

STATE OF NEW JERSEY
DEPARTMENT OF AGRICULTURE

W. H. ALLEN, SECRETARY



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

July 1, 1938 — June 30, 1939

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Trenton, N. J., December, 1939

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STATE OF NEW JERSEY
DEPARTMENT OF AGRICULTURE

W. H. ALLEN, Secretary

Trenton

December 1, 1939.

*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-fourth Annual Report of the New Jersey Department of Agriculture, for the fiscal year ended June 30, 1939.

Respectfully,

W. H. Allen

TWENTY-FOURTH ANNUAL REPORT OF THE NEW JERSEY STATE DEPARTMENT OF AGRICULTURE

July 1, 1938 to June 30, 1939

Report of the Secretary of Agriculture

W. H. ALLEN

New Jersey leads all states in the Union in the amount of its farm income per acre. Intensive production, efficient farm management and diversification of agriculture both on individual farms and for the state as a whole, are factors which have made this possible. But charged against this are higher overhead costs made up of greater land values, labor, taxes and other items. The normal annual value of New Jersey agricultural products has been estimated to be around \$100,000,000. Adverse weather conditions coupled with low prices on some products have brought about a less favorable situation in general this year, resulting in an appreciable decline in this valuation. Added to this, during a part of the year, have been increased prices for purchased feedstuffs and some other commodities, especially those necessary in the case of specialized farming operations.

Progress in aiming toward betterment of agriculture in New Jersey has been evident not only in closer attention to cooperative enterprise among various groups of producers, but also in carrying out those principles in greater degree than ever before. For a decade or more, New Jersey's farmer-owned produce and egg auction associations have accomplished much in organized endeavor in merchandising and collective bargaining. Intangible assets of these activities have been an ever-widening scope of improved relationships and community benefits.

More recently, however, and especially in the fiscal year just ended, there has been developed a program of using modern advertising methods in merchandising certain farm crops. This department, in guiding the work of the New Jersey Council in its agricultural activities, has been instrumental in carrying out such programs instituted by organized farm groups. These activities have been directed primarily toward creating consumer preference for New Jersey products, and have been jointly financed by the Council and the growers themselves. Outstanding campaigns have been carried on in advertising programs on eggs, milk, potatoes, asparagus and nursery stock, and in publicizing among the wholesale trade the offerings of produce auction markets and farmer-owned city markets. The suc-

cessful completion of initial efforts along this line has led to legalizing the department as trustee for advertising funds contributed by farmer organizations to carry on and advance this newest cooperative enterprise.

The department has not been unmindful of its stewardship to other but less organized phases of agriculture. Of prime importance has been its desire to be of assistance in both its regulatory and its service endeavors. Fitting into this aim is a public relations program for creating better understanding of departmental work. For example, the almost daily contacts during the season with some 2,500 growers of cannery tomatoes, whereby state inspection and grading have determined price returns for the crop, have accentuated the need for common understanding of the work and problems involved. Good public relations have proved the surest way to accomplishing this goal.

ANIMAL DISEASE CONTROL

Fulfillment, on September 1, 1937, of an objective which took twenty years to reach—the practical eradication of bovine tuberculosis in New Jersey—did not mark the end of this activity. During the past fiscal year, and typical of the program for years to come, periodic testing was conducted on the approximately 200,000 cattle in the state to maintain freedom from the disease at the required 99½ per cent level or better. Without such a safeguard, repetition of earlier conditions could easily and quickly advance, to the detriment of public health and welfare, and resulting also in financial loss to dairymen and to the state, both of whom have a heavy investment in this program.

A decrease of 5 per cent in the number of cattle brought into the state for replacements and herd additions occurred in comparison with the previous year. At the same time, there was a 1 per cent rise in the number of animals under supervision, indicating a tendency on the part of some dairymen to grow their own replacements and additions.

Toward the close of the fiscal year the state lost the financial support of the federal government in combating the growing problem of Bang's disease in cattle, because no state funds had been provided for indemnification purposes. As surrounding states accredit increasingly larger areas as free from this disease, loss of a market for New Jersey appears imminent. The present need for a control program on this disease is as acute as that one twenty years ago for bovine tuberculosis. Approximately 7 per cent of the state's cattle are under supervision for the eradication of Bang's disease, and while this is an increase over that of a year ago, at the moment the program, being a voluntary one, is chiefly of interest to breeders.

MARKETING

Each year New Jersey farmers face seemingly stronger competition from both near and distant producing areas in the marketing of their crops. They have undertaken the solution of many of their problems in conjunction with departmental support. Services which have proved bene-

ficial, in addition to the advertising programs already mentioned, have been the certification of quality for eggs, milk and various fruits and vegetables for the fresh table market as well as for canneries; flock testing of poultry in building up and maintaining breeding standards; and last, and probably as important as any, the dissemination of market news information through direct mailing, press releases and a teletype system, to inform growers of current prices and also of conditions in competing areas.

Progress in marketing through the produce and egg auction organizations is best reflected in their combined business for the year of nearly \$7,000,000, which represents the largest annual volume in the history of this type of selling in New Jersey. As the markets have grown, they have attracted more and more buyers, and with this growth there has developed increased attention to improvement in quality and pack because all offerings have been sold under competitive bidding. At the same time, these organizations have not lost sight of their opportunities to render service to their members and patrons through the handling of farm supplies. The department has worked closely with each of these groups to develop sound business and service principles.

PLANT INDUSTRY

Among the earliest statutes relating to agriculture are those which are concerned with the control of plant pests and diseases, indicating the importance even then ascribed to such measures. Regulatory work proceeds today, under more advanced knowledge of control methods, with the same objective—protection of annual crops and vegetation. Introduction of new threats to the economic welfare of agriculture has only served to enlarge the scope of these activities.

Most formidable, perhaps, are the Japanese beetle and the Dutch elm disease, in both of which projects considerable funds have been available from the federal government to carry on cooperative endeavors. In the case of the former, service has been rendered to growers through inspections which permit shipments of farm products beyond quarantine lines, thus avoiding a restricted market. The Dutch elm disease, while having spread early at an alarming rate, has had its advances greatly checked by the destruction of diseased trees and those of little or no economic importance.

Grower interest in seed certification has increased rapidly and, in cooperation with the Agronomy Department of the State Agricultural College, the department has been of assistance in developing better strains of grain seed, tomato seed and seed potatoes. Rigid standards for type, yield and disease resistance have resulted in superior seed which has proved its worth for many growers of the state.

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 com-

monly known as the Milk Dealers' Licensing and Bonding Act; Article 2, Chapter 11, Title 4, known as the Produce Dealers' Law; and Article 1, Chapter 11, Title 4, known as the Cattle Dealers' Law.

MILK DEALERS' LAW

(Article 1, Chapter 12, Title 4)

The Milk Dealers' Law has been in effect about 22 years, since July, 1917. For several years after its enactment little attention was paid to its enforcement; in fact, it was not until about 1925 that the Department of Agriculture required bonds to be filed by any dealers receiving their milk supply from New Jersey farmers.

Since that year the value of bonds filed annually increased gradually until 1932-33. Toward the end of that year, and during the two years following, the department experienced its greatest difficulty in enforcement. Many factors contributed to this situation. Among them were, first, that dealers found it hard to obtain bonds. Further, some of them thought the requirement was of a temporary nature and would soon be dropped. Nevertheless, each year has shown an increase over the previous year in the value of bonds filed, so that by June 30, 1938, the department held slightly over a million dollars worth of bonds. That amount was increased to \$1,183,900 by June 30, 1939.

The question of the constitutionality of the law arose soon after the filing of the bonds was required. The controversy was settled definitely by a recent decision of the United States Supreme Court. This tribunal decided that any state has the right to require bonds of this nature to be filed for the protection of its producers.

The records show that producers were not only afforded the greatest amount of protection during the year 1938-39, but also that this was accomplished without having to penalize any dealer for failure to comply with bonding requirements.

The Department of Agriculture was instrumental in collecting approximately \$19,358 for the producers of the state.

Licenses were issued to 301 dealers who filed bonds totaling \$1,183,900.

TWENTY-FOURTH ANNUAL REPORT

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NUMBER OF LICENSEES UNDER MILK DEALERS' LAW

County	Licenses Issued	Bonds Filed	Amount of Bonds
Atlantic	2	2	\$25,000
Bergen	9	8	37,900
Burlington	22	22	55,600
Camden	9	7	40,000
Cape May	2	1	1,000
Cumberland	25	23	29,500
Essex	15	13	110,900
Gloucester	11	11	13,500
Hudson	3	1	6,000
Hunterdon	10	10	100,000
Mercer	27	27	78,200
Middlesex	19	19	84,500
Monmouth	25	25	67,400
Morris	34	28	60,900
Ocean	2	2	5,000
Passaic	24	19	60,100
Salem	10	6	14,500
Somerset	14	12	35,500
Sussex	3	3	3,500
Union	13	8	33,900
Warren	11	11	41,000
Out-of-State	11	11	280,000
Totals: 1938-39	301	269	\$1,183,900
1937-38	310	265	1,095,400
1936-37	331	248	977,900
1935-36	350	234	937,450
1934-35	366	224	765,650

PRODUCE DEALERS' LAW

(Article 2, Chapter 11, Title 4)

Owing to the amendment of the Produce Dealers' Law, changing the license year to extend from May 1 of one year to April 30 of the following year, the licensing term of 1938-39 was shortened by two months. The department realized that this change would cause considerable confusion in executing bonds for this year, and probably several years to follow.

In order to reduce this difficulty as much as possible, letters were sent to the principal offices of the forty different surety companies writing this type of bond to notify them of the change in the licensing period. In addition, the amendment was called to the attention of many agents who contact the various dealers regarding their bonds. A number of responses were received expressing appreciation of this endeavor, and the comparatively few mistakes which occurred, in connection with the work of the surety companies, showed that the effort had been worthwhile.

Although a greater number of licensed dealers failed in business this year than last year, they were able to pay their New Jersey producers in full. As a result, only two claims were received against one dealer who failed to pay his farmers, but since he was amply bonded to cover his total indebtedness, no money was lost by any farmer who dealt with licensed dealers. This was the seventh consecutive year in which New Jersey farmers experienced no loss in their dealings with licensed firms.

The Department of Agriculture would like to investigate dealers outside New Jersey, especially in New York City, Brooklyn and Philadelphia, each year. Owing to the amount of work within the state, and the small personnel engaged, this year was the first in which dealers having their businesses located in these out-of-state cities were visited and encouraged to obtain licenses for the protection of those New Jersey farmers from whom they received produce.

Satisfactory results were obtained in the metropolitan area, but most of the other dealers outside of New Jersey, regarding the produce as in inter-state commerce, felt that they could not be compelled to file bonds with the New Jersey Department of Agriculture.

Since Philadelphia is located close to the farming areas of central and southern New Jersey, it is not necessary for dealers from that city to come into New Jersey to solicit produce. Many truck garden crops from this state are hauled to Philadelphia either by the farmers themselves or by hired truckmen.

For this reason, dealers could not be penalized for refusing to obtain licenses. Therefore, the only way that protection could be provided New Jersey farmers selling to these unlicensed firms was to contact those persons in this state who were willing to risk the penalty of soliciting for unlicensed dealers.

This would have required the services of several additional field agents; so it was decided to request the cooperation of the New Jersey State Police. Secretary of Agriculture W. H. Allen discussed New Jersey farm problems with Colonel Mark O. Kimberling, Superintendent of the State Police, and the latter agreed to allow several of his troopers to investigate dealers suspected of operating without licenses.

This work is still in progress, and no complete report is available. However, it can be said that an increased interest has been shown by dealers, agents and brokers residing outside the state, as well as within, regarding the necessity for obtaining licenses before soliciting produce from New Jersey farmers.

It was necessary to institute penalty action against four dealers who failed to obtain licenses even though they had been previously notified to comply with the bonding provisions of the law.

Eighteen complaints were received against dealers for failure to pay for produce, amounting to approximately \$2,059. This amount was recovered by the Department of Agriculture for the farmers concerned.

Licenses were issued to 312 dealers, who filed bonds totalling \$936,000 for the ten-month period.

TWENTY-FOURTH ANNUAL REPORT

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NUMBER OF LICENSEES UNDER PRODUCE DEALERS' LAW

County	Licenses Issued	Bonds Filed	Amount of Bonds
Atlantic	28	28	\$ 84,000
Bergen	2	2	6,000
Burlington	6	6	18,000
Camden	4	4	12,000
Cumberland	35	35	105,000
Essex	38	38	114,000
Gloucester	29	29	87,000
Hudson	2	2	6,000
Mercer	8	8	24,000
Middlesex	5	5	15,000
Monmouth	20	20	60,000
Passaic	9	9	27,000
Salem	11	11	33,000
Somerset	1	1	3,000
Union	2	2	6,000
Warren	1	1	3,000
Out-of-State	111	111	333,000
Totals: 1938-39	312	312	\$936,000
1937-38	321	321	963,000
1936-37	303	303	909,000
1935-36	296	296	888,000
1934-35	268	268	804,000

CATTLE DEALERS' LAW

(Article 1, Chapter 11, Title 4)

The number of complaints against cattle dealers was more numerous this year than in previous years and covered transactions ranging in value from \$50 to approximately \$8,000.

Although the Cattle Dealers' Law is primarily for the protection of the dairymen of the state, as an aid to them in their endeavor to improve their herds, its scope is not always clearly understood. This results in the filing of numerous complaints asking for adjustments from dealers on transactions which include sales of almost every kind of domestic animal.

However, before any farmer is informed as to whether or not the department can be of service to him, the complaint is investigated. When assistance can be afforded the complainant under the provisions of the law, the Department of Agriculture continues its activity in the case until a satisfactory settlement is made. In every instance, dealers have cooperated with the department to bring about an agreeable settlement with comparatively little delay.

It was necessary for the Department of Agriculture to hold a hearing in a case which concerned failure on the part of the dealer to keep complete records covering the purchase and sale of cattle. The dealer admitted his guilt and a penalty of \$50 was imposed for this violation. Dealers have been required to keep records of this nature since July 1, 1934. Such information is important not only to the department but also to producers and dealers.

NUMBER OF LICENSEES UNDER CATTLE DEALERS' LAW	
County	Licenses Issued
Bergen.....	3
Burlington	12
Camden	4
Cape May	5
Cumberland	14
Essex	12
Gloucester	4
Hudson	3
Hunterdon	14
Mercer	10
Middlesex	5
Monmouth	9
Morris	15
Ocean	6
Passaic	12
Salem	16
Somerset	12
Sussex	25
Union	7
Warren	16
Out-of-State	3
<hr/>	
Totals: 1938-39	207
1937-38	205
1936-37	204
1935-36	201
1934-35	203

THE NEW JERSEY JUNIOR BREEDERS' FUND

Following the trend shown in last year's report, the usefulness of the Fund continued its sharp upward swing with a total of 126 livestock loans, amounting to \$7,561.24, being made in the fiscal year ending June 30, 1939. A larger number of loans was made for the purchase of swine than at any time since the Fund was established.

During the year a new project was started in 4-H Club work, resulting in requests for loans in January, 1939, for baby beef production. The Fund was tentatively opened for this purpose in a limited amount, and from January to April there were 21 loans made, amounting to \$1,050, for this purpose.

Following the action of the Board of Trustees in setting aside \$1,000 as an Agricultural Loan Fund to provide loans for purposes other than the purchase of purebred livestock, more interest was shown in such loans during the past fiscal year, when 36 loans amounting to \$579.47 were made in the twelve-month period. However, in most instances several agricultural loans were made to a single borrower, so that this number does not represent the number of individual projects.

Of the total livestock loans made during the year, 33 were to students of vocational agriculture in the high schools of the state. Twenty-three of the agricultural loans were made to vocational agricultural students. All loans are made either on the recommendation of 4-H Club agents with approval by the county board of agriculture, or through vocational agricultural teachers with the sanction of the supervising principal and the administrators of the school.

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	4,298.50	....	....	8	492.50	29	1,614.82	2	30.00	82	6,435.82
1938-39	45	3,740.00	21	1,050.00	28	1,372.00	27	1,243.14	5	156.10	126	7,561.24
Totals	1,002	\$87,500.00	21	\$1,050.00	252	\$14,415.28	349	\$16,205.28	7	\$186.10	1,631	\$119,396.66

STATE DEPARTMENT OF AGRICULTURE

The use of the Fund by counties since its establishment is shown in the following table.

LOANS BY COUNTIES TO DATE

County	Livestock Loans				Agricultural Loans*					Total
	Dairy	Beef Cattle	Pig	Chicken	Turkey	Chicken Feed	Turkey Feed	Pig Feed	Agri-cultural Products	
Atlantic .....	....	....	....	....	....	....	....	....	....	....
Bergen .....	....	....	1	....	....	....	....	....	....	1
Burlington	44	....	21	42	2	23	....	1	....	133
Camden .....	....	....	....	....	....	....	....	....	....	....
Cape May	7	....	....	4	....	....	....	....	....	11
Cumberland	62	....	11	25	....	....	....	....	....	98
Essex .....	....	....	....	19	....	....	....	....	....	19
Gloucester	28	....	2	10	....	3	....	....	....	43
Hudson .....	....	....	....	....	....	....	....	....	....	....
Hunterdon	111	....	3	7	....	3	....	....	....	124
Mercer	163	....	86	23	4	3	1	....	9	289
Middlesex	112	9	13	45	....	....	....	2	....	181
Monmouth	74	....	12	86	....	....	....	....	....	172
Morris	53	....	1	6	....	....	....	....	....	60
Ocean	17	....	....	10	....	....	....	....	....	27
Passaic .....	....	....	....	2	....	2	....	....	....	4
Salem	89	12	90	30	....	2	....	5	....	228
Somerset	34	....	1	1	....	....	....	....	....	36
Sussex	87	....	8	19	....	5	....	....	....	119
Union .....	....	....	....	....	....	....	....	....	....	....
Warren	121	....	3	20	1	....	....	....	....	145
Total	1,002	21	252	349	7	41	1	8	9	1,690

* 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.

AGRICULTURAL LOANS *

	Poultry Feed Loans		Pig Feed Loans		Agricultural Products Loans		Total Agricultural Loans	
	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
Total	42	\$765.54	8	\$63.82	9	\$128.43	59	\$957.79

* 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.

The total amount of money outstanding at the close of the fiscal year for both livestock and agricultural purposes was \$12,888.63, a larger amount than at any time since the close of the 1927-28 fiscal year.

A total of \$146 was awarded in cash prizes at the New Jersey State Fair, and in addition, loving cups were offered for the best production records on a prize-winning animal of each breed, but only one animal so qualified last year. At local fairs where 4-H dairy animals were shown,

ribbons were awarded for the best animal in each breed that was purchased through the Fund.

Production records were kept by a considerable number of 4-H Club members, and 40 certificates of award were presented during Agricultural Week in January, 1939, to those meeting the regulations and having a high percentage of butterfat.

AGRICULTURAL WEEK

This annual event, centering around a legally-prescribed convention of delegates to elect two members to the State Board of Agriculture, was held January 24-27, 1939, in Trenton. Numerous livestock and commodity organizations held meetings during this period, at which current topics of interest were discussed. Records indicated above-normal attendance throughout the week.

The New Jersey Farm Show, held in the 114th Infantry Armory as a part of Agricultural Week, evoked greater interest by farmers than any preceding affair. The exposition was devoted to various types of exhibits showing all phases of New Jersey's diversified agriculture: modern farm machinery of both power and hand types, farm supplies and materials, and products including apples, corn, eggs, sweet potatoes and baby chicks entered competitively by growers over the state.

PUBLICITY AND PUBLICATIONS

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

The "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. 299—Some Old Farms and Farm Houses of New Jersey.
- Circular No. 300—R.O.P. and R.O.M. Breeding Flocks Under Official Supervision in New Jersey, 1939.
- Circular No. 301—New Jersey Cattle: Number and Breeds.
- Circular No. 302—Spraying for the Control of the Japanese Beetle on Ornamentals and Non-Commercial Fruit Holdings.
- Circular No. 303—Roster of County Boards of Agriculture and State Agricultural Organizations for 1939.
- Circular No. 304—New Jersey Nurserymen and Dealers Certified, 1938-39.
- Circular No. 305—New Jersey Milk Producer-Dealers' Herds in 1938.

Circular No. 306—Truck Crops in Nine New Jersey Counties: Acreage and Production During 1937.

Circular No. 307—Contracting for Cannery Tomatoes by Grade.

Circular No. 308—Survey of the Florist Industry in New Jersey.

Reprint—Circular No. 284—New Jersey Official Grades for Milk.

Folder—Official Grades for Raw and Pasteurized Milk and Cream.

Folder—List of Breeding Flocks and Hatcheries Under Official Supervision in New Jersey, 1939.

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

Folder—New Jersey Record of Performance Association.

Twenty-third Annual Report of the New Jersey Department of Agriculture, 1937-1938.

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."

Report of the Bureau of Animal Industry

DR. R. A. HENDERSHOTT, *Chief*

TUBERCULOSIS CONTROL

Complete eradication of tuberculosis in cattle is the ultimate goal set for this project, and it is expected that each year fewer cattle will be condemned because of tuberculosis. However, complete elimination of the disease, although of vital importance to the state, will be continually less spectacular than the early efforts at eradication. To reduce the percentage of infection from twenty to one per cent is easier than to further reduce it to zero.

All cattle in the state except those in Atlantic County, where only one cow was kept on each farm, were submitted to tuberculin test during the past fiscal year. While no great decrease in infection can be reported, it was encouraging to note a slight reduction as compared with the preceding year.

The elimination of tuberculosis in cattle has been of great importance to the human family. Evidence of this is seen in the fact that since the inauguration of the intensive tuberculin testing, begun in 1917, deaths among humans from extra pulmonary forms of tuberculosis, presumably of bovine origin, have decreased steadily from 21.4 to 5.4 per 100,000 population.

The program of tuberculosis eradication has been of further benefit in improving the type of dairy animal maintained on farms, and, consequently, the quality of the milk produced.

With the aid of private practitioners, 248,094 animals were submitted to the tuberculin test during the past year. This resulted in the disclosure of 1,417 reactors in 787 infected herds. A table showing the areas in which these reactors were found accompanies this data. As was expected, the heavily populated dairy counties contained the majority of infected premises. Sussex County led with 399 reactors on 225 farms; Salem County was second with 228 reactors on 105 farms and Warren County was third with 123 reactors on 101 farms.

RECORD BY COUNTIES OF INFECTED HERDS AND REACTORS DISCLOSED

July 1, 1938 to June 30, 1939

County	No. Infected Herds	No. Reactors
Atlantic	1	1
Bergen	5	13
Burlington	51	93
Camden	2	7
Cape May	6	8
Cumberland	17	18
Essex	8	9
Gloucester	12	15
Hudson	....	....
Hunterdon	72	89
Mercer	32	42
Middlesex	15	58
Monmouth	57	137
Morris	28	57
Ocean	9	18
Passaic	10	14
Salem	105	228
Somerset	20	65
Sussex	225	399
Union	11	23
Warren	101	123
State	787	1,417

The Bureau of Animal Industry was troubled during the past year by a number of "breaks" or the disclosure of infected animals in herds which had been accredited for a number of years. Not all "breaks" can be accounted for. In some instances they have occurred in herds in which the initial infection disclosed was high, while in others, one of the major causes for the reappearance of the disease in previously clean herds is the fact that a badly infected animal sometimes fails to give a reaction to tuberculin. As long as the animal possesses no open lesions, it will not spread the disease. But as soon as the lesions break down so that organisms contained in them are able to reach the outside, either through exhalation, as is the case with open lung lesions, or through the feces, urine or milk, they provide definite menace to the other animals, who soon become reactors.

The most logical explanation of the reason these advanced cases of tuberculosis fail to react is that the infected cows are constantly producing an abundance of tuberculin from their own tissues. This excess counteracts the minimal diagnostic dose of tuberculin used in the test. Such chronic advanced cases are expected to become fewer each year, but until all old animals in each herd have been replaced, outbreaks from this source should be anticipated.

During this fiscal year 25,968 cattle were imported as compared with 27,338 during the previous year.

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

TWENTY-FOURTH ANNUAL REPORT

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	July	August	September	October	November	December
New Jersey	\$41.82	\$37.71	\$42.67	\$40.81	\$38.04	\$38.44
New York	38.35	32.41	31.32	30.76	31.50	32.69
	January	February	March	April	May	June
New Jersey	\$39.79	\$45.72	\$44.23	\$44.95	\$44.87	\$43.01
New York	33.78	36.94	37.35	38.14	35.48	35.66

The amount of state indemnity paid during this fiscal year for reactors condemned decreased from an average of \$53.24 for the fiscal year 1937-1938 to \$49.52 for 1938-1939.

A brief summary of the work accomplished in tuberculosis eradication during the year ending June 30, 1939, follows.

At the close of the fiscal year ending June 30, 1939, there were under state and federal cooperative supervision in New Jersey, 17,725 herds consisting of 202,001 cattle. At the close of the fiscal year ending June 30, 1938, there were 18,185 herds comprising 199,474 cattle. This is a decrease in the number of herds under supervision and a slight increase in the number of cattle.

During the past twelve-month period, 248,094 tuberculin tests were made of cattle under supervision, resulting in 1,417 or .57 per cent reaction.

Representatives of this bureau made, during the fiscal year, 1,387 initial tests on 7,118 cattle. On test, 51 or .72 per cent reaction was found. This is a decrease in the percentage of reaction found last year when 1,595 herds of 8,323 animals were initially tested with 65 or .78 per cent reacting.

The percentage of reactors found in out-of-state cattle added to herds under supervision during the fiscal year 1938-1939 was 1.29. Of 8,158 cattle tested, 105 reacted. During the year 1937-1938, 11,758 cattle were tested and 128, or 1.09 per cent reacted.

Second, third and subsequent retests are made of herds already under supervision. During the fiscal year 1938-1939, 232,818 animals were tested on retest and 1,261 or .54 per cent reacted. During the fiscal year 1937-1938, 232,917 animals were tested on retest and 1,235 or .53 per cent reacted.

During the year 1938-1939, indemnity was paid for 1,199 reactors, 110 of which were registered and 1,089 grade animals. During the year 1937-1938, indemnity was paid for 1,176 reactors, of which 92 were registered animals and 1,084 grade animals.

Following is the total amount received by the dairymen and breeders for 1,199 reactors condemned and slaughtered as result of the tuberculin test during the fiscal year 1938-1939:

Amount received from salvage of reactors	\$51,068.70
Amount paid by the State of New Jersey in indemnities	59,370.91
Amount paid by the United States Government in indemnity	26,409.45
Total	\$136,849.06

This is an average return to the farmer of \$114.14.

STATE DEPARTMENT OF AGRICULTURE

TOTAL STATE INDEMNITY PAID, BY COUNTIES

July 1, 1938 to June 30, 1939

Atlantic	\$.....
Bergen	372.90
Burlington	3,468.75
Camden	404.69
Cape May	429.18
Cumberland	710.03
Essex	223.43
Gloucester	304.03
Hudson	.....
Hunterdon	2,657.34
Mercer	1,022.03
Middlesex	3,179.31
Monmouth	8,369.83
Morris	1,851.55
Ocean	682.18
Passaic	208.22
Salem	8,129.90
Somerset	1,893.14
Sussex	18,441.81
Union	1,209.70
Warren	5,812.89
	<hr/>
State	\$59,370.91

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

TO JUNE 30, 1939

Atlantic	\$ 8,215.75
Bergen	32,947.28
Burlington	316,653.44
Camden	13,013.00
Cape May	10,819.80
Cumberland	75,120.06
Essex	35,993.42
Gloucester	63,101.38
Hudson	4,455.78
Hunterdon	335,515.47
Mercer	177,478.00
Middlesex	74,840.80
Monmouth	122,842.73
Morris	127,306.65
Ocean	29,997.00
Passaic	32,814.42
Salem	350,478.05
Somerset	215,269.99
Sussex	928,335.06
Union	35,933.81
Warren	363,997.05
	<hr/>
State	\$3,356,128.94

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The following summary indicates the amount of state indemnity paid for reactors resulting from the tuberculin test during the year ending June 30, 1939.

Class of Cattle	Number of Animals	Amount Paid
Registered animals	110	\$9,017.01
Grade animals	1,089	50,353.90
Registered and Grade	1,199	\$59,370.91

Average State Indemnity Paid Per Head :

Registered animal	\$81.97
Grade animal	46.24
Registered and Grade	\$49.52

The following summary indicates the amount of salvage received by owners for reactors resulting from the tuberculin test during the year ending June 30, 1939.

Class of Cattle	Number of Animals	Amount Paid
Registered animals	110	\$4,992.32
Grade animals	1,089	46,076.38
Registered and Grade	1,199	\$51,068.70

Average Salvage Received Per Head :

Registered animal	\$45.38
Grade animal	42.31
Registered and Grade	\$42.59

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

Class of Cattle	Number of Animals	Amount Paid
Registered and Grade	1,199	\$26,409.45

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)	\$136,849.06
Average amount received per head by owners for reactors	\$114.14

STATE DEPARTMENT OF AGRICULTURE

HERDS AND CATTLE UNDER STATE AND FEDERAL SUPERVISION,
JUNE 30, 1939

County	Herds Under Super- vision	Herds Fully Accredit- ed	<i>No. of Cattle Under Supervision 6-30-39</i>			<i>No. of Cattle Fully Accredited 6-30-39</i>		
			P. B.	Grades	Total	P. B.	Grades	Total
Atlantic	315	272	.....	542	542	.....	453	453
Bergen	247	230	196	2,728	2,924	202	2,503	2,705
Burlington	1,294	1,191	1,920	20,282	22,202	1,834	18,415	20,249
Camden	330	289	319	1,361	1,680	319	1,334	1,653
Cape May	235	210	71	892	963	68	738	806
Cumberland	1,182	1,104	428	6,300	6,728	423	6,244	6,667
Essex	150	126	200	1,898	2,098	200	1,287	1,487
Gloucester	1,124	1,012	494	4,929	5,423	460	4,553	5,013
Hudson	24	23	.....	134	134	.....	128	128
Hunterdon	2,136	1,935	2,606	24,410	27,016	2,411	22,030	24,441
Mercer	949	867	1,204	8,275	9,479	987	6,523	7,510
Middlesex	1,297	1,162	907	7,139	8,046	683	4,672	5,355
Monmouth	1,528	1,276	1,103	8,567	9,670	855	7,062	7,917
Morris	1,043	916	1,825	10,644	12,469	1,797	9,813	11,610
Ocean	371	322	1	1,654	1,655	.....	1,405	1,405
Passaic	219	205	65	2,671	2,736	58	2,104	2,162
Salem	1,321	1,138	881	14,951	15,832	824	12,627	13,451
Somerset	1,187	1,067	2,321	9,704	12,025	2,458	8,663	11,121
Sussex	1,241	963	2,090	31,121	33,211	1,378	23,393	24,771
Union	227	205	77	3,369	3,446	71	1,198	1,269
Warren	1,305	1,169	1,664	22,058	23,722	1,258	19,616	20,874
State	17,725	15,682	18,372	183,629	202,001	16,286	154,761	171,047

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INITIAL TESTS MADE AND REACTORS RESULTING, BY COUNTIES

July 1, 1938 to June 30, 1939

County	Number of Herds Tested	<i>Animals Tested</i>		<i>Animals Reacting</i>		<i>Percentage Reacting</i>		Total Animals Tested	Total Animals Reacting	Percentage of Total Reacting
		Registered	Grade	Registered	Grade	Registered	Grade			
Atlantic	4	...	8	...	...	...	...	8	...	...
Bergen	33	1	222	...	1	...	.45	223	1	.45
Burlington	84	35	464	...	2	...	.43	499	2	.40
Camden	40	...	69	...	4	...	.58	69	4	.58
Cape May	21	...	30	...	...	...	...	30	...	...
Cumberland	64	1	117	...	2	...	1.70	118	2	1.70
Essex	10	...	51	...	1	...	1.96	51	1	1.96
Gloucester	105	9	178	...	1	...	.56	187	1	.53
Hudson	1	...	2	...	...	...	...	2	...	...
Hunterdon	123	24	643	...	2	...	.31	667	2	.30
Mercer	69	11	188	...	1	...	.53	199	1	.50
Middlesex	113	11	365	...	1	...	.27	376	1	.27
Monmouth	174	78	435	...	15	...	3.45	513	15	2.92
Morris	99	38	448	...	1	...	.22	486	1	.21
Ocean	30	...	69	...	...	...	...	69	...	...
Passaic	10	2	63	...	...	...	...	65	...	...
Salem	109	44	688	1	...	2.27	...	732	1	.14
Somerset	90	26	228	...	1	...	.43	254	1	.39
Sussex	100	30	1,617	...	17	...	1.05	1,647	17	1.03
Union	20	1	34	...	...	...	...	35	...	...
Warren	88	12	876	...	1	...	.11	888	1	.11
State	1,387	323	6,795	1	50	.31	.74	7,118	51	.72

CATTLE TESTED IN NEW JERSEY UNDER THE ACCREDITED HERD PLAN BY VETERINARIANS ON THE STAFF
OF THE STATE DEPARTMENT OF AGRICULTURE

July 1, 1938 to June 30, 1939

	INITIAL TESTS					HERD ADDITION TESTS					OTHER TESTS				
	Lots	Tested		Reactors		Lots	Tested		Reactors		Lots	Tested		Reactors	
		Regist'd	Grade	Regist'd	Grade		Regist'd	Grade	Regist'd	Grade		Regist'd	Grade	Regist'd	Grade
1938															
July	30	45	210	....	....	2	....	91	....	1	402	514	4,883	1	15
August	49	9	191	....	....	....	....	47	....	....	505	453	5,324	....	26
September	65	7	259	....	9	2	1	87	....	1	641	642	7,227	2	25
October	39	26	264	....	1	3	8	77	....	....	388	333	4,825	1	22
November	35	9	206	....	....	1	....	108	....	4	430	451	5,857	....	28
December	45	8	235	....	....	5	1	159	....	1	532	791	7,442	1	38
1939															
January	32	14	167	1	4	2	....	59	....	....	388	711	5,704	2	49
February	40	24	222	....	2	2	....	82	....	4	478	456	6,688	1	45
March	39	5	115	....	3	4	....	151	....	6	630	1,363	10,138	3	61
April	50	14	219	....	1	1	6	154	1	7	530	1,224	8,277	2	37
May	62	18	250	....	2	1	....	138	....	2	512	822	6,396	6	76
June	36	18	270	....	1	2	....	129	....	4	638	597	7,932	....	27
Totals	522	197	2,608	1	23	25	16	1,282	1	30	6,074	8,357	80,693	19	449
Percentage of Reactors	....	....	....	.51	.88	....	....	....	6.25	2.34	....	....	....	.23	.56
Average Percentage	....	....	....	....	.86	....	....	....	....	2.39	....	....	....	....	.53

