections of plant material for shipment from New Jersey into Canada.

## WHITE PINE BLISTER RUST CONTROL AREA PERMITS

Under the provisions of Quarantine No. 63 of the United States Department of Agriculture, and an order of the New Jersey State Board of Agriculture, effective December 21, 1938, in order to prevent the spread of white pine blister rust in this state, currant and gooseberry plants (*Ribes* sp. and *Grossularia* sp.) may be shipped into New Jersey only after a "control area permit" has been issued to the out-of-state consignor. Between July 1, 1940 and June 30, 1941, a total of 412 such permits was issued.



**"X" DISEASE OF PEACH****(Results of 1939 and 1940 Scouting)**

The "X" disease of peaches which continues to cause serious damage in areas where it has become established, is still of prime concern to fruit growers of New Jersey. In July 1939 the New Jersey Peach Council made funds available for the employment of two men to scout the state to determine whether or not this disease is present and also to determine the distribution and condition of the wild host (choke-cherry, *Prunus virginiana*). The scouting of choke-cherry was thought to be of importance in that "X" disease has appeared on peach trees in New York, Connecticut and other eastern states only where choke-cherry has been found in the hedgerows or in the immediate vicinity of the peach trees. The disease is quite easily detected on the choke-cherry, causing, among other symptoms, a striking discoloration of the foliage. Rosetting, and finally death of the wild host results.

The 1939 survey was completed in two months and may be summarized as follows: (1) Choke-cherry was found distributed over all of Sussex and Warren counties and over the northern halves of Hunterdon, Morris, Passaic and Bergen counties and the northwestern corner of Somerset County. Then a few wild choke-cherries were found in the northernmost portion of Mercer County. (The accompanying map will show the area of choke-cherry distribution as recorded in the 1939 and 1940 surveys). (2) No diseased choke-cherry was found at any point within New Jersey. (3) A total of 253 orchards in the choke-cherry area, containing about 172,000 trees, was thoroughly inspected and no "X" disease was found. (4) A good sample of orchards in all other parts of the state was examined (183 orchards containing about 281,000 trees) and no "X" disease was found.

It can be safely concluded from the preceding report of the intensive scouting done in 1939, that the "X" disease was not present in New Jersey.

In view of the fact that the disease meanwhile has been found in New York in counties adjacent to this state's border, the Department of Agriculture urged the Peach Council to provide money for further scouting work in 1940. The council was able to supply funds for the employment of one man for a 5-week period beginning the last week in July, at which time "X" disease symptoms become evident, to make a second survey. It was, of course, impossible to scout the state as thoroughly as the previous year, and in view of the limited time, the scout concentrated his efforts on the northern half of the state, particularly within the area of choke-cherry distribution.

The scouting was begun in the northern parts of Bergen, Passaic and Sussex counties, (Zone I on the accompanying map). Choke-cherry is native and abundant in this area. Peach trees in orchards were examined as well as the wild choke-cherry. Orchards and choke-cherry also were scouted in Zone II. In these two zones, which are considered to be the sections where



the disease is most likely to make its appearance, a total of 52 orchards containing 50,554 trees was scouted, as follows:

County	No. Orchards	No. Trees
Bergen	23	23,867
Passaic	4	1,400
Sussex	21	16,803
Morris	4	8,484
<hr/>		
Total	52	50,554

Choke-cherry in Zone III was carefully scouted, and a few orchards were examined as follows:

County	No. Orchards	No. Trees
Morris	8	16,966
Essex	6	3,175
Union	2	2,100
<hr/>		
Total	16	22,241

In scouting Zones III and IV, the Bureau of Plant Industry was also anxious to check on the western and southern limits of choke-cherry distribution. Through this scouting, some slight modifications were made in the choke-cherry distribution map for the state.

As in 1939, no "X" disease was found in New Jersey on either choke-cherry or peach.

Doctors Haenseler and Daines, plant pathologists of the New Jersey Agricultural Experiment Station, have actively cooperated in both surveys, and their help and advice have been of great value in the performance of the surveys.

THE PINE SAWFLY (*Neodiprion sertifer*)\*

This introduced defoliator of pines has continued to cause considerable damage especially to red and Scotch pine (*Pinus resinosa* and *P. sylvestris*) plantings in New Jersey. A complete report of its status and the history of the infestation follows.

In the 23rd Annual Report of the New Jersey Department of Agriculture the fact was recorded that this sawfly was taken at Somerville, N. J. in 1925, and that it was identified in 1936 as *Neodiprion sertifer* Geoffrey. In 1938, the department was notified of the presence of the insect in the vicinity of Lamington, by the Division of Forest Insects of the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture. A scouting project was immediately organized by this department, and the Division of Forest Insects cooperated in identifying specimens. The apparent limits of the 1938 infestation can be seen from the map herewith.

An attempt was made in the spring of 1939 to bring serious infestations under control through spraying. A program of autogiro spraying was initiated. With the cooperation of the Department of Conservation and Development and the Morristown Laboratory of the Division of Forest Insects, some 125 acres of pine plantations were sprayed and the cost borne by the owners of the various plantations. The program, though generally satisfactory, did not bring about a good degree of control since it was impossible to obtain uniformly good coverage with the spray, and since reinfestation would be bound to occur with areas of poor coverage serving as breeding grounds. In the spring of 1940 the extended boundaries of the infestation were recorded through a rough survey.

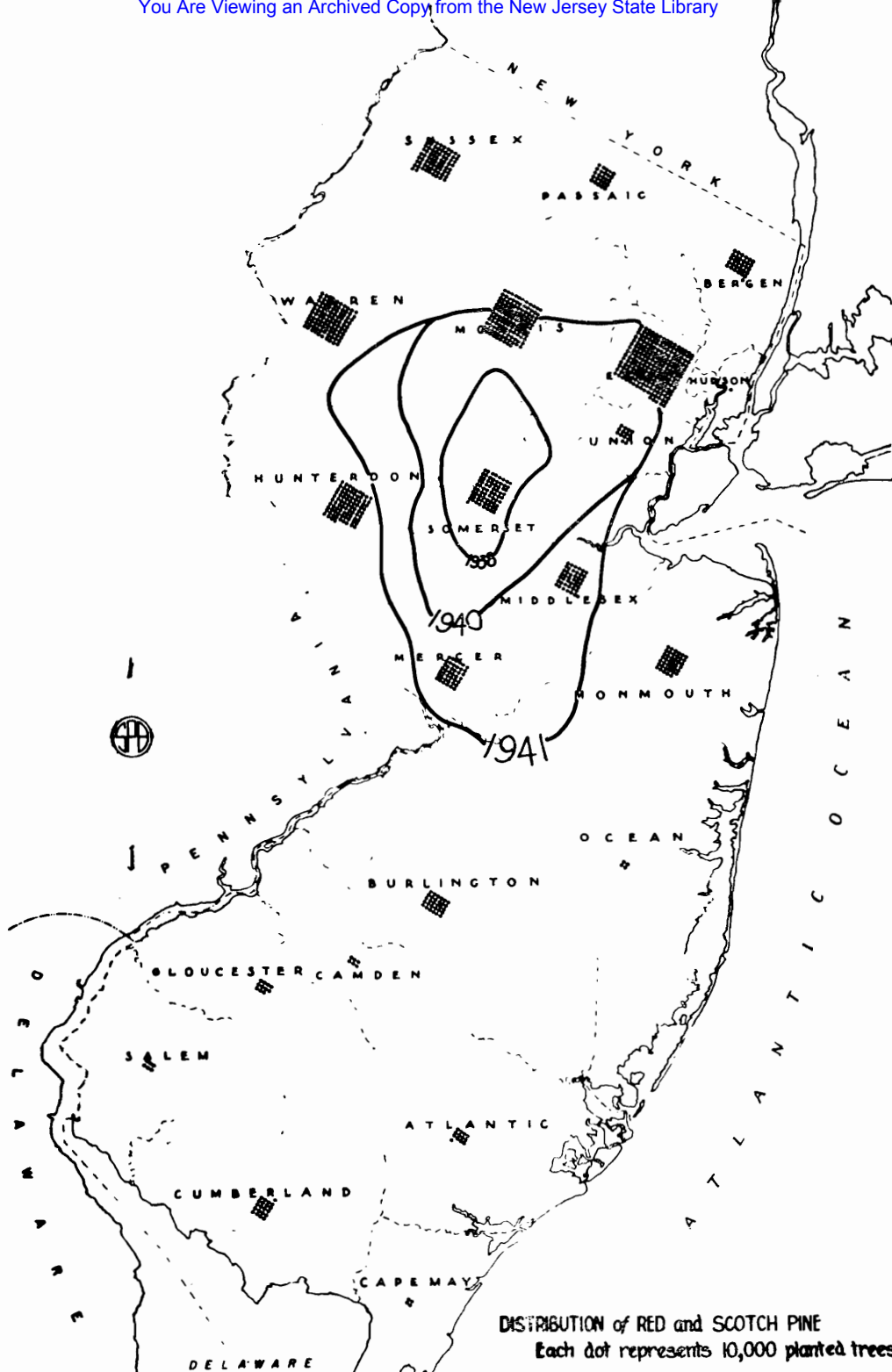
In the summer of 1940, the Forest Insect Laboratory of the United States Department of Agriculture at New Haven, Conn., furnished two species of parasites (*Microcryptus basizonius* and *Microplectron fuscipennis*) which which were being reared for use against the spruce sawfly (*Gilpinia polytoma*) but which were also known to parasitize *Neodiprion sertifer*. A small supply of cocoons of the sawfly was collected, and an attempt was made to rear the two parasites at the Japanese beetle laboratory at White Horse.

One of the two (*Microcryptus basizonius*) could not be reared with the limited facilities and money available for the work, but the other fared well and appeared to be very promising. It was possible to rear this species throughout the winter of 1940-1941 on the cocoons collected and stored during the previous summer. A very limited amount of labor was needed for this purpose, and the work was accomplished satisfactorily with a minimum of equipment. Some releases of these parasites will be made in August 1941.

In the meantime, the host sawfly has extended its boundaries of infesta-

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\*Much of the data contained in this report were obtained from the Department of Conservation and Development of this state, and the report was prepared with the aid of a forest entomologist, Mr. Michael LaPorte, whom this department was able to hire for June and July, 1941.



tion and it is now present over at least 15,000 square miles of the area of this state.

The importance of this pest of forest trees can readily be appreciated when the following facts are considered.

1. This sawfly attacks a variety of pines. Damage has been observed on the following species in New Jersey: *Pinus resinosa*, *P. sylvestris*, *P. densiflora*, *P. montana*, *P. Banksiana*, *P. nigra* and *P. ponderosa*. There is also reason to believe that it can sustain itself on *Pinus echinata*, one of the important pines in southern New Jersey.

2. Damage has been most extensive in forest plantations of red pine and Scotch pine.

3. These two species of pine have been widely distributed through the reforestation program of the Department of Conservation and Development. Since 1926, a total of 7,861,195 red pines and a total of 1,712,675 Scotch pines have been thus planted. The distribution of these trees is shown on the accompanying map. Other plants used for reforestation plantings of these species in this state were obtained from other sources. Many also have been set out as ornamentals for landscaping purposes.

4. It is estimated that the present actual timber value of these forest plantings is about \$650,000, and \$2,000,000 is given as a conservative estimate of the total value including timber, watershed protection, soil erosion, game cover, aesthetic value, etc. (It must be realized that only the roughest sort of estimate can be given for certain of these values.)

5. Before the appearance of this insect, red pine was considered the best tree for general reforestation purposes in northern New Jersey. The tree is easily established, makes rapid growth, is adapted to a variety of sites and has high timber value. It is a favorite species for watershed plantings for the above reasons, and also because it provides ground cover in the shortest possible time.

