STATE OF NEW JERSEY
DEPARTMENT OF AGRICULTURE
W. H. ALLEN, SECRETARY

Twenty-third Annual Report

of the

New Jersey State Department of Agriculture

July 1, 1937—June 30, 1938

Trenton, N. J. December, 1938

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1937-1938

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STATE OF NEW JERSEY

DEPARTMENT OF AGRICULTURE

W. H. ALLEN, Secretary

Trenton

December 1, 1938.

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-third Annual Report of the New Jersey Department of Agriculture, for the fiscal year ended June 30, 1938.

Respectfully,

W. H. Allen

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

July 1, 1937—June 30, 1938

Report of the Secretary of Agriculture

W. H. ALLEN

During the fiscal year a change in executive administration of the Department of Agriculture occurred as a result of the resignation of William B. Duryee who served as Secretary of Agriculture since July 1, 1925. Many changes occurred in the agriculture of the state in this 12-year period, brought about by the extremes in economic conditions with which farmers were confronted, and it is a matter of record that the Department of Agriculture, under the able leadership of former Secretary Duryee, aided the New Jersey people in numerous ways to meet the difficult problems of the times.

ANIMAL DISEASE CONTROL

Of outstanding importance in the 1937-38 fiscal year was the accreditation, by the federal government, of the entire state as an accredited area in the bovine tuberculosis eradication program. This became a reality on September 1, 1938, and culminated an organized program begun twenty years before. This accomplishment meant that tuberculosis in cattle had been reduced in each county to less than one-half of one per cent.

Although the ultimate goal of practically complete eradication has been attained, this does not conclude the program. A continuous periodic testing must be carried on to maintain the present level of control and detect the appearance in herds of any infected cattle in order to prevent any spreading of the disease. This is important not only as a safeguard for the valuable dairy industry of the state and to prevent additional losses to individual dairymen, but also as a necessary protection of the aggregate sum of money which has been spent in reaching this degree of eradication.

The number of cattle imported for replacements and herd additions was four per cent under that of the previous year. This did not mean a reduction as such in the dairy business, but rather reflected a postponement of replacements during a period of relatively higher prices for animals.

More and more attention has been given to the constantly growing problem of another prevalent disease in cattle known as Bang's disease, or contagious abortion. A number of states in the East and Middle West have

already adopted positive programs toward its eradication, supported by indemnifying funds, and rapid progress is being made in accrediting herds in those states. While interest in this problem has increased in New Jersey, the program has had to be developed entirely around a voluntary basis which has been more attractive to breeder dairymen, and as a consequence only about five per cent of the state's cattle population is under supervision for Bang's disease control.

PLANT INDUSTRY

Eradication or control of plant diseases and insects has formed a major project carried on from year to year. Some of this work, as in the case of inspection of nurseries and nursery stock, apiaries, the eradication of the Dutch elm disease, and certification under the Japanese beetle program, have been based on regulatory procedure. Federal funds have been utilized in considerable degree in the last two named lines of endeavor. Real services have been performed; substantial reductions in the number of diseased elm trees have been accounted for during the fiscal year, and in the case of the other activities protection to growers has been accomplished, or where quarantines have been established, farm products have been certified for shipment to outside areas.

The seed certification project, carried out in cooperation with the Agronomy Department of the Agricultural Experiment Station, has made real progress in providing, largely for growers of this state, grain seed, tomato seed and seed potatoes superior to those ordinarily available because they have been improved for type, yield and freedom from, or resistance to, disease.

MARKETING

Much attention has been given to problems in the marketing of farm products and in providing services enabling growers to obtain the most satisfactory returns for commodities sold. Of prime importance in this connection has been the maintenance of a market information service through which producers could keep posted not only on current market prices, but also on conditions in earlier-producing and competing areas. This has been done through the use of mimeographed reports at weekly or other periodic intervals; through the press; and through the teletype hook-up between this office and several of the auction markets located at concentrated producing points. The cost of this last service has been partly borne by the member markets.