CATTLE TESTED IN NEW JERSEY UNDER THE ACCREDITED HERD PLAN BY VETERINARIANS ON THE STAFF
OF THE UNITED STATES DEPARTMENT OF AGRICULTURE

July 1, 1938 to June 30, 1939

TWENTY-FOURTH ANNUAL REPORT

	Lots	INITIAL TESTS				HERD ADDITION TESTS				Lots	OTHER TESTS				
		—Tested—		—Reactors—		—Tested—		—Reactors—			—Tested—		—Reactors—		
		Regist'd	Grade	Regist'd	Grade	Lots	Regist'd	Grade	Regist'd		Grade	Regist'd	Grade	Regist'd	Grade
1938															
July	17	....	35	....	....	....	24	....	....	3	....	530	....	....
August	16	....	100	....	....	....	6	....	....	155	18	682	....	6	
September	8	....	10	....	....	....	2	250	....	3	108	193	1,624	....	7
October	18	1	27	....	....	....	1	310	....	....	148	48	2,604	....	9
November	3	3	30	....	....	....	....	167	....	....	61	83	1,992	1	....
December	3	....	7	....	....	....	4	141	....	1	80	29	1,419	....	12
1939															
January	4	....	6	....	....	....	....	84	....	....	93	344	896	1	4
February	10	....	40	....	....	....	....	103	....	....	151	89	1,437	....	1
March	8	....	28	....	....	1	....	200	....	1	79	212	1,228	....	3
April	4	8	28	....	....	....	....	138	....	4	102	301	3,298	....	....
May	6	....	7	....	....	....	....	148	....	2	130	172	2,183	....	1
June	13	10	42	....	....	1	1	35	....	1	185	56	489	....	5
Totals	110	22	360	....	....	2	8	1,606	....	12	1,295	1,545	18,382	2	48
Percentage of															
Reactors	....	....	....	....	....	....	....	....	....	.75	....	....	....	.13	.26
Average Percentage	....	....	....	....	....	....	....	....	....	.74	....	....	....	....	.25

CATTLE TESTED UNDER THE ACCREDITED HERD PLAN BY VETERINARIANS ACCREDITED
 BY THE UNITED STATES DEPARTMENT OF AGRICULTURE
 July 1, 1938 to June 30, 1939

	INITIAL TESTS					HERD ADDITION TESTS					OTHER TESTS				
	Lots	Tested		Reactors		Lots	Tested		Reactors		Lots	Tested		Reactors	
		Regist'd	Grade	Regist'd	Grade		Regist'd	Grade	Regist'd	Grade		Regist'd	Grade	Regist'd	Grade
1938															
July	39	....	128	....	....	31	2	198	....	1	536	491	6,226	7	12
August	52	9	498	....	....	28	12	287	....	7	610	679	10,025	1	38
September	46	8	394	....	5	56	5	501	....	....	730	1,225	10,290	6	44
October	65	19	237	....	1	38	8	433	....	5	940	721	7,112	3	37
November	73	14	422	....	5	44	11	715	....	5	916	907	11,033	4	42
December	109	3	377	....	1	88	52	784	....	10	1,387	1,649	13,707	9	102
1939															
January	66	7	321	....	8	60	3	483	....	5	749	1,201	10,200	8	101
February	52	4	231	....	2	62	8	432	....	7	594	919	4,539	4	57
March	32	1	98	....	1	59	5	260	....	7	323	312	3,437	1	30
April	68	10	207	....	....	35	23	346	....	7	884	1,417	10,849	20	76
May	100	18	593	....	2	39	4	438	....	6	1,514	1,245	15,465	10	66
June	53	11	321	....	2	47	11	225	....	2	773	1,116	9,076	5	60
Totals	755	104	3,827	....	27	587	144	5,102	....	62	9,956	11,882	111,959	78	665
Percentage of Reactors71	1.2266	.59
Average Percentage69	1.1860

TWENTY-FOURTH ANNUAL REPORT

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SUMMARY OF CATTLE TESTED UNDER ACCREDITED HERD PLAN

July 1, 1938 to June 30, 1939

Initial Tests

	Registered Animals	Grade Animals	Total
Tested	323	6,795	7,118
Reacted	1	50	51
Percentage of Reactors		.72	

Herd Addition Tests

Tested	168	7,990	8,158
Reacted	1	104	105
Percentage of Reactors		1.29	

Other Tests

Tested	21,784	211,034	232,818
Reacted	99	1,162	1,261
Percentage of Reactors		.54	

Total

Tested			248,094
Reacted			1,417
Percentage of Reactors			.57
Percentage of Reactors based on Cattle Population			.70

SUMMARY BY COUNTIES SHOWING PER CENT OF INFECTION FOUND IN
1938-39, BASED ON TESTS MADE AND ON CATTLE POPULATION

July 1938 to June 1939

County	Number Animals Under Supervision	Number Animals Reacting	Per Cent Reaction on Total Cattle Population	Number Tests Made	Per Cent Reaction on Tests Made
Atlantic	542	1	.18	308	.32
Bergen	2,924	13	.44	3,869	.34
Burlington	22,202	93	.42	26,280	.35
Camden	1,680	7	.42	2,067	.34
Cape May	963	8	.83	1,270	.63
Cumberland	6,728	18	.27	7,705	.23
Essex	2,098	9	.43	4,538	.20
Gloucester	5,423	15	.28	6,243	.24
Hudson	134	....	....	330	....
Hunterdon	27,016	89	.33	28,854	.31
Mercer	9,479	42	.44	13,459	.31
Middlesex	8,046	58	.72	12,597	.46
Monmouth	9,670	137	1.42	11,446	1.20
Morris	12,469	57	.46	13,142	.43
Ocean	1,655	18	1.08	1,768	1.02
Passaic	2,736	14	.51	4,086	.34
Salem	15,832	228	1.44	22,459	1.02
Somerset	12,025	65	.54	13,137	.49
Sussex	33,211	399	1.20	41,666	.96
Union	3,446	23	.67	7,189	.32
Warren	23,722	123	.52	25,681	.48
State	202,001	1,417	.70	248,094	.57

STATE DEPARTMENT OF AGRICULTURE

INSPECTING AND RELEASING INSHIPPED CATTLE

There has been a decrease of 1,370 in the number of dairy cattle imported into the state during the past year. This is regarded as a favorable sign, especially since the animals under supervision for tuberculosis in the dairy cow population have increased by 2,527. Either farmers are milking cows longer or they are raising more of their own replacements. Emphasis has been placed on the latter practise as a means of controlling bovine diseases and because it is believed to be the most economical procedure.

Following is a summary of the cattle shipped into New Jersey by months, those shipped out of the state, and those shipped out from herds under supervision during the year ending June 30, 1939.

Month	Number of Cattle Shipped into New Jersey	Number of Cattle Shipped out of New Jersey	Number of Lots Shipped out of New Jersey From Herds Under Supervision
July	2,437	110	19
August	2,877	13	4
September	2,566	106	16
October	2,609	14	12
November	3,157	86	17
December	1,793	16	8
January	1,543	38	13
February	1,120	10	8
March	1,466	19	5
April	1,756	13	11
May	2,292	24	7
June	2,352	64	31
Totals	25,968	513	151

Comparisons of the number of cattle shipped into New Jersey during the past five years follow.

1934-1935	1935-1936	1936-1937	1937-1938	1938-1939
26,760	24,626	28,472	27,338	25,968

IMPORT CATTLE RECEIVED FROM VARIOUS STATES FOR DAIRY AND BREEDING PURPOSES, 1938 TO 1939

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Athenia (Quarantine)	3	4	.....	.....	.....	.....	.....	.....	.....	98	5	1	111
Canada	82	118	107	167	141	148	188	100	169	76	212	78	1,586
Connecticut	.....	1	.....	3	.....	.....	.....	.....	.....	3	1	.....	8
Delaware	.....	16	3	1	.....	.....	6	.....	.....	.....	.....	6	32
Illinois	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
Iowa	.....	.....	.....	.....	.....	.....	36	.....	.....	.....	.....	.....	36
Kansas	30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30
Kentucky	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1
Lancaster Yards	32	105	52	50	81	74	10	44	.....	55	12	149	664
Maine	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	21	.....	26
Maryland	129	75	106	119	87	54	54	70	95	64	149	162	1,164
Massachusetts	.....	.....	2	6	1	1	.....	.....	.....	.....	.....	.....	10
Michigan	328	462	475	336	532	422	412	242	339	361	334	373	4,616
Minnesota	111	143	30	62	187	57	30	.....	.....	31	10	50	711
Nebraska	.....	24	.....	.....	49	.....	50	2	.....	.....	.....	.....	125
New York	123	127	118	167	132	79	124	90	102	191	226	176	1,655
Oklahoma	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	4
Ohio	610	440	552	541	538	188	124	203	162	244	559	642	4,803
Pennsylvania	113	121	154	178	195	88	108	107	106	94	120	130	1,514
Rhode Island	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	3
South Carolina	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1	2
South Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Texas	.....	.....	.....	24	.....	.....	.....	.....	.....	.....	.....	.....	24
Vermont	.....	.....	2	.....	9	14	.....	.....	.....	.....	.....	.....	25
Virginia	69	74	29	2	9	28	25	7	14	16	4	19	296
Washington	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Wisconsin	807	1,127	936	953	1,196	640	368	254	478	521	639	560	8,479
Wyoming	.....	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
Total	2,437	2,877	2,566	2,609	3,157	1,793	1,543	1,120	1,466	1,756	2,292	2,352	25,968

BANG'S DISEASE CONTROL

At the beginning of this fiscal year, impetus was given to Bang's disease control work when dairy farmers in New Jersey received letters from two of the large purchasers of milk, urging that all dairy herds be tested and determined free from Bang's disease.

These letters served to emphasize the danger of New Jersey dairymen losing their milk markets if their herds were not tested for this disease.

Several meetings were held, following the receipt of the letters, and the dairymen were made acquainted with the status of Bang's disease control throughout the United States, as well as the fact that federal indemnity payments would cease on May 1, 1939, unless the state also appropriated money for indemnity.

From the foregoing, a series of meetings resulted, dealing with the control of diseases of livestock, and the subsequent introduction of a bill to provide indemnity in this state for reactors to the Bang's test.

Failure of this bill to pass the Assembly left the dairy farmer in a very serious plight which will become increasingly acute as programs in neighboring states advance.

During the past 12 months, there has been a one hundred per cent increase in the number of herds initially tested, over the previous fiscal year. It is encouraging to note that the percentage of reaction found on initial tests was only 9.64 for the past fiscal year, as compared with 16.14 for 1937-1938.

During the past year, the number of herds under supervision increased 21 per cent, and the animals under supervision increased 27 per cent. Forty new herds were added to those previously certified as accredited, bringing the total herds in this classification up to 164.

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

Total number of animals bled since the work commenced.....		336,325
Total number of animals showing positive reaction.....	13,040-	3.88%
Total number of animals showing negative reaction.....	306,606-	91.16%
Total number of animals showing suspicious reaction.....	16,679-	4.96%
Total number of animals bled on initial test since the work commenced		24,520
Total number of animals showing positive reaction	4,986-	20.33%
Total number of animals showing negative reaction	19,534-	79.67%

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

June 30, 1939

County	Number of Herds Under Supervision	Number of Herds Fully Accredited	Number of Animals Under Supervision
Atlantic	....	....	....
Bergen	14	6	312
Burlington	18	9	1,095
Camden	7	4	158
Cape May	6	4	107
Cumberland	11	3	557
Essex	3	2	184
Gloucester	8	4	471
Hudson	....	....	....
Hunterdon	23	12	1,173
Mercer	42	23	1,419
Middlesex	24	5	2,697
Monmouth	28	16	761
Morris	29	13	2,210
Ocean	1	1	36
Passaic	3	1	282
Salem	10	5	302
Somerset	78	47	2,119
Sussex	6	3	456
Union	1	1	3
Warren	11	5	480
State	323	164	14,822

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

July, 1938 to June, 1939

County	Number of Tests	Negative Reactions	Positive Reactions	Suspicious Reactions
Atlantic	9	9	....	....
Bergen	1,440	1,405	9	26
Burlington	4,464	4,128	105	231
Camden	515	499	2	14
Cape May	550	520	2	28
Cumberland	2,336	2,265	15	56
Essex	1,712	1,566	70	76
Gloucester	2,021	1,913	32	76
Hudson	....	....	....	....
Hunterdon	6,457	6,104	102	251
Mercer	13,520	12,634	282	604
Middlesex	6,614	6,386	53	175
Monmouth	3,151	2,876	142	133
Morris	11,899	11,358	144	397
Ocean	2	1	1	....
Passaic	2,901	2,803	25	73
Salem	1,836	1,696	45	95
Somerset	8,636	8,136	193	307
Sussex	2,100	1,946	71	83
Union	14	14	....	....
Warren	4,035	3,771	83	181
State	74,212	70,030	1,376	2,806

CALFHOOD VACCINATION

Experimental vaccination of calves is being pursued, and present information points to the possibility for the use of this weapon in the control of Bang's disease, in certain cases, as an adjunct to the agglutination test and to proper methods of sanitation. To date 1,219 calves have been vaccinated.

The following summary gives the results of the work to date :

Total number of calves vaccinated		1,219
Total number of calves released for breeding	868	71.21%
Total number of calves not released for breeding	193	15.83%
Total number of calves withdrawn from supervision before being released for breeding	158	12.96%
Total number of calves attaining breeding age with available reports	786	
Number of calves which calved normally first breeding	524	66.67%
Number of calves aborting	7	.89%
Number of calves with retained placenta	15	1.90%
Number of calves sold as non-breeders	106	13.49%
Number of additional calves having difficulty with breeding	11	1.40%
Number of calves reported as died, sold, slaughtered as being positive to tuberculin or Bang's test or having mastitis	123	15.65%
To date vaccinated animals calving normally second breeding	130	
To date vaccinated animals calving normally third breeding	9	

GOATS

During the two years in which a service has been offered the goat raisers of New Jersey, many applications were received for both tuberculosis and Bang's disease tests, and a number of herds have qualified during the past year for accredited certificates.

Several goat shows have been sponsored, and stringent regulations relative to the health of animals have aided materially in the progress of disease control. Their health program has been so well established that today few goat owners would consider maintaining non-tested herds.

The following is a summary of the goat herds and animals under supervision for both tuberculosis and Bang's disease and the herds which have been fully accredited.

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GOAT HERDS UNDER SUPERVISION

June 30, 1939

County	No. Herds	<i>Tuberculosis</i>		No. Herds	<i>Bang's Disease</i>	
		No. Herds Accredited	No. Animals		No. Herds Accredited	No. Animals
Atlantic	1	....	7	1	....	7
Bergen	8	....	60	8	1	60
Burlington	....	....	....	....	....	....
Camden	2	....	34	2	....	36
Cape May	....	....	....	....	....	....
Cumberland	2	....	38	1	....	28
Essex	6	....	19	4	2	15
Gloucester	3	....	30	3	2	26
Hudson	1	....	3	....	....	....
Hunterdon	8	1	103	4	1	83
Mercer	1	....	9	2	1	8
Middlesex	3	....	17	2	1	17
Monmouth	1	....	2	....	....	....
Morris	21	3	262	20	5	229
Ocean	....	....	....	....	....	....
Passaic	5	....	64	5	2	63
Salem	....	....	....	....	....	....
Somerset	4	....	27	4	....	24
Sussex	4	....	40	4	1	40
Union	....	....	....	....	....	....
Warren	3	....	27	3	1	20
State	71	4	731	63	17	656

Up to the present, only one reactor to the tuberculin test has been found, and only two failed to give a negative reaction to the Bang's test. These two were only slightly suspicious.

PHYSICAL EXAMINATION OF DAIRY HERDS PRODUCING NEW JERSEY GRADE OF MILK

During the past year, a new approach was undertaken in connection with certification of the health of animals producing New Jersey grades of milk. The responsibility for health of animals producing this type of milk was delegated to the Bureau of Animal Industry, and the services of a veterinarian experienced in mastitis control were procured to carry on this phase of the program.

Regular physical examinations are conducted on all herds producing official grades of milk. Since November, 1938, these examinations have included, in addition to the physical examination of the animal, a course of instructions for herd owners, herdsman and employees on the dairy farm in the fundamentals of control and eradication of mastitis. A number of educational meetings have been sponsored and carried on throughout the state by the bureau.

While this program has been under way less than a year, beneficial results already can be demonstrated. The new service has been enthusiastically received by New Jersey dairymen.

It is expected that through this work a real foundation for mastitis control and eradication will be made. The work is being carried on in conjunction and in cooperation with the Bureau of Markets.

LIVESTOCK AUCTION SALES MARKET

Supervision of the livestock auction market owned and operated by the Harris Sales Company of Woodstown, has been continued throughout this year. All cattle offered for sale on this market must originate in fully accredited herds and be submitted to tuberculin test prior to their movement to other farms. Testing is done by a private veterinarian, authorized by the Bureau of Animal Industry, but paid for by the sale company. All swine passing through the sale must be treated either by the single or double method of injection as a protection against cholera. Swine or cattle offered for sale for immediate slaughter are permanently marked to insure their ultimate movement to slaughter only.

The results of the second full year of veterinary supervision of this market are herewith reported.

Number of Cattle Checked	Number of Cattle Tuberculin Tested		Number of Cattle Ear Punched for Slaughter	Number of Cattle Bled for Bang's Test
54	<i>Tested</i> 1,291	<i>Reacted</i>	59	89
	Number of Swine Treated			
	<i>Single</i> 1,029		<i>Double*</i> 2,274	

* Wherever double treatment was employed, swine also were given a protective inoculation of Mixed Infection Bacterin.

ENCEPHALOMYELITIS

Developments during the past year clearly indicate that this disease, formerly considered of importance only to horse owners, is becoming of great importance to the human family and to poultrymen.

An outbreak of encephalitis in the human family in Massachusetts, in which there were ten deaths, and the subsequent recovery of Eastern strain equine encephalomyelitis virus as the causative agent, attracted the attention of science to the greater importance of this infection. Since that time, a number of deaths have occurred among laboratory workers engaged in the preparation of a vaccine for use in horses.

Two reports were made during the year of pheasants found to be infected with this virus. One of these occurred in a group of pheasants grown at New Monmouth, N. J. Several recent reports indicate that domestic fowl also may be affected with this virus.

During the past year, 11 cases of the disease occurred in New Jersey.

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HOGS INOCULATED AS A PROTECTION
AGAINST CHOLERA INFECTION, BY MONTHS

July, 1938 to June, 1939

Vaccinations Made by Private Veterinarians

Month	Number of Hogs Given Single Treatment	Number of Hogs Given Double Treatment
July	3	1,252
August	18	1,087
September	13	999
October	1	884
November	....	593
December	9	480
January	....	860
February	....	340
March	....	310
April	....	227
May	....	868
June	16	815
Totals	60	8,715
Total Single	60	
Total Double		8,715
Grand Total		8,775

HOGS INOCULATED AS A PROTECTION
AGAINST CHOLERA INFECTION, BY COUNTIES

July, 1938 to June, 1939

Vaccinations Made by Private Veterinarians

	Single Treatment	Double Treatment
Atlantic	2	461
Bergen	....	....
Burlington	....	392
Camden	....	....
Cape May	1	367
Cumberland	....	414
Essex	....	7
Gloucester	3	357
Hudson	....	....
Hunterdon	18	414
Mercer	....	563
Middlesex	16	1,357
Monmouth	17	3,111
Morris	....	288
Ocean	....	61
Passaic	....	....
Salem	2	8
Somerset	....	453
Sussex	....	....
Union	1	344
Warren	....	118
State	60	8,715
Total Single	60	
Total Double		8,715
Grand Total		8,775

GLANDERS

Reports of 159 negative mallein tests made on horses for glanders were received at this office during the past fiscal year; 147 were for admission to the state and 12 for export. This is an increase over last year when only 109 tests were filed with the bureau, all of which were negative.

MALLEIN TESTS CONDUCTED AND REPORTED

July 1, 1938 to June 30, 1939

Tests made by Private Veterinarians

July	1
August	1
September	....
October	12
November	41
December	30
January	29
February	....
March	....
April	3
May	18
June	24
	—
Total	159

ANTHRAX

By the use of protective anthrax inoculation of horses and cattle in the southern section of the state, this disease again has been prevented from making its appearance. When owners make a request for this work to their county agents, representatives of the bureau vaccinate the animals and the Department of Agriculture furnishes the material without charge to the owner. The work is arranged so that a minimum amount of time and labor is expended to carry out the vaccination. The inoculations are made during March and April, and this year 1,197 cattle and 71 horses were treated.

STALLION REGISTRATION

It will be noted from the summary following that the number of stallions licensed this year is 42 as compared with 22 during the previous year. The initial fee for license is five dollars and renewals are issued annually for two dollars.

The following tables show the registration by breeds as well as by counties:

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STALLIONS LICENSED, BY BREEDS

July 1, 1938 to June 30, 1939

Breed	Number Licensed
Belgian (Purebred)	4
Jockey (Purebred)	1
Hunter (Purebred)	1
Morgan (Purebred)	1
Percheron (Purebred)	13
Saddle (Purebred)	4
Suffolk (Purebred)	2
Thorbred (Purebred)	7
Grade Drafts *	8
Pony (Grade—Breed not known)	1
Total	42

* Includes grade Percheron, Belgian, Morgan, Arabian and Spanish.

STALLIONS LICENSED, BY COUNTIES

July 1, 1938 to June 30, 1939

Atlantic	....
Bergen	1
Burlington	3
Camden	3
Cape May	....
Cumberland	1
Essex	1
Gloucester	....
Hudson	....
Hunterdon	9
Mercer	3
Middlesex	1
Monmouth	7
Morris	1
Ocean	....
Passaic	....
Salem	5
Somerset	3
Sussex	....
Union	....
Warren	4
State	42

FOWL POX AND LARYNGOTRACHEITIS

After a conference held with leading poultrymen in the state, it was decided to discontinue the issuance of permits for owner treatment of birds with fowl-pox and laryngotracheitis vaccine.

POULTRY INSPECTION

Throughout the year, representatives of the bureau inspected all car and truck loads of poultry arriving in New Jersey at the various poultry terminals, to determine their health status. A total of 1,677 cars was inspected and, as each car contains approximately 4,000 birds, there were 6,708,000 birds inspected. Of this number a total of 38,412 was condemned

as being unfit for food and destroyed. This is an increase over the previous year, when 1,137 cars of approximately 4,548,000 birds were inspected.

This inspectional service prevents the distribution throughout the state of diseased live poultry, which would jeopardize the local flocks, and, in addition, it insures a healthy product for human consumption.

The summary which follows gives the number of carlots of poultry received during the year and the points of origin of such consignments.

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

July 1, 1938 to June 30, 1939

Place of Origin	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	Total
Alabama	....	....	....	....	1	....	....	....	....	....	....	....	1
Connecticut	7	8	8	4	8	5	7	5	3	6	4	5	70
Delaware	23	32	15	13	17	13	22	34	35	32	23	15	274
Illinois	8	6	4	5	9	23	7	5	5	3	5	4	84
Indiana	11	20	22	15	13	28	9	7	12	4	6	4	151
Iowa	1	....	4	1	3	3	....	....	....	....	....	5	17
Kentucky	....	....	1	1	2	4	5	11	11	6	4	4	49
Maine	2	4	4	3	4	4	....	2	1	1	4	....	29
Maryland	3	4	3	3	1	....	4	4	7	4	7	6	46
Massachusetts	4	5	6	5	5	5	4	5	4	4	4	4	55
Missouri	....	....	....	....	....	....	....	1	....	....	....	....	1
Nebraska	....	....	....	2	....	....	....	....	....	....	....	....	2
New Hampshire	....	4	4	....	1	2	....	1	1	....	2	1	16
New Jersey	7	9	5	3	6	8	8	10	12	6	8	14	96
New York	9	7	17	11	11	11	9	9	10	6	16	14	130
North Carolina	....	....	....	....	....	....	....	3	8	10	5	4	30
Ohio	12	14	11	6	10	15	8	3	1	....	3	3	85
Pennsylvania	10	12	8	12	11	12	9	10	12	6	7	10	119
Rhode Island	4	7	9	9	9	10	5	5	4	2	4	4	72
South Dakota	5	7	8	9	19	20	5	4	7	6	10	9	109
Tennessee	1	2	2	2	6	3	4	10	12	6	3	....	51
Virginia	10	14	15	11	12	22	21	24	20	15	16	9	189
Total	117	155	146	115	148	188	127	153	165	117	131	115	1,677

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

July 1, 1938 to June 30, 1939

Month	D. L. & W. Boonton	Pa. Hights- town	Erie Newark	Pa. Newark
1938				
July	....	....	....	117
August	....	....	....	155
September	....	....	....	146
October	....	....	....	115
November	2	....	....	146
December	....	4	5	179
1939				
January	....	....	....	127
February	....	....	....	153
March	....	....	....	165
April	....	....	....	117
May	....	....	....	131
June	....	....	....	115
Totals	2	4	5	1,666

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

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
New Jersey	117	155	146	115	148	188	127	153	165	117	131	115	
New York	240	205	281	204	316	301	259	357	311	214	220	227	
	Total for New Jersey						1,677						
							Total for New York						3,135

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PULLORUM DISEASE CONTROL

Bureau representatives blood tested for pullorum disease a total of 83,796 birds, with 1,181, or 1.41 per cent, reaction resulting. Of this number 5,022 were subjected to the tube agglutination test only.

This is a marked increase over the number bled during last year when a total of 71,638 birds was tested with 883, or 1.23 per cent, reaction resulting.

Poultrymen were again permitted to have their flocks either field or laboratory tested.

NUMBER OF FOWLS BLOOD-TESTED FOR PULLORUM DISEASE
NUMBER AND PERCENTAGE REACTING, BY COUNTIES

July 1, 1938 to June 30, 1939

County	Number of Fowls Tested	Number of Fowls Reacting	Per Cent Reacting
Atlantic	372	5	1.34
Bergen	1,172	4	.34
Burlington	11,358	160	1.41
Camden	....	....	....
Cape May	4,461	18	.40
Cumberland	15,809	215	1.36
Essex	....	....	....
Gloucester	9,557	129	1.35
Hudson	....	....	....
Hunterdon	2,051	14	.68
Mercer	10,504	144	1.37
Middlesex	191	....	....
Monmouth	2,669	17	.64
Morris	7,766	14	.18
Ocean	2,308	19	.82
Passaic	....	....	....
Salem	6,957	311	4.47
Somerset	3,637	73	2.00
Sussex	4,880	58	1.19
Union	....	....	....
Warren	104	....	....
State	83,796	1,181	1.41

EDUCATIONAL MEETINGS

In response to a demand for correct information on diseases of dairy animals, a series of six lectures was offered to all counties. The meetings were arranged by the county agents, and were held in cooperation with the Agricultural Extension Service. The subjects covered were: relationship between nutrition and herd health; Bang's disease; mastitis; trichomoniasis; sterility and common diseases of dairy animals.

During the summer, farm demonstrations, dealing mainly with mastitis, were given in some of the larger dairy counties. In addition, many meetings were attended and interested groups of farmers addressed. The leading topic at most gatherings was concerned with some aspect of Bang's disease.

WORK DONE IN THE BUREAU LABORATORY

In addition to conducting agglutination blood tests for Bang's disease and pullorum disease control during the year, the following work was performed in the laboratory of the Bureau of Animal Industry.

MILK SAMPLES

Samples received	365
Tests set	365
Tests read	365
Positive	5
Slightly suspicious	1
Negative	359

EQUINE INFECTIOUS ABORTION

Samples received	8
Tests set	8
Tests read	8
Positive	5
Highly suspicious	1
Slightly suspicious	1
Negative	1

BACTERIOLOGICAL, MICROSCOPIC AND POST MORTEM EXAMINATIONS

Animal	Number and Material	Condition Suspected	Findings
Avian	3	Cause of death	Cecal worms
Bovine	1	Anaplasmosis	Negative
Canine	Stomach content	Arsenic poisoning	Negative
Bovine	Milk	Mastitis	Negative
Bovine	Lymph glands	Tuberculosis	Positive-microbacterin T. B.
Bovine	Lymph glands	Tuberculosis	Positive-microbacterin T. B.
Avian	2	Cause of emaciation	Parasites-round worms
Bovine	Milk	Mastitis	Negative
Bovine	Milk	Mastitis	Negative
Avian	2	Neuro lymphomatosis	Positive
Avian	3	Pullorum disease	Negative
Avian	2	Pullorum disease	Positive-S. Pullorum
Bovine	Uterine exudate	Trichomonas foetus	Negative
Bovine	2 male genital organs	Trichomoniasis	T. foetus was found on the glans penis of both animals.
Porcine	2	Salt poisoning	Verumnonous pneumonia and severe gastritis.
Equine	10	Parasitism	
Avian	2	Pullorum	Positive-S. Pullorum
Bovine	Urine	Pyelonephritis	Pseudomonas pyocyaneus and staph. aureus
Avian	3	Pullorum	Positive-S. Pullorum
Bovine	Urine	Pyelonephritis	Staph. aureus
Bovine	Vaginal discharge	Trichomoniasis	1. Staph. aureus 2. Staph. aureus 3. Staph. aureus and B. Coli 4. Staph. aureus and B. Coli

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Animal	Number and Material	Condition Suspected	Findings
Avian	4	Pullorum	Positive-S. Pullorum
Avian	6	Pullorum	Positive-S. Pullorum
Avian	3	Pullorum	Positive-S. Pullorum
Avian	3	Pullorum	Negative
Bovine	Uterine		
	Exudate	Vaginitis	Staph. albus.
Avian	6	Pullorum	Negative
Avian	3	Pullorum	Negative
Bovine Feces	7	Parasites	Negative
Feces	1	Coccidiosis	Positive
Avian	3	Pullorum	Negative
Bovine Feces	9	Parasitism	Negative
Porcine	1	Swine erysipelas	Negative
Ovine	1	Anthrax	Negative
Avian	6	Laryngotracheitis	Positive
Bovine	Blood smear	Anaplasmosis	Negative
Avian	1	Coryza	Positive-H. Gallinorum
Goat Feces	4	Parasitism	Negative
Turkeys	2	Coccidiosis	Positive

Report of the Bureau of Markets

WARREN W. OLEY, CHIEF

No great changes took place in the processes of marketing the farm products of New Jersey during the past year. The continuation of the New Jersey Milk Control Board has helped to stabilize the dairy industry. The great development of recent years in promoting poultry and egg auctions has established price levels, especially for eggs. Fruit and vegetable prices in large terminal markets are determined by supply from many competing states, including New Jersey. Only a few vegetables grown in New Jersey affect market prices to any great degree. New Jersey has its season for berries and peaches, but the apple market is practically controlled by the national supply. Potato marketing has continued with the same methods in recent years and has been controlled largely by the general national supply.

One of the most important agricultural developments in the state is the recognition by the average farmer that he must join with other farmers in building and supporting sound marketing associations. There always will be farmer individualists, but the cooperatives in New Jersey have more than 10,000 members, and their influence showed additional power during the past year.

Public relations is an inescapable problem of all cooperatives. It is a management problem. The time is here when, to obtain the best results, the marketing cooperatives and buying cooperatives in New Jersey must devote more time to explaining management problems to the membership. Membership relations in our cooperatives are the foundation for public relations in the community.

As farmers succeed in incorporating more local business services in their association programs, they become more responsible for the economic life of their communities. In New Jersey, they have a real opportunity to regulate and control many agricultural problems.

New Jersey has combined its marketing interests, as expressed by the auctions, into a state-wide association. It has, through its leaders in cooperation, joined with those from other northeastern states in developing the Northeastern Poultry Producers' Council and the Northeastern Vegetable and Potato Council. Constructive programs for the betterment of marketing conditions in each of these lines of work have been developed, and these councils have accepted assistance from the Bureau of Markets.

The programs in each development have stressed certain lines of work in which the bureau staff has had a leading part. More and better market news service is required. In this respect, the Bureau of Markets has been of considerable aid to other agencies in the northeast. Better packs and grades have been emphasized, and in this field, both in poultry and eggs and in fruits and vegetables, New Jersey farm leaders have called upon

the Department of Agriculture to assist in developing quality of a recognized standard, worthy of special endeavor in meeting market competition.

Marketing panaceas have been proposed and studied. There is much room for improvement in the New Jersey systems, but from results obtained and studies made it appears that the great nearby city markets are improved whenever possible; city markets within the state, buyer-dealer set-ups with distant contacts already established, and auction markets, which are continually developing new systems and services, are functioning in such a way that, until radical changes are made in agricultural products marketing, present methods merit full support.

Much evidence has been obtained to show the helpfulness of the endeavors of the New Jersey Council in advertising. Producers have recognized the benefits derived and have supplemented funds used by the Council with many thousands of dollars. This program has cultivated public interest among both consumers and producers. With the emphasis on quality as identified by brands and the outline of the State of New Jersey, the advertising should have far-reaching results.

During the past year, the bureau continued to cooperate closely with many state agencies. Relations with the College of Agriculture, the Experiment Station, the Farm Bureau, the dairy and poultry organizations, the Horticultural Society, and county boards of agriculture were both pleasant and profitable.

The outlined project work of the bureau continued as in former years, but with continual improvement. A detailed report of each project follows.

CROPS AND MARKETS INFORMATION SERVICE

The crops and markets information service has two general objectives. These are: first, to supply the farmers of this state with timely, unbiased and accurate information on current supplies, prevailing demand, and existing prices at leading markets; second, to furnish the growers of farm products with economic information concerning conditions in competing areas. The latter objective is attained through the distribution of short analyses of crop and market conditions for leading New Jersey crops.

The market news project of the Bureau of Markets was organized in 1919, so that the past year was the twentieth during which this service was rendered. During the two decades of service, there have been many changes in agriculture in New Jersey. In order to keep the market news project abreast of these changes, there naturally have been additions and revisions in the work. During the early days of the project, most of the attention was placed on daily market reporting.

Later, this phase of the work was conducted by a cooperative arrangement with the United States Department of Agriculture. The transfer of the daily work resulted in spending a greater part of the time on weekly summaries, in an attempt to provide the growers with a service which would explain, at least in part, some of the reasons for price changes, to-

gether with information on conditions in competing areas. It was this latter type which was featured during the past fiscal year.