6. Scotch pine, though somewhat inferior to red pine for timber, is of value because of its rapid growth on poorer sites and because it is easily established under adverse conditions. Because of its rapid growth it is also used to serve as protection for more valuable trees, which are slower in growth, in mixed plantings. Thus white pine is commonly planted in mixture with Scotch pine.

7. It would be practically impossible to replace these trees in the reforestation program of this state.

8. In only a few instances have the yearly attacks of this sawfly been directly responsible for death of trees. Yet it is not certain that the pines will stand forever the yearly defoliation. Even if such annual defoliation should not prove fatal, there is a decided slowing of the growth of the trees, especially with respect to increment.

9. There is every reason to believe that the sawfly population is still

increasing, and that considering the state as a whole, the infestation is yet in the inception stage.

At this time a program of biological control, or more specifically, insect parasitism, gives good promise of eventual control of this pest. While the sawfly can be controlled easily on any one tree by thoroughly spraying the tree with an insecticide such as lead arsenate, over a period of years, a spraying program would be very expensive, and, for many other reasons, impracticable. It is regretted that funds are not available for a program of control, which would involve a study of parasites and other natural enemies of this insect, the breeding and release of suitable parasites, and the keeping of records concerning the status of the infestation and the results of control efforts.

A description of the appearance, life history, etc. of this insect was given in Circular No. 326, "Important Nursery Insects of New Jersey", published by the State Department of Agriculture.

#### PLANTINGS OF RED PINE AND SCOTCH PINE IN NEW JERSEY

From Stock Purchased from the Department of Conservation and Development, 1925-1940

County	Number of Red Pine	Number of Scotch Pine	Both Species
Atlantic	130,000	4,000	134,000
Bergen	252,450	61,000	313,450
Burlington	259,150	44,600	303,750
Camden	40,600	20,500	61,100
Cape May	33,750	9,650	43,400
Cumberland	178,000	25,000	203,000
Essex	1,926,800	216,200	2,143,000
Gloucester	69,500	39,250	108,750
Hudson	8,600	3,300	11,900
Hunterdon	616,150	230,600	846,750
Mercer	349,725	67,700	417,425
Middlesex	258,300	107,700	366,000
Monmouth	331,500	75,500	407,000
Morris	1,095,350	195,450	1,290,800
Ocean	28,600	9,000	37,600
Passaic	139,520	81,075	220,595
Salem	54,900	5,600	60,500
Somerset	584,600	147,300	731,900
Sussex	626,600	109,600	736,200
Union	105,600	28,200	133,800
Warren	771,500	231,450	1,002,950
The State			9,573,870

#### EUROPEAN CORN BORER SURVEY

During September and October sample corn fields in each of the counties of the state were surveyed by the nursery inspectors to determine the status of the European corn borer. The survey method was the same as that used in 1939 and the previous year. Corn fields are picked at random within a county; 25 plants in a row in the selected section of each field are inspected and the number of these plants which are infested is recorded. Then the

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first two infested plants in the row are dissected and the number of borers in each plant recorded. Following is a table showing the status of this insect in 1940 as compared with 1939. These figures cannot be accurately compared with those of previous years, in that the survey of the entire state was not begun until 1939.

County	Average No. Borers per 100 Plants - 1940	Average No. Borers per 100 Plants - 1939
Atlantic	9.6	22.6
Bergen	234.0	292.8
Burlington	505.4	220.8
Camden	98.8	61.6
Cape May	36.2	1.2
Cumberland	58.6	14.2
Essex-Union	106.2	147.2
Gloucester	101.4	53.0
Hunterdon	8.0	8.0
Mercer	187.2	22.6
Middlesex	105.0	211.0
Monmouth	387.4	98.6
Morris	53.6	57.6
Ocean	34.8	23.2
Passaic	46.6	32.9
Salem	58.0	10.8
Somerset	4.0	40.6
Sussex	4.6	6.8
Warren	31.8	6.0
State Average (19 counties)	109.0	70.1

Although an increase in borer population is shown in 1940 as compared with 1939, during the year this insect has not become as abundant as it was in 1938. The increase in 1940 is considered a slight one and is explained by the fact that the second-generation egg laying in mid-July and early August was extremely heavy. However, survival was poor due to the cold period in late August and heavy rains. Nevertheless, the slight increase was inevitable in spite of unfavorable weather conditions.

The work that is being done by the United States Department of Agriculture in the release of parasites of the borer still shows promise. There is every reason to believe that the natural enemies of this insect which have been released in the state in time will have a great effect in reducing the numbers of the borer.

OAK WEEVIL (*Myllocerus castaneus*)

A scouting project for determination of the distribution of oak weevil was completed in mid-October by the gipsy moth inspectors. This supplemented their scouting duties for two months, starting September 15. It has been determined that the insect is abundant and well distributed in all of Passaic County, and in and around Montclair in Essex County. The whole of Bergen County except the northern one-third; in the southern one-third of the infestation can be described as extending from the northern tip of Bergen County to Denville in Morris County, to Plainfield in Union County, and to Fort Lee in Bergen County.



There is a break in the infestation, in that no weevils could be found from Scotch Plains south to Atlantic Highlands in Monmouth County. The weevil was found distributed in Monmouth County from Atlantic Highlands south to Allenhurst. Since this insect feeds extensively on deciduous foliage, heavy damage does not appear until late August. In view of this fact, it is thought that undesirable as an abundance of this foreign insect might be, the damage caused by it might not be of sufficient importance to warrant heavy expenditures in control.

#### GIPSY MOTH

The Bureau of Plant Industry distributed one hundred gipsy moth assembling cages during July and August in Passaic and Bergen counties. Because of the adult male gipsy moth taken near Englewood Borough in 1939, some of the cages were put there, and the rest in the Ramapo Mountain section opposite Ramapo Township, New York. Several adult gipsy moths were caught in Ramapo Township, New York, last year, and the New Jersey Department of Agriculture was advised that male moths again had been taken in about the same section of the township this season. It is possible that a gipsy moth infestation may be nearer to the New Jersey line than is now known, or it may even extend into New Jersey. Much work is needed both in New York and New Jersey. The cages were removed during the first half of September, and no moths were captured.

At the conclusion of the assembling cage work, the force took up work in Passaic and Bergen counties along the New York line and in the vicinity of Englewood Borough. While the weather was favorable for the scouting work, the scouts paid particular attention to the high elevations. There are many hundreds of acres of solid woodland in the region opposite Ramapo, New York, which should be scouted, but with the small force available, it was possible to cover only the most important areas. However, if there were gipsy moth infestations of any size they probably would be picked up. The scouting conditions were very good until January, when the ice and snow made work very slow and dangerous. Efforts were given up temporarily, and the men assigned to scouting work in the inside territory where many infestations occurred in years past.

During the last of April and the first part of May, it was decided to do some rough scouting work in the extreme southern section of the state where little or no scouting work was ever attempted. Main roads, bus stops, picnic grounds, and many isolated oaks and orchards were given particular attention. Woodland blocks where the growth was favorable were also roughly scouted. The ground conditions in the northern section improved early in May and the scouts were transferred back to complete the schedule planned. Scouting work continued until the end of the fiscal year, June 30. As a result of the year's work, no sign of the gipsy moth was found in New Jersey.



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## ANNUAL SUMMARY OF SCOUTING AND TREATMENT WORK

Town	Miles of Road	Open Scouted		Woodland Scouted (acres)	Number of Infestations
		Scattered Apple	Trees Shades		
<b>Bergen County</b>					
Harrington	...	115	515	1,081	...
Hohokus	...	...	...	736	...
Palisades	...	...	4,847	1,746	...
<b>Atlantic County</b>	...	...	275	40	...
<b>Cape May County</b>	127	...	289	...	...
<b>Cumberland County</b>	198	...	...	...	...
<b>Gloucester County</b>	12	...	...	...	...
<b>Middlesex County</b>					
Raritan	...	...	410	57	...
<b>Morris County</b>					
Mendham	...	...	...	364	...
Randolph	...	...	...	492	...
<b>Monmouth County</b>					
Shrewsbury	...	100	1,200	122	...
<b>Passaic County</b>					
Pompton	...	75	1,004	...	...
<b>Salem County</b>	150	...	...	...	...
<b>Somerset County</b>					
Hillsboro	...	...	...	164	...
Franklin	...	...	78	109	...
No. Plainfield	...	...	...	21	...
Montgomery	1½	...	...	...	...
<b>Union County</b>					
Fanwood	...	350	2,335	446	...
<b>Warren County</b>	10	...	...	10	...
Totals	498½	640	10,953	5,388	...

## BEE INSPECTION SERVICE

The regular bee inspection work was carried on throughout the year. Winter scouting was done as conditions allowed. A lessened amount of disease, within certain areas, as a result of the burning of infected colonies and the sterilizing of bee equipment during the winter months, was noticeable during the past season's work.

Commercial beekeepers have requested that the area in which they are contemplating the placement of out apiaries be free from disease within a radius of at least two miles. The practice of inspecting all apiaries located in the vicinity of the queen rearing apiaries was continued. The queen breeders reported that the demand for queens and package bees had been

greater than in any other year. The three leading races reared, within the state, are Italians, Caucasians and Carniolans.

#### APIARY INSPECTIONS

During the fiscal year 639 apiaries were visited for inspection; 6,557 colonies and 880 nuclei of bees were examined for diseases. American foulbrood was found in 108 apiaries, and 238 colonies were infected. European foulbrood was found in 12 apiaries, and 23 colonies were infected.

A few beekeepers neglected to clean up and to sterilize their equipment as recommended. This made it necessary to destroy 42 colonies and equipment.

Sixty-four colonies were found in plain boxes, and 114 colonies with immovable combs.

#### MICROSCOPIC DIAGNOSIS

The results of the microscopic diagnosis assist beekeepers in learning the difference between various bee diseases that may appear in their colonies during the season.

Seventy-two smears of dead bee brood were received by mail and diagnosed microscopically. The organism *B. larvae* causing American foulbrood was found in 38 smears, and the organism *B. pluton*, causing European foulbrood, in 11 smears. No organism of any kind was found in 23 of the smears.

#### CERTIFICATES ISSUED

Forty-five certificates were issued during the fiscal year; 13 to the following queen breeders:

Albert G. Hann, Glen Gardner, July 26, 1940, and May 1941, Caucasians, Pittstown Yard, July 27, 1940, Carniolans.

Elmer G. Carr, Pennington, July 29, 1940, and April 22, 1941, Italians.

Henry Brown, Cape May Court House, August 8, 1940, and June 5, 1941, Italians.

H. N. Conners, Stockton, July 30, 1940, and April 23, 1941, Caucasians and Italians.

Robert Spicer, Wharton, August 6, 1940, Italians.

Fred McGovern, Thermont Road, Denville, April 29, 1941, Caucasians.

Thirty-one certificates were issued during the year for the sale and shipment of colonies of bees to other states.

One certificate was issued to Richard D. Barclay Est., Riverton for certified honey.