While no new projects were instituted during the year, those which were started the previous season were further revised and made more effective. The teletypewriter service was used for sending daily quotations to the produce auction markets. The publication "Auction News" was issued weekly to approximately 550 buyers for the benefit of farmer-owned markets. "New Jersey Fresh Produce," prepared for the city farmers' markets of Newark and Paterson, was placed on a regular basis, and is sent to approximately 1,500 buyers of fresh fruits and vegetables in the metropolitan area.

"Inter-State Market News Service," attempting to give to the trade and other produce-growing sections a picture of the fruit and vegetable industry of this state, was carried on throughout the active marketing season. This type of report was highly endorsed by leading trade papers, and also by the growers and shippers of the northeastern section of the country. It is hoped that eventually many other states will issue a similar type of report. A start already has been made by the Northeastern Vegetable and Potato Council to see that other states collect and disseminate more timely and inclusive information.

DAILY MARKET NEWS SERVICE

The collection and dissemination of daily market news was conducted during the past year in cooperation with the United States Bureau of Agricultural Economics. A cooperative employee of this department and the federal government is stationed at both New York and Philadelphia, and a part of each man's time is devoted to the collection of information on New Jersey produce. During the active harvesting and marketing season in the state, this takes up a major share of his duties. This method of securing the necessary daily information is the most economical possible, and prevents duplication of effort. In addition, by means of this cooperative arrangement, the Bureau of Markets is able to avail itself of the wide resources of the United States Department of Agriculture, in order to obtain information on conditions in other important producing sections of the country.

The dissemination of daily market reports again was carried on through the daily press. An early morning report of prices and conditions on the New York market was released to one of the press services, which in turn released it to member papers. At present there are approximately 25 daily newspapers of the state which are using this information. This means that in most instances the farmers of the state are able to secure a report of prices and conditions at that market on the same day that it is released.

WEEKLY MARKET SUMMARIES

The second objective of the service is to supply the farmers of New Jersey with information concerning conditions in competing areas. This

part of the work is covered by reports entitled "Market Conditions." These are more complete than most market reports because of their attempt to give some of the reasons for price changes, as well as to give a brief summary of crop and market conditions in areas which compete with New Jersey offerings.

A total of 176 "Market Conditions" reports was issued during the year. These included: apples, 42; white potatoes, 34; sweet potatoes, 31; peaches, 12; asparagus, 11; strawberries, 8; onions, 8; tomatoes, 6; spinach, 6; lettuce, 6; and miscellaneous truck crops, 12. The last-named reports contained information on such crops as snap beans, lima beans, cabbage, cauliflower, celery, peppers, eggplant, beets, carrots and many other crops.

Most of the information was obtained from correspondence and personal contacts. Cooperation on the part of the growers and the trade in supplying the necessary information was excellent. In addition, it was necessary to obtain from leading growers and shippers in this state data on New Jersey conditions, in order to exchange it for conditions in other areas.

The "Weekly Market Review" was issued regularly throughout the year. This report is issued principally for poultrymen and dairymen. It contains grain and feed prices, egg and poultry prices at New York and the auction markets of this state, a brief summary of fruit and vegetable quotations at New York and Philadelphia, a short review of the livestock and dressed meat market at New York, and a statistical table. Since the mailing list has been revised, approximately 1,200 readers are receiving this report.

"Auction News" has now become one of the regular seasonal reports of the service. Its object is to advertise the advantages of the auctions to buyers and prospective buyers, and to tie together the directors of these shipping point markets. At present, there are about 650 produce dealers receiving this report weekly from April to October, or during the time that New Jersey produce is moving to market in volume.

During the past year, "Auction News" was closely allied to some of the advertising work of the New Jersey Council, and several requests for the report were received from produce firms which learned of it through trade papers. As has been the case for the past two years, mailing costs were paid by the several auction markets.

The farmers' markets of Newark and Paterson asked for assistance in marketing during the latter part of the preceding fiscal year, and this work was continued throughout the past season. A short report was issued weekly for these markets, entitled "New Jersey Fresh Produce." Its object was to advertise the advantages of the two large, wholesale, farmers' markets, and to keep the trade informed as to leading items moving through these channels during the active harvesting season. Reports were issued weekly for Newark and bi-weekly for Paterson. Mailing lists of prospective buyers were furnished by both markets, and the total now amounts to 1,500 names.

STATE DEPARTMENT OF AGRICULTURE

SPECIAL SERVICES

SUMMARY OF THE POTATO SEASON

Due to lack of funds, it was necessary to discontinue the branch market news office at Hightstown during the past year. However, through the courtesy of the Philadelphia office of the United States Bureau of Agricultural Economics, the usual information was collected in order that a record might be made of the season. Therefore, the usual report was compiled and issued during the past season.

In general, the past year was unprofitable for the majority of growers. While yields were high, prices during the greater part of the marketing season were low and outlets restricted. Heavier offerings of home-grown potatoes in the Middle West resulted in practically no outlet for New Jersey potatoes in that section of the country. Such large markets as Chicago, Cleveland, Detroit and Indianapolis received only a small percentage of their usual receipts of New Jersey offerings during late July, August and September. With most of the midwestern markets closed, because of severe competition, it was necessary for dealers in this state to seek other outlets, especially in the South. Such states as South Carolina, Georgia, Florida and Louisiana reported heavier unloads of New Jersey potatoes than in either 1938 or 1937.

The restricted outlets resulted in a much longer marketing season than normal. The deal opened during the second week of July. Weather conditions had a great effect on weekly shipments, but the first peak of the season was reached around August 1. Moderate shipments continued throughout August and the first two weeks of September, with a second peak coming about September 15. Fairly heavy shipments continued until the middle of October, and many cars were moving to market until the end of November. Usually the bulk of New Jersey's potatoes are marketed by September 15. The rail movement was much lighter than the preceding season, due principally to the low price and restricted markets. A total of 6,846 cars was shipped by rail compared with 7,844 cars the previous year. Truck movement was very heavy, especially to nearby points, and also to southern markets in Virginia and the Carolinas.

AUCTION MARKET QUOTATIONS

During the active marketing season for fruits and vegetables, the department is called upon to furnish growers patronizing the auction markets with an early morning report of the prevailing prices and condition of the market at New York. During the past year this service continued from May 1 to October 15.

In the summer of 1937 the teletypewriter system was started for carrying on this service. It was continued during the past season. Three of the leading auctions of the state received these daily quotations. In addition, the Cumberland County agricultural agent's office and a radio station in southern New Jersey obtained a daily report by means of the teletypewriter.

Daily information is secured from the cooperative employee at New York around 8:00 A.M., and is placed on the teletypewriter immediately. By means of a conference call, four points in southern New Jersey received their report simultaneously, while the Cedarville Auction, operating on standard time, received its report slightly later. At the beginning of the 1939 season, the Cedarville Market decided to have its information relayed through the county agent's office at Bridgeton. The Tri-County Auction at Hightstown is supplied by means of a telephone message.

INTER-STATE CROP AND MARKET NEWS SERVICE

In order to make the market news service of greater value to the growers of New Jersey, a project was undertaken about a year ago to tie together the various northeastern fruit and vegetable producing areas by means of a regular weekly news letter. A start was made during the summer of 1938, and further progress was made during the first part of the 1939 season. Some cooperation was received in this respect from other states, such as Connecticut, through their Bureau of Markets; and New York State, through Cornell University and the G. L. F. Cooperative Marketing service.

The Northeastern Vegetable and Potato Council gave hearty endorsement to the project, and plans are underway in several states, as the fiscal year closes, to issue a similar report. Ohio has made a start, and Virginia, North Carolina and Pennsylvania are expecting to cooperate as far as possible. Many other states have expressed interest in this work, but lack of funds or personnel have made it impossible to put the plan into effect as yet.

In addition to other states, the material prepared in this state is being used by the daily press, the National Association of Food Chain Stores, and a leading produce trade paper. Both of these latter outlets form excellent media for advertising New Jersey crops to the produce trade.

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.

New Jersey dairymen again enjoyed a successful year, although price returns were below the previous year. 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 \$2.68 for the year as compared with

\$2.72 for the previous year. The amount was higher, however, than that received by producers in adjoining states. The decrease undoubtedly was due to increased production within the state without any corresponding increase in consumption and, in part, to the increased amount of cheap milk available on the borders of the state resulting from the rise and fall of the Federal Marketing Agreement.

The Federal Marketing Agreement, while it directly affected only about one-sixth of the producers of market milk in New Jersey, indirectly affected the whole state. This agreement, put in effect in August, 1938, worked fairly well for two months. Then difficulties arose, due principally to lack of cooperation from certain dealers who attacked its legality, and finally took the matter to court. There the agreement was declared invalid and remained inoperative for the balance of the year. When appealed to the United States Supreme Court, however, that body declared the marketing agreement valid and restored its operation as of July 1, 1939.

The New Jersey Milk Control Act was renewed for two more years, from July 1, 1939.

While the government control of milk in New Jersey has been eminently satisfactory to date, the system is far from perfect, and a long-time plan is needed to coordinate the needs of, and bring equal benefits to, the producer, distributor and consumer. Some steps have been taken in this direction during the past year, but production control and a reconstruction of the distributing system are badly needed. Stimulation of consumption is most essential.

NEW JERSEY OFFICIAL GRADES

Development and enforcement of the New Jersey official grades for milk and cream continued to be the principal project of the milk marketing work. Volume continued to fluctuate, as in the past two years, between 55,000 and 56,000 quarts, according to the season of the year. During the past fiscal year, uncertainty caused by the undetermined status of the Federal Marketing Agreement and other extraneous matters, caused milk dealers to be extremely reluctant to assume any added obligations or supervision.

On the other hand, not one dealer voluntarily withdrew from the grades during the year. One dealer was removed for cause, and two new dealers took his place with approximately the same quartage, so that volume was maintained at a level higher than 55,000 quarts. According to the reports of the Milk Control Board, sales of Grade A milk throughout the state declined approximately 5 per cent during the fiscal year.

The actual amount of milk sold as New Jersey Official Grade A, as of June 30, was 55,045 quarts per day. Daily volume for the year, however, was much larger than this. The project is self-supporting to a considerable degree, fees being 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 \$25.21 daily as compared with \$22.91 daily for the previous

fiscal year. The total income collected for this year was \$9,202.34 and \$8,360.43 last year, indicating that the average daily quartage was much higher this year than last.

Statistics relative to the operation of the grades have been omitted. The changes were only minor, and the amount of work performed was approximately the same as during the preceding fiscal year.

One change of importance in the administration of the grades was made during the year. A full-time veterinarian was employed to make the physical examination of diseased cattle. Formerly this work was performed by private veterinarians. The new employee is a member of the Bureau of Animal Industry; his salary and expenses are defrayed by fees collected by the Bureau of Markets from the cooperating dealers.

NEW JERSEY GRADE B

For several years, there has been a demand for a New Jersey Grade B Milk as a companion to the two New Jersey Grade A's. Three-fourths of the milk sold in New Jersey is Grade B and previously had not been included in this marketing project. In addition several municipalities had adopted the grades as a part of their municipal ordinance, and the fact that there was no Grade B milk sold in those municipalities was unsatisfactory to consumers. Therefore it was thought that consumers throughout the state should be able to secure a fresh, nearby Grade B milk, having reasonable standards of sanitation, and carrying its identification in the label on the cap.

After several hearings on the subject, the Board of Agriculture raised the standards on butterfat and bacteria for Grade A milk and adopted a new grade, termed New Jersey Grade B Milk, as of January 1, 1939. Several dealers raised the question of securing the cooperation of health officials in the metropolitan area of New Jersey to promote the sale of this milk, and a series of conferences were held to discuss certain recommendations made by that group. At the close of the fiscal year, no agreement had been reached, but the differences are not too great to prevent an amicable settlement. An early appearance of the new grade on the market, supported by the full cooperation of municipal enforcement agencies of the state, is anticipated.

ADVERTISING

The New Jersey Official Grade A Milk Dealers' Association, composed of cooperating dealers distributing milk of the New Jersey official grades, has been active in promoting sales within the borders of the state. The New Jersey Council, in its agricultural program, offered to cooperate with this association in advertising New Jersey Official Grade A Milk.

It was proposed to concentrate on the Plainfield-Westfield area, principally because this was a typical residential neighborhood served by a number of New Jersey Grade A dealers. Advertising continued for 13 weeks, appearing in 31 issues of the Plainfield paper and 13 issues of the Westfield paper. The latter is a weekly. Expense was borne equally by

the cooperating dealers and the New Jersey Council. Starting on March 20, and continuing until June 15, the program was scheduled to cover the spring surplus period. The success of the plan was so evident that it became the basis for a state-wide program, now being formulated, which will open during the coming fall. A member of the staff of the Bureau of Markets, acting as liaison between the association and the New Jersey Council, handled much of the detailed work.

In addition, a leaflet was prepared by cooperating dealers for general distribution. Emphasis was placed on the changes and explanations of the requirements of the New Jersey Official Grades for Milk.

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 20 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

New Jersey ranks high in the production of fresh fruits and vegetables for market, standing fourth in vegetable production for that purpose. The state has a highly efficient farmer population. Yields of most vegetable crops are higher in this state than in most competing areas. Of the 38 commercial potato producing states, only three or four have yields greater per acre than New Jersey. Normally, rainfall is sufficient and falls uniformly through the year. The past year was an exception; three severe summer storms added an excess of several inches and at periods when the additional water did much more harm than good.

This state lies close to the best markets of the country, and has within its borders more purchasing power than most other agricultural states. Nearness to markets has been a hinderance to the development of better packaging and grading, and New Jersey's reputation for quality has suffered. Selling at some price has been easy for local farmers in the past. Competition from states where growers have been forced to ship well-graded products has forced New Jersey growers to improve their marketing practices and to attempt to develop a consumer preference for nearby sup-

plies. In the Bureau of Markets, considerable assistance is given in developing demand within the state and at local shipping points.

Therefore, the purpose of this project is: First, to improve the marketing of New Jersey fruits and vegetables through the development of shipping point markets, and through standardization and shipping point activities on grading and inspection. Second, to improve the marketing of New Jersey fruits and vegetables, rendering assistance to growers and shippers in obtaining better outlets and greater returns for their products; and third, to promote a consumer demand for New Jersey products through city market and consumer educational work.

This project is more nearly self-supporting than most others. With only a small appropriation for the work, educational activities, of necessity, have been limited.

INSPECTION WORK

Inspection work has chiefly consisted of grading and certifying fruits and vegetables. During the 1938 season, \$26,220.03 was collected in fees for services rendered. This money was used to pay the salaries and traveling expenses of the inspection personnel necessary to conduct the work efficiently. Fees were paid by growers, shippers or processors to maintain this service.

Inspection consists of taking samples believed to be representative of a lot of produce and certifying the quality and/or condition of the product according to the findings upon examination of such samples. Definite state and federal grades are established as a basis for buying and selling produce. Such standards are used as a yardstick for measuring quality. Marketing by grade, whether buying or selling, places an obligation on both buyer and seller to fulfill a definite contract. Grading is a protection to both parties and eliminates many unfair and fraudulent practices.

For cannery products, grades provide a definite basis for contracts between grower and canner. The old practice of paying flat prices for every commodity, undoubtedly discriminated against the best growers and did not encourage better production or more careful handling.

During 1938, the need for a wider educational program was obvious. In that season the Federal Surplus Commodities Corporation purchased 794 cars of potatoes and a quantity of cabbage, beets, tomatoes and other vegetables in New Jersey. All of these commodities were bought according to certain standards and were inspected. Not only did the corporation help to remove surpluses, but it also demonstrated to growers the value of standard grading.

The potato purchases of the F.S.C.C. were handled in a slightly different manner than in 1937. In 1938, many cars of potatoes were purchased direct from the grower, and he requested state inspection for his potatoes. Usually the farmer asked inspectors to perform their duties at the farm rather than at some loading point. The results were gratifying, since growers were present when the inspections were made and were able to gain a better understanding of grades and inspection practices.

Need of an educational program has been further evidenced by the department's experiences on apple inspection during the past several seasons. In practically all cases, if the grower or packer has had an inspector call on him during the packing process, apples have conformed to markings for size, grade and other requirements. On the other hand, a large percentage of apples, without a visit from an inspector at the packing house, failed to meet the requirements stamped on the package.

It is evident, therefore, that most New Jersey growers of fruits and vegetables are willing to pack their produce to conform to grades and marking requirements.

APPLES

The use of the inspection service during the past season increased considerably. This was largely due to export demands and to the fact that, through the use of the department lot numbering stamp, growers who packed fruit to grade and which was properly marked as to grade and size could sell their fruit more readily. The service of apple inspection work should be continued along the same lines as have been followed during the past several seasons.

The value of the use of the lot numbering stamp has been increased because of the proper control that has been exercised in its application. During the past season the inspection of shipments of apples, stamped to show the number of the lot and the grade, has shown that at all times, with the exception of two or three lots, the grade requirements have been met. The policy of permitting a lot number in connection with the inspection work of the department will be permitted as long as the stamp is properly used.

During the 1938-1939 season, a marked increase was noted in requests for certification of apples. The following table shows the number of inspections according to grades:

U. S. No. 1	U. S. Utility	U. S. No. 1 and Utility	U. S. Com. mercial	N. J. Fancy	U. S. No. 1 Early	Unclassi- fied	Total
521	12	21	14	5	3	3	579

It is encouraging to note that a high percentage of the lots inspected graded U. S. No. 1. New Jersey apples are now gaining more favorable recognition in foreign markets, due to steady improvement of the New Jersey growers' pack.

MARKET ASPARAGUS

On April 10, 1938, about 38 Cumberland County growers formed the "Garden State Asparagus Growers' Association". This was an entirely new venture for the fresh asparagus industry in the state. The group organized for the purpose of establishing a uniform pack which could be advertised satisfactorily. Individual bunches were "tagged" with tabs bearing the name of the association. This form of advertising proved most effective, since the "tagged" bunches carried the advertisement through to the consumer.

The association members formulated their standards of pack and quality. In addition, a federal-state inspector was employed to visit the packing places of members and make checks to see that "tagged" asparagus

Satisfactory results were obtained. In following shipments of "tagged" asparagus to the receiving markets, it was noted that in practically all cases, sales ranged from 25 cents to 50 cents per crate higher than similar grades of asparagus without tabs.

During May, 695 growers' lots of crated asparagus were inspected with 79 lots failing to meet the association requirements. During June, 996 such lots were inspected with 229 lots failing to meet the requirements. These results were considered to be quite satisfactory for a new project.

POTATOES

During the 1938 season, over 2,000 carlots and carlot equivalents of potatoes were inspected. Of the 1,305 cars inspected, 84 per cent were U. S. No. 1, 14 per cent U. S. Commercial, and 2 per cent Unclassified. These figures do not give a true representation of the general run of quality on this crop for the entire season. First, more than half of the total number of cars inspected were purchased by the Federal Surplus Commodities Corporation, and since this agency purchased only U. S. No. 1 potatoes, it is obvious that picked cars were the chief ones inspected for this purpose. Second, these inspections were made during the most favorable harvest season.

Inspections made on truck shipments and warehouse lots were more indicative of the quality of the crop as a whole. These were not selected lots, and inspections were made through the entire season. Of these, 73 per cent graded U. S. No. 1; 22 per cent, U. S. Commercial; 4 per cent were Unclassified, and the remaining portion were U. S. No. 1, Size B, or mixed lots.

In 1937, wireworm damage was the main cause for potatoes failing to grade U. S. No. 1. This was perhaps due to considerable dry weather during a great part of the season; wireworms seem to be more prevalent in a dry season.

In 1938, sunburn (greening), scab, cuts and bruises were the chief causes of cars and other lots failing to meet grade. Sunburn was especially evident. This was due to heavy rains at the beginning of the harvest season which washed the dirt off many potatoes and left them exposed to the sun. Scab infestations were about the same as normally noted. These defects, however, are not as difficult to see and grade out as wireworm. With a little more care in grading, at least three-fourths of the lots failing to meet grade specifications could have qualified as U. S. No. 1. A high percentage of lots failing to meet the U. S. No. 1 grade were no more than from 2 per cent to 5 per cent off grade.

Perhaps more potatoes than any other raw fruit or vegetable are bought and sold on the basis of United States grades. For that reason it is important that growers be familiar with such grades. There can be no doubt that thousands of dollars are lost by producers each year because of cuts in prices and rejections of their potatoes that have arrived in the terminal markets. Much of this could be eliminated by packing the potatoes to

meet the grades on which they are sold. Most cars of potatoes are sold on the basis of the U. S. No. 1 grade. Too often No. 1 is interpreted as a size requirement, $1\frac{7}{8}$ inches and larger, and too little attention is given the quality requirements.

Loading heated potatoes and allowing potatoes to become scalded probably have caused greatest losses to New Jersey potato growers. It is true that southern states harvest their crop while it is still immature and much "feathering" is noted. However, it must not be overlooked that southern states have a much shorter harvest period; and that most southern potatoes move north or east, into a cooler climate. This affords protection to the potatoes, as they are gradually cooling in transit.

But the harvest season in New Jersey is mainly during August and September. In August most of the crop is not well matured, and during that month, temperatures are generally high in all sections of the United States. Potatoes loaded while heated have little chance of cooling in transit. Many New Jersey potatoes are shipped into the Midwest and South where temperatures are often higher than in this state.

Faced with the consumer demand for uniform quality, and with the trade purchases and sales on the basis of grades, it is readily seen that crops uniformly graded (whether or not inspected) are essential if adjustments and rejections upon arrival in the terminal markets are to be minimized. With our first month of the harvest season showing extremely high temperatures in all sections of the country, precautions should be taken to avoid loading heated potatoes, thus insuring soundness upon arrival at their destination.

There is no doubt that many growers have realized the necessity of such practices as are advocated. During the 1937 and 1938 seasons, there were less rejections due to sunscald than in 1936. During the 1938 harvest season, two of the largest growers in central New Jersey employed inspectors to inspect and certify all potatoes from their farms. These inspectors were present during the grading process. One grower reported that he did not have a single rejection during the season, and only one serious complaint occurred. This was made in a nearby market, and when the grower and inspector examined the particular lot in question, the potatoes were accepted with no reduction in price.

TWENTY-FOURTH ANNUAL REPORT

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TEN-YEAR RECORD OF SHIPPING-POINT INSPECTIONS BY PRODUCTS

Product	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38	1938-39
Apples	1	549	168	230	91	94	333	160	391	579
Beans	....	11	33	40	162	91	17	43	3	1
Cabbage	....	....	....	....	....	....	1	....	....	....
Celery	....	....	....	1	....	....	....	....	....	....
Corn	....	....	....	....	1	....	....	....	....	....
Cucumbers	....	....	....	....	....	....	1	....	....	....
Lima beans	....	....	....	....	75	1	....	3	....	....
Mixed fruit	....	....	11	9	1	....	....	....	....	....
Onions	....	2	16	30	223	36	55	42	61	9
Peaches	83	4	24	2	2	....	....	1	....	....
Pears	....	29	14	15	5	....	16	....	1	2
Peas	....	4	....	1	20	2	2	....	....	....
Peppers	....	....	....	....	18	3	....	....	....	....
Potatoes	312	911	217	10	20	40	121	323	5,180	1,972
Spinach	....	....	....	....	1	....	....	....	....	1
Strawberries	....	47	23	152	125	1	1	1	....	....
Swt potatoes	1	....	6	....	....	....	....	....	45	....
Totals	397	1,557	512	490	744	268*	547*	573*	5,681*	2,564*

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

INSPECTIONS AT AUCTION MARKETS

Inspectors were placed on the markets at Cedarville, Glassboro and Hightstown for several months during the 1938 season, and, as occasion demanded, at Vineland and Beverly. At the beginning of the 1939 season, the system of inspection was changed at Cedarville. Inspectors now work on that market checking loads for conformity of sample used in selling. Plans for 1939 call for inspectors on the same markets, and also for a man to be stationed at Swedesboro. All auction market inspectors are paid for on a weekly basis by the market association.

Inspectors at these markets make it possible for purchases to be made by the Federal Surplus Commodities Corporation. All federal purchases are made on a graded basis and must be certified to by an official federal-state inspector. Purchases by the FSCC at the auctions amounted to several thousand dollars during the 1938 season and were very effective in stabilizing the prices paid for New Jersey vegetables.

PEACH INSPECTIONS

The bureau continued the cooperative arrangement with the Peach Council of the State Horticultural Society, and again policed the use of the label bearing the seal of the Horticultural Society and the outline map of New Jersey. Peaches under this label are limited to named and numbered varieties developed at the New Jersey Agricultural Experiment Station.

At the beginning of the season, a representative from the bureau visited all persons who used the label during the 1937 season and those who had applied for permission to use it in 1938. The season was a profitable one for New Jersey peach growers. High prices for local sales early in the season limited the use of the grade and label to about 16 growers. At first very

few labels were used. As the season advanced, the use of labels increased and growers felt that this was a definite aid in selling.

While inspection work was primarily to insure the proper grading of peaches to be sold under the state label, probably the greatest benefit to the growers has been the assistance from the bureau representative in packing house management and marketing.

The work will be continued during the 1939 season. The bureau feels that marketing work in connection with these New Jersey varieties of peaches has not been developed as far as it should be. An advertising program should be inaugurated and certain changes made in the labeling plan to insure greater recognition of the quality of the product.

CERTIFYING PRODUCE FOR MARKET

The request for shipping point inspection work for the past year varied from preceding years. As previously stated, apple shippers used the service much more extensively. Because of a uniformly high quality in southern New Jersey onions, buyers did not feel the need for protection as afforded by certificates, and demand for this service decreased. Low potato prices and a restricted distribution were the reasons for a decided reduction in potato inspections. The actual service rendered and comparisons with former years in this service, exclusive of cannery inspections, is shown in the table on page 59.

CERTIFYING CANNERY ASPARAGUS

During the spring of 1939, less asparagus acreage was under contract between growers and canners than in 1938. In contracting for this commodity, the State Standards for Asparagus for Canning usually were followed. Two noticeable changes were made. The State Standards specify spears of asparagus 9 inches in length, and designate three diameter sizes of asparagus: small, $\frac{1}{4}$ inch to less than $\frac{3}{8}$ inch; medium, $\frac{3}{8}$ inch to less than $\frac{5}{8}$ inch; and large, $\frac{5}{8}$ inch and larger. The canners used only two size specifications in their contracts with growers; namely, small, $\frac{1}{4}$ inch to less than $\frac{3}{8}$ inch in diameter; and large, $\frac{3}{8}$ inch, minimum. Very few objections were made to the change in size specifications. It is felt, however, that a flat price for all No. 1 asparagus, $\frac{3}{8}$ inch and up, tends to discriminate against a large number of growers who have a high percentage of asparagus $\frac{5}{8}$ inch and larger.

Changes in length requirements on asparagus spears varied. One canner's contract specified $6\frac{1}{2}$ inches, maximum length, while another canner's contract specified $7\frac{1}{2}$ inches, maximum length. Such changes apparently were made by the canners in an effort to obtain more compact tips.

The early part of the season was slow. Heavy rainfall and cool weather during the last weeks of April, and continued cool weather during the first two weeks of May caused cuttings to be light. The asparagus beetle again

caused considerable damage during early May. In general, the season was not satisfactory either for growers or canners.

One canner continued his policy of last year, paying 2 cents per pound for acceptable culls. Such a practice does not seem to encourage the best harvesting methods, and since the contracts did not define "acceptable culls" it caused some difficulty and misunderstanding between grower, canner and inspector. If such a policy is to be continued, it would seem advisable to revise the state grades and establish a No. 2 grade. In fact, with as much variation in the quality of any product as is noted in asparagus, and most other commodities, one grade is scarcely sufficient to take care of the grading and certifying of such a product. It does not seem fair to call a spear of asparagus a cull because it is slightly below the requirements of the No. 1 grade.

Regular federal-licensed inspectors were again stationed at five receiving stations, sampling lots of asparagus delivered to such stations by growers and certifying these lots in accordance with the contracts between growers and canners.

Since the canners did not follow state or federal grades as to size, length and color requirements during the 1939 season, and because one canner requested that N. J. No. 1 Small and acceptable culls be figured together, as the same price was paid for such asparagus, no table on results of grading is given.

CERTIFYING CANNERY TOMATOES

During the past season, as is evidently the case each year, weather conditions were the major factor in determining the yield and quality of the cannery tomato crop. Crop reports on tomatoes during the first two weeks of July indicated a 10 to 15 ton yield per acre. The abnormal rains during the last weeks of July drastically reduced this prospective yield, and in some cases entirely drowned out poorly drained fields. Deliveries made following these rains were the poorest quality delivered to canneries since the purchase of tomatoes on the basis of grades started in this state.

As a result of the rains, practically the entire crop was seriously damaged by anthracnose. Various individuals do not feel that there is any practical control of this disease, but since it considerably reduced the gross income of growers in the state this past season, consideration for reducing this damage would be well worth while.

During the last ten days of August, and the first weeks of September, conditions were ideal for the harvest of tomatoes, and quality gradually improved. Indication of this improvement is the fact that in many early fields the last pickings, or clean-ups, were of better quality than the first pickings. Late tomatoes, which started to mature under ideal weather conditions, produced a heavy crop of good quality. This was especially true in Cumberland, Salem and Hunterdon counties. According to the "New Jersey Crop and Livestock Report," the total value of the 1938 cannery crop was slightly better than that of the 1937 season. To individuals, the

variation was greater than usually experienced, with some growers having fields which were practically lost, and other growers with fields harvesting 10 tons and more per acre of good quality tomatoes. Apparently Gloucester, Camden and Burlington counties suffered the greatest loss. Practically all tomato fields in these three counties were at the stage where the heavy rains damaged the majority of the crop seriously. The small acreage which was still being harvested in late September was practically wiped out by the rain at that time, and deliveries to canneries after that date were the smallest that the canneries have experienced.

During the season, five canneries contracted with growers on the basis of the pulp grade, and two on the basis of the cannery grade.

During the past season, there were at least four noticeable differences in the contracts which various canners offered to growers. The most important, apparently, was that some canners restricted the tonnage accepted per acre. This is a considerable handicap to growers during a season when the production is high, as the surplus usually has to be sold at a very small figure. As the canner has the means of disposing of the finished product, it seems obvious that he should assume the risk of all production on contracted acreage.

The following tables show the results of grading cannery tomatoes in New Jersey, 1938 season, with summaries from previous years.

Week Ending	Total Tons	U. S. No. 1 Per Cent	U. S. No. 2 Per Cent	Culls Per Cent
July 30	164	60	37	3
Aug. 6	4,156	46	49	5
13	17,744	49	46	5
20	30,218	50	45	5
27	24,628	53	43	4
Sept. 3	14,799	58	39	3
10	9,379	61	36	3
17	6,174	59	38	3
24	776	51	45	4
Oct. 1	58	31	58	11
Total	108,096	53	43	4

Seasons	Total Tons	U. S. No. 1 Per Cent	U. S. No. 2 Per Cent	Culls Per Cent
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

SHIPPING POINT MARKETS

The bureau has continued its close cooperation with all associations conducting produce auction markets. During the year, one new organization was formed at Pedricktown. This auction started in a very success-

ful manner and has sold a large volume of produce, especially in asparagus. Total sales, which are not included in the table summarizing of sales, and covering a two-month period only, consisted of 73,801 packages, selling for \$122,930.43. The Gloucester County Agricultural Cooperative Association also opened an auction at Newfield. This market has been in effect a branch of the Glassboro Market. The operations here for the 1938 season are included in the summary table.

In the spring of 1938, the Gloucester County Cooperative sold the Swedesboro Market to a group of Swedesboro men who reorganized it as a stock company. The operations of the market are essentially the same as any of the cooperatives. Among the members and stockholders of this association a few dealers are included. All of these dealers are licensed and bonded under the New Jersey Licensing and Bonding Act and are permitted to buy on the market, paying the farmers direct. All other buyers pay through the association for produce bought on the auction.

The bureau was represented at most of the directors' meetings for all ten associations during the year.

The sales on each auction and the comparison with the 1937 season are shown in the following table.

SUMMARY OF SALES AT FRUIT AND VEGETABLE AUCTION MARKETS

Market	<i>Season of 1938</i>		<i>Season of 1937</i>	
	Number of Packages Sold	Value of Sales	Number of Packages Sold	Value of Sales
Beverly	234,052	\$ 126,958.33	216,405	\$ 100,532.25
Cedarville	362,180	420,293.62	414,861	455,140.59
Glassboro	797,199	389,198.15	887,519	431,811.95
Hammonton	80,248	175,049.33	119,085	200,402.22
Hightstown	576,984	292,065.60	524,274	294,230.59
Landisville	442,282	350,552.43	523,360	399,055.10
Malaga-Newfield	45,469	24,726.19	....	....
Rosenhayn	42,690	105,270.33	50,174	92,879.99
Swedesboro	682,044	532,891.00	172,979	144,700.37
Vineland	504,186	296,907.10	453,855	291,477.99
Totals	3,767,334	\$2,713,912.08	3,362,512	\$2,410,231.05
Average price per package, 1938				\$0.720
Average price per package, 1937				\$0.716
Per cent of increase in price per package, all commodities 1938 over 1937				0.555

The summary of sales for each market, as shown in the table, is for a complete season. During the spring of 1939, sales on some markets dropped, due to excessive dry weather. The volume was more than equalized, however, by sales at the new Pedricktown Market and by greatly increased sales at Swedesboro. Total packages sold on the markets during 1939, up to June 30, amount to 708,893 packages, selling for \$1,019,724.24.

ANALYSIS OF AUCTION SALES BY COMMODITIES

Season of 1938		
Commodity	Period of Sale	Total Volume
Apples	July to December	73,552 bus.
Sweet corn	July to October	66,384 bus.
Lima beans	July to November	75,429 bus.
Onions	June to November	115,297 50-lb. sacks
Peaches	July to September	118,417 bus.
Peppers	June to November	572,070 bus.
Pickles and Cucumbers	July to August	191,099 bus.
Snap beans	June to October	196,612 bus.
Strawberries	May to July	2,832,016 qts.
Tomatoes	July to October	782,412 12-qt. climax
Sweet potatoes	Jan. to November	232,231 bus.
White potatoes	June to December	163,132 100-lb. sacks
Raspberries	June to September	1,028,315 pts.
Blackberries	June to August	620,509 qts.

These figures show an increase in many commodities over the volume sold the previous year. The greatest increase was in sales of sweet corn, strawberries, tomatoes, sweet potatoes and white potatoes. In some commodities there was a decrease caused by crop damage due to excessive rain.

COOPERATIVE MARKETING ASSOCIATIONS IN NEW JERSEY

The Cooperative Marketing Associations of New Jersey, organized to coordinate the marketing activities of the cooperative associations in the state, continued actively in the support of marketing problems of the department and in furthering the interests of growers in the development of their shipping point markets. The member associations of the parent organization have a total membership of approximately 9,800 farmer members who sell their products through the local associations.

The association paid mailing costs for the "Auction News," issued weekly by this bureau, amounting to approximately \$350. The association paid the cost of legal assistance in solving a disagreement between a local union of truck drivers and one market. The association fought this situation in the belief that the action of the union, although directed against one market, would, if not stopped, affect all markets.

The association continued to purchase office supplies for all markets, and through the pooling of these orders saved nearly \$1,700 for the individual members. During the summer of 1938, arrangements were made for advertising the markets in certain trade papers.

As the 1939 season opened, a fund of \$480 was raised by the member associations to be used in conjunction with a sum of approximately \$1,100 contributed by the New Jersey Council. Commencing with the last issues of April, the Packer, the Produce News and the Produce Guide carried weekly advertisements covering important commodities for sale at the various auctions. Results from such advertising are hard to measure, but it is known that many requests for further information were received from buyers, and, in a few instances, new buyers were brought to the markets as a result of this advertising. The chief of the Bureau of Markets has continued as secretary of the association.

MUNICIPAL MARKETS

The bureau has continued to cooperate with certain of the city farmers' markets. Trenton and Atlantic City market masters have furnished weekly reports of sales on a daily basis. These figures were used to evaluate the advantages of the markets for farmers conveniently located to them. A summary of sales on these two markets for the past year is shown in the accompanying table.

TRENTON AND ATLANTIC CITY MARKETS

July 1, 1938 to June 30, 1939

Market	Bushels or Packages of Produce	Dozens of Eggs	Pounds of Poultry	Value of Sales
Atlantic City	594,642	180,290	102,300	\$584,794.37
Trenton	136,975	62,975	165,000	208,338.00
Totals	731,617	243,265	267,300	\$793,132.37

NEWARK FARMERS' MARKET

Sales on this market are a very important part of the direct sales to retailers. Buyers come here from points in New Jersey and from the several boroughs of New York City, as well as other parts of New York and Connecticut. A complete record of the sales on this market shows that 14,776,451 bunches of vegetables, and 2,708,993 packages of fruits and vegetables were sold from July 1, 1938 to June 30, 1939. If the bunched vegetables were packed in the container usually used for shipment, there would be required an additional 250,000 packages. This would bring the volume of sales on the Newark Farmers' Market to nearly 3,000,000 packages. Packages range from 12-quart climax baskets, through bushels and crates, to 100-lb. sacks.

The most important sales are listed as follows:

2,977,856 bunches of beets
2,577,794 bunches of carrots
2,194,857 bunches of parsley
2,110,946 bunches of radishes
1,250,940 bunches of leek
128,338 bushels of sweet corn
204,380 100-lb. sacks of potatoes
207,411 bushels of apples
216,518 hampers of cabbage
203,405 crates of lettuce
269,724 bushels of spinach
308,985 baskets of tomatoes
81,207 bushels of snap beans

POULTRY PRODUCTS MARKETING

The work of the poultry division in the Bureau of Markets was planned to bring about a more orderly method in the marketing of poultry products produced in the state. The program was planned on a long-time basis so that the new marketing methods which are developed will be of practical value to both producers and distributors.

During the year an excellent feed-egg ratio enabled poultry producers to make a more satisfactory profit from both their eggs and poultry meat. This ratio became less favorable near the end of the year.

Because of the well-balanced feed-egg ratio existing during the hatching season, a larger number of chicks were started this year to produce laying birds. It is anticipated therefore, that there will be larger quantities of both eggs and poultry meat on the market during the coming winter. This division has given due consideration to such a possibility and will be in a position to assist the several marketing agencies to dispose of the products to good advantage.

The fourth year of cooperation with the National Poultry Improvement Plan, sponsored by the United States Department of Agriculture, was completed. Contracts for cooperating with the national program were signed with the federal department. There was an increased interest in the poultry standardization work during the year, as shown by the fact that 38 hatcheries cooperated in the plan compared with 24 such cooperators the previous year. The total incubator capacity for the 38 hatcheries was 545,808 eggs.

The demand for N. J.-U. S. Record of Performance cockerels continued to absorb the supply, in spite of an increase in the number of breeding flocks during the year. Hatchery operators and farm flock owners are finding that it is profitable for them to buy Record of Performance cockerels to head their flocks.

More Record of Performance breeders progeny tested their flocks with most encouraging results. This practice of determining the productivity of the complete family of birds has become well established and of fundamental importance in improving New Jersey strains of poultry. As a result of the progeny testing work, more Register of Merit birds were approved for the Record of Performance breeders.

All of the cooperative egg and poultry auction markets sold more eggs and live poultry than during the previous year. This method of selling poultry products directly from the farm has become well established among New Jersey producers. They have found that, in general, they can obtain a higher net return for their products, and as a result, the membership of all the egg and poultry auction markets increased during the year.

There was also a greater number of buyers attending these markets, so that it was no more difficult to dispose of the greater volume of eggs and poultry meat offered for sale. Handlers of eggs and poultry are learning more about the auction method of purchasing, and when once tried they find it most satisfactory. The buyer purchases only as much of each grade as he needs. Several new buyers at these markets were persons who formerly purchased their eggs from jobbers. They found it was satisfactory for them to come directly to the auctions for their supplies. There was also an increase in the number of wire bids received by the markets. This helped in selling the products to good advantage.

The Grade B for eggs, which was started a little over a year ago, was continued throughout the year at the Flemington Auction Market and also

has been accepted by the Tri-County Auction Market. Grade B has proved satisfactory for both producers and buyers.

During the year a case-end label was developed which will be used by all of the auctions, thus identifying auction eggs in a more effective way. Each auction will use the same design for its case-end label, the only difference being in the name of the market selling the eggs.

The fifth year of fresh egg law inspection work was completed with a greater acceptance of the law on the part of the retail trade. This was due to the fact that retailers, as well as jobbers, are becoming more familiar with the intent of the law, and because they recognized the fair manner in which egg quality violation cases were handled.

The New Jersey Egg Marketing Committee, which was originally appointed by the State Poultry Association, formed a permanent organization known as The New Jersey Poultry and Egg Cooperative Marketing Association, Inc., consisting of all the cooperative egg and poultry marketing associations in the state. Its purpose is to sponsor the State Certified Fresh Egg Program which was started in February, 1938.

During the past year approximately 10,000 cases of State Certified Fresh Eggs were packed and sold. A special package of two cartons was put out at Easter time and proved to be desirable for distributing the eggs into more homes. An advertising program, sponsored by the New Jersey Council, was carried on in the newspapers and with point-of-sale display material. This program has offered considerable practical information on the problems of retail distribution of eggs.

The poultry division is building its marketing program on a long-time basis. Needs of both producers and consumers are taken into consideration when attempts are made to bring about a more efficient method of distributing the poultry products produced in New Jersey.

POULTRY STANDARDIZATION

The poultry standardization program was carried on in an effective way during the year, with both the breed improvement and pullorum disease control phases of the program working to the advantage of New Jersey poultry producers. This marked the fourth year of cooperation with the National Poultry Improvement Plan. The two regular inspectors carried on all of the flock selecting work by working over a longer period of time and actually handling more flocks than in the previous year. The several classes for breed improvement and pullorum disease control in New Jersey were as follows:

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

It was not necessary to print a new circular describing the National Poultry Improvement Plan as the program has become well established in the state. The change in terminology from "New Jersey Crossbred" to the

"New Jersey - U. S. Pullorum-Tested" stage proved to be quite satisfactory with both the breeders and chick customers because it more clearly describes the supervision work carried on in connection with those flocks.

All flocks entered in the breeding stages of the standardization program were required to be blood tested for pullorum disease under the supervision of the Bureau of Animal Industry. The flock owner was offered the choice between the tube agglutination and the stained-antigen whole-blood tests, with the great majority selecting the latter. The percentage of reactors in the flocks has decreased satisfactorily for several years, and there was practically no trouble with pullorum disease in flocks which have been tested under official supervision for a few years.

During the year, 180 flocks were entered in the program as compared with 162 flocks for the previous year. There were 87,245 birds in these 180 flocks, or 14,432 more birds than were inspected during the 1937-1938 season.

There were 35,374 breeding birds entered in the N. J. - U. S. Certified stage, which represents a decrease of only a few hundred birds from the previous year when an extremely large increase in this classification was experienced. It is encouraging to note that this stage of the program has held a comparatively large number of the birds entered in the standardization work. Under N. J. - U. S. Certified Pullorum-Clean, 2,170 breeding birds were listed.

The accompanying tables show the number of birds entered in the work, according to the major breeds, and also the classification of these birds in the several stages of the program. The majority of the birds entered in the program were Single Comb White Leghorns.

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

County	No. of Flocks	Number of Birds						Totals
		N. J.-U. S. Certified		N. J.-U. S. Approved			N. J.-U. S. Pullorum Tested	
		Pullorum Tested	Pullorum Clean	Pullorum Tested	Pullorum Passed	Pullorum Clean		
Atlantic	2	367	.....	200	.....	.....	.....	567
Bergen	2	.....	.....	.....	.....	628	540	1,168
Burlington	21	4,669	.....	2,106	788	.....	2,899	10,462
Cape May	4	2,868	.....	1,575	.....	.....	.....	4,443
Cumberland	33	12,877	.....	3,043	221	.....	.....	16,141
Gloucester	11	7,590	.....	734	.....	.....	1,515	9,839
Hunterdon	5	.....	.....	1,913	.....	.....	807	2,720
Mercer	33	293	1,979	4,189	503	2,833	560	10,357
Middlesex	1	.....	191	.....	.....	.....	.....	191
Monmouth	7	233	.....	626	438	.....	873	2,170
Morris	10	3,941	.....	2,244	.....	.....	1,613	7,798
Ocean	4	986	.....	.....	.....	.....	1,301	2,287
Salem	23	.....	.....	4,506	.....	162	1,289	5,957
Somerset	7	1,550	.....	267	.....	.....	1,071	2,888
Sussex	16	.....	.....	2,522	.....	816	1,438	4,776
Warren	1	.....	.....	.....	.....	.....	104	104
Totals	180	35,374	2,170	23,925	1,950	4,439	14,010	81,868

NUMBER OF BIRDS INSPECTED, BY COUNTIES AND BREEDS

County	No. Flocks Inspected	S. C. White Leghorns	R. I. Reds	Barred Rocks	White Rocks	White Wyandottes	Jersey Black Giants	Jersey White Giants	New Hampshires	Pullorum Tested	Totals
Atlantic	2	588	.....	.....	.....	.....	.....	.....	.....	.....	588
Bergen	2	746	.....	.....	.....	.....	.....	.....	.....	544	1,290
Burlington	21	4,903	57	848	305	.....	1,125	60	854	3,098	11,250
Cape May	4	1,297	1,682	.....	.....	.....	.....	.....	1,597	.....	4,576
Cumberland	33	13,460	53	102	1,185	.....	.....	.....	2,005	.....	16,805
Gloucester	11	7,279	570	199	.....	.....	.....	.....	584	1,823	10,455
Hunterdon	5	.....	.....	865	.....	.....	.....	.....	1,225	815	2,905
Mercer	33	3,673	244	3,110	.....	68	1,011	.....	2,505	432	11,043
Middlesex	1	222	.....	.....	.....	.....	.....	.....	.....	.....	222
Monmouth	7	261	.....	240	235	.....	.....	.....	893	887	2,516
Morris	10	4,856	.....	1,492	239	.....	.....	.....	.....	1,708	8,295
Ocean	4	1,086	.....	.....	.....	.....	.....	.....	.....	1,323	2,409
Salem	23	.....	.....	2,502	2,540	.....	.....	.....	.....	1,424	6,466
Somerset	7	1,740	.....	52	.....	.....	.....	.....	260	1,091	3,143
Sussex	16	3,143	.....	406	.....	.....	.....	.....	.....	1,629	5,178
Warren	1	.....	.....	.....	.....	.....	.....	.....	.....	104	104
Totals	180	43,254	2,606	9,816	4,504	68	2,136	60	9,923	14,878	87,245

TWENTY-FOURTH ANNUAL REPORT

The Record of Performance project was of distinct merit in New Jersey's poultry breeding program. Officially-banded birds are gaining wider distribution, particularly among hatcheries who supply a large number of chicks. There were 29,021 Record of Performance pedigree eggs set, from which 16,334 Record of Performance pedigree chicks were produced. This is an increase of approximately 3,000 more Record of Performance chicks than were produced during the previous year. The cockerels from these chicks will be examined by the Record of Performance inspector, and those properly qualifying for Record of Performance approval will be used for heading flocks. The pullets will be used in the Record of Performance trap-nest project. These pedigree pullets show excellent production and livability.

During the year, four Record of Performance breeders produced 167 birds which qualified for the N. J. - U. S. Register of Merit stage of the National Poultry Improvement Plan. It is encouraging to note that this is almost a 100 per cent increase over the number of birds which qualified for this stage the previous year.

It is furthermore significant to note that 6,943 eggs from Register of Merit birds were placed in incubators, and 3,576 Register of Merit pedigree chicks were produced. This definitely shows that the poultry breeders are giving more attention to progeny testing in their flocks, which is the most practical means of bringing about permanent flock improvement. This also is a 100 per cent increase over the number of chicks produced under this stage of the Plan in the previous year.

All of the work on the flocks, including sanitary inspections, was performed by the regular staff of this division. An increase in the number of flocks entered in the program will mean that temporary help will be needed for the selection work in the fall. A total of 232 flock inspections and 142 sanitary inspections were made for the purpose of carrying out the regulations of the Plan. There were 44 hatchery inspections completed during the year, and 317 farm visits added in connection with all of the poultry work in the bureau. Fifty Record of Performance inspections, were made, during which time egg weights were obtained. The breeders recorded egg weights for three consecutive days each month, beginning in January, and continued to do this for the remainder of the laying year. The Record of Performance inspector also obtained the body weight for each Record of Performance candidate twice during the year.

A national conference on the National Poultry Improvement Plan was held June 6 to 9, in Cleveland, Ohio. The subject matter presented at this conference was extremely valuable to poultry producers, and several changes in the Plan were discussed. Most of these were rejected by the delegates from the cooperating states. Of the changes which were adopted, none will affect the program in New Jersey. It is desirable that the program go on in the usual way without any changes, in order to avoid confusion among the breeders and hatcherymen.

AUCTION MARKETS

During the year, the five egg and poultry auction markets of New Jersey handled the largest total volume of sales in their history. The total amount of eggs and live poultry handled during this period was \$4,057,113.69. There were 384,345 cases of eggs sold, compared with 317,292 cases for the year 1937-1938. This increase of 67,053 cases was a substantial growth. The value of the eggs sold this year amounted to \$3,145,436.10. All five of the auctions sold live poultry during the year, totaling 108,395 crates, with a weight of 5,191,647 pounds. The value of all live poultry sold at the auctions during the year amounted to \$911,677.59. During the previous year, 84,159 crates of live poultry were sold, weighing 3,957,288 pounds, for a total of \$840,482.41.

All five auction markets sold both eggs and poultry throughout the year. One of the organizations started to sell only poultry and another to sell only eggs. These two commodities are naturally available in a poultry products section and, therefore, it was possible to render an additional service by having all of the markets sell both. The total volume and the value of all poultry products sold at the five auction markets during the past five years follows:

Year	Number Cases of Eggs	Number Crates of Poultry	Pounds of Poultry	Total Combined Value
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
1934-35	177,908	47,845	2,307,996	2,022,357.29

The substantial increase in the volume of products sold by this method was due to the satisfactory prices which the auction markets were able to obtain for their members, and to the excellent service which they rendered. All of the markets had an increase in membership, bringing the total membership of the five auctions up to 5,963. This was an increase of 823 more members than were obtained during the previous year. The Federated Egg Producers' Cooperative Association at Toms River also showed a substantial growth during the year. This is not an auction type of organization, but has proved to be of outstanding service to its large membership.

The average sale price of eggs at the auctions for the entire year was \$8.18 per case, as compared with \$8.36 for the previous year. These figures are based on the total volume of all eggs handled by the five auction markets for the year. The decrease in gross returns per case was due to the lower price level for eggs. During the last half of the year, the egg market remained from 3 cents to 4 cents lower than during the previous year. The decrease of 18 cents per case, or slightly over one-half cent per dozen for the entire year, was small in comparison with the decrease in the metropolitan markets.

Data obtained by the Bureau of Markets showed that the returns for eggs through the auction markets were well above the New York quotations

for eggs of similar quality. The accompanying table shows that four of the auction markets returned to their members \$230,354.81 more than the highest New York quotations for the same grade of eggs. The increased receipts received by producers, along with the comparatively low cost of selling eggs through the auctions, was a valuable contribution to the poultry producers of the state. It naturally attracted more producers to the auctions as a method of marketing their eggs, and accounted for the increase in membership.

There was an increase in the number of buyers present at the auction markets, due to the fact that each buyer could obtain any amount of eggs of the quality which he required. A comparatively small percentage of the eggs sold to the auctions reached the terminal markets. Most of the eggs went directly to retail outlets.

These organizations established a selling price for all eggs in their respective communities, thus producers who sold their eggs through private outlets benefited by the presence of the marketing agencies, which increased the base price for eggs in all the important poultry producing sections of the state.

The accompanying table also shows the volume of eggs handled by each market, along with the gross price received, as compared with the New York quotations. The amount of new money brought to the respective communities was the greatest for any year since the auctions were established. Furthermore, no producer has ever lost any returns through the cooperative organizations. It was impossible to obtain the difference between the Paterson Auction Market and the New York quotations inasmuch as a different grading system is used by the Paterson organization.

In addition, the table shows the volume and value of the live poultry sales at the five markets. This marked the first complete year of poultry sales for the Hightstown Market. The total receipts for live poultry at each market are shown in relation to New York quotations. Since there have been many changes in making quotations on the New York market, and since there are many interpretations which can be placed on the quoted price per pound, it was therefore difficult to make a comparison between the auction markets and the New York City quotations.

A comparison of prices for live poultry sold at the auctions with that of the Philadelphia quotations showed a favorable price relationship in favor of the auction poultry sales. During the spring, each of the five auctions broke all previous records for the number of crates of live poultry sold on any one day.

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SALES AT NEW JERSEY'S EGG AUCTION MARKETS

July, 1938 to June, 1939

Market	Number of Cases	Gross Price at Auction	New York Quotation	Difference in Favor of Auction
Flemington	143,258	\$1,165,792.28	\$1,066,642.72	\$99,149.56
Hightstown	52,737	440,791.16	405,246.90	35,544.26
Mount Holly	21,340	169,501.94	155,473.30	14,028.64
Paterson	26,992	226,124.23	226,124.23	.....
Vineland	140,018	1,143,226.49	1,061,594.14	81,632.35
Totals	384,345	\$3,145,436.10	\$2,915,081.29	\$230,354.81

SALES AT NEW JERSEY'S POULTRY AUCTION MARKETS

July, 1938 to June, 1939

Market	Number of Crates	Pounds of Poultry	Gross Price at Auction	New York Quotation
Flemington	58,344	2,746,251	\$491,295.41	\$497,075.74
Hightstown	7,838	401,855	68,974.96	70,671.73
Mount Holly	15,833	841,569	159,577.55	163,208.77
Paterson	9,095	446,512	75,769.54	78,375.83
Vineland	17,285	755,460	116,060.13	121,239.68
Totals	108,395	5,191,647	\$911,677.59	\$930,571.75

The growth of membership in these markets is shown in the following table, with 823 additional producers taking advantage of this form of selling their poultry products. The auction system continued to extend its value. There was an increase in membership in practically every county during the year. This indicates that the influence of the auctions is being extended in a more concentrated way over a wider area. In addition to the 5,963 members, there were approximately 500 non-member producers who used the poultry auctions. Most of these producers were located in Cumberland County.

AUCTION MARKET MEMBERSHIP, BY COUNTIES

County	Flemington Auction	Hightstown Auction	Mount Holly Auction	Paterson Auction	Vineland Auction	FEPCO	Total
Atlantic	....	....	5	....	259	....	264
Bergen	....	....	....	73	....	....	73
Burlington	9	26	950	....	3	....	988
Camden	2	....	37	....	21	15	75
Cape May	....	....	....	....	42	8	50
Cumberland	6	....	....	....	483	16	505
Essex	2	....	....	19	....	....	21
Gloucester	....	....	....	....	135	....	135
Hunterdon	1,713	....	....	....	....	....	1,713
Mercer	199	244	6	....	....	....	449
Middlesex	31	101	....	....	....	....	132
Monmouth	5	210	9	....	....	27	251
Morris	77	....	....	97	....	....	174
Ocean	4	16	31	....	....	79	130
Passaic	2	....	....	101	....	....	103
Salem	....	....	....	....	87	....	87
Somerset	278	1	....	1	....	....	280
Sussex	86	....	....	25	....	....	111
Union	32	....	....	3	....	....	35
Warren	364	....	....	21	....	....	385
Out-of-state	....	....	2	....	....	....	2
Totals	2,810	598	1,040	340	1,030	145	5,963

The auction markets gave greater attention to their relationship with their members during the year. Three of the markets have workers who go among the members to discuss egg marketing and egg quality problems. This work proved most satisfactory and effective, and will be continued. When a producer's eggs do not meet the requirements for the better grades, it is the duty of the field representative to call on that producer, and in most instances, it has been possible for the producer to bring his product back to top quality.

ENFORCEMENT OF STATE GRADES AT THE AUCTION MARKETS

Four of the auction markets have used the New Jersey wholesale grades for eggs in an effective way. The egg trade has become familiar with these grades and is pleased with the product which is obtained after the eggs have gone through the inspection service at the market. During the year, both the Flemington and the Hightstown markets used a Grade B, which has not as yet been established as a state grade. This grade proved quite satisfactory for those eggs which did not meet the requirements for New Jersey Grade A. The experience gained through the year demonstrated that the Grade B will be a practical grade and will, no doubt, be added to the two regular state grades now in use.

The state grades and standards for eggs have benefited producers in several areas. They provide an honest method of judging the quality of each producer's eggs. They provide too, an opportunity for the department and others to publicize a suitable grade for the terminal markets, and prove satisfactory when used in the trade. State inspectors are familiar with egg quality problems and have done much to assist producers with this problem, in addition to handling the inspection work in a most satisfactory manner. Check inspections were made by one of the workers in the Bureau of Markets. This inspection of the grading service provides us with a means of determining the effectiveness of the grading, and also shows us the quality maintained in New Jersey eggs during the various seasons of the year. The check inspection has resulted in a more uniform interpretation of the standards of quality as set forth in the New Jersey grades.

The state grades for live poultry were used at the Flemington and Hightstown auctions and proved to be satisfactory to both producers and buyers. It was observed that producers soon became familiar with the grade requirements, and that they have done a relatively good job of grading their poultry before it arrives at the auction markets. It has been possible for the markets to work out a satisfactory plan for inspecting poultry, and when the wrong grade tag is placed on a coop by the producers, the poultry is either rehandled or the tag changed to conform with the quality of the birds. This procedure eliminates a large amount of discussion about rejects following the sale. In fact, the introduction of the state grades has eliminated a large part of the reject problem on these markets.

The buyers are satisfied with the grades and have confidence in the inspection service. Producers continued to get from 50 cents to \$1.50 per coop more for the No. 1 grade. Therefore, it is most desirable that the inspectors have sufficient help so that they can grade all the birds brought to the auction market for each sale. In a few cases it was observed that producers automatically place their birds in the No. 2 grade, although many of them could qualify for No. 1. These grades have become established as a part of the marketing service in New Jersey and will be continued in the future.

FLEMINGTON EGG AND POULTRY AUCTION MARKET

The Flemington Auction Market Cooperative Association, Inc., handled the largest volume of eggs and poultry in its history. Egg sales were increased by 23,179 cases, and poultry sales were increased 591,456 pounds. The average selling price for eggs was $27\frac{1}{8}$ cents a dozen. The cost of selling the eggs, which included grading, selling, office work, etc., averaged 5.18 per cent of the gross receipts.

The average selling price received for live poultry was $17\frac{7}{8}$ cents a pound, with a selling cost of 4.7 per cent of the gross receipts. The market continued its usual method in handling this large volume of products, and had an increase in both membership and the number of buyers.

A field worker was used during the year, and this service proved to be highly satisfactory. The plan was for this worker to visit producers whose eggs did not meet at least New Jersey Grade A requirements or whose poultry was not graded satisfactorily. In most cases the quality of the product was improved and, therefore, returns to the producers have been increased.

This market cooperated with all phases of the New Jersey State Certified Fresh Egg advertising program, and has given material assistance in the distribution of State Certified Eggs.

HIGHTSTOWN EGG AND POULTRY AUCTION MARKET

The Hightstown Market is operated by the Tri-County Cooperative Auction Market Association, Inc. It has continued to grow rapidly and is providing an excellent service for its members. An increase of 11,915 cases of eggs handled during the year demonstrates that the market is being operated in an efficient and profitable way. Producers are responding with eggs of higher quality, as a result of the emphasis the management has placed on this factor.

Returns from the poultry sale proved successful. The grading and handling of poultry on this sale has been conducted efficiently, and this part of the market has become increasingly important. The average price received for eggs was $27\frac{7}{8}$ cents a dozen, and the handling cost was 4.03 per cent of the gross egg receipts. The average price received for the poultry was $17\frac{1}{6}$ cents a pound, and the handling costs were 4.49 per cent of the gross poultry receipts.

MOUNT HOLLY POULTRY AND EGG AUCTION MARKET

The Burlington County Cooperative Poultry Auction Association, Inc., was originally established to sell the fine quality live poultry produced in that area; however, the egg market is becoming more important. Both the poultry and eggs are sold on a quality basis. The average price received for the poultry was 19 cents a pound, and the handling cost was 3.96 per cent of the gross poultry sales. The eggs sold for an average of 26½ cents a dozen, and the handling cost amounted to 3.78 per cent of the gross egg receipts.

PATERSON EGG AND POULTRY AUCTION MARKET

The North Jersey Cooperative Egg Auction Association, Inc., is operated in an area where a large number of persons operate egg routes. During the period of small supplies of eggs, these route operators are an important group of buyers. When supplies are plentiful, a comparatively large number of eggs are offered on each auction sale. This presents an added problem for the management of the auction.

The average price received for eggs was 28 cents a dozen, and the handling cost was 4.35 per cent of the gross egg receipts. The average selling price for poultry was 17 cents a pound, and the handling costs amounted to 4.28 per cent of the gross poultry receipts.

VINELAND EGG AND POULTRY AUCTION MARKET

The Vineland and South Jersey Cooperative Egg Auction and Poultry Association, Inc., handled slightly over \$1,000,000 worth of poultry products during the year. The records show that the egg sales were increased by 22,977 cases. All of the eggs sold averaged 27¼ cents per dozen. The cost of handling the eggs amounted to 3.9 per cent of the gross egg sales. The live poultry sales were increased by 162,231 pounds. The average price received for live poultry was 15-1/3 cents a pound, and the handling cost was 5 per cent of the gross poultry receipts.

The fact that the auction markets are becoming comparatively large with respect to the volume handled, makes it even more important that they be operated in an efficient way. These five markets represent a tremendous responsibility to producers, and every effort will be put forth by the Bureau of Markets to continue its assistance in this marketing enterprise.

NEW JERSEY FEDERATED EGG PRODUCERS' COOPERATIVE ASSOCIATION

This is an organization of several producer associations. Much progress was made during the year. Eggs were handled for producers from a comparatively large area and distributed to retail outlets in northern New Jersey and New York City. This association also has had some experience in placing its eggs in a carton for retail distribution among their regular customers. In addition, it cooperated with the New Jersey Poultry and Egg Cooperative Marketing Association, Inc., in the distribution of State Certified Fresh Eggs.

NEW JERSEY FRESH EGG LAW

The fifth year of operating the fresh egg law has been completed. This law has been of practical benefit to producers, distributors and consumers, in that it has eliminated the selling of poor quality eggs as fresh eggs. Furthermore it has brought about a greater distribution of high quality eggs through many retail channels. As egg distributors become more familiar with the enforcement program, there is a greater acceptance of the law and recognition of high quality eggs.

Regular inspections were made in several retail channels and, in addition, the four full-time inspectors accomplished much in acquainting both retailers and wholesalers with the requirements of the law. When making inspections of retail outlets, it is the desire of the inspector to indicate factors which affect egg quality, as well as to explain the law itself. This involves a discussion of holding conditions, particularly in retail stores.

The inspectors have accomplished a great deal towards improving the quality of eggs distributed from the plants of jobbers and wholesalers through visits to their candling rooms. It is frequently observed that candlers are not familiar with the present-day candling procedure. The inspectors have been of considerable help to them in this respect by explaining the importance of the correct procedure and, as a result, have influenced the wholesale distributing agencies in the sale of high grade eggs.

The assignment of a definite territory to the different inspectors continued to prove desirable from the standpoint of observing egg quality improvement, as well as the enforcement work. The chief inspector spent considerable time at hearings, presenting evidence on each case, and reviewing the violations before they were submitted to the administrative authorities.

The daily reports submitted to the bureau by the inspectors proved satisfactory, particularly since a code was used to indicate why the eggs did not meet the quality requirements for fresh. Results of conferences with the egg trade and unusual cases were also reported. All the inspection reports were checked carefully, and those which showed violations were held either for reinspection or for hearing.

There were 75 cases considered at informal hearings, of which 66 were issued warnings, 7 were given penalties and 2 were dismissed. Many other cases were settled by reinspections and letters of warning were issued.

The following table shows the actual number of inspections made, with the total number of violations recorded during the year.

STATE DEPARTMENT OF AGRICULTURE

OPERATION OF NEW JERSEY FRESH EGG LAW

July, 1938 to June, 1939

Type	Inspections	Number
Wholesale Stores		58
Retail Stores		18,497
Roadside Markets		767
Retail Routes		560
	Total Inspections	19,882
	Total Violations Detected	1,906

Approximately the same number of inspections were made in retail units during the year, and this was done without the addition of a temporary inspector. Visits to warehouses also consumed some of the inspectors' time.

The records being kept in the office on the fresh egg law inspection work required a great deal of time, and are proving to be of value from the standpoint of judging the trends in quality and merchandising practices for eggs. During the past year, the chief inspector spent some time in the office checking over the results of the inspections made from July, 1934 to June, 1939.

The results of this work are shown in the following table.

MONTHLY INSPECTIONS AND VIOLATIONS

New Jersey Fresh Egg Law

1934 to 1939

Month	Total No. of Inspections	No. of Violations	Per Cent Violations
January	8,478	929	10.9
February	7,234	966	13.3
March	9,844	1,287	12.6
April	9,305	968	10.4
May	11,210	969	8.6
June	10,878	929	8.5
July	9,980	1,305	13.0
August	8,934	1,392	15.5
September	8,894	1,123	12.6
October	9,192	1,134	12.3
November	8,261	915	11.0
December	8,143	830	10.1

NEW JERSEY STATE CERTIFIED FRESH EGG PROGRAM

The State Certified Fresh Egg Program which started February 4, 1938, was continued throughout the year in a satisfactory manner. There was an increase of approximately 80 per cent in the volume of eggs sold as certified during this year, as compared with the volume for the same months in the previous year.

The original egg marketing committee appointed by the State Poultry Association was changed into a permanent organization known as the New Jersey Poultry and Egg Cooperative Marketing Association, Inc. This group is incorporated under the laws of the state, and is now operating as

a permanent organization of the several egg and poultry cooperative marketing associations.

The group has cooperated with the several retail outlets of the state and experienced varying degrees of success. Several policies have been suggested which should conform more fully to the demands of the retail organizations, and for this reason, some types of outlets have increased their volume while others have not.

The minimum profit suggested for retailers was reduced from 8 cents to 5 cents per dozen, and until recently all deliveries were made directly to each retail outlet. The experiment has been developed whereby information is being obtained on the practicability of making deliveries to the warehouses of chain stores, rather than to the individual units. Plans were developed for delivering the eggs to distributors in New York City; however, there has not been sufficient time to put the program in operation.

With the formation of the state-wide cooperative, a separate office was established at the Flemington Auction Market, where all transactions, except those for advertising, are handled. The establishment of this office has added a great deal to the effectiveness of the program, and provided the directors of the state organization with a definite financial statement, along with an analysis of the costs of the several services rendered.

During the period February 4, 1938 to June 30, 1939, approximately 13,500 cases of State Certified Fresh Eggs were sold. This includes a few more than 1,500 cases of an Easter Special which was offered for a ten-day period previous to Easter. As a result of the continued business carried on by this organization, it has been possible to accumulate sufficient funds to pay all loans and to show a small surplus. With this situation developed, the directors have already made tentative plans for a more ambitious program for the next year.

MISCELLANEOUS ACTIVITIES

Much effort was put into the planning for the Seventh World's Poultry Congress which is to be held in Cleveland, Ohio, July 28 to August 7, 1939. This work included assistance in developing an exhibit to represent the poultry industry of the state, along with an exhibit showing the progress of the New Jersey Record of Performance Breeders' Association. It also included many details in connection with preparing for the Congress, since one of the workers acted as secretary to the state committee.

This division cooperated with the state organizations carrying forward their programs, with the Agricultural Extension Service and with the Agricultural Experiment Station. Considerable assistance was also given to the New Jersey Turkey Growers' Cooperative Marketing Association.

Report of the Bureau of Plant Industry

HARRY B. WEISS, *Chief*

STATISTICAL AND RELATED WORKS

NEW JERSEY CROP AND LIVESTOCK REPORT

What kind of crops are farmers growing? What is the acreage of each crop? How are weather, insects, diseases and other factors affecting the crops? Is the number of livestock increasing or decreasing? What are the prices received by farmers? How great is farm income this year? Which branches of agriculture have a fair return and which are depressed due to the price fluctuations? What are the causes of constant shift of acreage in certain commodities, of price behavior, of changes in the breeds of cattle?

These and many other current questions are answered in the New Jersey Crop and Livestock Report, issued during eleven months of the year. The information given in the New Jersey Crop and Livestock Report is the primer of agriculture. It is the basis for any intelligent approach to the economic problems confronting farmers. Without data on what farmers grow, in what quantity, and for what prices they sell, there could not be developed either state or national policies for agriculture.

NEW JERSEY FARM PRICES AND THEIR INDEX NUMBERS

One of the functions of the statistical branch of this bureau is to follow closely the farm price fluctuations for each individual commodity and for all commodities combined. For that reason, average monthly and annual prices for 30 commodities are gathered. The index number of these prices is calculated and published monthly in the New Jersey Crop and Livestock Report.