# APIARY INSPECTIONS BY COUNTIES, JULY 1, 1940 TO JUNE 30, 1941

County	Api- aries	Colo- nies In- spected	Nuclei In- spected	Box Hives	Cross Combed	Api- aries A.fb.	Colo- nies A.fb.	Api- aries E.fb.	Colo- nies E.fb.	Colonies Des- troyed and Burned	S m e a r s		
											Neg.	A.fb.	E.fb.
Atlantic	4	38	...	...	...	1	1	...	...	...	1	...	...
Bergen	40	208	...	12	3	10	21	...	...	3	2	3	...
Burlington	26	458	...	...	...	2	4	3	3	1	...	...	...
Camden	13	57	...	...	...	1	2	...	...	...	1	...	...
Cape May	4	126	161	...	...	1	2	1	8	1	...	3	1
Cumberland	31	654	...	4	5	2	6	...	...	1	1	6	...
Essex	22	98	...	1	...	4	9	...	...	...	2	...	...
Gloucester	7	45	...	...	...	1	1	...	...	...	1	...	...
Hunterdon	106	1,668	419	7	22	16	35	5	8	11	...	9	8
Mercer	88	716	154	8	19	15	22	...	...	9	4	2	...
Middlesex	35	217	...	9	15	7	21	...	...	...	1	...	...
Monmouth	10	74	...	...	...	1	2	...	...	1	...	...	...
Morris	71	647	52	11	3	15	40	...	...	5	1	4	...
Ocean	17	121	...	1	...	1	3	1	2	...	...	...	2
Passaic	34	177	...	...	1	10	23	...	...	2	...	3	...
Salem	18	383	...	8	...	4	14	...	...	...	1	1	...
Somerset	58	423	94	1	3	7	14	2	2	2	1	2	...
Sussex	4	29	...	...	6	...	...	...	...	...	...	...	...
Union	36	256	...	...	...	7	15	...	...	6	3	4	...
Warren	15	256	...	2	37	3	3	...	...	...	4	1	...
Total	639	6,651	880	64	114	108	238	12	23	42	23	38	11

## DUTCH ELM DISEASE ERADICATION PROJECT

As heretofore, the Bureau of Entomology and Plant Quarantine of the Federal Department of Agriculture cooperated with the New Jersey Department of Agriculture in the eradication of the Dutch elm disease. Policies enforced during the previous year were again followed, viz: the detection and prompt removal of diseased trees and beetle infested material. The discovery of a diseased tree in Jobstown, Burlington County, extended the disease zone further south. The total work area as of December 31, 1940 covered 4,412.13 square miles, as indicated below.

SQUARE MILES INCLUDED IN DISEASE ZONE  
AND PROTECTIVE ZONE IN NEW JERSEY

As of December 31, 1940

County	Disease	Protective
Bergen	234.89	...
Essex	126.00	...
Hudson	43.74	...
Hunterdon	437.00	...
Morris	480.19	...
Passaic	207.86	...
Somerset	305.20	...
Union	102.10	...
Warren	353.40	10.65
Burlington	82.84	290.90
Sussex	503.50	22.80
Mercer	188.44	37.50
Middlesex	169.82	139.20
Monmouth	302.55	172.80
Ocean	...	200.75
Total	3,537.53	874.60
Total Square Miles — Disease Zone		3,537.53
“ “ “ — Protective Zone		874.60
“ “ “ — Work Area		4,412.13

The first Graphium scouting was begun on July 8, 1910 with 600 WPA men and 45 supervisors in the field. New Jersey was divided into three zones. 1. Border Zone, about 15 miles wide and located east of the Delaware River, and including the following counties: Burlington, Camden, Gloucester, Monmouth and part of Ocean. 2. Outer disease Zone covering Sussex, Warren, Hunterdon, Mercer, Morris, Somerset, Middlesex and part of Burlington County. 3. Inner-disease Zone, Hudson, Bergen, Passaic, Essex and Union counties. Intensive work was conducted in the outside zones to protect other nearby states, and in the inner-disease zone to reduce the number of diseased trees.

The table following summarizes the identification work of the laboratory for the calendar year in New Jersey.

## DETERMINATIONS BY YEARS IN NEW JERSEY

Year	<i>Graphium</i>		<i>Cephalosporium</i>		<i>Verticillium</i>		<i>Misc.</i>		<i>Sterile</i>		Total
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	
1932	...	...	...	...	...	...	1	...	...	...	1
1933	740	50.5	111	7.6	128	8.7	192	13.1	293	20.0	1,464
1934	4,377	57.1	1,269	16.5	305	4.0	798	10.4	919	12.0	7,668
1935	4,113	28.1	4,780	32.7	287	2.0	4,539	31.0	906	6.2	14,625
1936	5,793	21.2	12,761	46.8	602	2.2	6,989	25.6	1,142	4.2	27,287
1937	4,830	18.8	7,912	30.8	259	1.0	10,065	39.1	2,654	10.3	25,720
1938	16,248	38.3	9,816	23.1	2,184	5.1	12,187	28.7	1,977	4.7	42,412
1939	8,824	33.7	10,514	40.1	785	3.0	5,378	20.5	698	2.6	26,193
1940	2,856	33.5	3,551	41.7	1,025	12.0	949	11.1	141	1.7	8,522

The first scouting of elm trees was completed on August 22 and a second scouting begun on August 23. Fortunately the scouts were able to make two summer inspections terminating symptomatic scouting on September 23. Elm leaf beetle damage interfered with Dutch elm disease symptoms during the second scouting. Several hundred requests from property owners for elm tree examinations were received at the Bloomfield headquarters. State men handled these inquiries along with regular clearance work.

A remarkable decrease in disease was noted over the previous year, in fact a 69 per cent reduction is indicated in the following figures which present the number of diseased trees found by counties, 1933-1940 inclusive.

## GRAPHIUM CONFIRMATIONS BY COUNTIES AND YEARS

County	Sq. Mi.	1933	1934	1935	1936	1937	1938	1939	1940	Totals
Bergen	234.89	13	691	609	718	592	1,662	1,271	389	5,945
Burlington	74.00	...	...	...	...	...	...	2	9	11
Essex	126.00	609	1,462	1,143	938	398	1,930	768	253	7,501
Hudson	43.74	9	32	16	3	4	7	1	4	76
Hunterdon	437.00	...	...	6	113	264	2,587	1,146	363	4,479
Mercer	225.94	...	1	...	3	3	748	452	218	1,425
Middlesex	309.02	2	100	230	273	130	641	277	32	1,685
Monmouth	475.35	...	...	3	8	6	43	46	26	132
Morris	480.19	8	497	705	1,304	1,122	2,126	1,469	420	7,651
Passaic	207.86	38	600	360	670	392	682	305	169	3,216
Somerset	305.20	3	96	494	1,015	1,300	3,552	1,622	363	8,445
Sussex	526.30	...	...	10	9	28	174	470	297	988
Union	102.10	58	898	531	725	500	1,751	474	188	5,128
Warren	364.05	...	...	3	14	91	345	521	125	1,099
<b>Totals</b>	<b>3,911.54</b>	<b>740</b>	<b>4,377</b>	<b>4,113</b>	<b>5,793</b>	<b>4,830</b>	<b>16,248</b>	<b>8,824</b>	<b>2,856</b>	<b>47,781</b>



Burlington and Hudson were the only counties showing an increase over 1939. A substantial reduction occurred over the entire disease area in the United States: 4,444 cases as compared to 10,786 found during 1939. A large increase in disease, however, was found in the Binghamton area of New York, and a new area of infection was found in the Wilkes Barre area of Pennsylvania. The finds for the entire work area in the United States appear in the following table.

## DUTCH ELM DISEASE TREES FOUND

	1930	1931	1933	1934	1935	1936	1937	1938	1939	1940	To April 1, 1941	Total
Connecticut	...	...	1	55	72	101	125	535	412	377	9	1,687
New Jersey	...	...	740	4,377	4,113	5,793	4,830	16,248	8,824	2,856	73	47,854
New York	...	...	77	2,427	2,253	1,740	1,274	1,321	1,287	824	87	11,295
Pennsylvania	...	...	...	...	...	...	...	10	230	193	29	462
Conn., Old Lyme	...	...	...	1	4	1	1	...	...	...	...	7
Preston	...	...	...	...	...	...	...	...	...	1	...	1
Ind., Indianapolis	...	...	...	4	10	19	32	34	14	6	1	120
Md., Baltimore	...	...	1	...	...	1	...	...	...	...	...	2
Brunswick	...	...	...	...	3	...	...	...	...	...	...	3
Cumberland	...	...	...	...	...	1	...	...	1	...	...	2
N. Y., Binghamton Area	...	...	...	...	...	...	...	...	10	102	4	116
Ohio, Athens	...	...	...	...	...	...	1	3	7	16	...	27
Cincinnati	1	...	...	...	...	...	...	...	...	...	...	1
Cleveland	3	4	1	2	23	...	...	...	...	...	...	33
Hockingport	...	...	...	...	...	...	...	...	1	...	...	1
Pa., Susquehanna Area	...	...	...	...	...	...	...	...	...	4	...	4
Wilkes Barre Area	...	...	...	...	...	...	...	...	...	65	6	71
Va., Norfolk	...	...	...	1	2	1	...	...	...	...	...	4
Portsmouth	...	...	...	...	1	...	...	...	...	...	...	1
W. Va., Wiley Ford	...	...	...	...	...	...	5	1	...	...	...	6
Totals for Year	4	4	820	6,857	6,185	7,657	6,258	18,152	10,786	4,444	209	
Grand Total to Date	4	8	828	7,695	14,181	21,838	28,105	46,258	57,044	61,488	61,697	61,697

TWENTY-SIXTH ANNUAL REPORT

The winter program consisted of an inspection of the entire work area for beetle infested material and potential beetle material. Due to a shortage of WPA scouts, the state office attempted clearance on approximately 18 square miles for nonscouting work in each county. This clearance eliminated the tagging of condemned material, and alleviated the shortage of scouting personnel. A total of 219,360 acres was cleared for this type of work. Permission for removal of elm trees within a 25-foot radius of condemned trees was procured in 52 per cent of all cases. It has been proved that a recurrence of the disease may be found in these areas as a result of root graft.

Two areas were clear cut of all elms in view of the severity of disease. Both were difficult sections, usually flooded. Sussex County accounted for one and the Duck Island section of Trenton for the other. This practice seems justified in such areas, as many beautiful nearby landscape trees are menaced by such "hot" spots of infection.

Fuel wood was released to 272 property owners during the winter months. Most of the owners consumed the wood or placed it under cover by April 1. However, it was necessary to seize some wood in view of the approaching beetle emerging season. Very little resistance was encountered this year from such owners. Fuel wood was limited to one cord in all cases, thus reducing the seizures as compared to previous years.

An ice storm on January 16 and 17 caused considerable damage to elm trees throughout northern New Jersey. Serious damage as compared to last year's severe ice storm was averted, due to rising temperatures immediately following, and the low velocity of the wind during the storm. Essex, Union, Somerset and Hunterdon counties received the severest damage while Morris and Mercer received slight damage. Fortunately, the beetle material program was incomplete in most of these areas and storm damaged material was cleared along with the contemplated sanitation program. State men enlisted the aid of all Shade Tree Commissioners, and members of similar organizations in the damaged areas. The response was favorable, and the results obtained indicated the public interest in the Dutch elm disease eradication program.

During the spring, state men completed the plotting of all elms in cities and towns throughout the entire work areas, thus eliminating many square miles from the present work area. Elm trees on golf courses were also plotted, it being expected that all will be completed during the next fiscal year.

Elm wood trap piles to attract the carriers of the Dutch elm disease fungus were placed during May. Results thus far obtained indicate a reduction of beetles over the entire area again this year.

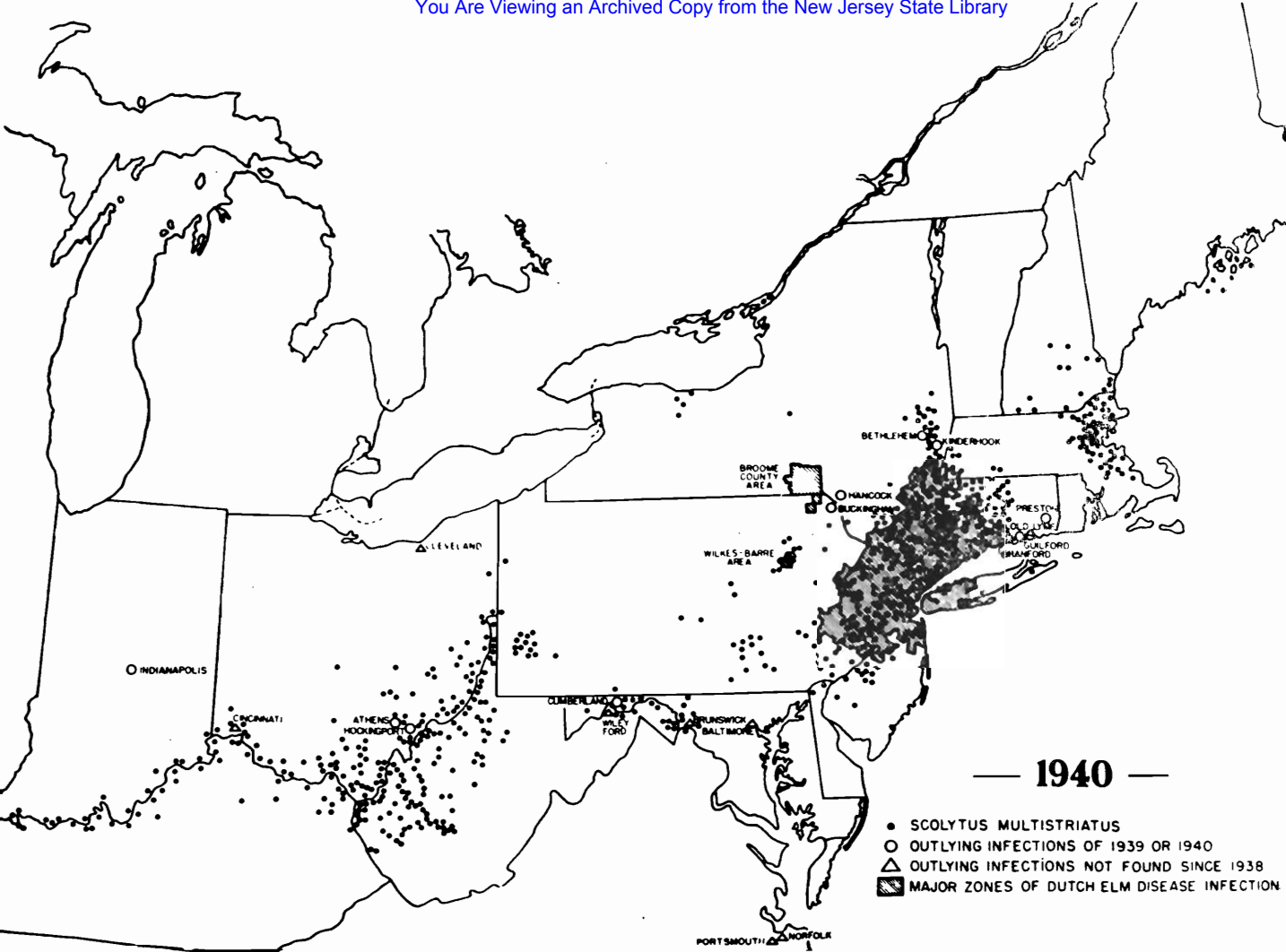
A census was made of the nurseries in the work area to determine the amount of elm stock being raised and its value. This survey was undertaken with the thought of possible certification of stock for shipment outside of the present restricted area.

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On March 1 it was decided to change the eradication program to one of local control. This was necessary in view of the difficulty encountered in securing enough skilled WPA workers generally absorbed by national defense activities. It was planned to inspect only those trees having landscape value and to eliminate wooded and mountainous terrain. Work on this modified program was begun on May 13. Protective zones for sanitation work around these control areas are to be established after the summer inspections.

Suspect scouting for the summer of 1941 was begun on June 15, 1941.



# TWENTY-SIXTH ANNUAL REPORT

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The following is a summary of the work done by the cooperating agencies:

## 1. Specific Work of State Department

Condemnations by mail	2,319	owners
Contacted by agents	19,144	"
Complaints and inquiries handled	1,272	"
Cleared for elm free work	3,585	acres
Cleared for non-scout BM work	249,360	"
Beetle trap permissions	305	owners
Fuel agreements signed	272	"
Follow-up fuel letters mailed	201	"
Work orders issued to federal Department	530	
Fuel notices distributed	8,051	owners
Agricultural information supplied	275	"
Trees released from quarantine	2,335	

## 2. Summary of Field Work

Scouting, three times	10,000,000	elms
No. Dutch elm disease suspects tagged	47,012	
No. beetle infested trees tagged	125,856	
No. elms removed in sanitation work	177,777	
No. " " " selective work	68,221	
No. " pruned of beetle material	118,904	
No. Dutch elm diseased trees removed	4,407	

## 3. Square Miles Covered by Suspect Scouting

First survey	4,753.79
Second survey	4,356.30
Total	9,110.09

Grand total of elms removed

during year ended 6/31/41

250,405

# DUTCH ELM DISEASE WEEKLY REPORT Week Ending Dec. 28, 1940

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STATE DEPARTMENT OF AGRICULTURE

Number of Employees	Last Week's Report	Conn.	New Jersey	New York	Pennsylvania	Detached Areas	Present Totals
Appointed Dept. Funds	59	6	28	9	10	4	57
W. P. A. Administrative	14	1	8	3	1	1	14
W. P. A. Supervisory	100	11	31	29	16	15	103
State Appointed	15	1	5	9	...	...	15
State Per Diem	43	...	17	24	...	2	43
Per Diem Dept. Funds	...	...	...	...	...	...	...
Work Relief Funds	1,963	159	542	626	309	307	1,943
<b>Man-Hours</b>							
Scouting	14,332	304	1,757	3,588	2,280	1,571	9,500
DED & Sanitation	23,979	2,310	3,308	6,372	1,311	4,350	17,651
Selective Work	1,150	16	169	496	...	...	681
Miscellaneous	19,940	962	7,054	3,991	1,878	821	14,706
<b>Scouting Project</b>							
Sq. Mi. Scouted This Week	...	...	...	...	...	...	...
First Suspect Survey	...	...	...	...	...	...	...
Second Suspect Survey	...	...	...	...	...	...	...
E. M. Scouted	348.42	6.00	21.91	62.37	66.74	28.00	185.02
Sq. Mi. Scouted To Date	...	...	...	...	...	...	...
First Suspect Survey	...	...	...	...	...	...	...
Second Suspect Survey	...	...	...	...	...	...	...
E. M. Scouted	8,348.84	784.00	1,077.71	3,042.91	2,109.31	709.88	7,723.81
Percent Completed	...	...	...	...	...	...	...
First Suspect Survey	...	...	...	...	...	...	...
Second Suspect Survey	...	...	...	...	...	...	...
E. M. Scouted	...	...	...	...	...	...	...
Suspects Collected This Week	154	44	7	22	12	72	157
E. M.'s Tagged This Week	5,138	143	344	846	143	1,026	2,502
<b>Laboratory Identification</b>							
Confirmed DED This Week	12	...	14	3	5	1	23
Total Elms Confirmed DED	61,453	1,677	47,778	11,206	431	384	61,476
Total Reported Not DED	386,039	68,695	106,122	128,227	19,312	63,874	386,230
Suspects Unreported	298	79	8	23	37	94	241
Total Suspects Collected	447,790	70,451	153,908	139,456	19,780	64,352	447,947
Total DED's Standing	108	2	59	28	14	9	112
<b>Elms Removed This Week</b>							
Confirmed DED's	8	...	10	7	...	2	19
Sanitation	3,624	165	474	684	96	941	2,360
Selective	...	...	...	...	...	...	...
Total Elms Removed This Week	3,632	165	484	691	96	943	2,379
<b>Elms Removed to Date</b>							
Confirmed DED's	61,345	1,675	47,719	11,178	417	375	61,364
Sanitation	4,314,594	501,969	2,152,844	1,438,849	71,959	151,333	4,316,954
Selective	1,268,860	74,607	1,112,582	64,131	1,834	15,706	1,268,860
Total Elms Removed To Date	5,644,799	578,251	3,313,145	1,514,158	74,210	167,414	5,647,178
Elms Pruned This Week	1,349	212	194	186	30	417	1,039
Total Elms Pruned To Date	258,143	12,816	67,975	95,202	53,992	29,197	259,182



## JAPANESE BEETLE SUPPRESSION

## TRAPPING ACTIVITIES

The inventory of Japanese beetle traps, both the 10-gallon and 1-gallon size, is rapidly diminishing because of breakage and rusting. Of the original 1,000 10-gallon traps, about 75 remain in a usable condition; of the original 2,500 1-gallon traps about 750 remain. Trap distributions were again made to individuals and park commissions requesting them. However, a definite trend away from the use of Japanese beetle traps is strongly in evidence.

## NEMATODE STUDIES

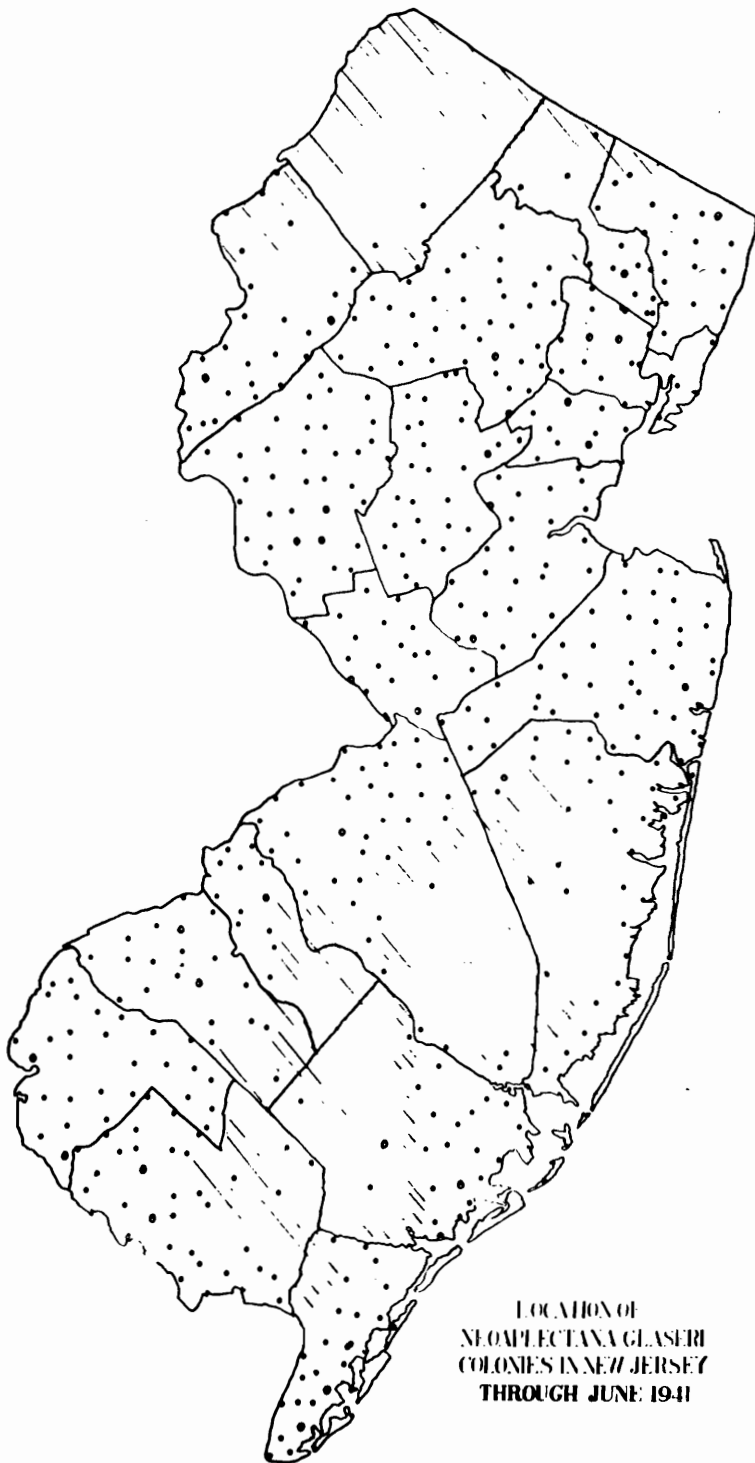
## LABORATORY ACTIVITIES FOR NEMATODE PARASITE DISTRIBUTION

The cooperative agreement between the State Department of Agriculture and the Federal Bureau of Entomology and Plant Quarantine was continued throughout the year. Funds were available from the WPA for labor from July 1, 1940 to March 28, 1941. On the latter date, this WPA project was terminated, in accordance with the general reduction in such projects throughout the state.