NUMBER AND BREEDS OF NEW JERSEY CATTLE

The project to determine the number and breeds of cattle in New Jersey was completed and the results published in departmental circular No. 301 under the title: "New Jersey Cattle: Number and Breeds." A brief summary of the findings follows.

For many years the Bureau of Animal Industry of the New Jersey State Department of Agriculture has been engaged in the control of tuberculosis and other diseases of cattle. In their search for reactors, the state veterinarians examine herds at least once a year, and while inspecting them, make a record of each animal, listing age, breed, kind, etc. These records were the source and basis of the present summary. Only herds having statistics available for the two periods of time, 1932-1933 and 1937-1938, were used. A total of 10,436 identical herds provided the data for comparisons during the five-year period.

The purpose of the project was: First, to determine the change in the number of all cattle between the two periods of time, 1932-1933 and 1937-1938; second, to ascertain the trend in breeds of cattle during the same

period, and third, to trace the change in the size of the herds.

The total number of cattle recorded in 10,436 identical herds increased approximately 12 per cent in 1937-1938 over 1932-1933. The tendency was to enlarge the number of milk cows at a greater rate than the number of other cattle. About 74.8 per cent of all cattle in 1937-1938 consisted of milk cows; 19.4 per cent heifers; 4.4 per cent bulls; 0.1 per cent steers; and 1.3 per cent, calves.

The average number of all cattle per herd in 1937-1938 was 13.9 and of milk cows, 10.4. This is compared with 12.4, the average number of all cattle per herd, and 9.2, the average number of milk cows, during 1932-1933.

The number of bulls in New Jersey increased about 9 per cent, being 5,828 in 1932-1933 as compared with 6,350 during 1937-1938. There was one bull to 16.4 cows in 1932-1933 and one bull to 17.1 cows during 1937-1938. The relative decrease in the number of bulls per number of cows may be explained by the greater efficiency of service of bulls in 1937-1938 and by the increasing popularity of artificial insemination.

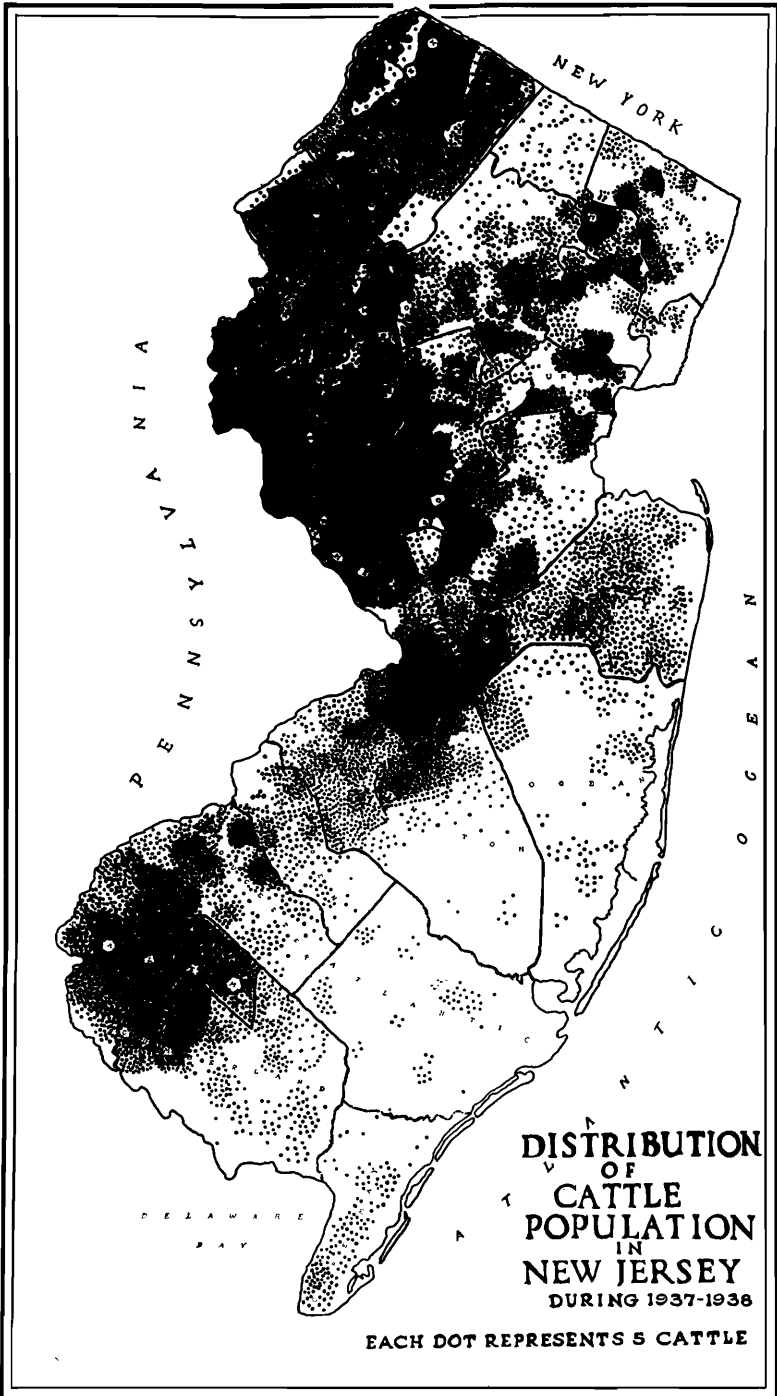
Small herds are becoming smaller and large herds are becoming larger. Persons who had from one to three cows in 1937-1938 possessed a considerably smaller herd than during 1932-1933. On the other hand, persons having four or more cows during 1937-1938, possessed more cows and all cattle than in the earlier period, 1932-1933. Greatest additions in the cattle herds took place in such leading dairy counties as Warren, Burlington, Hunterdon, Sussex, Morris, Gloucester and Middlesex.

Counties located in the more densely populated areas keep proportionately more milk cows than the less thickly populated counties. It is generally assumed that this is because sections close to large cities, where the price of land is extremely high, find it economically unprofitable to raise large numbers of heifers, bulls, steers and calves.

The cattle population is concentrated mostly in the western section of the state, along the Delaware River. This is probably due, first, to the fact that the soil along the Delaware River is adapted to the production of hay, corn, wheat and other grains used for feeding livestock, and for the growth of fine quality pastures. In addition, because this section is less densely populated, land values are not prohibitive to the maintenance of all cattle.

Holstein cattle make up the leading breed in the state. During 1937-1938 about 53 per cent of the total number of cattle in the 10,436 surveyed herds were Holstein. The second in importance was the Guernsey breed with 32.3 per cent of the total. This was followed by Jerseys with 9.6 per cent; Brown Swiss, 2.4 per cent; Ayreshire, 1.6 per cent and other breeds, 1.1 per cent.

Analysis of the results of the survey indicates that New Jersey consumers have been largely responsible for the change in popularity of certain dairy breeds. Because of buyer preference for milk richer in butterfat content, there has been a definite trend toward more Guernsey, Jersey, Ayreshire and Brown Swiss cows in New Jersey herds during the five-year period, 1932-1933 and 1937-1938.



NEW JERSEY MILK PRODUCER-DEALERS' HERDS IN 1938

A producer-dealer who keeps a herd of cattle for the purpose of milk production also pasteurizes, bottles and delivers to consumers. The middleman is eliminated in this transaction.

In order to determine the size and geographical distribution of the producer-dealers' industry, a survey was made. The results were published in departmental circular No. 305 entitled "Producer-Dealer Herds in New Jersey, 1938." A brief summary of the circular follows.

Producer-dealers play an important role in the economic life of New Jersey. There were 1,207 of them in 1938. They kept, at that time, 27,576 cattle, of which 21,420 were milk cows. In other words, the cattle population of producer-dealers amounts to about 14 per cent of all cattle in the state.

The producer-dealers' cows produced in 1938, approximately 70,000,000 quarts of milk, the farm value of which was about \$4,000,000. The estimated retail price, or price for which this milk was sold by producer-dealers was slightly more than \$8,000,000.

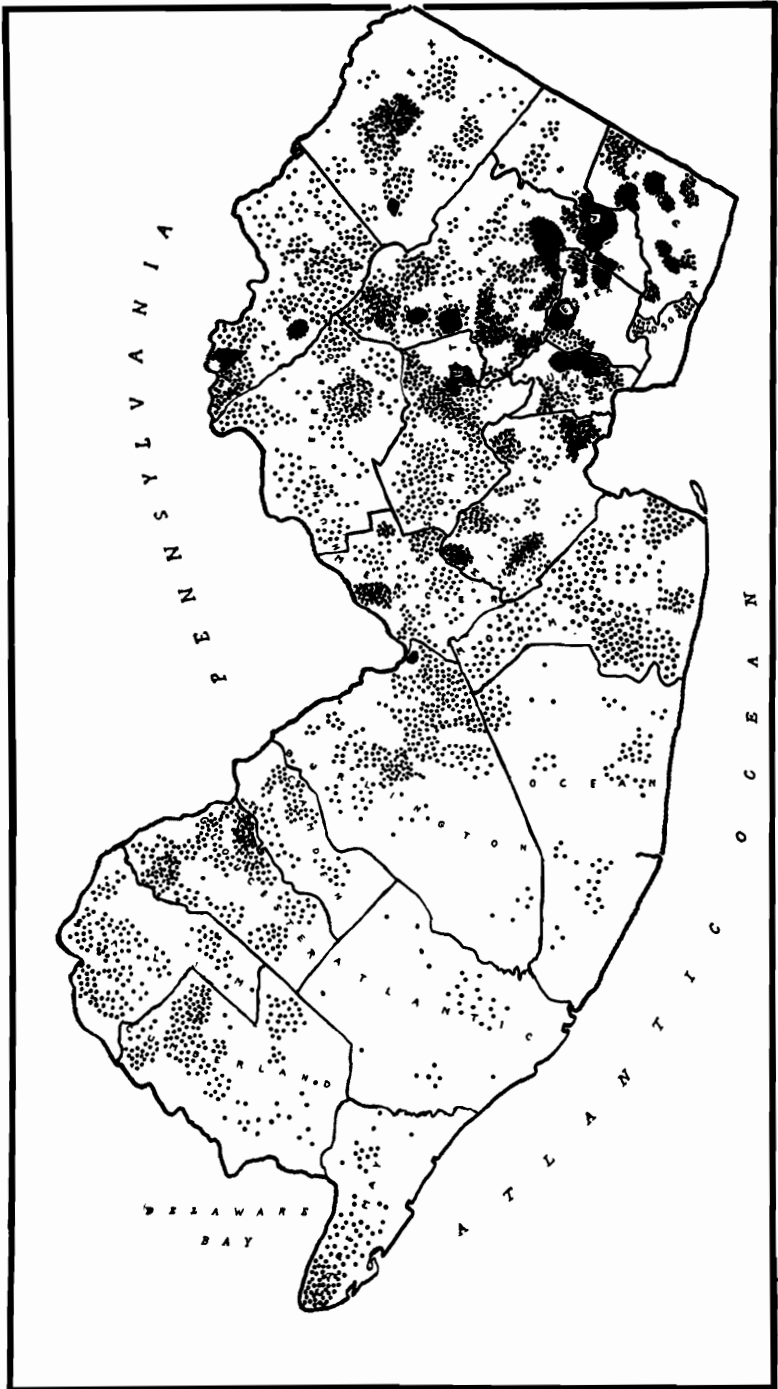
The producer-dealers are concentrated in the New York and Philadelphia metropolitan areas or in their vicinities. Approximately 79 per cent of all cattle in Hudson County belonged to producer-dealers, 69.3 per cent in Bergen County, 69.2 per cent in Union County, 50.7 per cent in Essex County, 48 per cent in Passaic County and 44.3 per cent in Cape May County.

In 1938, producer-dealers kept more Guernsey and Holstein cattle of all kinds than any other breeds. At the same time more Holstein than Guernsey milk cows were found in their herds.

The average size of a producer-dealer's herd was 22.8 cattle. The largest number of herds ranged from 4 to 25 cattle.

In small herds, Guernsey cattle predominated. In larger herds, as far as number is concerned, there were approximately the same number of Guernsey and Holstein cattle.

STATE DEPARTMENT OF AGRICULTURE



DISTRIBUTION OF PRODUCER DEALER CATTLE, 1922

TRUCK CROPS IN NINE NEW JERSEY COUNTIES

Many thousands of families derive their livelihood from agriculture in the New Jersey sector of the New York metropolitan area, and its vicinity. Vegetable and berry growing alone provide a substantial income to about 1,500 families in Bergen, Essex, Hudson, Hunterdon, Morris, Passaic, Sussex, Union and Warren counties. Nearly 4,500,000 bushels of various truck crops are produced annually in these nine counties. The annual farm value of the truck crops reaches the high figure of at least \$5,000,000.

Fifty-seven various truck crops are grown in these nine counties. The crops are: Asparagus, bean sprouts, beets, blackberries, broccoli, Brussels sprouts, cabbage, cantaloupe, carrots, cauliflower, celery, chicory, chive, Chinese cabbage, collards, cucumbers, dandelions, dill, eggplant, endive, fennel, green peas, horseradish, kale, knob celery, kohlrabi, leeks, lettuce, lima beans, mangels, mustard, okra, onions, parsley, parsnips, peppers, white potatoes, pumpkins, radishes, rape, raspberries, rhubarb, romaine, salsify, scallions, snap beans, sorrel, spinach, squash, Chinese squash, strawberries, sweet corn, Swiss chard, tomatoes for market, tomatoes for manufacture, turnips and watermelons.

The quantity of produce from some of these truck crops is enormous. The value of land is high, consequently an intensive method of cultivation prevails. There are more than 2,280 acres, or nearly 14 per cent of the total truck crop land under irrigation. Nearly 1,900,000 square feet of land is in hotbeds.

Very often farmers raise in succession on the same strip of land two or three crops during one season. A few examples may be cited on total production. More than 6,270,000 bunches of beets were produced during 1937 in these nine counties; more than 11,231,000 bunches of carrots; 1,258,000 bunches of leeks; 3,652,000 bunches of radishes; 1,905,000 bunches of rhubarb; 1,563,000 bunches of scallions; 770,000 bushels of spinach; 13,960,000 ears of sweet corn; 500,000 bushels of tomatoes for market; 138 tons of horseradish; 410,000 bushels of cabbage; 18,432,000 stalks of celery; 111,000 bushels of peppers; and 91,000 bushels of snap beans.

The survey conducted by this bureau revealed that about 16,604 acres of truck crops were cultivated by 1,064 growers in the nine counties. This represents about 70 per cent of the acreage and the number of growers engaged in truck crop production in these counties. The leading county is Bergen, with 311 growers cultivating 5,206 acres of truck crops; next in importance is Morris County with 257 growers and 3,567 acres; Passaic County is third with 177 growers and 2,274 acres; Warren County is fourth with 100 growers and 1,790 acres; Essex County is fifth with 101 growers and 1,693 acres. Densely populated Hudson County has 19 growers with 306 acres.

The results of this survey were published in departmental circular No. 306 "Truck Crops in Nine New Jersey Counties: Acreage and Production During 1937."

THE CANNING INDUSTRY IN NEW JERSEY DURING THE 1938 SEASON

There were 23 active canneries in New Jersey during the 1938 season, as compared with 30 in 1937. The decline in number may be attributed partly to the shortage of the leading product canned, namely, tomatoes. Unfavorable weather reduced the tomato crop in 1938 to about 138,000 tons, or nearly 30,000 tons less than the normal harvest. The number of active canneries during 1938 in the various counties was as follows:

Atlantic	4
Burlington	2
Camden	1
Cumberland	7
Gloucester	2
Mercer	1
Monmouth	2
Ocean	1
Salem	2
Warren	1
Total	<u>23</u>

In 1938 the canneries paid to New Jersey farmers for vegetables and berries bought from them approximately \$4,008,475, or about 33 per cent of the total farm value of all vegetables and berries produced in the state, for which records were available. Estimates of the amounts of money paid to farmers by canners for individual commodities in 1938 follow.

Tomatoes	\$2,029,000
Asparagus	734,000
Lima beans	496,000
Green peas	359,000
Cranberries	141,000
Snap beans	88,000
Spinach	80,000
Beets	42,000
Pumpkins and squash	18,000
Sweet corn	11,000
Peppers	7,000
Sweet potatoes	2,000
Miscellaneous*	1,475
Total	<u>\$4,008,475</u>

Tomatoes, as usual, led among the commodities canned during the 1938 season.

NUMBER OF CASES OF TOMATOES PACKED IN NEW JERSEY DURING 1938 AND 1937 AND THE TEN-YEAR AVERAGE, 1929-1938

Kind of Pack	Unit	1938 (cases)	1937 (cases)	10-Year Average 1929-1938
Canned whole	2 doz. No. 3 cans	102,536	93,521	163,772
Pulp	½ doz. No. 10 cans	1,475,871	1,600,994	2,225,483
Juice	½ doz. No. 10 cans	550,002	660,622	488,492†
Catsup	2 doz. 16 oz. bottles	766,536	698,603	569,231
Puree	½ doz. No. 10 cans	64,254	73,586	191,489
Cocktail	½ doz. No. 10 cans	15,896	29,117	38,566†
Chili Sauce	½ doz. No. 10 cans	16,368	15,964	16,166†
Total	Various sizes	<u>2,991,463</u>	<u>3,172,407</u>	<u>3,693,199</u>

* Includes blackberries, raspberries, strawberries and rhubarb.

† 8-year average 1931-1938.

‡ 2-year average 1937-1938.

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The data presented in the foregoing table show that 2,991,463 cases of various sizes of tomatoes were manufactured in 1938, or about 6 per cent less than in 1937, and 19 per cent under the ten-year, 1929-1938 average. A shortage of tomatoes in New Jersey as well as economic reasons caused the canners to manufacture fewer tomato products in 1938.

The average contract price per ton of tomatoes delivered to the factory in 1938 was \$15.55, or 49 cents more than in 1937. The average open market price per ton of tomatoes in 1938 amounted to \$15.38 or \$3.55 less than in 1937.

The quantities of vegetables, other than tomatoes, canned during 1938 and 1937 follow.

Product	Unit	1938 (cases)	1937 (cases)	10-Year Average 1929-1938
Asparagus	2 doz. No. 2 cans	236,961*	230,379*	80,480
Lima beans	2 doz. No. 2 cans	453,584*	650,000*	151,873
Green peas	2 doz. No. 2 cans	258,318*	400,000*	93,119
Snap beans	2 doz. No. 2 cans	117,059*	64,875†	36,980
Spinach	2 doz. No. 2 cans	91,927*	261,479†	66,843
Beets	2 doz. No. 3 cans	98,570	44,640	43,086
Pumpkins and squash	2 doz. No. 3 cans	12,135	46,532	.....
Sweet corn	2 doz. No. 2 cans	9,666	.....	.....
Rhubarb	½ doz. No. 10 cans	850	.....	.....
Sweet potatoes	2 doz. No. 3 cans	4,686	3,880	3,212‡
Peppers	2 doz. No. 2 cans	11,393	.....	.....

* Frozen product is included.

† Frozen product is not included.

‡ 9-year average 1931 excluded.

BARRELS OF CRANBERRIES USED FOR CANNING AND TOTAL PRODUCTION
OF CRANBERRIES IN NEW JERSEY, 1928-1938

Year	Number of Barrels of New Jersey Cranberries Used for Canning (barrels)	Number of Barrels of Cranberries Pro- duced in New Jersey (barrels)	Percentage of Total Crop Going Into Canning Factories
1928	From 16,000 to 20,000	138,000	13
1929	15,000	90,000	17
1930	From 10,000 to 15,000	144,000	9
1931	From 20,000 to 25,000	142,000	16
1932	18,000	80,000	23
1933	From 19,000 to 20,000	142,000	14
1934	From 10,000 to 11,000	70,000	15
1935	From 30,000 to 35,000	85,000	38
1936	25,700	75,000	34
1937	90,287	166,000	54
1938	15,625	61,833	25

PRICES OF EGGS AND POULTRY RECEIVED BY NEW JERSEY FARMERS AT
AUCTION MARKETS IN NEW JERSEY, NEW YORK AND PHILADELPHIA

The New Jersey auction markets possess a series of records showing daily data on quantity, price, grade, etc. of eggs and poultry sold. The Poultry Division of the Bureau of Markets requested an analysis of these

records. Lacking funds with which to conduct this project, application was made to the Works Progress Administration for assistance. The request was granted, and since March 1, 1939, five WPA employees have been working on this problem. The main objectives are: (1) To ascertain the growth of the Flemington, Vineland and Hightstown egg auction markets since their inception, (2) to determine whether farmers selling eggs at these auction markets are receiving the same price per dozen as is paid in New York for an identical grade, (3) to find the relationship between weight of eggs and price, and (4) to determine the seasonal variation in prices of eggs, etc.

Approximately the same objectives are held with respect to poultry meat studies at the Flemington, Vineland and Mount Holly auction markets.

ACREAGE OF VARIOUS COMMODITIES GROWN IN THE STATE DURING 1937 AND 1938

Nearly 17,000 New Jersey farmers signed an agreement with the United States Agricultural Adjustment Administration to follow certain soil-building practices. Each copy of this agreement contains information on the total acreage in possession of the individual farmer, as well as acres devoted to dominant crops on his farm. These 17,000 records are kept in the office of the New Jersey Agricultural Experiment Station. The Crop and Livestock Reporting Service of this bureau considered it of great value to have the records copied, because they would help in estimating acreages planted to the important crops. The Bureau of Plant Industry did not have sufficient funds and force to initiate and carry on the project. Therefore, it was decided to apply to the Works Progress Administration for assistance. The request was granted and seven WPA employees began work on this project on March 1, 1939.

CRANBERRY SURVEY

Upon request of the cranberry growers of the state, the cranberry industry was surveyed and the findings reported at the growers' meeting in August, 1938.

COST OF LIVING STUDIES IN NEW JERSEY

In 1936 cost of living studies were inaugurated. On account of insufficient personnel the approach was gradual and information on retail food prices was gathered first. This has been published monthly since September, 1936. In 1937-1938 two more groups of commodities were added, namely, fuel and light, and rentals. In 1938-1939, prices on clothing, furniture and house furnishings, and miscellaneous items, were added and the first complete quarterly issue of "Cost of Living in New Jersey" was published.

This quarterly met the demand of numerous governmental and private agencies, and the figures on living costs in New Jersey are used by such agencies as the Division of Old Age Assistance, New Jersey Department of

Institutions and Agencies, the Financial Assistance Commission, the State Board of Children's Guardians, the Newark Labor Relations Board, the New Jersey Council, the Federal Housing Administration in Newark, the Newark Chamber of Commerce, the New Jersey Bell Telephone Company and various other private and public agencies. In addition, the newspapers of the state give wide publicity to the findings relative to changes in living costs.

COST OF GOODS PURCHASED BY THE AVERAGE NEW JERSEY FAMILY

The cost of living index numbers as published are computed from data which run from March, 1937, to date. The same month in 1937 as the current month in 1939 is used as a base period.

The combined index for all items is composed of food, with a weight of 29.5 per cent; housing, with a weight of 18.1 per cent; clothing, weighted 11.1 per cent; fuel and light, weighted 5.5 per cent; furniture and house furnishings, 4.6; and miscellaneous items, 31.2 per cent.

From the illustration it may readily be seen that the index for all items has shown a downward tendency since the peak of September, 1937, when its index was 101.8, to a low of 97.1 in March, 1938 after climbing to 98.2 in June, 1938, it gradually fell back to 97.1 in June, 1939.

Food followed practically the same movement as the index for all items, with a peak in September, 1937 of 103.6. Following a drop to 90.0 in March, 1938 came an upward movement to 93.0 in June, 1938; then a steady drop occurred until March, 1939, when the index reached the low of 86.3, before showing a slight rise to 86.9 in June, 1939.

Rent has been on the upward trend consistently since accumulation of data started, with the exception of the last quarter in which a decrease was shown. In March, 1937, the housing index was 98.2. It rose to a peak of 111.3 in March, 1939, falling back to 110.8 in June, 1939.

Clothing showed a peak in September, 1937 of 103.6, dropped to 97.6 in June and September, 1938, and remained practically steady since.

Fuel and light fluctuated from a high of 101.5 in March, 1937, to a low of 96.6 in June, 1939.

Furniture and house furnishings showed a downward tendency from the peak of March, 1937, with an index of 100.1, to the lowest point, in September, 1938, with an index of 86.2, since which time its tendency has been upward, reaching 87.3 in June, 1939.

Miscellaneous items show the least fluctuation of all groups, with a high of 100.4 in September, 1938, and a low of 98.8 in March, 1938.

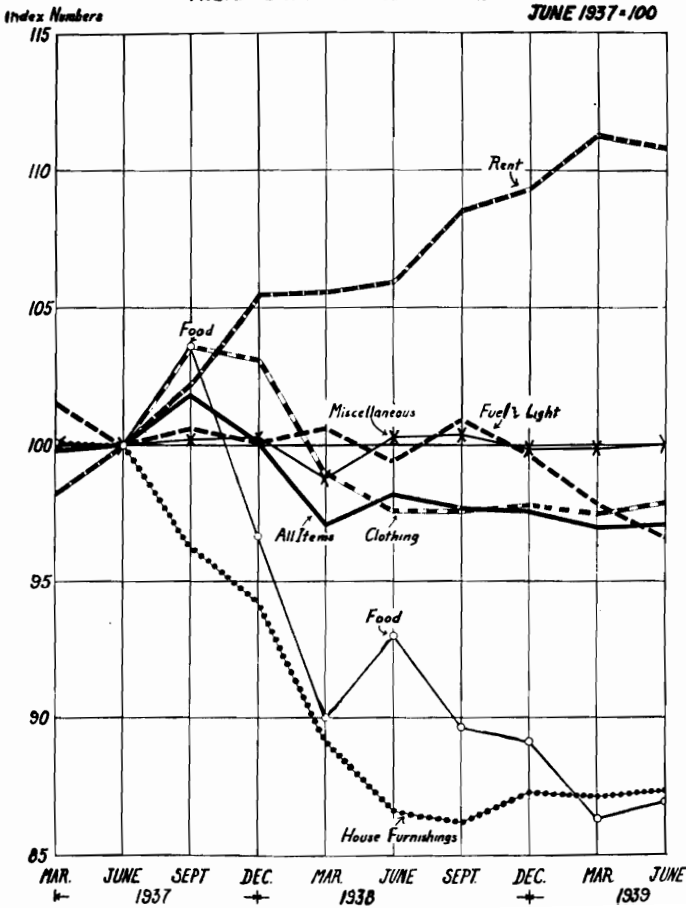
INDEX NUMBERS OF THE AVERAGE COST OF GOODS AND SERVICES IN NEW JERSEY

JUNE, 1937=100

Group of Commodities	June 1939	March 1939	Dec. 1938	Sept. 1938	June 1938	March 1938	Dec. 1937	Sept. 1937	June 1937	March 1937
Food	86.9	86.3	89.1	89.6	93.0	90.0	96.7	103.6	100.0	100.1
Housing (all units)	106.2	107.1	105.9	106.5	105.5	105.3	105.2	101.7	100.0	98.3
Housing (units without heat)	110.8	111.3	109.3	108.5	105.9	105.6	105.5	102.2	100.0	98.2
Clothing	97.9	97.5	97.8	97.6	97.6	99.0	103.1	103.6	100.0	99.9
(Male)	98.4	98.3	99.0	99.1	97.3	99.5	103.7	102.9	100.0	99.9
(Female)	97.4	96.8	96.8	96.2	97.7	98.6	102.5	104.2	100.0	99.9
Fuel and Light	96.6	97.9	99.7	100.9	99.4	100.6	100.1	100.6	100.0	101.5
(Electricity)	94.3	89.5	87.6	94.8	97.9	91.4	89.5	96.2	100.0	95.5
(Gas)	98.6	101.4	101.4	97.9	97.1	100.7	99.3	100.0	100.0	99.3
(Coal)	97.4	102.2	107.3	106.3	101.4	106.8	107.8	103.8	100.0	106.5
House Furnishings	87.3	87.1	87.3	86.2	86.6	89.1	94.2	96.3	100.0	100.1
Miscellaneous	100.0	99.9	99.9	100.4	100.3	98.8	100.3	100.2	100.0	100.1
ALL ITEMS	97.1	97.0	97.6	97.7	98.2	97.1	100.2	101.8	100.0	99.8

TWENTY-FOURTH ANNUAL REPORT

**COST OF GOODS PURCHASED
BY
AVERAGE NEW JERSEY FAMILY**



RETAIL FOOD PRICES IN NEW JERSEY

In March, 1937, the index number of all food (June, 1937 = 100) was 100.1. Fruits and vegetables were at their highest point with an index of 102.8—the only time at which they have been above the base period. Cereals and bakery products and beverages and chocolate were below all foods, their indexes being respectively 98.2 and 95.0. Fats and oils were at their highest, standing at 103.7; all meats and canned fish were below the base period with respective indexes of 93.2 and 94.9. Eggs, dairy products and sugar and sweets all registered higher than all foods and the base period. Eggs stood at 100.8; dairy products at 109.5; and sugar and sweets stood at 105.1.

All foods reached their peak in September, 1937, when the index (June, 1937 = 100) reached 103.6. At this time meats were at their highest point, standing at 111.7; fish was 106.1, but moved up to a peak of 107.5 in the next quarter; eggs were at their highest, being 125.5; dairy products registered 107.8, and sugar and sweets, 105.7. Cereals and bakery products were 98.8; the all fruits and vegetables index was 86.1; beverages and chocolate stood at 95.1 and fats and oils at 97.2.

From September, 1937, until March, 1938, the index of all foods registered a steady decline, being 90.0 in March, 1938. Fish at 102.6 and dairy products at 104.0 were the only two major commodity groups to register higher in March, 1938, than in the base period. Cereals and bakery products and beverages and chocolate were slightly higher than all foods, being respectively 92.5 and 90.7. Meats dropped steadily from September, 1937, to March, 1938, when they stood at 82.3. Fats and oils registered below all foods with an index of 88.0 in March, 1938. Sugar and sweets were higher than all foods in March, 1938, with an index of 99.8. Eggs registered a drop in March, 1938, to 85.9.

All foods increased in cost from March, 1938 to June, 1938, when the index for all foods was 93.0.

From June, 1938, to March, 1939, all foods declined steadily. Fruits and vegetables hit their lowest index in September, 1938, being 70.8. Eggs reached their second highest peak in December, 1938, standing at 118.1. All meat dropped to 81.1 in December, 1938.

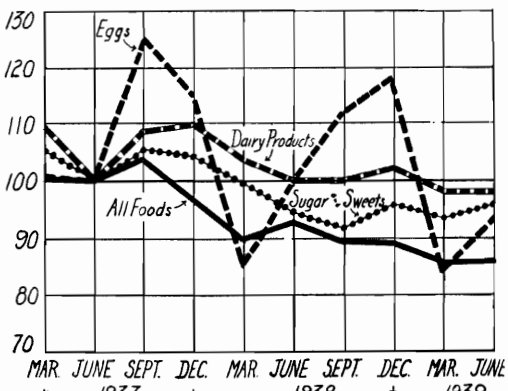
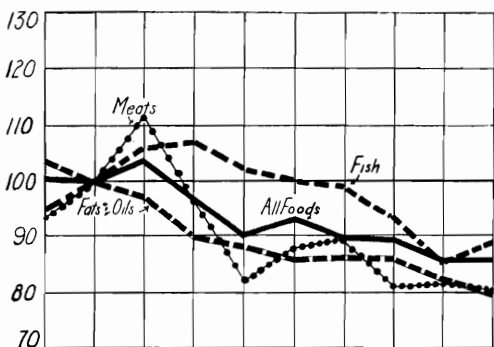
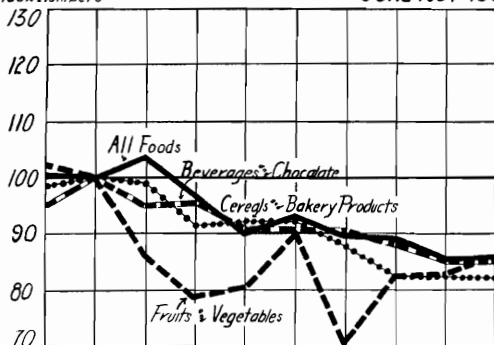
In March, 1939, the all foods index was 86.3. All major groups of commodities were lower in March, 1939, than in the base period. The only major commodity groups that registered higher than all foods in March, 1939, were dairy products at 98.1, and sugar and sweets at 93.7. All other major commodity groups were lower than all foods. Cereals and bakery products stood at 83.0; beverages and chocolate at 85.5; fruits and vegetables registered 83.1; canned fish was at its lowest point in the chart with an index of 85.1; fats and oils were 82.4; all meats 81.8, and the egg index was at its lowest, 84.6.

From March, 1939, until June, 1939, there was an increase in the cost of all foods with the June, 1939 index being 86.9. No major or sub-group

registered higher in June, 1939, than in the base period. Canned fish at 88.7, dairy products with an index of 98.1, eggs at 93.3 and sugar and sweets at 96.0, were all higher than all foods. Cereals and bakery products registered 82.9; all meats showed their lowest index on the chart at 80.3, all fruits and vegetables were 86.6, beverages and chocolate stood at 85.5 and fats and oils reached their lowest point with an index of 79.4.