## STATE-WIDE COLONIZATION PROGRAM

In May 1939 a two-year program of Japanese beetle parasite distribution was planned. The program provided for the establishment of colonies of the nematode parasite and the Type "A" milky disease organism at intervals of  $3\frac{1}{2}$  miles over the State of New Jersey. The cooperative program between the nematode laboratory and the Japanese and Asiatic Beetle Investigations Laboratory (federal) at Moorestown was arranged so that the two organisms could be generally distributed over New Jersey with a minimum of expense and duplication of effort. The initial program has set June 1941 for its completion date.

The program as originally outlined is now as nearly completed as is deemed advisable, considering the present status of the Japanese beetle infestation in the state. The map included in this report indicates the location of the 491 nematode colonies established to date. Colonies of the milky disease organism were established in areas adjacent to the nematode colonies at nearly all these sites. The shaded portions of the map indicate areas in which the beetle infestation is light. No colonies were placed in these areas because the low host population is not conducive to the survival and spread of the parasites.



These areas of light beetle infestation can be divided into two groups. (1) Those which are ecologically unfit for the development of an economically important beetle infestation and (2) those in which an appreciable infestation may develop, but to which the infestation has not yet spread.

The shaded area in the southern half of the state is one of the first group. The sections of Ocean, Burlington, Camden, Gloucester, Atlantic, Cumberland and Cape May counties which are so indicated are unsuitable because both the type of vegetation and the type of soil are unfavorable. The vegetation includes only a very small amount of the types preferred by the adult beetles, hence very few are attracted into the area. Also, if eggs are laid in the sandy soil, they are likely to be subjected to severe drought and the eggs and young larvae are likely to be killed because of a lack of moisture. Since this area of negligible infestation has been surrounded for several years by areas of fairly heavy infestation and an economically important infestation has failed to develop in the surrounded area, it seems unlikely that the beetles will ever become a serious pest in this southern shaded area. Therefore, additional work in an attempt to find colony sites in this area does not seem justified.

Some sections of the northern shaded area are also ecologically unfavorable, being mountainous and having only a limited area of sod land available for oviposition, but there are also some sections of Sussex County and in northern Warren, Morris and Passaic counties which appear suitable for the subsequent development of a fairly serious infestation. It, therefore, seems advisable to continue to observe the beetle population in this northern shaded area and to establish additional colonies there as the infestation increases to a point where the parasites would be able to successfully establish themselves. This will involve the conducting of beetle-grub population surveys at scattered locations throughout this area, and the treatment of colonies at the sites where sufficient beetles are found.

## SUMMARY OF 1940-1941 NEMATODE COLONIZATIONS

County	Sites Required at 3.5 Mile Intervals	Preliminary Selections (Contacts) Completed	Grub Sur- veys Completed	Colonies Established
Atlantic	45	50	50	24
Bergen	19	1	3	..
Burlington	65	48	47	40
Camden	18	14	14	12
Cape May	21	39	39	24
Cumberland	40	..	11	3
Gloucester	27	36	35	20
Morris	38	1	7	1
Ocean	51	53	53	33
Passaic	16	..	15	6
Salem	27	..	6	2
Sussex	46	3	9	1
Warren	29	2	22	6
<b>Totals</b>	<b>442</b>	<b>247</b>	<b>311</b>	<b>172</b>

SUMMARY OF WORK IN COLONIZATION PROGRAM FALL  
1939 TO SPRING 1941

County	Sites Required at 3.5 Mile Intervals	Preliminary Selections (Contacts) Completed	Grub Sur- veys Completed	Colonies Established
Atlantic	45	50	50	24
Bergen	19	25	25	16
Burlington	65	48	47	40
Camden	18	14	14	12
Cape May	21	39	39	24
Cumberland	40	57	66	32
Essex	10	19	14	12
Gloucester	27	36	35	20
Hudson	3	4	4	3
Hunterdon	35	69	62	37
Mercer	18	35	28	18
Middlesex	25	47	42	26
Monmouth	38	74	61	45
Morris	38	57	62	37
Ocean	51	53	53	33
Passaic	16	33	45	17
Salem	27	53	59	29
Somerset	24	53	53	28
Sussex	46	11	17	3
Union	8	15	15	9
Warren	29	47	66	26
Totals	603	839	857	491

In order to determine how successfully the parasites were becoming established subsequent to their application to the turf, soil examinations for parasitized Japanese beetle larvae were conducted in a representative sampling of the colonies. Thirty-three of the 491 colonies were studied in this manner, the diggings for parasitism being conducted approximately two weeks after treatment. Parasitized beetle larvae were recovered from 30 of the 33 colonies. The three negative plots were treated under unfavorable conditions, one when the soil was cold and two when it was extremely dry. In one survey 26 per cent of all the larvae present in the soil samples from a colony were found upon laboratory examination to be infected with the parasite.

To determine the ability of the parasite colonies to maintain themselves once they are established, surveys were conducted in the spring of 1941 in two of the colonies treated in the fall of 1939. Parasitized beetle larvae were recovered from the soil of both colonies, indicating the survival of the parasites through two winters.

Surveys were also conducted in the spring of 1941 in colonies treated in the spring of 1940 and the fall of 1940, with positive results.

These results confirm earlier experimental evidence of the ability of the nematode parasite to become established and maintain itself under field conditions.

## EMERGENCE EXPERIMENTS

In all the nematode field experiments conducted previous to the summer of 1940, the effectiveness of a given nematode treatment was evaluated in the following manner. The soil from a number of samples in the nematode-treated area was examined. All beetle larvae were collected and those which did not appear normal were submitted to the laboratory for microscopical examination to determine whether or not the parasites were present. On the basis of the laboratory report, the percentage of the total population parasitized was calculated. This figure was used as an index of the control resulting from the treatment.

For several reasons, a more reliable method of evaluation was desired. The objections to the grub survey method are: (1) Because soil examination is a slow procedure and, therefore, expensive, each experiment is usually surveyed only once a season. The results of this one survey are the only indication of the progress of parasitism in the experiment. These results are too dependent on the soil conditions prevailing at the time of the survey. Reduced soil moisture or temperature causes a low rate of parasitism, while moderate soil moisture and higher temperature result in an increased rate of parasitism.

(2) Recent field experiments have demonstrated that a fairly high mortality occurs in nematode-infested soil during the prepupal, pupal and adult stages. When larval surveys alone are used as the basis for the evaluation of a treatment, this mortality among beetles in the later stages of development usually remains undetermined.

(3) The relationship between the parasitism occurring on a given day and the total effect of the treatment on a generation of beetles is not definite. Nematode-infected beetles decompose a few days after infection and can no longer be recovered. To obtain an indication of the total seasonal effect, therefore, it would be necessary to conduct a series of surveys in each experiment during the period of grub activity. This is impossible because of the excessive amount of labor involved.

A new method of evaluating the control resulting from a treatment was first employed during the summer of 1940. The plots were treated by the usual surface application procedure after a series of grub diggings had been made to determine the original beetle population. Subsequent to treatment the soil from a few samples was examined for evidence of parasitism, but no large series of diggings for parasitism was conducted. Before emergence of beetles began, 25 screened enclosures, each 1 foot square and approximately 3 inches high, with a hinged top were placed over the treated turf and a similar series of 25 cages was placed over untreated turf. During the summer the emerging beetles were collected daily from the cages. At the conclusion of the emergence season, it was possible to compare the actual emergence with the original population in the treated and control areas and thus to determine the reduction in emergence which resulted from the treatment.

This method yields data which are much more revealing than that obtained by the procedure previously employed, since the results indicate directly how effective the parasites have been in reducing the emergence of beetles. The results, in one set of data, show the cumulative effect of the parasite throughout the period from treatment to emergence.

Two such experiments were conducted during the summer. One was treated by the surface application of 25,000 ensheathed nemas per square foot. This is a moderate dosage. In the treated area, only 6.4 per cent of the original population emerged, the original population being determined by a systematic larval survey previous to treatment. In the corresponding control area, 62.1 per cent of the original population emerged. These results indicate a reduction in emergence of approximately 90 per cent resulting from treatment with 25,000 nematodes per square foot.

The second experiment was treated with 10,000 nemas per square foot. In the treated area 16 per cent of the original population emerged, whereas 45.2 per cent of the population emerged from the untreated turf. The control obtained in this case was, therefore, approximately 65 per cent.

This method of evaluating the success of treatments is much more satisfactory than the soil examination method because the results are more inclusive and less subject to error. However, soil examinations will continue in use to supplement the new method by providing evidence that nematode parasitism is actually the factor which is responsible for the reduction which occurs.

#### FIELD STUDIES OF THE OLDER EXPERIMENTAL PLOTS

The small plots established in 1931 by the surface application of agar-reared nemas were again stocked with healthy grubs and later dug for parasitism. High rates of parasitism were obtained in all four plots this spring, the percentages of the total population parasitized being 44.9 per cent, 33.6 per cent, 37.7 per cent and 62 per cent. These frames have been stocked with healthy grubs each spring and fall since treatment, but no nemas have been added since the original dosage was applied in 1931. The nematodes have, therefore, survived for 10 years under field conditions with an artificially maintained host population.

The study of the large field plot treated in 1933 is being continued. During this year's generation of beetle larvae the population average in the treated area was less than one grub per square foot and no parasitized larvae were found. The study is being continued to determine the action of the parasite if the host population increases from the low level at which it has remained for the past several years.

Two additional experiments were surveyed this year. One was treated in September 1937 by the sub-surface method of application. The second was treated September 1938 by surface application. Parasitized larvae were recovered from the treated areas of both experiments.



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## LABORATORY DEVELOPMENTS

In 1931 Dr. R. W. Glaser, of the Rockefeller Institute for Medical Research, developed an artificial culture medium for the nematode *Neoaplectana glaseri*. The medium consisted of a veal infusion dextrose agar, on which a pure culture of yeast was grown before the nematodes were placed on the cultures. In 1936 this laboratory developed an infused veal medium which permitted rearing the nematodes in enormous numbers, so that one day's cultures could surpass the production of an entire year's work by the older method. In 1939 Doctor Glaser discovered that *Neoaplectana* could be entirely freed of all associated organisms, and grown in bacteriologically pure culture on aseptically removed rabbit kidney. The nematodes were sterilized by a series of treatments in dilute sodium hypochlorite solution. Later, it was found that autoclaved liver and kidney from beef, sheep or swine were also capable of supplying the nutritional requirements of the sterilized *Neoaplectana*.

*N. glaseri* has now been maintained in pure culture for almost three years, whereas in practice it has been found that about 18 weeks is the maximum possible period of culture using the older procedures. From a practical standpoint, the new procedure has permitted the selection and indefinite maintenance of desirable "strains" of *N. glaseri*. Continuous, or discontinuous, nematode culture is therefore practicable, without having to continually resort to parasitized insects for source material. This feature has eliminated a great deal of tedious and essentially nonproductive laboratory work.

The pure culture procedure has been adapted to the nematode *Neoaplectana chresima* (Ms. name, Steiner), making it possible to obtain this interesting insect parasite for laboratory study. At present, procedures have not been developed for culturing *N. chresima* in the quantity possible with *N. glaseri*, but the work shows promise. Since *N. chresima* has been found to have a more general natural distribution in New Jersey than has *N. glaseri*, it is important to determine why this is true.

In 1938 preliminary experiments were undertaken on the control of the larvae of the white-fringed beetle by *N. glaseri*. This work was done under the cooperative agreement with the Bureau of Entomology and Plant Quarantine, the actual tests being conducted by the Division of Cereal and Forage Crops Investigations at Florala, Ala. The nematodes were supplied by the laboratory of the New Jersey Department of Agriculture and in the earlier tests the preserved specimens were examined at the White Horse (Trenton) laboratory. During the past year work on the parasitism of this insect by *N. glaseri* has been particularly active, and has advanced to the point where large-scale field experiments are under study.

The preliminary results have been very satisfactory. The recently introduced white-fringed beetle is a potentially dangerous pest over large sections of the United States, at present confined to several of the southern states. At this writing, the only natural control agents known are nematodes,



of which *N. glaseri* is one. The White Horse (Trenton) laboratory has been successful in rearing large numbers of a nematode found naturally attacking the white-fringed beetle larvae in Mississippi, and millions of these artificially cultured nematodes have been returned to that state for further experimental work. This nematode is apparently closely related to *N. glaseri*.

For many years it has been evident that a communicable disease of the adult Japanese beetle should offer exceptional promise for the control of this pest. The adult beetles are gregarious. The continued spread and infestation of new areas results mostly from adult flight. The gregarious habit of the insect would favor the dissemination of a disease, and, once established, the disease could be expected to accompany the adults invading a new location.

In 1939 this department imported a strain of the entomogenous fungus *Beauveria bassiana* from Canada, where it had been found as a parasitic disease on larvae and pupae of the Colorado potato beetle (*Leptinotarsa decemlineata*). During December 1939, and January and February 1940, repeated attempts were made to infect the second and third instar larvae of the Japanese beetle with this fungus. The rate of infection in these trials was discouragingly low. However, in July 1940, the tests were resumed on adult beetles, which were found highly susceptible to the fungus. The rate of infection varied from 70 per cent to 100 per cent in laboratory and outside cage experiments. Infected individuals contaminated previously healthy beetles, causing an epidemic by association. In outside cages, it was found that the cadavers of beetles infected in July 1940, caused infection in the next year's beetle brood in June 1941.

Adult Japanese beetles are killed in from four to eight days after contact with the *Beauveria* spores. If the environment is moist, the fungus soon reappears on the surface of the dead beetles and produces a heavy crop of spores, which may infect healthy beetles through direct contact, or by dispersal of the spores through the air.

During the course of this work with *Beauveria*, it was found that the fungus readily attacks the adult elm bark beetle (*Scolytus multistriatus*), which is an important factor in the spread of the Dutch elm disease. Adult rose chafer beetles are also attacked by the fungus. It is probable that this strain of *Beauveria* has a wide range of host insects.

A method was developed for culturing *Beauveria* spores in much greater quantity than has hitherto been possible. The medium consists of moistened, autoclaved bran. An air separation apparatus was also developed for rapidly separating the *Beauveria* spores from the culture medium. This culture and separation technique have been applied to two distinct strains of *Beauveria*, and to an entomogenous *Aspergillus* species. Since these methods appear to be quite generally applicable in the culture of fungi, and are new, they were published in detail.

A strain of *Beauveria bassiana* parasitic on a number of lepidopterous insects was also obtained from Canada, where it is being used as a parasite

on larvae of the European corn borer. Preliminary tests were undertaken on the use of this fungus as a control for the tent caterpillar, the *Catalpa sphynx*, and the *Walnut Datana*. The preliminary tests gave good results with the larvae of the tent caterpillar, and the *Catalpa sphynx*.

Plans have been drawn for a series of field investigations on the use of these fungi as control agents for the various insects mentioned.

### JAPANESE BEETLE QUARANTINE

The following account is a summary of the activities of this project for the calendar year 1940. As heretofore, it was conducted jointly by the Bureau of Plant Industry and the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture.

The first five months of 1940, climatically speaking and from the horticultural standpoint, were very trying. Frost remained in the soil until the first week in April. Nurseries were delayed about a month and farm planting was delayed at least two weeks. In many cases replanting was necessary.

The nurserymen completed their spring packing about May 20. They immediately started planting and cleaning up. In visiting the various nurseries about the state, the clearing out of over-size and unsalable stock was especially noticeable. This project was hastened because of the need for propagation ground. Sell-outs in many varieties made it necessary for increased production. The fall shipping season was, on the average, very slow. Many of the nurserymen concentrated on preparing for spring business. The mild weather of November and December allowed digging, cleaning and storing of stock for early spring delivery.

The war has stopped the importation of bulb stock, consequently domestic stock has been substituted. Azaleas seem to hold first place. All growers in New Jersey moved all available stock and the majority of them are planning at least to double production for 1941. The Poinsetta proved a good seller for the holiday season, many growers exhausting their supply a week or ten days before Christmas. Increased production tended to lower prices. Propagation of this plant was a new venture for several New Jersey growers.

Plant certification in the aggregate for the year shows a reduction of about 11 per cent. Between dealers there was a reduction of better than 12 per cent, while shipments outside the regulated area fell off about 9 per cent. This is attributable to the extension of the regulated area, modification of certification requirements on certain plant products, and the relinquishing of their classified status by small growers who are marketing their products within the regulated area.

The dahlia business has been on the decline for the past two years. In the past, certification of these plants was a major item. Former dahlia growers are bolstering their business with gladioli, perennials and pot plants.

Expansion is evident in both nursery and greenhouse establishments.

Several nurseries have enlarged their propagating areas by lease and purchase of additional land. New greenhouses have been added to at least six New Jersey establishments. Special facilities for fumigation have been added by two establishments. All in all, the upturn in horticultural trades has given impetus to larger establishments and the revival of the so-called "little fellow."

In general, the fumigation of plants and soil increased an average of 100 per cent over 1939. The treatment with paradichlorobenzene increased 111 per cent. Azaleas and rhododendrons were the plants treated with this fumigant, and since many of the growers have become accustomed to this form of certification, they are reluctant to use any other.

The use of methyl bromide on plants increased 74 per cent over 1939. Adverse results were obtained in some cases while on the other hand certification was obtainable at a decrease in labor and general cost of handling.

The treating of potting soil with carbon disulphide increased 33 per cent. Part of this increase is attributable to the general increase in the greenhouse business. In some instances upturn in business was as much as 35 per cent over the previous year.

Surface treatments increased 182 per cent over last year, which includes carbon disulphide, arsenate of lead, naphthalene, and carbon disulphide emulsion. The use of naphthalene in connection with the certification of greenhouses accounts for the general increase in this method of certification.

#### SCOUTING ACTIVITIES INSIDE THE REGULATED AREA

The regular scouting of classified establishments in New Jersey during 1940 included 28 greenhouses in Class III and one nursery in Class I. This activity was conducted by the regular personnel during the period July 9 to September 5 and totalled 213 calls.

One beetle was found in a certified greenhouse.

In addition to greenhouses, other premises such as humus beds, aquatic gardens and nurseries were scouted.

#### SAND, PEAT, MANURE, ETC. ESTABLISHMENTS SCOUTED DURING 1940

Name	City	Dates Scouted	Beetles Found
Hyper Humus Co.	Lafayette	7/19, 30; 8/8, 22; 9/5	6
Natural Humus Co.	Hackettstown	7/17, 25; 8/5, 21	44
Number of establishments scouted			2
Number of scoutings made			9
Number of beetles found			50

Scouting was begun on July 9, 1940 and discontinued September 5, 1940, except at certified greenhouses where scouting is performed intermittently throughout the year. The first beetle was reported found on tomato plants at the establishment of Oral Ledden, Sewell, on June 17, 1940. The last beetle was reported found at Shiloh, on October 1, 1940.

## SEASONAL QUARANTINE ON FARM PRODUCTS AND CUT FLOWERS

The records of the certification of farm products for 1940 show an increase of 97 per cent over 1939. This general rise was brought about by the increased certification of apples and white potatoes, being 227 per cent and 123 per cent, respectively. The apple crop was less, but brought better prices and moved earlier than in 1939, thus coming within the regulatory period. White potato growers had a very unsatisfactory season. Yields were good, but prices were entirely too low. As a result, the stabilizing effort of the Federal Surplus Commodities Corporation's purchasing at low market prices caused an increase in the fumigation, under load, of freight shipments with methyl bromide. The major portion of carlots certified were destined for southern points for relief purposes.

The certification of potatoes for dealer shippers covered shipments made in refrigerator cars fumigated under load, pre-inspected and screened refrigerator cars, and closed automobile vans. The van shipments were made in vehicles originating in the southern states that ordinarily returned to their home stations empty. This means of transportation cost, on the average, about half that by rail. Loading was performed at farms where grading and protected storage was available, under the supervision of department inspectors. There were 218 vans that carried certified loads.

On the other hand, blueberries were absent as far as certification was concerned. Demand was slow and the hot, dry weather caused considerable shrinkage. Boston and New York were the best eastern markets.

The onion crop declined both in acreage and production. Adverse growing conditions early in the season caused late maturing. The price was good, but certification of this crop declined 45 per cent.

Other farm produce declined in like proportion.

Fumigation requirements were lifted September 5 and the general restrictions on farm produce on September 19.

Cut flower certification dropped 31 per cent. Growers attribute this falling off to the increase in home gardens. This is evidenced by the fact that growers of perennials enjoyed practically a summer-long shipping season, and the seed sales in spring were very satisfactory. Roadside stands were also a factor during 1940.

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

During 1940, no farm products inspection points were maintained inasmuch as the nature of shipments did not warrant it. The major part of farm products certification involved fumigation under load, or empty car fumigation or inspection, and was performed at the various railroad yards. In the case of potatoes shipped via truck, inspectors were sent to the various farms to supervise loading operations.

All requests for certification were handled by dispatching inspectors from one of the three field offices maintained in the state: Bloomfield, Trenton and Glassboro.

**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	22,748	...
Asparagus	3,763	...
Beans, cranberry	100	...
Beans, lima	1,812	...
Beans, snap	490	...
Cantaloupe	5	...
Cranberries	3,850	...
Eggplant	20	...
Onions	3,550	...
Peppers	334	...
Pickles	2,524	...
Potatoes, sweet	1,550	...
Potatoes,, white	281,671	249
Tomatoes	678	...
Watermelons	350	...
Cut Flowers	824	7
<b>Totals</b>	<b>324,269</b>	<b>256</b>

**REFRIGERATOR CAR FUMIGATION AND INSPECTION**

The elimination of cyanide as a fumigant in connection with certification of farm produce was conveniently facilitated with the advent of methyl bromide. Use of this fumigant was given considerable impetus in the certification of refrigerator cars under load. Shipments of potatoes, onions, apples and lima beans were fumigated at five New Jersey shipping points; namely, Bridgeton, Cedarville, Deerfield, Trenton and Hoboken. Trenton led with 230 cars, while the other four points varied from 1 to 17 cars. A total of 276 cars was fumigated with methyl bromide. The railroads applied the fumigant under the immediate supervision of department inspectors. There were times when two shifts of men were necessary at the Trenton railroad yards; one crew starting at 1:00 A. M. and the second crew relieving at 8:00 A. M. On several occasions it was necessary to carry on over the week-end.