Retail Cost of Food

Index Numbers JUNE 1937=100



INDEX NUMBERS OF RETAIL FOOD COSTS IN NEW JERSEY
JUNE 1937=100

Group of Commodities	June 1939	March 1939	Dec. 1938	Sept. 1938	June 1938	March 1938	Dec. 1937	Sept. 1937	June 1937	March 1937
ALL FOODS	86.9	86.3	89.1	89.6	93.0	90.0	96.7	103.6	100.0	100.1
Cereals & Bakery Products	82.9	83.0	83.2	87.7	92.8	92.5	91.8	98.8	100.0	98.2
Beef	80.2	82.7	79.5	88.2	83.5	74.3	86.2	117.7	100.0	95.6
Pork	77.0	81.6	83.6	91.4	87.5	84.4	86.7	108.5	100.0	91.4
Veal	83.9	90.8	90.3	90.3	87.2	100.0	107.8	108.8	100.0	100.0
Lamb	81.1	70.9	75.6	76.6	85.1	78.3	87.7	95.1	100.0	85.7
Poultry Meat	83.1	83.1	81.1	100.0	108.1	102.7	108.8	113.5	100.0	88.5
ALL MEAT	80.3	81.8	81.1	88.9	87.5	82.3	96.6	111.7	100.0	93.2
Fish	88.7	85.1	93.6	99.0	100.2	102.6	107.5	106.1	100.0	94.9
Dairy Products	98.1	98.1	102.2	100.5	100.5	104.0	110.0	107.8	100.0	109.5
Eggs	93.3	84.6	118.1	112.1	100.5	85.9	115.4	125.5	100.0	100.8
Fresh Fruits & Vegetables	87.8	83.9	83.0	68.8	90.2	79.6	77.6	84.5	100.0	103.5
Canned Fruits & Vegetables	86.1	82.3	84.8	90.1	101.1	98.0	96.4	98.2	100.0	95.4
Dried Fruits & Vegetables	67.9	73.7	73.8	74.2	74.0	72.3	71.2	92.6	100.0	102.7
ALL FRUITS & VEGETABLES	86.6	83.1	82.6	70.8	90.2	80.7	78.8	86.1	100.0	102.8
Beverages & Chocolate	85.5	85.5	88.5	90.8	90.9	90.7	95.5	95.1	100.0	95.0
Fats & Oils	79.4	82.4	86.0	86.2	86.0	88.0	89.5	97.2	100.0	103.7
Sugar & Sweets	96.0	93.7	96.1	91.9	94.7	99.8	104.7	105.7	100.0	105.1

SEED CERTIFICATION AND RELATED WORK

RASPBERRY PLANT INSPECTION

Nine 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 inspections of fields were made on 94.25 acres. Of these, 7.5 acres were rejected for excessive virus disease counts or for other reasons. The balance (83.75 acres) was declared eligible for shipment with certificate.

SEED GRAIN CERTIFICATION*

Increases were registered in the number of acres entered for seed grain certification, the number of acres passing inspection and in the volume of seed produced. However, the volume of seed prepared for sale remained about the same as that of last year. This is due, in a large measure, to the fact that although a larger volume of certified wheat seed was available, the Agricultural Adjustment Administration program permitted only restricted plantings, which caused many growers to switch to winter barley. The winter barley seed, in turn, was all rejected for certification because of excessive percentages of loose smut.

With the rejection of the available winter barley seed, new seed sources were sought in other states where the varieties originated. Inquiry in these areas showed seed of the same varieties to be of poorer quality with respect to smuts and varietal purity than the stocks in New Jersey. Because of this, the New Jersey Field Crop Improvement Association, which held the barley seed stocks, agreed to take the risk of a wholesale hot water seed treatment. Arrangements were made with a New Jersey seedsman and canner who had the necessary equipment. About 500 bushels of seed barley were hot water treated and dried with this equipment. A reduction in the amount of smut was noticeable in every case and in part, sufficient reduction was made so that some lots may be continued for foundation seed stocks.

The demand for New Jersey Hybrid Seed Corn Nos. 2 and 4 far exceeds the supply. Efforts are being made to increase the supply and furnish the growers of this seed F₁ generation parent seed so that they may become more efficient producers of hybrid seed.

* Conducted in cooperation with the New Jersey Agricultural Experiment Station and the New Jersey Field Crop Improvement Association.

The following table gives the summaries for the year.

Crop	Variety	Acres Entered	No. of Growers	Acres Certified	Bushels Tagged and Sealed
Barley, Spring	Velvet	32	4	32	337½
Barley, Winter	Maryland Smoothawn	199	13	....	....
Barley, Winter	Missouri Early Beardless	160	4	....	....
Corn, Hybrid	N. J. Hybrid No. 2	52	5	52	970
Corn, Hybrid	N. J. Hybrid No. 4	21	6	21	209½
Corn, Standard	Hulsart's Yellow Dent	16	1	16	60
Corn, Standard	Lancaster Surecrop	168½	11	160	817½
Corn, Standard	Mercer White Cap	24	2	18	76½
Corn, Standard	Reid's Yellow Dent	46	2	46	250½
Corn, Standard	Somerset Leaming	39	3	39	422
Oats	Kanota	81½	6	66½	919
Oats	Keystone	123	8	117	2,169
Rye	Raritan	8½	3	8½	....
Soybeans	Wilson—5	21	3	21	46
Soybeans	Harbinsoy	441	22	441	2,455
Wheat	Leap's Prolific	772	31	596½	3,243
Totals		2,204⅞	124	1,634⅞	11,975½

WHITE POTATO SEED CERTIFICATION

1938-1939

A sharp decline in the number of acres entered for certification and a corresponding shrinkage in the total volume of seed produced were the most notable features of the 1938 white potato season. Only 355.5 acres were entered as compared with 643.45 acres in the previous year. A total crop of 46,910 bushels was harvested as compared with 96,468 in 1937. The decrease in acreage was a direct reflection of the low prices and slow movement of certified seed the previous year.

A strong trend to the Chippewa variety was evidenced by the entry of 149.75 acres of the 355.5 acre total. However, rejections were heaviest in this variety due to excessive amounts of virus diseases, particularly leaf roll. The increasing popularity of this variety has brought about attempts to increase stocks which contain too much disease to be considered as good parent or foundation stock.

For all varieties, 268.5 acres passed the field inspections and gave an all over average yield of 174.55 bushels per acre. The range in yield was from a low of 73 bushels to a high of 410 bushels per acre obtained in one entry of Chippewas. Excessive precipitation and the September hurricane storm were responsible for reduced yields in many cases. In the table "Summary of Weather Conditions," it will be seen that large excesses of rainfall occurred in July and September, while August and October had below normal rainfall.

The severe whipping of the plants, during the September hurricane, accounted for yields in central New Jersey counties lower than those of the southern counties. Insects, especially aphids, were more plentiful in central New Jersey than in the southern counties and added to the reduction in yield.

The accumulated excess of rainfall for the period July to October inclusive at the Bridgeton Weather Bureau Station was 7.37 inches; at the Hightstown Station, 7.79 inches. These excesses, plus the fact that the rain occurred over prolonged periods, made ideal conditions for the late blight. Furthermore, with but few exceptions, the spraying operations were neglected or poorly applied. Late blight rot was showing in the crops dug from some fields. Killing frosts did not occur until November.

Most rejections were for excessive counts of virus diseases or too much leaf roll in the presence of heavy aphid populations. Black leg and varietal mixtures added to the roguing problems of some growers. The importance of purchasing the right sort of parent or foundation stock was clearly shown by contrast. Some of the seed planted, which would have been satisfactory for the growing of a commercial crop, proved to have too high percentages of diseases or mixtures to make roguing practical. In other cases, the fields showed only slight traces and the roguing operations were reduced to a bare minimum.

Seed disinfection was performed on 52.15 per cent of the seed planted. This represents a decided increase over last year, but is still far below the percentages of previous years. Both the Plant Pathology Department of the Agricultural Experiment Station and Bureau of Plant Industry of the New Jersey Department of Agriculture strongly recommend seed disinfection for the control of certain tuber borne diseases.

Fertilization of the crop was about as usual with an average per acre application of 1,988 pounds, a slight increase over the previous years. The lightest application was 1,200 pounds and the heaviest 2,666 pounds. Five growers used double strength fertilizers on 21 acres.

Maine provided the major part of the seed planted with 51.81 per cent; New Jersey followed with 28.38 per cent; Prince Edward Isle, 17.42 per cent; and New York, 2.39 per cent.

Because of the outstanding yields obtained in the commercial crop of 1938 with New Jersey Certified Seed, a strong demand was shown early in the harvest season and sales were made early.

A REVIEW OF THE INSPECTION AND CERTIFICATION WORK OF NEW JERSEY LATE CROP WHITE POTATO SEED IN 1938

Acres Entered for Certification

County	Acres	Per Cent
Burlington	2.	.56
Camden	4.	1.12
Cumberland	167.5	47.12
Hunterdon	9.	2.53
Mercer	30.	8.44
Middlesex	46.	12.94
Monmouth	15.	4.22
Salem	82.	23.07
	<hr/> 355.5	<hr/> 100.00

Seed Source

	Bags	Per Cent
New Jersey	831	28.38
Prince Edward Isle	510	17.42
Maine	1,517	51.81
New York	70	2.39
	2,928	100.00

Seed Storage

	Bags	Per Cent
Southern New Jersey	1,381	47.17
Central New Jersey	1,547	52.83
	2,928	100.00

Seed Treatment

	Bags	Per Cent
Semesan	1,527	52.15
None	1,401	47.85
	2,928	100.00

Previous Cropping of Field

	Acres	Per Cent
Green Manure Crops	198.25	55.77
Fallow	38.5	10.83
Grain Stubble	43.5	12.24
Sod	47.5	13.36
Early Potatoes	11.25	3.16
Truck Crops	16.5	4.64
	355.5	100.00

Fertilization

Tons applied (355.5 acres)	353.41	tons
Average application per acre	1,988	pounds
Heaviest application per acre	2,666	pounds
Lightest application per acre	1,200	pounds

Rate of Plantings

Total number of bags of seed planted	150 lb. sacks 2,928
Average number of bags per acre	8.24
Heaviest number of bags per acre	15
Lightest number of bags per acre	5.33

Calculated weight of seed piece

(Spacing 11 x 32 in. - 17,968 hills per acre)

Bags per acre	Weight of Seed Piece
5.33	0.712 ounces
8.24	1.100 ounces
15.00	2.003 ounces

Yield Per Acre (Bushels)

Average yield	174.6 bushels
Lowest yield	73. bushels
Highest yield (Made by 1 grower Chippewa variety)	410. bushels

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Preliminary Expenses per Acre

Seed—8.24 bags @ \$4.50	\$37.08
Fertilizer—1,988 pounds @ \$27 per ton	26.83
	<hr/>
	\$63.91

PRODUCTION AND DISTRIBUTION

CERTIFIED CROP OF WHITE POTATO SEED OF NEW JERSEY

	1938	1937	1936
Acres of Seed Certified	268.75	514	430
Total Yield (field run) in Bushels	46,910	96,467	63,880
Average Yield per Acre in Bushels	174.55	187.68	148.04
Bags of Certified Seed Sold	14,405	18,912	11,952
Bags Sold Within the State	13,680	17,455	10,415
Bags Sold Out of State	725	1,457	1,537
Pennsylvania	725	1,452	1,534
New York	.....	5	3
(old sacks used)			
Bags Sold Untagged (tags not allowed)	140	460	1,538
Total Bags of Seed Shipped	14,545	19,372	13,490
Bags of Seed Unsold December 31	3,161	15,787	5,172
Baskets of Seed Retained for Own Use	27,840	46,396	24,805
Bushels of Seed Retained for Own Use	17,400	28,988	15,503

Note:—Seed packed and sold in 100 pound bags, in former years 150 pound bags were used.

POTATO ACREAGE ENTERED FOR CERTIFICATION 1938

County	Growers	Cobblers	Chippewas	Red Skins	Green Mts.	Katahdins	Total
Burlington	1	....	2	....	....	....	2
Camden	1	....	1	3	....	....	4
Cumberland	19*	77	62.5	15	7	5	166.5
Hunterdon	2	....	....	....	9	....	9
Mercer	4	22	8	....	....	....	30
Middlesex	6	25.25	20.75	....	....	....	46
Monmouth	2	7.5	7.5	....	....	....	15
Salem	10*	34	48	....	....	1	83
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	45	165.75	149.75	18	16	6	355.5

* Actual number of growers.

ACREAGE FAILING AND PASSING CERTIFICATION

	Acres	Per Cent
Acreage Rejected at First Inspection	14.5	4.07
Acreage Withdrawn at First Inspection	23	6.47
Acreage Rejected at Second Inspection	49.5	13.92
Total Acreage Rejected at End of Two Inspections	87	24.47
Acreage Rejected at Tuber Inspections	....	....
Acreage Withdrawn and Rejected Three Inspections	87	24.47
Acreage Passing Three Inspections	268.5	75.53

WHITE POTATO SEED CERTIFICATION INDUSTRY OF NEW JERSEY
For First 10 Years See 1929 Records

Year	No. of Growers	Acres Entered	Percentage Rejection	Varietal Distribution
1929	64	621.00	12.64	Green Mts. 19.0
				Cobblers 584.5
				Red Skins 17.5
1930	64	593.00	12.65	Cobblers 584.5
				Green Mts. 2.5
				Red Skins 6.0
1931	77	904.50	5.86	Cobblers 874.5
				Green Mts. 1.0
				Red Skins 29.0
1932	63	729.17	1.44	Cobblers 672.0
				Green Mts. 3.5
				Red Skins 53.67
1933	60	784.62	6.12	Cobblers 683.50
				Green Mts. 20.00
				Red Skins 80.50
				Katahdins .62
1934	64	773.50	19.50	Cobblers 717.50
				Green Mts. 14.00
				Red Skins 39.00
				Katahdins 2.00
				Superbas 1.00
1935	47	505.12	4.54	Cobblers 444.75
				Green Mts. 5.00
				Red Skins 31.00
				Katahdins 23.75
				Chippewas 0.625
1936	48	474.50	9.38	Cobblers 378.00
				Red Skins 79.00
				Chippewas 5.25
				Katahdins 3.75
				Warbas 3.
				Superbas 3.
				Green Mts. 2.50
1937	77	643.45	20.12	Cobblers 455.375
				Chippewas 70.75
				Red Skins 70.45
				Katahdins 29.125
				Green Mts. 17.50
1938	45	355.50	24.47	Idaho Russets 0.25
				Cobblers 165.75
				Chippewas 149.75
				Red Skins 18.
				Green Mts. 16.
Katahdins 6.				

SUMMARY OF INSPECTION RESULTS, 1938

	Burlington	Camden	Cumberland	Hunterdon	Mercer	Middlesex	Monmouth	Salem	Total
Acreage entered	2	4	166.5	9	30	46.0	15	83	355.5
Number of growers	1	1	19.0	2	4	6.0	2	10	45.0
Average number of acres per grower	2	4	8.76	4.5	7.5	7.67	7.5	8.3	7.9
Acreage rejected first inspection*	2	....	18.0	....	....	10.5	7	....	37.5
Per cent rejected first inspection	100	....	10.8	....	....	22.9	46	....	10.5
Acres rejected second inspection*	....	....	9.5	9	3	22.0	....	6	49.5
Per cent rejected second inspection	....	....	5.7	100	10	47.8	....	7.2	13.9
Acres rejected third inspection	....	....	....	....	....	....	....	....	....
Per cent rejected third inspection	....	....	....	....	....	....	....	....	....
Acreage rejected total*	2	....	27.5	9	3	32.5	7	6	87.0
Acreage certified	....	4	139.0	....	27	13.5	8	77	268.5
Per cent certified	....	100	83.4	....	90	29.3	53.3	92.5	75.5

* Includes withdrawals.

Varietal Distribution of Rejections and Withdrawals

	Acres Entered	<i>Acres Rejected and Withdrawn by Inspections</i>			Acres Certified
		First	Second	Third	
Irish Cobblers	165.75	.75	16	....	149
Chippewas	149.75	36.75	24.5	....	88.5
Red Skins	18	....	....	....	18
Green Mountains	16	....	9	....	7
Katahdins	6	....	....	....	6
Total	355.5	37.5	49.5	....	268.5

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	14	6	13	4	12	12	14	10
Heaviest daily rainfall (in inches)	1.58	0.76	2.88	1.08	2.69	0.72	4.35	1.05
Lightest daily rainfall (in inches)	.02	.03	.03	.13	.02	.01	.01	.01
Total rainfall (in inches)	9.97	1.57	9.99	1.73	9.13	1.54	11.31	2.66
Deviation from normal (in inches)	+5.52	-3.10	+6.68	-1.73	+4.21	-3.48	+8.1	-1.04
Average relative humidity at 7:30 A. M. *	79	74	79	79	82	80	83	83
Normal for month at 7:30 A. M. *	73	76	77	75	78	81	80	82
Per cent of possible sunshine *	58	70	55	74	63	75	55	69
Deviation from normal (per cent)	-6	+8	-8	+11	+3	+14	-10	+11
Highest temperature reached	98	97	89	87	92	96	85	86
Average of the high temperatures	88.2	88.7	77.7	69.5	85.1	87	74.5	68.2
Normal of the high temperatures	87.5	85.3	79.3	68.8	85.3	82.4	76.9	66
Lowest temperature reached †	55	54	41	37	50	51	39	36
Average of the low temperatures	67.6	66.4	56.2	45.7	64.3	63.8	52.5	44.5
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 given as being more or less representative of the sections 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, Oct. 22; Hightstown, Oct. 14. Earliest—Sept. 22 (both)

GROWERS OF CERTIFIED TOMATO SEED AND ACREAGES CERTIFIED
1938

Seedsman	Stokes- dale	Pritchard	Bonny Best	Marglobe	Valiant	J.T.D.	Rutgers	Break O'Day	Total
Campbell Soup Company	....	44	....	348	....	48	201	....	641
Edgar Hurff	....	102	10	46	....	....	215	....	373
Francis Stokes	2	....	....	479	2	....	144	....	627
Joseph White	....	....	....	240	....	....	195	....	435
George R. Pedrick	....	....	....	....	....	....	....	5	5
Total	2	146	10	1,113	2	48	755	5	2,081

TOMATO SEED CERTIFICATION PRODUCTION FOR 1938

Seedsman	<i>Pounds of Seed</i>								
	Stokes- dale	Pritchard	Bonny Best	Marglobe	Valiant	J.T.D.	Rutgers	Break O'Day	Total
Edgar Hurff	....	4,200	500	2,760	....	....	11,000	....	18,460
Campbell Soup Company	....	436	....	2,895	....	....	3,159	....	7,490
Francis Stokes Company	100	....	....	13,500	50	....	4,400	....	18,050
George H. Pedrick & Sons	....	....	....	....	....	....	....	191	191
Joseph White Company	....	....	....	10,500	....	....	9,800	....	20,300
Total	100	4,636	500	29,655	50	....	28,359	191	64,491

TOMATO SEED CERTIFICATION, 1921 - 1938

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	Glovel	Total
1921	84	....	44	....	....	....	....	....	....	....	....	132
1922	87	....	112	....	....	....	....	....	....	....	....	199
1923	103	....	113	....	....	....	....	....	....	....	....	216
1924	117	....	210	....	....	....	....	....	....	....	....	327
1925	344	....	238	....	....	....	....	....	....	....	....	582
1926	274	....	171	....	....	....	....	....	....	....	....	445
1927	207	110	121	431	....	....	....	....	....	....	....	869
1928	208	55	150	329	....	....	....	....	....	....	....	742
1929	133	123	87	360	....	....	....	....	....	....	....	703
1930	363	162	250	620	....	18	....	....	....	....	....	1,413
1931	219	292	106	689	....	127	....	....	....	....	....	1,433
1932	34	61	18	562	....	....	....	....	....	....	....	675
1933	12	....	15	543	....	....	....	....	....	99	....	669
1934	28	155	91	2,046	....	2	....	....	....	182	....	2,504
1935	5	247	61	1,520	....	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

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STRAWBERRY PLANT INSPECTIONS

Working in cooperation with the Departments of Plant Pathology and Horticulture of the New Jersey Agricultural Experiment Station and with county agricultural agents of the state, the Bureau of Plant Industry made inspections of strawberry plantings requested by the growers. The purpose of the inspections was to establish the presence of or freedom from the red stele disease. Inspections fell into two classes: Farmers who wished to continue their own stocks if they were free of the disease, and growers who wished to sell plants. All growers who sold plants were given special certificates for the purpose, if the stocks were free of the disease. This inspection and certification conformed to the quarantine regulations promulgated by the State Board of Agriculture restricting the shipment of plants in New Jersey except where they came from inspected fields and were certified to be free of the red stele disease.

In all, the plantings on 408 farms were inspected, which involved 1,138 acres. Of these, 39 cases of the disease were found. Results of the inspections by counties appear in the table following. Several meetings of strawberry growers were held jointly by members of the staff of the Experiment Station and Department of Agriculture with the county agricultural agents. Talks were given covering the nature of the disease, the damage, control and the importance of planting certified disease-free plants. Growers having diseased fields were given specific instructions for the elimination of the disease and for making a fresh start in strawberry growing.

The loss suffered by New Jersey growers, whose fields had the disease, varied from a mere trace to complete loss of the field. Each of the 39 cases found were traceable to out-of-state purchases of plants, either one or several years removed from the source.

SUMMARY OF STRAWBERRY PLANT INSPECTIONS
Spring of 1939

County	Number of Farms	Acreage Inspected	Number of Cases of Red Stele Found
Atlantic	23	61	2
Bergen	28	30 $\frac{3}{4}$	1
Burlington	20	115	1
Camden	12	73 $\frac{1}{4}$	3
Cape May	14	25 $\frac{7}{8}$	1
Cumberland	135	434 $\frac{1}{2}$	1
Gloucester	24	110 $\frac{1}{2}$	....
Hunterdon	3	2 $\frac{1}{5}$	1
Mercer	27	51 $\frac{1}{8}$	9
Middlesex	47	121 $\frac{3}{8}$	13
Monmouth	33	67	4
Morris	5	5 $\frac{1}{4}$	1
Ocean	6	9	1
Passaic	3	8 $\frac{1}{4}$	....
Somerset	1	$\frac{1}{8}$	....
Sussex	26	19	1
Warren	2	3	....
Totals	408	1,138$\frac{1}{5}$	39

STATE DEPARTMENT OF AGRICULTURE

NURSERY INSPECTION SERVICE

Certificates of inspection were issued for the year ending June 30, 1939, to a total of 645 nurseries. Certificates are issued 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	130
Spruce Gall Aphid	72
Juniper Webworm	50
Bagworm	44
Rhododendron Lace Bug	36
Oyster Shell Scale	33
European Pine Shoot Moth	30
Pine Leaf Scale	22
Euonymus Scale	21
Boxwood Leaf Miner	13
Azalea Lace Bug	9
European Elm Scale	7
Pine Sawfly (<i>Acantholyda erythrocephala</i>)	6
San Jose Scale	6
Mottled Willow Borer	5
Pine Tip Moth (<i>Rhyacionia frustrana</i>)	5
Scurfy Scale	4
Rose Scale	2
Bronze Birch Borer	1
Lilac Borer	1
Peach Borer (<i>Conopia exitiosa</i>)	1
White Pine Weevil	1

In all, there were 229 nurseries in which 499 infestations were found, and in which clean-up measures were required before certificates were issued.

DEALERS' CERTIFICATES

Certificates were issued to 98 dealers in nursery stock for the year ending June 30, 1939. These dealers signed agreements to purchase stock only from listed certified nurserymen.

FOREIGN STOCK INSPECTIONS

There were 25 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	Barrels	Bales	Bundles
Fall of 1938	472	7	4	104
Spring of 1939	1,263	4½	402	4
Totals	1,735	11½	4	506	4

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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 our 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 423 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. Fifty-nine such calls were made during the year ending June 30, 1939.

CANADIAN NURSERY STOCK INSPECTIONS

In compliance with Canadian regulations it was necessary to make 148 inspections of plant material for shipment from New Jersey into Canada.

NARCISSUS BULB INSPECTION

In March, 1939, sterilization of narcissus bulbs was supervised for nine growers who were desirous of making shipments into states requiring inspection and treatment. Seven of the growers were located in Union and one each in Morris and Passaic counties.

NEW REGULATIONS

ADDITIONAL REQUIREMENT FOR THE MOVEMENT OF NURSERY STOCK INTO
NEW JERSEY

On February 1 the following order of the Board of Agriculture of New Jersey became effective:

"All nurserymen, dealers, or other persons residing or doing business outside of New Jersey and desiring to ship nursery stock into New Jersey, shall file once each year with the New Jersey Department of Agriculture, previous to shipments, a signed copy of their original current resident state certificate of inspection."

It is expected that this order will afford a better check on incoming nursery stock.

QUARANTINE ON ACCOUNT OF RED STELE DISEASE OF STRAWBERRIES

In order to prevent the spread of the serious red stele disease of strawberries, the Board of Agriculture enacted a quarantine effective February 14, 1939, as follows:

"Regulation 1.

"Strawberry plants may be brought into the State of New Jersey or moved from point to point within the State only after they have been inspected by an official state inspector of the state in which they were grown, and found to be free from the so-called Red Stele disease (*Phytophthora* sp.), also known as Red Core, Brown Stele or Brown Core.

"Regulation 2.

"All shipments of strawberry plants must have attached thereto a copy of a special certificate issued by the proper state official of the state of origin, attesting that the plants contained in the shipment were inspected by an official state inspector and found to be free of the Red Stele disease. The State Department of Agriculture reserves the right to return to the point of origin any strawberry plants received in the State of New Jersey without such a certificate."

The nursery inspectors have been active in making inspections for enforcement of the quarantine.

QUARANTINE ON ACCOUNT OF THE VIRUS DISEASE KNOWN AS THE "X"
DISEASE OF PEACH TREES

On January 17, 1939, the State Board of Agriculture placed a quarantine on the movement of peach and choke-cherry stock from certain states where the virus disease of peach designated as "X" disease is known to be present. The disease has totally ruined many orchards in Connecticut and New York, and it is hoped that through enactment of this quarantine introduction of the virus into New Jersey may be prevented. A program of scouting has been planned to make certain that the disease, first observed in Connecticut in 1933, has not found its way into this state. There is every indication that the virus occurs only where there is an abundance of chokecherry (*Prunus virginiana*) in the vicinity of the orchard. If this is the case, then the problem of preventing the establishment of the disease in New Jersey should not be difficult. Chokecherry is common only in the northern part of the state, and it is not known to be present in the commercial peach growing area. A copy of the quarantine is reproduced below.

"Whereas, the fact has been determined by the State Board of Agriculture that a virus disease injurious to peach trees, known as the "X" disease, which is harbored and spread by wood of peach trees (*Prunus Persica*, of all varieties), and by chokecherry (*Prunus virginiana*), new to and not prevalent or distributed in the State of New Jersey, exists in the states of Massachusetts, Connecticut, Rhode Island and New York, all of which are included in and hereafter referred to as the infected territory;

"Now, therefore, we the New Jersey State Board of Agriculture, under authority conferred by Title 4, Chapter 7, Revised Statutes of the State of New Jersey, 1937, do declare the same to be epidemic, and do hereby prohibit, from now on, the entry into New Jersey, from the infected territory, of all budwood, scions and other parts of and all varieties of peach trees (*Prunus Persica*) including flowering forms, and all plants or parts thereof of the chokecherry (*Prunus virginiana*). It is further ordered that all shipments of peach trees, propagating wood, scions and other parts of peach trees consigned to New Jersey from any part of the United States except the infected territory, be plainly marked with their point of origin, i.e., the exact locations where the tree and all parts thereof were grown, as a requisite for entry into New Jersey."

NEW REGULATIONS FOR THE CONTROL OF WHITE PINE BLISTER RUST

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, the movement of five-leaved pines (*Pinus* sp.) and currant and gooseberry plants (*Ribes* sp. and *Grossularia* sp.) is regulated as follows:

1. Five-leaved pines, except such pines or their parts visibly infected with blister rust, may be shipped into New Jersey.

2. The shipment of *Ribes nigrum* (European Black Currant); *R. bracteosum* and *R. petiolare* (wild, western currants) into New Jersey is prohibited.

3. The shipment of currant and gooseberry plants, other than those mentioned in No. 2 above, is allowed into New Jersey, provided that the consignor first obtain from the New Jersey Department of Agriculture a "control-area permit" and provided that this permit be attached to the consignment destined for this state.

4. The "control area" is described as follows: Montague, Sandyston, Wallpack and Vernon townships in Sussex County; West Milford, Ringwood, and Wanauque townships in Passaic County, and Jefferson Township in Morris County.

In applying for the control-area permit the consignor is required to inform the Department of Agriculture of the number of plants to be shipped, the Latin names of such plants, the names and addresses of the consignees, and the approximate dates of shipment.

Up to July 1, 1939, a total of 244 permits had been issued to out-of-state shippers.

AGREEMENT WITH PENNSYLVANIA IN THE MATTER OF SHIPMENTS OF NURSERY STOCK INTO THE COMMONWEALTH

In October, 1938, the Pennsylvania plant inspection authorities agreed to waive their requirement that New Jersey stock moving into the Commonwealth bear a Pennsylvania permit in addition to a New Jersey certificate. This requirement had caused several New Jersey nurserymen trouble in the Pennsylvania courts.

PEACH CANKER SURVEY

During the summer of 1938, several peach orchards in the Hammonton area showed serious injury to the trees through canker diseases. Pathologists of the Agricultural Experiment Station investigated, and, in the spring of 1939, the Department of Agriculture was asked to survey the peach growing area of the state so that the area of infection by these diseases might be determined. On May 15, two men were hired for a six-week period for this project. There are two separate canker diseases involved, as well as a third organism, brown rot. Spray damage, frost damage and other outside factors were also constantly met with, and at the start there was confusion in making definite identifications in the field. The Experiment Station was helpful throughout all of the survey, and there is every reason to believe that the data will prove valuable in the establishment of a program of control.

The canker diseases are:

1. Loose Bark Canker—*Cytospora* (in the imperfect stage).
Valsa (in the perfect stage).
2. Tight Bark Canker—*Frusicoccum*.

The loose bark canker has been known for some time. In the past it has proved troublesome in Canada and Missouri.

On the other hand, *Fusicoccum* (the tight bark canker) is not mentioned in the literature, although cultures were received from Canada where it was isolated from peach cankers by pathologists. The same organism also was isolated from cankers obtained from Rhode Island.

In making the survey, the scouts used the Hammonton area as a center of infection, covering the orchards, township by township, until the disease could no longer be found. In the following summary of the survey, the percentages of infection are estimates of the percentages of cankered twigs per diseased tree; the cankers being either loose bark or tight bark or both.

SUMMARY OF PEACH CANKER SURVEY

County	No. of Orchards Inspected	No. of Trees Inspected	No. of Orchards Infected	No. of Trees in Infected Orchards	No. of Trees Infected	Less than 5%	<i>Per Cent of Infection</i>								
							5%	10%	20%	30%	40%	50%	60%	70%	80% +
Atlantic	177	194,792	34	51,907	15,788	1,510	5,083	2,950	1,210	2,220	2,305	200	....	....	310
Cumberland	31	54,790	3	10,715	3,025	335	....	....	2,690	....	....	....	....	....	....
Camden	61	81,940	2	5,645	1,760	760	1,000	....	....	....	....	....	....	....	....
Ocean	1	1,230	1	1,230	720	....	....	....	75	....	175	....	....	350	120
Gloucester	77	172,870	1	1,930	820	....	....	820	....	....	....	....	....	....	....
Burlington	14	36,936	....	....	....	....	....	....	....	....	....	....	....	....	....
Total	361	542,558	41	71,427	22,113	2,605	6,083	3,770	3,975	2,220	2,480	200	....	350	430

The following are some observations which are based on the experience of the men in the field.

1. The vitality of the tree does not seem to influence its susceptibility to the two canker diseases.
2. The canker diseases, while they might well be a potential threat to the peach growing industry, are not yet so serious as to warrant destroying orchards. In the Hammonton area, especially, some growers have considered this step.
3. The most serious infections have been found on trees five years old or older.
4. The cankers, loose bark, tight bark and brown rot, are found together or separately.
5. The loose bark and tight bark cankers appear to be of equal importance and generally the one is as prevalent as the other.

CERTIFIED PEACH BUDWOOD

The Department of Agriculture was requested in the summer of 1938 to initiate a program which would have as its purpose the supplying of peach budwood to propagators, which budwood would be certified to be true-to-name, as well as free of injurious insects and plant diseases. Accordingly a procedure was established under which a specialist of the Agricultural Experiment Station would inspect peach trees at the time of fruit ripening and certify as to the variety of these trees. Each tree so designated is then mapped and an inspector of the Bureau of Plant Industry observes the cutting and packing of the budwood, inspects also for freedom from insects and diseases, and issues a certificate.

This budwood should have a strong demand in that many very desirable varieties of peaches have been proven at the Experiment Station, and the program makes buds of these varieties available. The orchardist is able to charge a comparatively high price for the buds. In all, there are now certified sources of budwood for the following varieties:

Triogem No. 70
 Goldeneast No. 87
 Summercrest No. 94
 Newday No. 79
 Goldenglobe No. 73
 (Unnamed) No. 71

In the certification, strict rules are adhered to, so that the purchaser of the budwood has little difficulty in getting good propagation results.

STATUS OF THE SAWFLY (*Acantholyda erythrocephala*) OF PINUS SP.

The State of New Jersey was scouted in 1938 by nursery inspectors and the gipsy moth inspectors to determine the distribution of this new defoliator of pines. No serious infestation was found, although the insect is

widespread, having been recorded as far south as Livingston Park in Middlesex County, as far west as Flemington and Phillipsburg, and north and east at Swartswood and Alpine. It was necessary to spray for the control of this insect in only a few nurseries.

STATUS OF THE SAWFLY (*Neodiprion sertifer*) OF PINUS SP.

In 1939 this insect was again present in outbreak proportions in the vicinity of Bedminster Township in Somerset County. Forest plantations on estates in this area suffered serious injury, red pine (*Pinus resinosa*) being completely defoliated in many cases. With the cooperation of the Department of Conservation and Development, owners of some of the larger plantations in the area were advised of the outbreak and of control measures which should be taken. In accordance with recommendations from the Bureau of Plant Industry, a program of autogiro spraying was initiated by the owners on some 125 acres. Several factors handicapped this spraying, the kill of larvae varying from about 90 per cent to about 50 per cent, but it is believed that the \$7.25 per acre (cost of autogiro spraying) was, in general, a worthwhile investment, and that this sawfly species should be less prevalent next year. The State Department of Conservation and Development is anxious to organize a good spraying program next year for the control of the insect.

It was of interest to find that this sawfly is capable of feeding and developing on western yellow pine (*Pinus ponderosa*), an important tree of the western forests, and that it is also capable of feeding on the needles of shortleaf pine (*Pinus echinata*), an important species in southern New Jersey. It is not yet known whether the insect is capable of laying eggs on this species, but if it can, and if it becomes established in southern New Jersey, it might cause a change in the appearance of that section of the state.

THE WHITE-FRINGED WEEVIL (*Naupactus leucoloma*)

Inspections were made during the year on plant material shipped to this state from those sections of the country now known to be infested with the white-fringed weevil. Although no signs of the presence of the insect were reported, it cannot be definitely determined that the insect is absent. Some of the shipments reported dated back to 1933, and in many cases the plants could not be found. The insect is so far confined to Alabama, Florida, Louisiana and Mississippi, and no effort is being spared by the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture to prevent its spread and bring about its control.