Cyanide was used for fumigation of 55 empty refrigerator cars. These cars were ultimately used for shipping certified snap beans and apples. The snap beans originated in Pennsylvania, where they were certified, then transported in covered trucks and loaded in certified cars at the railroad yards in Trenton. A cooperative understanding between the Philadelphia and Trenton offices facilitated this arrangement.



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## YEAR-ROUND QUARANTINE ON NURSERY AND ORNAMENTAL STOCK, SAND, SOIL, EARTH, PEAT, COMPOST AND MANURE

Number of classified establishments dealing in nursery and ornamental stock, etc., showing classification as of December 31, 1940.

	Class I	Class III	Class I and III	Totals
Nurseries	1	29	...	30
Greenhouses	...	8	...	8
Nurseries & Greenhouses	...	40	...	40
Plant Growers	...	45	...	45
Miscellaneous establishments	1	5	...	6
	<hr/>	<hr/>	<hr/>	<hr/>
Totals	2	127	...	129

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 1940.

No. of estab. classified as of January 1, 1940	141		
“ “ “ added during 1940	2		
“ “ “ classified during 1940	—	143	
“ “ “ removed during 1940		14	
“ “ “ classified as of Dec. 31, 1940		<hr/>	129
Sq. Ft. of Glass classified as of January 1, 1940	3,514,375.5		
“ “ “ added during 1940	99,010.5		
“ “ “ classified during 1940	—	3,613,386	
“ “ “ removed during 1940		1,028,911	
“ “ “ classified as of Dec. 31, 1940		<hr/>	2,584,475
No. of acres classified as of Jan. 1, 1940	4,550.958		
“ “ “ added during 1940	286.500		
“ “ “ classified during 1940	—	4,837.458	
“ “ “ removed during 1940		682.875	
“ “ “ classified as of Dec. 31, 1940		<hr/>	4,154.583

### TOTAL AMOUNTS OF PLANTS, SAND, SOIL, PEAT, COMPOST AND MANURE SHIPPED

Together with the Number of Shipments Repoorted to the Three States  
Requiring Such Reports

State	Number Plants Shipped	Sand, Soil, Earth Carloads	Pounds	Lead Mold Pounds	Compost and Manure Pounds
Alabama	65,984	..	4,745	...	...
Arizona	877	..	278	...	...
Arkansas	6,107	..	...	...	...
California	53,664	1	44,812	...	...
Colorado	7,185	..	636	...	...
Florida	153,655	..	23,131	...	...
Georgia	232,181	..	13,277	...	...
Idaho	1,631	..	553	...	...
Illinois	327,816	..	34,607	...	802
Indiana	68,436	3	26,906	...	100
Iowa	56,146	..	12,741	...	...
Kansas	10,097	..	1,414	...	...
Kentucky	43,822	..	23,915	...	202
Louisiana	25,705	..	9,017	...	...
Maryland	24,041	..	38	...	...
Maine	108,137	..	417	...	400
Michigan	246,225	..	10,038	300	703
Minnesota	71,932	..	18,232	...	100
Mississippi	11,707	1	265	...	...
Missouri	40,841	..	10,318	...	100
Montana	1,112	..	99	...	...
North Carolina	695,031	..	25,975	...	18,700
North Dakota	1,323	..	...	...	...
Nebraska	7,595	..	2,994	...	...
Nevada	163	..	...	...	...
New Hampshire	8,947	..	...	...	...
New Mexico	2,369	..	539	...	...
New York	525,751	2	9,428	...	2,300
Ohio	279,591	..	17,982	200	1,827
Oklahoma	20,688	..	1,023	...	...
Oregon	61,969	..	793	...	...
Pennsylvania	100,653	..	2,242	...	505
South Carolina	105,252	..	2,126	...	202
South Dakota	1,163	..	170	...	...
Tennessee	75,003	..	5,169	...	...
Texas	99,167	1	20,505	...	...
Utah	24,232	..	...	...	...
Virginia	104,862	..	5,453	...	905
Vermont	66,902	..	...	...	202
Washington	7,001	..	4,992	...	...
West Virginia	65,773	..	2,755	...	100
Wisconsin	88,822	..	9,872	...	200
Wyoming	836	..	554	...	...
Foreign	40,277	64	29,565	...	...
Totals	3,940,671	72	377,626	500	27,348



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## SUMMARY OF TREATMENTS MADE DURING 1940

Articles Treated	Agent	Units Treated	Totals
Plants (Field)	Miscible CS <sub>2</sub>	28	
Plants (Initial Treatment)	Lead Arsenate	48,772	
Plants (Retreatment)	Lead Arsenate	20,790	
Plants (No Lead Required)	Lead Arsenate	22,059	
			91,649
Plants	Paradichlorobenzene	82,047	82,047
Plants	Methyl Bromide	487,723	487,723
Total Plants Treated:			661,419
Potting Soil	CS <sub>2</sub>	1,318.69	cu. yds.
Potting Soil	Steam	16.40	" "
Potting Soil	Naphthalene	...	" "
Potting Soil	CH <sub>3</sub> Br	39.05	" "
Total Potting Soil Treated:			1,374.14
Surface Soil	CS <sub>2</sub>	6,987.00	sq. ft.
Surface Soil	Miscible CS <sub>2</sub>	1,827.00	" "
Surface Soil	Naphthalene	39,990.00	" "
Surface Soil	Steam	...	" "
			48,804.00 sq. ft.
(Heeling-in Areas, etc.)			
Surface Soil (Initial Treat.)	Lead Arsenate	15,099	sq. ft.
Surface Soil (Retreatment)	Lead Arsenate	139,275	" "
Surface Soil (No Lead Req.)	Lead Arsenate	306,733	" "
			461,107 sq. ft.
(Containing Growing Plants)			
Surface Soil (Initial Treat.)	Lead Arsenate	665,166	sq. ft.
Surface Soil (Retreatment)	Lead Arsenate	761,048	" "
Surface Soil (No Lead Req.)	Lead Arsenate	446,054	" "
			1,872,268 sq. ft.
Total Surface Soil Treated:			2,382,179 " "
Apples	CH <sub>3</sub> Br	5,292	bus. 10 cars
Onions	CH <sub>3</sub> Br	3,500	bags 7 cars
Beans, Lima	CH <sub>3</sub> Br	1,316	bus. 2 cars
Potatoes, White	CH <sub>3</sub> Br	76,500	bags 254 cars
Mixed	CH <sub>3</sub> Br	1,726	" 3 cars
Beans, Snap	CH <sub>3</sub> Br	490	bus.
Empty Cars	HCN		55
Totals		88,824	331

## NUMBER OF MEN EMPLOYED EACH MONTH DURING THE YEAR

	<i>Farm Products</i>		<i>Nursery and Greenhouse</i>		<i>Totals</i>	
	Federal	State	Federal	State	Federal	State
January	..	..	16	10	16	10
February	..	..	16	10	16	10
March	..	..	16	10	16	10
April	..	..	19	10	19	10
May	..	..	20	11	20	11
June	..	..	19	16	19	16
July	11	3	12	8	23	11
August	16	3	8	8	24	11
September	17	3	8	9	25	12
October	..	..	16	11	16	11
November	..	..	16	11	16	11
December	..	..	15	11	15	11
Totals	44	9	181	125	225	134

Note: Five men paid from both federal and state funds are listed only under "Federal" above.

## NUMBER OF AUTOMOBILES OPERATED EACH MONTH DURING THE YEAR

	<i>Farm Products</i>		<i>Nursery and Greenhouse</i>		<i>Totals</i>	
	Federal	State	Federal	State	Federal	State
January	..	..	10	17	10	17
February	..	..	10	16	10	16
March	..	..	12	20	12	20
April	..	..	11	20	11	20
May	..	..	9	20	9	20
June	2	1	12	19	14	20
July	2	6	8	14	10	20
August	5	10	9	10	14	20
September	3	9	9	10	12	19
October	..	..	11	17	11	17
November	..	..	13	21	13	21
December	..	..	9	21	9	21
Totals	12	26	123	205	135	231

Note: Includes all automobiles operated out of White Horse.

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

The Twenty-sixth Annual New Jersey State Agricultural Convention was called to order in the Assembly Chamber of the State Capitol at Trenton at 10:00 A. M. Tuesday, January 28, 1941, by James C. Ewart, president of the State Board of Agriculture. The invocation was offered by Reverend Paul W. Kapp, chaplain of the New Jersey State Grange.

Willard H. Allen, state secretary of agriculture, called the roll of delegates, as follows:

## DELEGATES OF THE STATE AGRICULTURAL CONVENTION

### FROM COUNTY BOARDS OF AGRICULTURE

Name	Address	Term	County
Louis J. Sanguinetti.....	Vineland, R. D. ....	2 years.....	Atlantic
William J. Slack.....	Hammonton.....	1 year .....	Atlantic
Fred Van Riper.....	Allendale, R. D. ....	2 years.....	Bergen
Steffen Olsen.....	Ridgewood, R. D. 1 .....	1 year .....	Bergen
Raymond Kirby.....	Columbus.....	2 years.....	Burlington
F. W. Shivers.....	Bordentown.....	1 year .....	Burlington
Fred C. Sickler.....	Sicklerville.....	2 years.....	Camden
Joseph F. Shivers.....	Marlton.....	1 year .....	Camden
Muier Semoff.....	Woodbine, R. D. ....	2 years.....	Cape May
Thomas A. Foster.....	Woodbine, R. D. 1 .....	1 year .....	Cape May
Albert Gallino.....	Chestnut Ave., Vineland.....	2 years.....	Cumberland
Renne Gossiaux.....	Bridgeton, R. D. 4 .....	1 year .....	Cumberland
John W. D. Goodman.....	Mountain Ave., North Caldwell.....	2 years.....	Essex
Edgar A. Schmitt.....	Caldwell, R. D. ....	1 year .....	Essex
Joseph P. Broadhurst.....	Woodbury.....	2 years.....	Gloucester
George Wurst.....	Sewell.....	1 year .....	Gloucester
Charles Burd.....	Pittstown.....	2 years.....	Hunterdon
Harold B. Everitt.....	Flemington, R. D. ....	1 year .....	Hunterdon
Robert M. Dilatush, Jr. ....	Trenton, R. D. 2.....	2 years.....	Mercer
Charles B. Probasco.....	Hightstown.....	1 year .....	Mercer
J. Edward Chamberlin.....	Cranbury.....	2 years.....	Middlesex
William C. Pitney.....	Matawan, R. D. ....	1 year .....	Middlesex
William H. Hunt.....	Freehold, R. D. 1.....	2 years.....	Monmouth
Britton C. Cook.....	Farmingdale.....	1 year .....	Monmouth
John Bunn, Long Valley, alternate for Francis Ruzicka.....	492 Main St., Chatham.....	2 years.....	Morris
William M. McIntyre.....	Morristown.....	1 year .....	Morris
William Bornemann.....	Toms River, R. D. 2.....	2 years.....	Ocean
Martin Schubkegel.....	Lakewood, R. D. 3.....	1 year .....	Ocean
Walter Sikkema.....	Paterson, R. D. 2.....	2 years.....	Passaic
Arthur Butt.....	Clifton, R. D. 1.....	1 year .....	Passaic
Bernard G. Wegner.....	Newfield, R. D. 1.....	2 years.....	Salem
Lloyd Yeagle.....	Elmer.....	1 year .....	Salem
D. W. Amerman.....	Neshanic.....	2 years.....	Somerset
Edward M. Haynes.....	Skillman.....	1 year .....	Somerset

## STATE DEPARTMENT OF AGRICULTURE

Name	Address	Term	County
Gottlieb S. Katzenstein.....	Andover, R. D. 2.....	2 years.....	Sussex
Harry Struble.....	Sussex.....	1 year.....	Sussex
Walter Essex, Plainfield, alternate for			
Charles H. Brewer.....	Rahway, R. D. 2.....	2 years.....	Union
Walter M. Ritchie.....	402 St. Georges Ave., Rahway.....	1 year.....	Union
Norman Van Horn.....	Blairstown, R. D. ....	2 years.....	Warren
Walton B. Kostenbader.....	Blairstown, R. D. ....	1 year.....	Warren

## FROM POMONA GRANCES

Name	Address	Term	County
Martin Decker.....	Hammonton, R. D. 1.....	1 year.....	Atlantic
John R. VanHouten.....	Midland Park, R. D. ....	1 year.....	Bergen- Passaic
William D. Cowperthwaite.....	Medford.....	1 year.....	Burlington
Abel B. Clement.....	Haddonfield.....	1 year.....	Camden
A. S. Walker.....	Cape May City, R. D. ....	1 year.....	Cape May
Walter Steen.....	Morris Plains.....	1 year.....	Central District
Leon Spencer.....	Millville, R. D. 1.....	1 year.....	Cumberland
Robert P. Duffield.....	Mullica Hill.....	1 year.....	Gloucester
Theo. H. Dilts.....	Three Bridges.....	1 year.....	Hunterdon
Harold L. Potter.....	Yardville, R. D. 1.....	1 year.....	Mercer
James P. Barr.....	New Brunswick.....	1 year.....	Middlesex & Somerset
Sidney D. Thompson.....	Freehold.....	1 year.....	Monmouth
Russell B. Harris.....	Salem, R. D. ....	1 year.....	Salem
William Evans.....	Newton.....	1 year.....	Sussex
Howard Vliet.....	Washington, R. D. ....	1 year.....	Warren

## FROM OTHER ORGANIZATIONS

- American Cranberry Growers' Association—Isaac Harrison, Crosswicks, alternate for Theodore H. Budd, Pemberton, 2 years; James Holman, Whitesville, 1 year.
- New Jersey State Horticultural Society—Clarence H. Steelman, Kingston, alternate for Lawrence J. Smith, South River, 2 years; Preston T. Roberts, Moorestown, 1 year.
- New Jersey Association of Nurserymen—C. Courtney Seabrook, Bridgeton, 2 years; Charles Hess, Mountain View, 1 year.
- New Jersey Florists' Association—J. Fred Piper, Livingston, 2 years; Francis Ruzicka, Chatham, 1 year.
- New Jersey State Grange—William H. Smith, Clifton, R. D. 1, 1 year; James B. Kirby, Mullica Hill, 1 year.
- New Jersey State Poultry Association—W. A. Cray, Stockton, 1 year; R. L. Scharring-Hausen, Hopewell, 1 year.
- Jersey Chick Association—Elmer H. Wene, Vineland, 1 year; Charles Cane, Rosemont, 1 year.
- New Jersey Agricultural Experiment Station—Charles Fitting, Hammonton, 1 year.
- New Jersey State College of Agriculture—William H. Martin, New Brunswick, 1 year.
- Holstein-Friesian Association of New Jersey—Stanley B. Roberts, Port Jervis, N. Y., R. D., 1 year.
- New Jersey Guernsey Breeders' Association—Herbert T. Borden, Mickleton, 1 year.
- New Jersey Alfalfa Association—Joseph W. Miller, Princeton, 1 year.
- New Jersey State Potato Association—Staats C. Stillwell, Freehold, 1 year.

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Cooperative Growers' Association, Inc.—Arthur L. Richie, Riverton, 1 year.

New Jersey Beekeepers' Association—Ross E. Mattis, 7500 Ventnor Ave., Atlantic City, 1 year.

E. B. Voorhees Agricultural Society—H. Earl Propst, New Brunswick, R. D. 1, 1 year.

Blueberry Cooperative Association—Harold B. Scammell, Toms River, 1 year.

### APPOINTMENT OF COMMITTEES

The nominating committee, appointed by the president at the delegates' dinner on the evening preceding the Convention, follows:

William J. Slack, Atlantic County  
Charles Hess, Passaic County  
Charles B. Probasco, Mercer County  
Russell Harris, Salem County  
Renne Gossiaux, Cumberland County  
Walton B. Kostenbader, Warren County  
Clarence Steelman, Middlesex County

Other committees appointed by President Ewart at the Convention were as follows:

#### COMMITTEE ON RESOLUTIONS

Francis Ruzicka, Morris County  
Robert M. Dilatush, Jr., Mercer County  
Martin Decker, Atlantic County

#### GOVERNOR'S ESCORT

W. A. Cray, Hunterdon County  
John Bunn, Morris County  
C. Courtney Seabrook, Cumberland County

#### COMMITTEE ON CREDENTIALS

F. W. Shivers, Burlington County  
Steffen Olsen, Bergen County  
Britton C. Cook, Monmouth County

### REPORT OF COMMITTEE ON CREDENTIALS

The credentials committee examined the certificates of delegates and reported them in order.

### ELECTION OF BOARD MEMBERS

To fill the two vacancies in memberships of the State Board of Agriculture which would occur on July 1, Roscoe C. Clayton of Freehold, and Edward H. Phillips, Jr. of Cold Spring, were nominated. There being no other nominations, the secretary was instructed to cast a ballot for Messrs. Clayton and Phillips for four-year terms beginning July 1, 1941, to succeed Lester Collins of Moorestown, and James C. Ewart of Cranbury.

## CITATIONS

Mrs. Elizabeth F. Lee of New Egypt, and Mark H. Keeney of Cedar Grove, cited by the State Board of Agriculture for distinguished service to the agriculture of New Jersey, were presented to the Convention during the reading of the citations which follow.

### CITATION OF MRS. ELIZABETH F. LEE

Before this assembled group of delegates, representing all of New Jersey's diversified types of farming, the members of the State Board of Agriculture wish to pay tribute to you for your vision and initiative in developing and extending the market for one of our oldest and most important crops—cranberries.

Success in present-day agriculture demands prompt adjustment to every new emergency. Your ability to meet such a situation has been ably demonstrated by your introduction of the processed cranberry products, which have created new markets. As a result of your efforts you have insured greater returns to our growers and eliminated the threat of losses during years of surplus harvests.

Your contribution to the welfare of the cranberry industry is well known to your colleagues in that field. However, because of your gracious modesty and unassuming manner we desire to publicly recognize your valuable contribution with this Citation for Distinguished Service To Agriculture.

### CITATION OF MARK H. KEENEY

To New Jersey agriculture, particularly in the field of dairy husbandry, you have made many valuable contributions since you came to our state just 20 years ago.

The outstanding records credited to the dairy cows and the herds under your supervision have been acclaimed throughout the nation. You have demonstrated that such consistent performances as those officially recorded year after year by your herds are within the reach of the practical dairy farmer as well as the expert breeder.

Your ability to appraise the productive capacity of a dairy cow or her progeny is unexcelled, and has brought world-wide fame to New Jersey.

This Citation for Distinguished Service to Agriculture is awarded to you in recognition of your keen knowledge of the science of dairying; your unselfish service to your fellow dairymen—both farmers and breeders; and especially because of your unassuming manner and wholesome philosophy of life.

## REPORT OF COMMITTEE ON RESOLUTIONS

The following resolutions, reported favorably by the committee on resolutions, were adopted by the Convention:

WHEREAS, former Governor A. Harry Moore has just completed three outstanding terms as Chief Executive of our state, and

WHEREAS, the members of the State Board of Agriculture have always found in former Governor Moore a genuine friend, keenly interested in farm folks and farm problems, and

WHEREAS, this Convention representing all of the many diversified interests of New Jersey agriculture, is deeply appreciative of the interest of former Governor A. Harry Moore in the affairs of the Department of Agriculture,

THEREFORE, BE IT RESOLVED, that the farmers of New Jersey represented in this Convention express their appreciation to former Governor Moore and wish Mrs. Moore and him many years of happiness and health, and

FURTHER, BE IT RESOLVED that a copy of this resolution be forwarded by the Secretary of Agriculture to former Governor Moore.

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WHEREAS, the program of the New Jersey Council has accorded generous recognition of the importance of agriculture in New Jersey, and

WHEREAS, the assistance and cooperative efforts of the Council have made it possible for a number of New Jersey farm commodity organizations to promote and advertise their products, and

WHEREAS, such promotional efforts have been the means of extending and improving the markets for New Jersey agricultural products,

THEREFORE, BE IT RESOLVED, that this Convention go on record as favoring the continuance of the program of the New Jersey Council with adequate support for its efforts to promote the industrial, real estate, recreational and agricultural resources of New Jersey.

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WHEREAS, the program of public relations and information issued under the supervision of Mr. Fred W. Jackson has been so outstanding during the past year, this Convention wishes to make its appreciation of such outstanding efforts a matter of record in the minutes of this meeting.

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WHEREAS, this Convention takes note of the enforced absence due to illness of one of its most faithful attendants in the person of Marcus W. DeCamp,

THEREFORE, BE IT RESOLVED, that the Secretary of Agriculture be instructed to write Mr. DeCamp expressing our sincere wishes for a prompt and full recovery.

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WHEREAS, there is an alarming increase in infestations of bagworm in the state and especially afflicting the native red cedar (*Juniperus virginiana*) which is one of New Jersey's great natural assets and quite conceivably may be threatened with extinction unless prompt and efficient action is taken,

THEREFORE, BE IT RESOLVED, that this Convention go on record as favoring a prompt state-wide plan of eradication of this pest, and

FURTHER BE IT RESOLVED, that the Department of Agriculture study the problem, assemble data, and report back to this body next year on progress for possible further action.



WHEREAS, the Convention of delegates of the State Board of Agriculture assembled today is commemorating the Twenty-Fifth Anniversary of the reorganization of the State Board of Agriculture in 1916, and

WHEREAS, the splendid record and achievements of the State Department of Agriculture during the past quarter century began with the term of the first Secretary of Agriculture, Alva Agee, who served from 1916 to 1925, and

WHEREAS, former Secretary Agee, now a resident of California, has graciously remembered his New Jersey friends with a word of greeting on this occasion,

THEREFORE, BE IT RESOLVED, that this body of delegates here assembled extends its best wishes to former Secretary Agee expressing at the same time the hope that he will enjoy many years of health and happiness; also, that a copy of this resolution be forwarded to former Secretary Agee.

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WHEREAS, this Convention has taken considerable inspiration from the very evident cooperative attitude of Governor Edison, and

WHEREAS, in its turn this Convention extends, in full faith, the agricultural resources and manpower of this great Garden State to assist in any and all state and national problems relating to the building of a healthy, strongly defended democracy, and

WHEREAS, from his high office we hope that the Governor will be able to co-ordinate federal agencies with state agencies to meet the burdens of increased interstate traffic by highway, rail and skyway and further give full attention to the orderly progress of a sound program of state and national social security, and

FURTHER BE IT RESOLVED, that a copy of this resolution be forwarded to Governor Edison by the Secretary of Agriculture.

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This Convention of elected delegates wishes to recognize the loyal and progressive work of the entire Department of Agriculture and its exceptionally capable secretary, Willard H. Allen, by a rising vote and round of applause.