THE GIPSY MOTH

Gipsy moth work during the fiscal year ending June 30, 1939, continued in Bergen, Hunterdon, Middlesex, Morris, Passaic, Somerset, Sussex, Union, Ocean and Warren counties. Soon after July 1, 500 gipsy moth assembling

cages were distributed in Morris, Sussex, Ocean and Warren counties. The cage work this season was planned as a check along the New York and Pennsylvania state lines, because several infestations were located less than 25 miles from the New Jersey borders in these two states. It was a poor season for cage work. Heavy rains probably caused the adult moths to be more or less inactive, and the cotton containing the gipsy moth attractant became wet, thus retarding its escape. Traps were carefully checked until September 1, when they were removed. No adult gipsy moths were captured by any of the cages.

LOCATIONS OF CAGES BY COUNTIES AND TOWNSHIPS

County	Township	No. of Cages
Morris	Mendham	48
Morris	Morris	31
Morris	Randolph	49
Morris	Hanover	5
Morris	Denville	2
Sussex	Wallpack	40
Sussex	Hardwick	20
Sussex	Sandyston	40
Sussex	Montague	46
Sussex	Wantage	62
Sussex	Vernon	59
Sussex	West Milford	39
Ocean	West Long Branch	
Ocean	Deal Beach	19
Warren	Pahaquarry	39

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After the cages were removed, the state agents made a survey of some of the northern townships for two imported species of saw flies which attack pines in New Jersey. This was done in conjunction with the gipsy moth work. The sawflies were found in almost every section scouted.

When the foliage dropped sufficiently to allow regular scouting for the gipsy moth, the men were assigned sections in the northern and northwestern part of the state, along the New York and Pennsylvania state lines, in which states there are infestations near the New Jersey border. A strip from opposite the Delaware Water Gap north to High Point, and from there east to West Milford Township, was covered. The terrain is heavily wooded, growth consisting of several species of oak, birch and mixed deciduous stands, all favorable for the gipsy moth. The scouting was of a very rough nature, necessarily so because of the small crew available. However, it is not believed that an infestation of any size would have escaped notice.

In addition to the above section scouted, much valuable checking work was done within the original infested area of some 400 square miles. Also some of the nurseries within the old infested section were scouted for the gipsy moth. Inclement weather caused some interruption of scouting work in December, February and April, but as a whole, the scouting season was satisfactory. A close watch must be kept along the borders of both Pennsylvania and New York states, at least until the authorities of these states do considerable scouting work between the known infestations and the New Jersey borders.

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The Department of Agriculture is indebted to the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture which furnished 500 vials of gipsy moth attractant, cans, tanglefoot, cotton, etc. for the assembling cage work in the state. The cage work is valuable.

ANNUAL SUMMARY OF SCOUTING WORK

Work Performed by Regular State Agents

Town	<i>Open Country Scouted</i>			Shade Trees	Woodland Acres Scouted	Number of Infesta- tions
	Miles of road	Apple Trees	Oak Trees			
Bergen County						
Franklin	2	.....	.....	342	941	.....
Hohokus	.....	.....	.....	.....	10	.....
Palisades	5	.....	.....	385	401	.....
Teaneck	1	.....	.....	210	11	.....
Hunterdon County						
Raritan	.....	160	.....	520	.....	.....
Readington	.....	.....	.....	.....	48	.....
Middlesex County						
Piscataway	1	.....	.....	312	107	.....
South Brunswick	5	.....	.....	160	500	.....
East Brunswick	.....	.....	.....	.....	85	.....
Morris County						
Byram	.....	.....	.....	.....	25	.....
Chester	.....	.....	.....	3	108	.....
Hanover	.....	.....	.....	.....	438	.....
Mendham	.....	50	.....	115	574	.....
Passaic County						
Pompton	12	50	.....	1,960	665	.....
Wayne	1	.....	.....	312	142	.....
West Milford	.....	.....	.....	540	607	.....
Somerset County						
Bridgewater	8	.....	.....	760	712	.....
North Plainfield	.....	.....	.....	1,600	554	.....
Warren	.....	.....	.....	300	216	.....
Sussex County						
Montague	.....	80	.....	1,025	746	.....
Sandyston	6½	.....	.....	620	604	.....
Vernon	.....	280	75	115	378	.....
Wantage	.....	55	.....	325	382	.....
Union County						
Fanwood	1	.....	.....	275	226	.....
Warren County						
Alamuchy	.....	.....	.....	300	20	.....
Hardwick	4	.....	.....	.....	40	.....
Kingwood	.....	.....	.....	.....	15	.....
Pahaquarry	8	.....	.....	.....	.....	.....
Totals	54½	675	75	10,179	8,555	.....

BEE INSPECTION SERVICE

Requests for regular inspection of apiaries for bee diseases continued throughout the season. A number of commercial beekeepers asked that certain areas of Gloucester, Morris, Sussex, Somerset, Warren, Hunterdon and Mercer counties be scouted during the winter months. This type of work has had a very noticeable effect in the elimination of neglected colonies that were proven to be the source of infection in numerous cases. The burning of diseased colonies found at this time of the year eliminates the danger of another outbreak of disease in the immediate vicinity during the spring months.

The usual supervision was exercised in the vicinity of queen rearing apiaries. These areas were given very careful inspection to guard against an outbreak of contagious bee diseases.

It was found that queens from three races of bees are being produced commercially in New Jersey. They are Italians, Caucasians and Carniolans. All three races have been found to meet the needs of commercial beekeepers.

Each queen breeder is exercising considerable care and selection in the rearing of his queens, since this is essential to the improvement of the bee industry in New Jersey.

APIARY INSPECTIONS

During the fiscal year 1938-1939, 691 apiaries were visited; 7,376 colonies of bees and 1,178 nuclei of bees were examined. Ninety-nine were housed in plain boxes; 87 colonies were found with immovable combs.

Information on transferring colonies from box hives and immovable combs to movable combs was given out through printed circulars and by field demonstrations.

American foulbrood was found in 143 apiaries; 411 colonies were infected. European foulbrood was found in 13 apiaries; 21 colonies were infected.

The failure of some beekeepers to carry out the instructions relative to American foulbrood made it necessary to destroy 72 colonies of bees infected with this disease.

MICROSCOPIC DIAGNOSIS

One hundred and six smears of dead bee brood were received by mail and diagnosed microscopically. Sixty-five of these samples showed the presence of *B. larvae*, the organism which causes American foulbrood. Nine showed the presence of *B. pluton*, the organism which causes European foulbrood. Thirty-two showed no evidence of any disease organisms. The diagnosis of smears of dead bee brood continues to play an important part in bee disease control work.

CERTIFICATES ISSUED

Eleven queen rearer's certificates were issued as follows:

Albert G. Hann, Glen Gardner, July 29, 1938, and May 2, 1939, rearing Carniolans and Caucasians.

Elmer G. Carr, Lanning Ave., Pennington, July 21, 1938, and May 4, 1939, Italians.

Henry Brown, Cape May Court House, August 1, 1938, and May 17, 1939, Italians.

H. N. Connors, Stockton, R.D. 1, August 4, 1938, and May 8, 1939, Caucasians and Italians.

William Hayes, Far Hills, August 5, 1938, and May 16, 1939, Italians.

Robert Spicer, Wharton, May 25, 1939, Italians.

Three certificates were issued for shipping bees to Florida for the winter. They were:

Cape May County	146 colonies
Cumberland County	577 colonies
Salem County	214 colonies

These colonies were returned in May for the pollination of apples, pears, blueberries, cranberries and lima beans. Each year there is an increase in the number of bees used for pollination.

Seven certificates were issued permitting the shipment of colonies of bees to other states.

Two certificates were issued for certified honey, to the Estate of Richard D. Barclay, Riverton, and E. A. Koplín, Charles St., Iselin.

MEETINGS AND DEMONSTRATIONS

Nine field meetings were held covering various phases of beekeeping. Included also was the diagnosis of the different bee diseases in their various stages of development.

Considerable interest was shown by the public in the honey exhibited at the Flemington Fair, August 30 to September 5, 1938, and the Trenton Fair, September 26 to October 1. This, apparently, is one means of educating the public to use New Jersey honey.

APIARY INSPECTIONS BY COUNTIES, JULY 1, 1938 TO JUNE 30, 1939

County	Apiaries	Colonies Inspected	Nuclei Inspected	Box Hives	Cross Combed	Apiaries A.fb.	Colonies A.fb.	Apiaries E.fb.	Colonies E.fb.	Burned	Smears
Atlantic	6	43	.....	.....	5	.....	.....	.....	.....	.....	6 neg. 1 A.fb.
Bergen	49	333	.....	.....	8	13	52	1	1	1	8 A.fb.
Burlington	39	437	.....	1	6	7	15	8	16	4	2 neg. 6 A.fb. 6 E.fb.
Camden	7	62	.....	.....	.....	2	12	.....	.....	.....
Cape May	8	242	379	.....	.....	3	7	.....	.....	.....	1 neg. 1 A.fb.
Cumberland	42	770	125	10	9	7	34	.....	.....	.....	8 A.fb. 2 neg.
Essex	27	145	.....	.....	3	6	7	.....	.....	.....	4 A.fb. 7 neg. 1 E.fb.
Gloucester	21	215	.....	.....	5	8	22	.....	.....	.....	1 A.fb.
Hunterdon	99	1,700	376	6	6	14	28	.....	.....	2	2 A.fb. 1 neg.
Mercer	38	546	186	.....	16	11	31	4	4	.....	2 A.fb. 1 E.fb.
Middlesex	63	519	.....	46	6	15	45	.....	.....	4	8 A.fb. 2 neg.
Monmouth	14	226	.....	3	5	2	2	.....	.....	6	2 A.fb.
Morris	101	800	47	8	3	22	66	.....	.....	21	11 A.fb. 1 E.fb.
Ocean	1	6	.....	.....	.....	.....	.....	.....	.....	.....	1 A.fb.
Passaic	23	82	.....	.....	.....	2	3	.....	.....	1	
Salem	3	180	35	.....	.....	.....	.....	.....	.....	.....
Somerset	72	598	30	16	5	19	68	.....	.....	33	5 A.fb. 7 neg.
Sussex	11	47	.....	2	5	1	1	.....	.....	.....
Union	32	154	.....	.....	.....	9	16	.....	.....	.....	4 neg. 3 A.fb.
Warren	35	271	.....	7	5	2	2	.....	.....	.....	2 A.fb.
Total	691	7,376	1,178	99	87	143	411	13	21	72	65 A.fb. 9 E.fb. 32 neg.

DUTCH ELM DISEASE ERADICATION PROJECT

The Dutch elm disease eradication project, as in past years, was carried on jointly by the State and Federal Departments of Agriculture with headquarters at Bloomfield, N. J. The broad policy continues to be the same, namely, the rapid detection and eradication of diseased elms. However, some significant methods, designed to attain the ultimate elimination of the disease (*Graphium ulmi*) more efficiently, have been introduced during the past season.

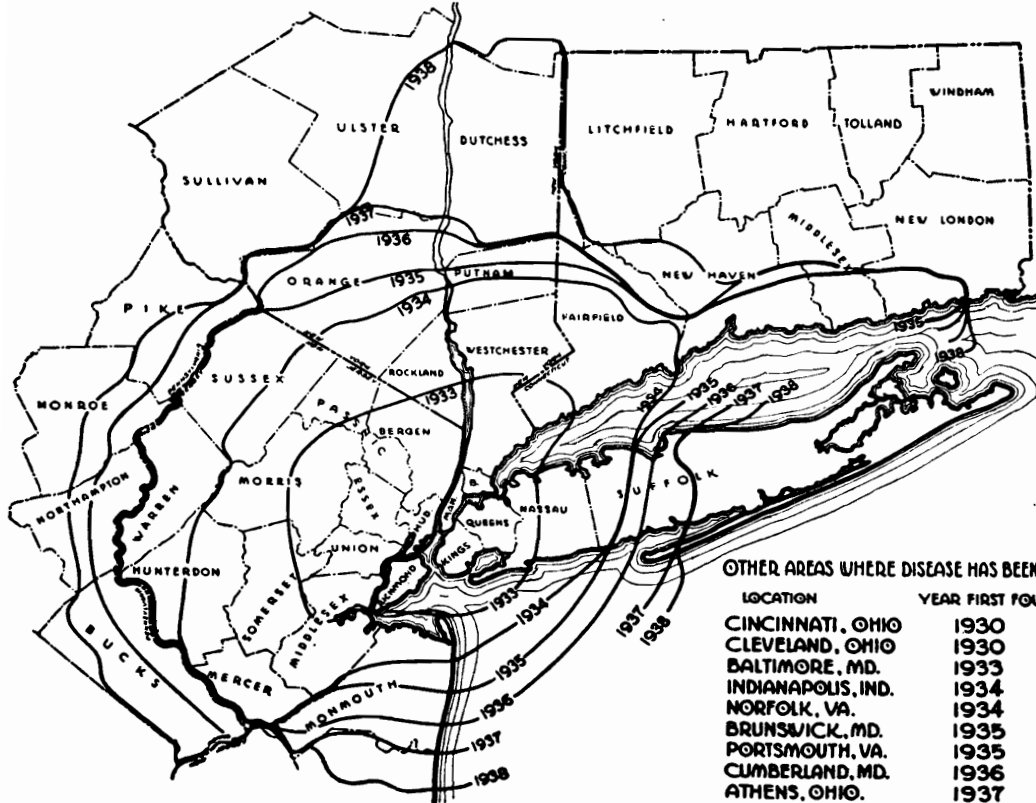
In New Jersey, the infected area increased slightly in Monmouth, Mercer and Hunterdon counties to a grand total of 4,112.37 square miles for the state. This naturally extended the protective 10-mile zone outward to include portions of Ocean and Burlington counties in southern New Jersey. The following townships are now being scouted for the first time:

Burlington County
 Bordentown (City)
 Bordentown, Twp.
 Fieldsboro
 Chesterfield
 North Hanover
 New Hanover
 Wrightstown
 Florence

Ocean County
 Plumsted
 Jackson
 Lakewood
 Brick

To date no actual cases of the Dutch elm disease have been located in the above municipalities, although beetle-infested trees have been removed. The map which follows presents the present major work area in terms of infective and protective zones. In New Jersey the work area for June 30, 1939 is shown on the following map.

DUTCH ELM DISEASE MAJOR WORK AREA 1933-1938



OTHER AREAS WHERE DISEASE HAS BEEN FOUND

LOCATION	YEAR FIRST FOUND
CINCINNATI, OHIO	1930
CLEVELAND, OHIO	1930
BALTIMORE, MD.	1933
INDIANAPOLIS, IND.	1934
NORFOLK, VA.	1934
BRUNSWICK, MD.	1935
PORTSMOUTH, VA.	1935
CUMBERLAND, MD.	1936
ATHENS, OHIO.	1937
WILEY FORD, W. VA.	1937

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DUTCH ELM DISEASE AREA IN NEW JERSEY

	Infected	Protective	Total
June 30, 1939	3,610 sq. mi.	502 sq. mi.	4,112 sq. mi.
June 30, 1938	3,031 sq. mi.	807 sq. mi.	3,838 sq. mi.
During year	579 increase	305 decrease	274 increase

Of the increase of 274 square miles, 74 were added in Burlington County in addition to 200 square miles in Ocean County.

Throughout the entire major work area, a known total of approximately 1,000 square miles has been eliminated as being elm free. In New Jersey this amount of the work area has been removed from the activities of this project because all elms have been eliminated. It might be added that certain portions of this total were naturally elm free.

For the second successive year aerial scouting was conducted by means of United States Department of Agriculture autogiros in the rough, mountainous sections of Morris, Passaic, Sussex and Warren counties. By cruising at low speed and altitude over these areas, symptomatic elms were located and mapped so that the auto-foot scouting crews could proceed directly to those elms that showed poor vitality and conduct thorough sampling. A total of 905 square miles was scouted last year in New Jersey by this method, thus saving a great amount of time and expense. The ground crews examined 1,010 trees and tagged 378, resulting in 47 confirmations of Dutch elm disease.

Before presenting a report and discussion pertaining to the actual diseased elm totals and conditions, it is interesting to note the findings of the laboratory culture tests resulting in determinations other than *Graphium ulmi*. The following table summarizes the identification work for the calendar years shown.

NEW JERSEY COLLECTIONS AND IDENTIFICATIONS

Year	Graphium	Cephalosporium	Verticillium	Miscellaneous	Sterile	Total
1932	.....	.....	.....	1	.....	1
1933	740	111	128	192	293	1,464
1934	4,377	1,269	305	798	919	7,668
1935	4,113	4,780	287	4,539	906	14,625
1936	5,793	12,761	602	6,989	1,142	27,287
1937	4,830	7,912	259	10,065	2,654	25,720
1938	16,248	9,816	2,184	12,187	1,977	42,412
1939	18,277	15,514	785	5,378	692	26,193

By referring to the number of actually diseased trees discovered and eradicated in New Jersey during the calendar year 1938, it is evident that the total has increased over three-fold. The total number of diseased trees found in New Jersey was 16,248 as compared to 4,830 the previous year. All counties were higher during 1938, as shown by the following table, which includes the totals of previous years.

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County	Sq. Miles	1933	1934	1935	1936	1937	1938	Total
Bergen	234.89	13	691	609	718	592	1,662	4,285
Essex	126.00	609	1,462	1,143	938	398	1,930	6,480
Hunterdon	437.00	.....	.....	6	113	264	2,587	2,970
Hudson	43.74	9	32	16	3	4	7	71
Mercer	225.94	.....	1	.....	3	3	748	755
Middlesex	309.02	2	100	230	273	130	641	1,376
Monmouth	475.35	.....	.....	3	8	6	43	60
Morris	480.19	8	497	705	1,304	1,122	2,126	5,762
Passaic	207.86	38	600	360	670	392	682	2,742
Somerset	305.20	3	96	494	1,015	1,300	3,552	6,460
Sussex	526.30	.....	.....	10	9	28	174	221
Union	102.10	58	898	534	725	500	1,751	4,466
Warren	364.05	.....	.....	3	14	91	345	453
Totals	3,837.64	740	4,377	4,113	5,793	4,830	16,248	36,101

At first glance this seems to be an alarming increase, but it has been definitely ascertained that the total *Graphium ulmi* trees found outside the silviced areas was 5,390 cases, which is only 560 cases more than the grand total for 1937.

While the silvicide treatment tended to triple the disease, it was only in certain non-landscape sections and involved small trees mainly. These sections cannot become sources of infection in future years because at present the bark of these trees is loose and unattractive to beetle colonies.

At certain times during the year, the activities of the United States Department of Agriculture were curtailed because of diminishing WPA funds. The majority of the actual work was and is being done by security wage workers, whose work period consists of only 16 days each month. The laborless days, as well as cessations due to lack of funds, proved to be a handicap over which there was no control.

During the summer of 1938, a practice of tagging beetle infested trees for eradication was introduced. This type of tree was located, tagged, cleared, and eradicated concurrently with the *Graphium ulmi* work, so far as practicable. Still another innovation was the pruning, by the United States Department of Agriculture, of trees containing only beetle-infested limbs. This program met with high favor from the respective property owners. Since the clearance and eradication of these beetle infested and hanging branches was relatively simple, it is felt that the benefits derived greatly exceeded the effort involved.

The fall and winter program, as in the past, consisted of sanitation and clear cutting work. During the last year, the results were the same but accomplished by a more efficient method, namely, the non-scouting method. This procedure eliminated one entire step, that of scouting and tagging dead trees for eradication later.

In wooded and rural areas, the New Jersey Department of Agriculture visited all owners to obtain approval for dead tree eradication before the crews entered the section. Then the crews would scout and eradicate all dead trees at one time. This system, besides being more economical, saved

a great deal of time. Both the property owners and the officials of the Departments of Agriculture were highly pleased by the results secured from the non-scouting work last year.

A total of 244,592 acres was cleared for this work by the State Department of Agriculture and completed by the Federal Department. At the same time, a total of 15,738 acres was indicated for clear cutting of all elms. The clear cutting is done at "hot spots" of infection in order not only to control these spots, but also to eliminate the necessity of future scouting in these regions.

The question of "wood for fuel" was handled differently this year. First, the amount of wood released for fuel was limited to a definite quantity that the owners could be expected to consume by April 1, 1939. Second, the check-up of these wood piles was commenced earlier than ever before, in February. Third, a follow-up letter was sent to each holder of a fuel agreement, in early spring, urging him to use up his fuel so that it would not be necessary to return and seize it. This combination of methods had such favorable results that very little time had to be spent checking fuel piles after April.

Throughout the state, during April and May, beetle trap logs were left in approved locations in order to attract *Scolytus* to them for burning later. For this purpose, green, beetle-free logs were piled in a pyre. The results obtained indicated the benefits to be derived from this procedure, since thousands of beetles settled in these logs and were destroyed by burning in June.

Also, during the spring, a special drive was conducted to obtain eradication approval of trees within a 25-foot radius of old 1938 *Graphium ulmi* stumps. It is felt that the removal of valueless trees in this category will eliminate many future cases of disease that might occur through root grafts with the graphium tree involved. While a great deal of this type of permissions was secured during the *Graphium ulmi* season, those owners who were not at home during last summer were revisited, with good results.

At times during April, May and early June, contact men in the urban areas spent some time on the task of releasing from quarantine the healthy suspect trees tagged during last summer. This work centered around parks, main thoroughfares and private estates. Of all such inspections, approximately 96 per cent were in good condition and released from quarantine.

At times during the winter and early spring, this office was forced to ask for additional contact men from the ranks of the WPA men in certain counties. For six weeks during this period as many as 30 extra temporary contact men assisted in the clearance work.

There are three main steps involved in the joint state and federal Dutch elm disease eradication program. The first and last steps are performed by the United States Department of Agriculture, while the intermediate step of clearance work is done exclusively under the supervision of the New

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Jersey Department of Agriculture. The three broad activities are as follows:

1. Detection and tagging of trees for eradication.
2. Procurement of owners' approval and handling of inquiries.
3. Removal and disposal of condemned trees.

The coordinated efforts of both the United States and New Jersey Departments of Agriculture were utilized to accomplish the following work during the year:

Specific Work of State Department

Condemnations by mail	4,752 owners	2,172
Contacted by agents	45,155 owners	35,614
Handled complaints and inquiries	1,936 owners	1,832
Cleared for elm-free work	15,738 acres	8,200
Cleared for non-scuting DT work	244,592 acres	130,000

Summary of Field Work

Inspection, three times,	15,000,000 elms	10,000,000
Tagging and quarantining	44,240 suspected elms	20,000
Tagging and quarantining	74,513 159,629	50% devitalized elms
Condemning and eradicating	81,013 205,742	50% devitalized elms including surplus from 1937.

Condemning and Eradicating

Eradicated with owners approval	8727	16,248 Dutch elm diseased elms
Eradicated within 25 foot radius	14,119	320,650 elms—Clean cutting
Pruned	13,207	33,535 elms
		13,792 elms

Estimated for 1938

Number of elms destroyed in 1935

Number of elms destroyed during 1939

287,540

DUTCH ELM DISEASE WEEKLY REPORT

Week Ending Dec. 31, 1938

	Last Week's Report	Conn.	New Jersey	New York	Pennsylvania	Outside	Present Totals
Number of Employees							
Appointed Dept. Funds	58	8	29	8	2	12	59
W.P.A. Appointees	135	10	60	49	9	5	133
Per Diem Dept. Funds	6	....	....	....	....	6	6
Work Relief Funds	2,787	62	686	1,246	291	81	2,366
State Appointed	16	1	5	9	....	1	16
State Per Diem	58	....	18	39	....	1	58
State W.P.A.	467	....	508	....	....	....	508
Work Assignments							
Scouts	332	....	121	150	....	....	271
Laboratory Technicians	5	....	5	....	....	....	5
Eradication Personnel	16	....	8	14	....	....	22
Sanitation Personnel	2,479	56	510	759	99	39	1,463
Treating Personnel	....	....	....	....	....	....	....
Scouting Project							
Suspects Collected this Week	472	50	141	91	30	17	329
DT Tagged This Week	18,141	65	2,706	4,289	107	52	7,219
Total DT Tagged	2,947,779	395,870	1,358,179	1,118,039	9,765	78,495	2,960,348
Sq. Mi. DT Scouted This Week							
First Go-over	124.67	....	51.69	44.24	....	....	95.93
Second Go-over	2.00	....	....	....	....	....	....
Third Go-over	....	....	....	....	....	....	....
Sq. Mi. Scouted To Date							
First Go-over	4,075.95	....	1,978.23	2,193.65	....	....	4,171.88
Second Go-over	264.97	....	....	264.97	....	....	264.97
Third Go-over

DUTCH ELM DISEASE WEEKLY REPORT—*Continued*
 Week Ending Dec. 31, 1938

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	Last Week's Report	Conn.	New Jersey	New York	Pennsylvania	Outside	Present Totals
Laboratory identification							
Confirmed DED this Week	25	....	30	3	.....	....	33
Total Elms Confirmed DED	46,185	897	36,060	9,097	10	154	46,218
Total Reported Not DED	257,017	40,988	81,403	94,765	4,530	35,597	257,283
Suspects Unreported	1,629	79	60	1,413	14	93	1,659
Total Suspects Collected	304,831	41,964	117,523	105,275	4,554	35,844	*305,160
DED Eradication Project							
DED Removed This Week	32	....	32	3	....	....	35
Total DED Removed	46,105	897	35,985	9,094	10	154	46,140
Total DED Standing	80	....	75	3	....	....	78
Sanitation Project							
DT Removed This Week	20,273	65	3,507	3,611	107	104	7,394
Total DT Removed	2,793,048	394,907	1,277,169	1,063,335	9,765	57,701	2,802,877
Total Tagged DT Standing	154,731	963	81,010	54,704	....	20,794	157,471
Elms Removed in Clear Cutting Area This Week	6,187	....	1,084	31	....	....	1,115
Total Trees Removed in Clear Cutting	1,728,799	93,366	1,588,993	48,204	....	....	1,730,563
Trees Removed in Selective Cut- ting Operations This Week	3,830	....	595	240	....	....	835
Total Trees Removed in Selec- tive Cutting	240,956	37,848	33,535	173,742	....	1,368	246,493
Total Trees Removed in Above Operations To Date	4,808,150	527,018	2,935,682	1,294,375	9,775	59,223	4,826,073
Trees Chem. Tr'd. This Week	....	....	....	....	....	....	....
Total Trees Chem. Tr'd.	668,406	73,345	595,041	....	....	....	668,406
Total Trees Pruned	71,325	1,482	....	42,691	11,896	13,586	69,655

* These figures may be changed to agree with laboratory figures.

ORNITHOLOGICAL PREDATORS OF FOREST INSECTS

Wooden bird boxes of a European design were established on several scattered locations in New Jersey for the purposes of attempting to increase the population of insectivorous birds and automatically reduce the population of forest defoliating insects. In July, 1938, 24 boxes were placed on each of the following locations: Newark Water Shed at Newfoundland; Jenny Jump Forest at Hope; Stokes State Forest at Culvers Gap and on the Lebanon State Forest near Red Lion. Six of these boxes were placed on a site near Indian Mills heavily infested with snow white Linden moth.

Examinations of each of the boxes on each of the locations were made twice during the spring, one early and one late, to ascertain the percentage of occupancy. Not one of the wooden boxes was occupied by birds. The entrance holes on most of the boxes had been gnawed, presumably by grey squirrels. Several of the boxes on the Stokes State Forest were occupied by flying squirrels. Their occupancy of the boxes is not undesirable because flying squirrels are known to be predacious on many insect stages.

During the early spring of 1939, a plan was formulated to incorporate, in the general bird box experiment, the use of gourds. Accordingly, 100 purchased gourds were associated with the wooden bird boxes on the various locations throughout the state. Indications by the latter part of June, 1939, were that many birds prefer the gourds as places for nesting and roosting to the wooden bird boxes which were initially used. A correlation of the bird census with the insect population studies will be prepared in the form of a comprehensive report.

JAPANESE BEETLE SUPPRESSION

ACTIVITIES FOR NEMATODE PARASITE DISTRIBUTION

The Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture continued to aid in the financial support of this project. In addition, funds were available from the Works Progress Administration for labor in the conduct of the field experimental work, and were of material assistance in bringing this program to completion. The project staff consisted of four members actively engaged on the work throughout the year. Regular state and federal funds were used for 312 man-days of temporary labor, while 712 additional man-days of temporary help were available through the state-sponsored WPA project.

FIELD WORK DEVELOPMENTS

With the beginning of the 1937-38 fiscal year, a comprehensive plan of field investigations was begun to determine all the conditions required for successful establishment of this Japanese beetle parasite when introduced into areas where it did not occur naturally. Many of the colonies begun earlier had apparently failed to become permanently established, and no definite reasons could be assigned as to why certain colonies prospered, while in others the parasites apparently disappeared. The initial results of these

investigations were reported last year. The current year's work was a continuation and expansion of the investigations begun in the previous year.

Four experimental plots established in May, 1938, by the surface spraying of turf with a water suspension of the ensheathed nematodes yielded results far surpassing any previously obtained with this parasite. In one of these plots a 98.7 per cent reduction in Japanese beetle grubs was demonstrated during a 33-day period.

It was evident that, when conditions were favorable, the uniform coverage of a beetle grub infested area by means of a surface spray of the parasites would yield far better results than were obtained by the older procedure of burying the parasites at intervals over the area, and furthermore that the parasites could be more easily and cheaply distributed. It remained to determine the conditions essential for success when using the spray procedure, and to develop the field technique of application along practical lines to give the maximum utility of parasites with a minimum of labor and expense. The approach to the problems and results obtained are briefly outlined in the following sections.

SEASONS SUITABLE FOR SURFACE DISTRIBUTION OF THE NEMATODES

Previous work on the sub-surface burial of the parasites showed that they could be introduced at any time when Japanese beetle grubs were in the soil, and the soil was not frozen. This did not appear to be probable when the parasites were distributed over the surface, as the soil moisture and surface temperature then probably would be important factors in governing whether or not the parasites could penetrate into the soil before they were killed by desiccation.

During the period from August 15 to October 19, inclusive, 10 experimental plots, each of 1,000 sq. ft. area, were treated with the nematodes by the spray method. Soil temperatures ranged from a maximum of 83 degrees F to a minimum of 57 degrees F at the time of treatment, and the soil moisture varied between 38 per cent and 9.7 per cent in the various plots. Later survey diggings showed that the parasite became established in all these plots. Three plots were re-surveyed in the spring and active parasitism was still in progress in these.

A similar spring series consisting of 15 separate plots was begun April 10, with the last plot established June 16, and the remainder at intervals between these dates. The soil temperatures ranged from 46 degrees F to 82 degrees F, and soil moistures from 42 per cent to 7.8 per cent. Later diggings in these plots showed that the parasites became established in all. It is concluded therefore, that ordinarily the periods August 15 to October 19, and April 10 to June 16 can be utilized for parasite distribution, over a wide range of soil moisture and temperature conditions.

During the progress of this series of experiments, periods of unusually severe drought occurred from August 12 to September 17, and during the major portions of May and the first half of June. These periods happen to coincide with the periods of maximum parasitic activity of the nematodes,

as governed by grub feeding and soil temperature. It is gratifying to know that these drought periods did not prevent establishment of the nematodes, although they did seriously reduce the degree of parasitism resulting. The best result obtained was a 19.8 per cent parasitism occurring on June 29, when the soil was warm and moist, and the poorest survey was conducted on November 9, when a 0.3 per cent parasitism was occurring in the colder soil.

DENSITY OF NEMATODES REQUIRED TO ESTABLISH AND MAINTAIN A COLONY

It is important to know the concentration at which the nematode suspension should be applied to a given area in order to establish a colony which can maintain itself and act as an infection focus for the surrounding area. It is also desirable to know what effects of an immediate control nature can be expected from applying various densities of the nematodes. Five plots, each of 1,000 sq. ft. area, were treated on September 20, in order to determine the effects of nematode concentrations of 1,000, 2,500, 5,000, 10,000 and 25,000 nematodes per square foot of area.

These plots were dug twice during the fall and once during the spring in order to determine the degree of parasitism occurring in each. The fall diggings yielded parasitism in all plots, but the subsequent spring digging did not disclose any parasitized beetle grubs in the plot treated with 1,000 nematodes per square foot. The plot treated with 2,500 nematodes per square foot gave excellent results, and the indications are that this is the most effective dosage for routine colonization, where the nematodes must be utilized at their greatest efficiency. With 2,500 nematodes per square foot, a lasting colony is apparently established, and more area will be covered, and more hosts become parasitized than with any other dosage.

However, where an immediate and drastic reduction in grub density must be obtained, the nematodes should be applied at the rate of 10,000 per square foot, whereon, reasonable immediate control can be expected.

AMOUNT OF WATER REQUIRED TO SPRAY THE PARASITES

The preferred procedure in making the spray applications to turf is to first apply the dilute nematode suspension, and follow by sprinkling with water in order to wash onto the soil surface those nematodes which may be on the grass or mat of dead grass and clippings just above the soil. Five plots, each of 1,000 sq. ft. area, were treated on September 20, using the same density of nematodes on all plots, and following by varying the amount of wash-in water on each plot. The amounts of water used on the various plots were 0, 500, 1,000, 2,500 and 5,000 gallons per acre.

Diggings were made in each plot 19 days later, and showed host parasitism rates of 3.1 per cent, 6.7 per cent, 7.6 per cent, 13.2 per cent and 15.2 per cent, in increasing order and in relation to the quantity of wash-in water applied. The soil was abnormally dry at the time the nematodes were applied, and this condition probably was responsible for the decided im-

portance of the wash-in water in this series, where an almost five-fold increase in parasitism resulted through the use of 5,000 gallons of wash-in water per acre as against no water. From this experiment it is concluded that at least 2,500 gallons of wash-in water per acre should be used when the soil is excessively dry. However, during the course of some of the other experiments, it was found that when the soil is very moist there is no necessity to use more water than is necessary to uniformly distribute the nematodes.

POWER SPRAYERS ADAPTED TO USE IN MAKING SURFACE SPRAY APPLICATION OF NEMATODES

A small power sprayer for the application of the nematodes was designed and built, incorporating the requirements peculiar in this type of spraying. The machine was tested in the field and the results checked with those obtained when using an ordinary garden sprinkling can. The results obtained in the test plots show that power equipment can be used with success in making the nematode applications. Other tests were made using a heavy duty high pressure sprayer of standard design, and discharging the nematode suspensions at pressures of 100 and 500 pounds per square inch. The nematodes were not injured in either of these trials, and gave good results in parasitism tests run under greenhouse conditions.

DISCONTINUOUS SURFACE APPLICATION OF THE NEMATODE SUSPENSION

In all the other experiments the nematodes were applied as a continuous spray over the entire plot area. In one experiment sprayed and unsprayed strips, each one foot wide, were alternated over the plot area. This was to determine whether or not the untreated strips were rapidly invaded by the parasites. If this were true, then a given number of nematodes at any density could be used to inoculate twice as large an area as would be possible were the parasites applied uniformly.

The results obtained were inconclusive, because when diggings were made later the reduction in grubs was approximately the same in the treated and untreated strips, both of which showed distinctly higher reductions than occurred in the control area (no nematodes), and yet no parasitism was discovered occurring in the initially untreated strips at the time of survey. At this time a low rate of parasitism was occurring in both the treated strips and in the check area at a distance of 10 feet from the nearest treated strip. The soil was very dry at the time of survey, and it is possible that the parasites were thereby temporarily rendered inactive, so that no parasitized grubs were present at that particular time in the untreated strips.

CONSERVING TURF FROM DAMAGE BY THE APPLICATION OF NEMATODES

Two experiments were undertaken on the fairways of a golf club at Summit, N. J., to determine whether or not the nematodes applied at densities of 10,000 and 25,000 per square foot could be relied upon to prevent

excessive grub damage to the turf. One series of plots was begun in the fall of 1938, and another in the spring of 1939. The fall plots showed distinctly less damage in the nematode treated areas than occurred in the corresponding check areas.

The turf in the treated areas of the fall plots was firm the following June, and very little had been destroyed. In the untreated check area the turf was spongy from excessive grub feeding, and approximately 30 per cent was torn up by birds scratching about in search of the grubs. The spring series of plots did not show much difference between the treated and untreated portions, possibly because too little time intervened between the treatment and the observations. It seems probable that a density of 10,000 nematodes per square foot will reduce the grub population sufficiently to prevent serious damage to valuable turf if the nematodes are applied at a favorable time of year.

SEQUENCE OF PARASITISM OCCURRING THROUGH THE SPRING SEASON OF GRUB ACTIVITY

An experimental area of 2,500 square feet was treated with nematodes by the surface spray method on April 19, and survey diggings made at intervals of approximately one week from that time until July 1. At the latter date many grubs were transforming to adult beetles. During the series of surveys, parasitized beetle grubs were recovered at each survey, though not in any great numbers at any one time.

The relatively low parasitism obtained was doubtless due to the fact that the soil in this plot remained dry throughout the period. The data does show a direct correlation of parasitism with soil moisture, parasitism being highest about one week after the moisture content of the soil was observed to increase, and the rate of grub infection dropping off as the soil became dry. It is encouraging that the results show a continued survival of the parasite under the dry conditions, and that the parasites become active when the soil reaches an average moisture content.

RESURVEYS OF OLDER TREATED PLOTS

Six of the older plots where nematodes were introduced by the sub-surface burial method during the fall of 1937 and the spring of 1938 were resurveyed during the fall of 1938, and again in the spring of 1939. With one exception, all of these plots showed parasitism at both resurveys, indicating that the nematodes were established and continuing to reduce the grub population in these areas.

The initial spray treated plots, commenced in May, 1938, were resurveyed during the current fall and spring, and a number of parasitized grubs recovered from these areas at each survey.

In the spring of 1931, two small enclosed field plots were treated with nematodes. Since this time the grub population in these plots has been kept high by the periodic addition of healthy grubs. As a result of the

multiplication of the nematodes, both plots now have a very dense parasite population, and the added grubs are rapidly killed. The nematodes have survived here for a period of eight years, and the population continues to increase rather than diminish.

During the spring of 1933, a large field plot was established in southern New Jersey. Since then, no artificial factors have been imposed on the experimental area, and surveys have been conducted each spring and fall. The surveys conducted during the current year yielded parasitized beetle larvae, showing the continued survival of the nematodes in this area. In 1933 the area had an average of 87 grubs per square foot, but since June, 1934, the population has never been higher than 5.4 grubs per square foot. The population this spring was 3.8 grubs per square foot. The parasite has maintained itself for six years in this area, and for five of these years the host population has been low.

Complete reports have been prepared on all of this experimental work.

SUMMARY OF FIELD EXPERIMENTAL RESULTS

During the past two years the nematode parasite has been distributed in 60 experimental areas, and all of these have been subsequently surveyed to determine whether or not the nematodes began to parasitize the beetle grubs. The results showed positive establishment in 59 of these plots. The technique of nematode culture and distribution has been advanced to a point permitting the wide-spread colonization of this parasite of the Japanese beetle. The field results obtained indicate that the nematode can become an important factor in the natural control of the Japanese beetle, and it would seem that a routine program of colony distribution throughout the state is justified.

LABORATORY DEVELOPMENTS

ROUTINE

During this year it was necessary for the personnel to devote the major portion of time to the field and associated laboratory work. A total of 1.2 billion nematodes was cultured and artificially ensheathed before being distributed in the experimental field work. A total of 4,161 Japanese beetle grubs was submitted from the field diggings, and microscopical examinations were made to determine the presence or absence of the nematode parasite. A large number of soil samples from the various experimental plots was analyzed for moisture content.

NEWER DEVELOPMENTS

The most important new discovery of the year is that the adult Japanese beetle is readily attacked by the nematode, *N. glaseri*. Adult female beetles enter the soil for oviposition, and may remain there for several days. The nematodes are capable of attacking the adult beetles during the time they are in the soil, apparently entering by the mouth parts as a result of

their own activity, since the beetles do not feed in the soil. Some of the parasitized adults are capable of flying for several days before being killed by the parasite. The stricken beetles frequently burrow into the soil as death approaches, and the parasites are thus able to enter the soil again after multiplication in the adult cadaver. This will probably prove to be a very important means of spread for the parasite.

Laboratory tests indicate that if the adults remain in the soil for 24 hours, about 10 per cent of them become parasitized when the nematode density approximates that found in the experimental field plots. A further development of importance is that those beetles emerging from the pupal stage are subject to parasitism during the several days they remain underground while the chitin hardens. Sometimes as high as 30 per cent of newly transformed adults are found parasitized while still in the pupal cells.

Methods have been developed for trapping adult beetles and artificially subjecting these to parasitism by confinement in nematode-infested soil. The beetles are then liberated to disperse the parasite. Thousands of beetles can be so infected each day, and this may be an effective method of nematode colonization. Field experiments are now in progress along all of the lines here indicated, in order to definitely determine the significance of adult parasitism under field conditions.

It is now apparent that this nematode can attack directly all stages of the Japanese beetle excepting the eggs and pupae. The parasitism of emergent adults seems to be very high, probably as a result of the concentration of the parasite about the inactive prepupae, pupae and emergent adults, during which period the insect is inactive for some 15 days in warm soil which is conducive to nematode activity. Further field work along this line is urgently needed in order to complete the study of parasitic activity throughout the entire soil-inhabiting phases of the beetle.

The studies on the host range of *N. glaseri* were continued to some extent, and have evoked interest among entomologists engaged on insect control work other than with the Japanese beetle. A number of parcel post shipments of nematodes have been made to the Florala, Ala., laboratory of the Bureau of Entomology and Plant Quarantine. At the Florala laboratory, parasitism tests were made using the larvae of the White Fringed beetle (*Naupactus leucoloma* Boh.) as hosts, and the nematodes were found to attack and kill the larvae of this recently imported pest. Other shipments of nematodes were made to Lafayette, Ind., where tests were conducted on the larvae of certain *Phyllophaga* species which are important pests in some sections of the United States. A very high percentage of parasitism resulted in the laboratory tests.

Experiments were conducted on the control of *Anomala* larvae in the greenhouses of a large New Jersey nursery. The results were good, and it seems likely that control of the injury from this insect can be had by establishing the nematodes in the greenhouse beds.

JAPANESE BEETLE TRAPPING WORK

The Japanese beetle trap supply has been reduced to approximately 1,000 traps from the original 3,500. The traps were again distributed during the summer of 1939, principally through the offices of the county agents in Hunterdon, Somerset and Cumberland counties. The Japanese beetle population is now quite generally distributed throughout the State of New Jersey with locally scattered heavy infestations in northeastern New Jersey and with a rather general infestation throughout Salem County in southwestern New Jersey.

JAPANESE BEETLE QUARANTINE

The following summary covers the activities of this project during the calendar year 1938. 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.

SCOUTING

Two men, one acting as foreman, were assigned to scouting the few remaining Class I establishments in northern New Jersey. This crew also scouted certified greenhouses of Class III establishments in that territory, while the scouting of certified Class III greenhouses in other parts of the state was conducted by the regular personnel during the course of their daily tour of duty.

A total of 208 visits was made to 35 establishments, or an average of 5.94 visits per establishment, resulting in 125 beetles being found at 7 establishments.

There now remain but seven Class I establishments in the state.

NURSERIES AND GREENHOUSES SCOUTED DURING 1938

Total nursery establishments scouted	9	scoutings made	32
Total greenhouse establishments scouted	25	scoutings made	169
Total nursery and greenhouse establishments scouted	1	scoutings made	7
	<hr/>		<hr/>
Totals	35		208
Total nurseries where beetles were found	6	beetles found	112
Total greenhouses where beetles were found	...	beetles found	...
Total nurseries and greenhouses where beetles were found	1	beetles found	12
	<hr/>		<hr/>
Totals	7		124

SAND, PEAT, MANURE, ETC., ESTABLISHMENTS SCOUTED DURING 1938

Total leaf mold establishments scouted	4	scoutings made	12
Total sand establishments scouted	1	scoutings made	5
Total humus establishments scouted	1	scoutings made	6
	<hr/>		<hr/>
Totals	6		23

Total leaf mold establishments where beetles were found	2	Beetles found	36
Total sand establishments where beetles were found	....	beetles found	....
Total humus establishments where beetles were found	1	beetles found	1
Totals	<u>3</u>		<u>37</u>

Scouting was begun on July 7, 1938, and discontinued September 5, 1938, except at certified greenhouses where scouting is performed intermittently throughout the year.

The first beetle, a female, was reported at an establishment at Sewell on June 16, 1938.

The last beetle, a male, was found on November 8, 1938, at the residence of Mrs. Henry Kohl, Rumson.

FARM PRODUCTS QUARANTINE

Farm products offered for certification during the past season were 30 per cent less than in 1937.

A maximum of 21 men were assigned to farm products inspection during the season; the temporary personnel being relieved from duty during periods of inactivity and paid only for actual service rendered.

Four of the five major commodities in which decreases were reported last year declined still further this year, while all those commodities in which substantial gains were reported last year showed decreases ranging from 22 per cent in carrots and beets to 93 per cent in both sweet potatoes and cucumbers.

Last year there was a decrease of 78 per cent in apples compared with the preceding year. This year, however, apples show an increase of 445 per cent over 1937.

Blueberries, cranberries and onions are other commodities in which substantial increases were noted; gains amounting to approximately 150 per cent, 115 per cent and 185 per cent, respectively.

The above figures, although they show definite gains over the previous season, must be considered only from the standpoint of certification for ultimate distribution outside the regulated area. These gains in certified produce were possible only because of crop shortage in states outside the regulated area. The marked decrease in certification of certain produce is explained by the harvest of large crops in other states.

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

Location	Period Operated	Hours per Day Open	Number of Men	Packages Certified	Beetles Removed
Allentown	Appt. only	....	†	2,290	4
Beverly	Appt. only	....	†	110	1
Bloomfield	June 15-Oct. 15	8*	1	781	....
Bridgeton	June 15-Sept. 20	8*	‡	84,980	....
Camden	June 15-Sept. 20	8*	‡	7,634	....
Cedarville	June 15-Sept. 20	8*	‡	3,433	7
Cranbury	Appt. only	....	†	20,651	8
Cream Ridge	Appt. only	....	†	690	2
Dayton	Appt. only	....	†	2,602	....
Deerfield	Appt. only	....	‡	10,344	4
Englishtown	Appt. only	....	†	600	....
Freehold	Appt. only	....	†	16,981	....
Glassboro	June 15-Oct. 15	8	8	7,660	2
Haddonfield	Appt. only	....	‡	100	....
Hightstown	Appt. only	....	†	10,887	....
Jamesburg	Appt. only	....	†	600	....
Landisville	Appt. only	....	‡	3,138	2
Lawrence Station	Appt. only	....	†	8,102	....
Marlboro	Appt. only	....	†	3,600	....
Marlton	Appt. only	....	‡	1,548	1
Monmouth Junction	Appt. only	....	†	2,100	....
Moorestown	Appt. only	....	‡	2,173	29
Mullica Hill	Appt. only	....	‡	1,558	9
New Brunswick	June 15-Oct. 15	8	1	161	200
Newfield	Appt. only	....	‡	6,645	19
New Lisbon	Appt. only	....	†	6,928	....
Plainsboro	Appt. only	....	†	300	....
Princeton Junction	Appt. only	....	†	300	....
Prospect Plains	Appt. only	....	†	4,700	....
Robbinsville	Appt. only	....	†	26,001	8
Salem	Appt. only	....	‡	2,095	68
Swedesboro	Appt. only	....	‡	2,705	....
Tennent	Appt. only	....	†	4,200	....
Trenton	June 15-Oct. 15	8	14	17,478	57
Whitesbog	Appt. only	....	†	9,300	....
Yardville	Appt. only	....	†	2,100	....
				275,475	421

* All stations normally operated 8 hours. However, by previous appointment inspection service was made available at all hours.

† These points handled by White Horse Office, where a crew of 14 men was stationed.

‡ These points handled by Glassboro Office, where a crew of 8 men was stationed.

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

Article	Number of Packages	Number of Beetles Removed
Apples	47,655	29
Asparagus	23	....
Bananas	2	....
Beans, snap	16,868	16
Beans, lima	22	....
Beets	75	....
Blackberries	1	....
Blueberries	6,928	....
Broccoli	70	2
Cabbage	725	....
Carrots	4,278	63
Corn	124	1
Cucumbers	424	1
Cranberries	9,300	....
Eggplant	660	....
Onions	30,966	3
Parsley	45	....
Peaches	5,174	1
Peppers	2,357	1
Pickles	3,138	2
Potatoes, white	135,997	24
Potatoes, sweet	1,645	....
Spinach	180	....
Squash	55	....
Tomatoes	7,871	78
Miscellaneous vegetables	5	....
Cut flowers	887	200
	<hr/> 275,475	<hr/> 421

REFRIGERATOR CAR FUMIGATION AND INSPECTION

After two season's experience with the fumigation of refrigerator cars with HCN, both empty and loaded, this phase of the work has become more or less "routine." A total of 113 empty and 111 loaded cars were fumigated during the season under the supervision of this bureau.

With the exception of 20 empty cars fumigated in the Trenton area, all fumigation work was performed in the Camden-Bridgeton area.

As a result of research in connection with methyl bromide as an insecticide, a privately owned fumigation chamber was prepared for farm products, to be transported by truck. Because of the lack of sufficient data concerning methyl bromide and its effect on vegetables, cyanide was the ultimate fumigant used. The chamber originally used as a beer cooler, with a few alterations such as installation of a blower, vents and gas-tight doors, was converted into an efficient fumigator with the capacity of an average railroad refrigerator car.

Potato shippers refused to fumigate their product with HCN so, until the end of August, all potatoes moved in ventilated box cars. On September 1, fumigation requirements were lifted and potatoes were loaded and certified after the cars had been previously inspected. The railroad assumed the responsibility of cleaning and screening the cars at the railroad cleaning yards; then delivered them to the various loading points. All these operations were under state-federal supervision.

Six cars of potatoes were fumigated with methyl bromide by the Division of Control Investigations in the Hightstown-Cranbury area, for observation by the shippers interested. The use of this fumigant had been successfully demonstrated on the Maryland Eastern Shore potatoes.

FUMIGATION WITH HCN OF EMPTY REFRIGERATOR CARS AND OF FARM PRODUCTS IN REFRIGERATOR CARS

Fumigator	Fumigation Point	Product	Amount	No. of Cars
C.R.R. of N. J.	Bridgeton Junction	Empty	.....	74
	Bridgeton Junction	W. Potatoes	13,800 bags	46
	Bridgeton Junction	Onions	28,181 bags	56
C.R.R. of N. J.	Bridgeton	Empty	.....	2
	E. Bridgeton	Empty	.....	2
	P. R. S. L.	Camden (Pavonia)	Empty	.....	15
Camden		W. Potatoes	900 bags	3
Camden		Onions	1,500 bags	3
Camden		Tomatoes	2,260 clx.	2
P. R. R.		Mixed cars	Tomatoes	656 clx.	1
	Peppers		234 hprs.	1
	Empty		.....	20
* Jersey Fruit & Produce Co.	Trenton Newfield	Apples	75 bus.	....
		Peppers	1,097 bus.	....
		Eggplants	129 bus.	....
		Cucumbers	50 bus.	....
		Tomatoes	708 clx.	....
		Onions	316 bags	....
		Carrots	25 bus.	....
			49,931	224

*Fumigated in a chamber for truck shipments.

FUMIGATION WITH METHYL BROMIDE OF FARM PRODUCTS IN REFRIGERATOR CARS

Fumigator	Fumigation Point	Product	Amount	No. of Cars
U. S. D. A.	Cranbury	Potatoes	1,800 bags	6
Div. of Control Investigations	Hightstown	Potatoes	300 bags	1
			2,100 bags	7

(Fumigated experimentally by the Division of Control Investigations without charge to shipper.)

QUARANTINE ON NURSERY AND ORNAMENTAL STOCK, SAND, SOIL, EARTH, PEAT, COMPOST AND MANURE

The following table gives the number of classified establishments dealing in nursery and ornamental stock, etc., showing classification as of December 31, 1938:

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	Class I	Class III	Class I & III	Totals
Nurseries	5	62	67
Greenhouses	21	21
Nurseries and greenhouses	100	100
Plant Growers	....	71	....	71
Miscellaneous establishments	2	14	....	16
Totals	7	268	....	275

The 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 1938 follows.

Number of establishments classified as of January 1, 1938		323		
Number of establishments added during 1938		6		
Number of establishments classified during 1938			329	
Number of establishments removed during 1938			54	
Number of establishments classified as of December 31, 1938				275
Square feet of glass classified as of January 1, 1938	5,185,735.5			
Square feet of glass added during 1938	3,000.0			
Square feet of glass classified during 1938			5,188,735.5	
Square feet of glass removed during 1938			509,038.0	
Square feet of glass classified as of December 31, 1938				4,679,697.5
Number of acres classified as of January 1, 1938	9,145.876			
Number of acres added during 1938	207.480			
Number of acres classified during 1938			9,353.356	
Number of acres removed during 1938			297.980	
Number of acres classified as of December 31, 1938				9,055.376

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

	Number Plants Shipped	—Sand, Soil, Earth—		—Peat—		Compost and Manure Pounds
		Carloads	Pounds	Carloads	Pounds	
Alabama	49,767		9,870			
Arizona	1,483		3,210			
Arkansas	5,703		36,197			
California	33,151	6	67,850		16,400	
Colorado	16,464		7,726			
Florida	80,682	8	66,525			
Georgia	186,405		61,790			
Idaho	834		5,192			
Illinois	535,575	25	51,440			360
Indiana	131,442	12	47,261			400
Iowa	65,072	1	41,428			100
Kansas	44,684	2	20,885			
Kentucky	46,750	8	30,395	5		
Louisiana	20,021	2	20,456			
Maine	294,422	6	13,553			1,600
Maryland	80,788	3	15,383			
Michigan	213,173	89	50,179			500
Minnesota	82,792	3	65,328		200	300
Mississippi	10,668		14,041			
Missouri	66,233		73,677			
Montana	3,603		626			
Nebraska	14,563		3,855			
Nevada	243		1,072			
New Hampshire	31,734	7	275			
New Mexico	5,489		32,159			
New York	1,336,190	222	33,894			4,002
North Carolina	711,825	4	65,410			600
North Dakota	4,652	4	19,666			
Ohio	395,623	57	10,650			2,950
Oklahoma	30,840		49,474			505
Oregon	19,605	3	3,236			
Pennsylvania	179,583	43	16,171			500
Rhode Island	7					
South Carolina	81,536	4	35,617			
South Dakota	10,036		4,569			
Tennessee	73,929	5	20,438			
Texas	42,095	4	2,974			
Utah	11,926		11,949			
Vermont	58,163	2	4,638			200
Virginia	99,208	32	38,694			950
Washington	17,472	8	24,187			
West Virginia	154,804	33	43,581			600
Wisconsin	109,548	10	19,001			1,000
Wyoming	1,139		3,255			
Foreign	94,360	635	35,759			
Totals	5,454,282	1,238	1,183,536	5	16,600	14,567

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SUMMARY OF TREATMENTS MADE DURING 1938

Articles Treated	Agent	Units Treated	Totals
Plants (Field)	Miscible CS ₂	2,465	
Plants (Initial Treatment)	Lead Arsenate	53,011	
Plants (Retreatment)	Lead Arsenate	19,479	
Plants (No Lead Required)	Lead Arsenate	131,327	206,282
Plants (Tank)	Hot Water	.....
Plants (Tank)	Miscible CS ₂	3,306	3,306
Plants	Paradichlorobenzene	78,719	78,719
Total Plants Treated			288,307
Potting Soil	CS ₂	1,990.19 cu. yds.	
Potting Soil	Steam	12.22 " "	
Potting Soil	Naphthalene " "	
Potting Soil	Lead Arsenate " "	
Total Potting Soil Treated			2,002.41
Sand	CS ₂	2,193.15 cu. yds.	55 cars
Soil	CS ₂	.....	.... "
Mushroom Soil	CS ₂	.....	.... "
Manure	CS ₂	12.90 "
Leaf Mold	CS ₂	9.78 "
Total		2,215.83	" " 55 "
Surface Soil	CS ₂	20,621 sq. ft.	
Surface Soil	Miscible CS ₂	1,774 " "	
Surface Soil	Naphthalene	30,740 " "	
Surface Soil	Steam " "	
			53,135 sq. ft.
(Heeling-in Areas, etc.)			
Surface Soil (Initial Treat.)	Lead Arsenate	31,588 sq. ft.	
Surface Soil (Retreatment)	Lead Arsenate	238,768 " "	
Surface Soil (No Lead Req.)	Lead Arsenate	274,799 " "	
			545,155 sq. ft.
(Containing Growing Plants)			
Surface Soil (Initial Treat.)	Lead Arsenate	639,152 sq. ft.	
Surface Soil (Retreatment)	Lead Arsenate	332,343 " "	
Surface Soil (No Lead Req.)	Lead Arsenate	2,435,193 " "	
			3,406,888 sq. ft.
Total Surface Soil Treated			4,005,178 sq. ft.
Berries	CS ₂	7,204 erts.	7,204 erts.
Onions	HCN	29,681 bags	59 cars
Potatoes, white	HCN	14,700 " "	49 "
Potatoes, white	CH ₃ Br	2,100 " "	7 "
Tomatoes	HCN	2,260 clx.	2 "
Mixed Produce (Tomatoes and Peppers)	HCN	656 " " "
		234 bu.	1 "
		49,631	118

STATE DEPARTMENT OF AGRICULTURE

Articles Treated (Fumigation Chamber)	Agent	Units Treated	Totals
Apples	HCN	75 bu.	... cars
Carrots		25 "	... "
Cucumbers		50 "	... "
Eggplant		129 "	... "
Onions		316 bags	... "
Peppers		1097 bu.	... "
Tomatoes		708 elx.	... "
		<hr/>	
Empty Cars		2,400	113
		<hr/>	
	Totals	52,031	231

NUMBER OF MEN EMPLOYED EACH MONTH DURING 1938

	Scouting		Farm Products		Nursery and Greenhouse		Totals	
	Federal	State	Federal	State	Federal	State	Federal	State
January	....	....	....	....	12	12	12	12
February	....	....	....	....	12	13	12	13
March	....	....	....	....	14	15	14	15
April	....	....	....	....	17	14	17	14
May	....	....	....	....	17	14	17	14
June	....	....	9	2	11	13	20	15
July	2	....	19	5	8	10	29	15
August	2	....	21	3	8	9	31	12
September	2	....	21	3	9	9	32	12
October	....	....	....	....	21	12	21	12
November	....	....	....	....	19	13	19	13
December	....	....	....	....	13	12	13	12
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	6	....	70	13	161	146	237	159

Those men who are paid from both federal and state funds are listed under "Federal" above.

Temporary farm products labor intermittently employed.

Official Proceedings of the Twenty-fourth Annual State Agricultural Convention

The Twenty-fourth Annual New Jersey State Agricultural Convention was called to order in the Assembly Chamber of the State Capitol at Trenton at 9:30 A. M. Tuesday, January 24, 1939, by Lester Collins, president of the State Board of Agriculture. The convention was opened with an invocation by Reverend Paul W. Kapp, of Stewartsville.

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

DELEGATES OF THE STATE AGRICULTURAL CONVENTION FROM COUNTY BOARDS OF AGRICULTURE

Name	Address	Term	County
H. O. Packard	Hammonton	2 years	Atlantic
W. J. Slack	Hammonton	1 year	Atlantic
George G. Trautwein	Closter	2 years	Bergen
Henry Behnke	Hackensack, R.D.	1 year	Bergen
Ernest B. Phillips	Jobstown	2 years	Burlington
David D. Griscom	Marlton	1 year	Burlington
Samuel Tomlinson	Kirkwood	2 years	Camden
Samuel C. DeCou	Merchantville	1 year	Camden
Allen McClain	Green Creek	2 years	Cape May
C. Newton Schellinger	Green Creek	1 year	Cape May
W. Walter Ewing	Bridgeton, R.D. 2	2 years	Cumberland
Clifford C. McAllister	Bridgeton, R.D. 2	1 year	Cumberland
Herbert Francisco	Fairfield Ave., West Caldwell	2 years	Essex
Marcus W. DeCamp	Roseland	1 year	Essex
William Rainey	Swedesboro	2 years	Gloucester
John Rode	Swedesboro	1 year	Gloucester
George Veltman	33 Garrison Ave., Jersey City	2 years	Hudson
Charles E. Burd	Pittstown	2 years	Hunterdon
Harold B. Everitt	Flemington, R.D.	1 year	Hunterdon
Robert Dilatush, Jr.	Trenton, R.D. 2	2 years	Mercer
John W. Tindall	Princeton Junction, R.D.	1 year	Mercer
Clifford A. Stults	Cranbury, R.D.	2 years	Middlesex
Charles Skistimas	New Brunswick, R.D. 1	1 year	Middlesex
Harold C. DuBois	Freehold, R.D.	2 years	Monmouth
Henry G. Wikoff	Robbinsville, R.D.	1 year	Monmouth
William M. McIntyre	30 Colonial Rd., Morristown	2 years	Morris
Herbert W. Bockoven	Mendham	1 year	Morris
Erwin Clement	Lakehurst	2 years	Ocean
Martin Schubkegel	Lakewood, R.D. 3	1 year	Ocean
Charles Hess	Mountain View	2 years	Passaic
Arthur Butt	Clifton, R.D. 1	1 year	Passaic
Jay C. Garrison	Elmer, R.D. 2	2 years	Salem
Edward Broomell	Woodstown	1 year	Salem
David W. Amerman	Neshanic	2 years	Somerset
Edward M. Haynes	Skillman	1 year	Somerset
Carl Schneider	Port Jervis, N. Y., R.D. 1	2 years	Sussex
Harry Lewis	Newton, R.D. 2	1 year	Sussex

STATE DEPARTMENT OF AGRICULTURE

Name	Address	Term	County
Charles H. Brewer	Rahway, R.D.	2 years	Union
Walter M. Ritchie	402 St. Georges Ave., Rahway	1 year	Union
Smith J. Almer	Belvidere, R.D.	2 years	Warren
Frank L. Pursell	Alpha, R.D.	1 year	Warren

FROM POMONA GRANGES

Name	Address	Term	County
Martin Decker	204 London Ave., Egg Harbor	1 year	Atlantic
J. R. Van Houten	Midland Park, R.D.	1 year	Bergen-Passaic
William D. Cowperthwaite	Medford	2 years	Burlington
William G. Whittall	Magnolia	1 year	Camden
A. S. Walker	Cape May City, R.D.	1 year	Cape May
Herbert W. Bockoven	Mendham	1 year	Central District
George Brooks	Bridgeton, R.D. 2	1 year	Cumberland
Robert Harbison	Mickleton	1 year	Gloucester
Theodore Dilts	Three Bridges	1 year	Hunterdon
Charles R. Woolsey	Pennington	1 year	Mercer
Harry W. Kline	New Brunswick, R.D. 3	2 years	Middlesex and Somerset
*Howard Clayton	Freehold, R.D.	2 years	Monmouth
Albert Kesler	Woodstown, R.D. 2	1 year	Salem
J. S. Katzenstein	Franklin	1 year	Sussex
Norman Van Horn	Blairstown	1 year	Warren

FROM OTHER ORGANIZATIONS

- American Cranberry Growers' Association—Theodore H. Budd, Pemberton, 2 years; James D. Holman, Whitesville, 1 year.
- New Jersey State Horticultural Society—Leslie N. Applegate, Wemrock Farms, Freehold, 2 years; Charles A. Collins, Moorestown, 1 year.
- New Jersey Association of Nurserymen—C. Courtney Seabrook, Bridgeton, 2 years; William P. Howe, Jr., Pennington, 1 year.
- New Jersey Florists' Association, Inc.—Irving K. Christensen, 304 Hackensack St., Wood Ridge, 2 years; J. Fred Piper, 260 Hillside Ave., Livingston, 1 year.
- New Jersey State Grange—Dr. Walter H. Whiton, Neshanic, 1 year; William H. Blackwell, Titusville, 1 year.
- New Jersey State Poultry Association—E. H. Reeman, Vineland, 1 year; W. A. Cray, Stockton, 1 year.
- Jersey Chick Association—J. C. Weise, Frenchtown, 1 year; Elmer H. Wene, Vineland, 1 year.
- New Jersey Agricultural Experiment Station—Dr. Jacob G. Lipman, New Brunswick, 1 year.
- New Jersey State College of Agriculture—Dr. Carl R. Woodward, New Brunswick, 1 year.
- Holstein-Friesian Cooperative Association—Stanley 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—Milton C. Tice, Deerfield, 1 year.
- Beverly Cooperative Growers' Association—Charles Heal, Burlington, 1 year.
- New Jersey Beekeepers' Association—Elmer G. Carr, Pennington, 1 year.
- E. B. Voorhees Agricultural Society—*Lewis H. Nichols, New Brunswick, R.D. 1, 1 year.

APPOINTMENT OF COMMITTEES

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

H. O. Packard, Hammonton, Atlantic County
 Arthur Butt, Clifton, R.D. 1, Passaic County
 Stanley Roberts, Port Jervis, N. Y., R.D., Sussex County
 James D. Holman, Whitesville, Ocean County
 Clifford C. McAllister, Bridgeton, R.D. 2, Cumberland County
 Dr. Walter H. Whiton, Neshanic, Somerset County

Other committees appointed by President Collins at the convention were as follows :

COMMITTEE ON RESOLUTIONS

Marcus W. DeCamp, Roseland, Chairman
 Dr. Carl R. Woodward, New Brunswick
 Henry G. Wikoff, Robbinsville

GOVERNOR'S ESCORT

Elmer H. Wene, Vineland, Chairman
 Theodore Dilts, Three Bridges
 William H. Blackwell, Titusville

COMMITTEE ON CREDENTIALS

Theodore H. Budd, Pemberton, Chairman
 Herbert T. Borden, Mickleton
 David W. Amerman, Neshanic

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 membership of the State Board of Agriculture which would occur on July 1, James C. Weisel, of Frenchtown, and William P. Howe, Jr., of Pennington, were nominated. There being no other nominations, the secretary was instructed to cast a ballot for Messrs. Weisel and Howe for four-year terms beginning July 1, 1939, to succeed Edward E. Cooper, of Plainfield, and Charles Fitting, of Hammonton.

REPORT OF COMMITTEE ON RESOLUTIONS

The following resolutions, reported favorably by the Committee on Resolutions, were adopted by the convention :

WHEREAS, the Governor's Budget message recommends serious cuts in the operating appropriation of the State Department of Agriculture, and

"WHEREAS, the Department of Agriculture has operated on a reduced budget for the past several years, therefore, be it

"RESOLVED, that the joint Appropriations Committee urgently be requested to provide the full amount asked by the State Board of Agriculture to the end that this department may function efficiently and without further curtailment of its services to the farmers of the state, and be it

"FURTHER RESOLVED, that the joint Appropriations Committee be requested to give similar consideration to the budget requests of the State Agricultural College and the State Agricultural Experiment Station, in order that their services to both the rural and urban people of the state may not be curtailed. And be it

"FURTHER RESOLVED, that a copy of this resolution be sent to a member of the joint Appropriations Committee, to the Governor, the President of the Senate and to the Speaker of the House of Assembly."

"WHEREAS, realizing the importance of tuberculin testing to the dairy industry in New Jersey, be it

"RESOLVED, that we further the continuance of the payment of indemnities to dairymen for reactors to the tuberculin test. Also be it

"RESOLVED, that this convention assembled here urge the members of the Legislature to immediately appropriate \$20,000, the amount necessary for the continuance of indemnity payments for tuberculin testing for the current fiscal year."

"WHEREAS, realizing the importance of Bang's disease to the dairy industry in New Jersey, be it

"RESOLVED, that we favor the payment of indemnities to dairymen for Bang's reactors. Also be it

"RESOLVED, that this convention assembled urge the members of the Legislature to immediately appropriate the amount necessary for testing and payment of indemnities for losses incurred by this testing and thus secure the benefit of the additional Federal funds available for this purpose. This is in the interests of public health."

"WHEREAS, the work of the Milk Control Board has been the means of adding hundreds of thousands of dollars to the income of the dairymen of New Jersey, and

"WHEREAS, the stabilizing of prices has been of great benefit not only to the dairy industry but to other phases of agriculture and to the consumer as well, now, therefore, be it

"RESOLVED, that this convention go on record as favoring the continuance of the term of the Milk Control Board for two additional years and continuance, likewise, of adequate representation of the producers' interest in further appointments to the Board."

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“WHEREAS, the members of the State Board of Agriculture under the official guidance of its efficient secretary, W. H. Allen, and others, have made it possible to hold this Agricultural Week, including the meetings of the various commodity organizations represented in the agriculture of New Jersey, and

“WHEREAS, the Board, the secretary and others, have made possible the splendid exhibit at the Armory, and

“WHEREAS, these activities have not only been enjoyed by the delegates to this convention and the general public, but also have been the means of disseminating much information of educational value, therefore, be it

“RESOLVED, that this body of delegates here assembled extend a rising vote of thanks, showing our hearty appreciation.”

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