The auction markets, both produce and poultry and egg, have made further advancement in their value to member and non-member producers through increased sales and services. Collectively doing a business in excess of $5,000,000, they have also been instrumental in the improvement of the quality and pack of the farm products handled because of the competitive bidding on which the goods are purchased by wholesale buyers.

Grading, however, and the use of official standards, have not been confined to these centers alone. Certification of quality, especially on apples and potatoes, and the determination of grade on cannery tomatoes and asparagus, have formed a major project which is of especial value to hundreds of growers in this state.

LICENSING AND BONDING

The Department of Agriculture is entrusted with the enforcement of Article 1, Chapter 12, Title 4; Article 2, Chapter 11, Title 4 and Article 1, Chapter 11, Title 4, all of the Revised Statutes of 1937. The first statute cited was formerly known as Chapter 74, P.L. 1917, usually referred to as the Milk Dealers' Licensing and Bonding Law; the second as Chapter 93, P.L. 1930, the Produce Dealers' Law and the third as Chapter 28, P.L. 1931, the Cattle Dealers' Law.

By an act of the Legislature in December, 1937, the three laws enforced by this division were given different titles, but the adoption of the Revised Statutes did not in any way change the purpose or meaning of the Acts; instead by various changes in their wording, it made them more easily understood.

In order that producers throughout the state could have easy access to information relating to the status of any dealer under the three Acts enforced by this division, up-to-date lists of licensees were supplied to county agents.

MILK DEALERS' LAW

(Article 1, Chapter 12, Title 4)

Until the beginning of the previous fiscal year, surety bonds were very difficult to obtain and only a comparatively small number of dealers were financially able to purchase other bonds which are acceptable under the provisions of the Act. However, with the increase in the number and amounts of bonds required to be filed each year, the surety companies have acquired greater experience in underwriting this type of business. In addition, since the losses suffered have been exceptionally low in comparison to the total value of business underwritten, it has become evident that this type of liability is not the risk it was considered to be two years ago and previously. Also, dealers, becoming more familiar with the requirements connected with this industry, have shown a willingness to cooperate with the Department of Agriculture in carrying out their responsibilities, which is beneficial to all those affected by the Act.

Because the number of defaults at the end of each year is small, one might be led to believe that the few dealers who had actually failed to reimburse their producers were the only ones who had experienced financial troubles. However, it has been necessary occasionally for the department to use its influence in obtaining financial settlements to producers from other dealers.

For the past five years the value and number of bonds have steadily increased even though the total number of dealers has decreased, due somewhat to changes made in some of the dealers' methods of operating. Records of June 30, 1938, show that over a million dollars worth of surety bonds or United States Government securities were filed with the department during the fiscal year 1937-38 for the protection of New Jersey dairymen; this is the largest amount ever filed in this state.

During the year information was requested concerning the bonding work in this state and in the eleven other states of the Union with laws of a similar nature. The data obtained was assembled in a neighboring state, and the results were furnished to those states supplying the information. Comparisons showed that the dairymen in New Jersey were as well or better protected than dairymen residing in other states.

The department recovered approximately $5,000.00 for producers who had sold to dealers who were delinquent in their payments.

Only nine dealers were penalized for failure to obtain their licenses on time. This fact speaks well for the dealers, considering that there were over 300 licensees. Penalties amounted to $225.00.

Licenses were issued to 310 dealers who filed bonds totaling $1,095,400.00.

NUMBER OF LICENSES UNDER MILK DEALERS' LAW

County	Licenses Issued	Bonds Filed	Amount of Bonds
Atlantic	2	2	$20,000.00
Bergen	10	7	36,900.00
Burlington	19	19	49,600.00
Camden	10	9	40,500.00
Cape May	3	1	1,000.00
Cumberland	25	24	26,900.00
Essex	17	12	108,400.00
Gloucester	13	12	13,400.00
Hudson	4	2	11,000.00
Hunterdon	10	9	89,000.00
Mercer	27	27	75,500.00
Middlesex	19	18	67,000.00
Monmouth	24	23	50,600.00
Morris	32	27	59,700.00
Ocean	2	2	5,000.00
Passaic	24	17	28,100.00
Salem	10	6	14,300.00
Somerset	17	14	36,500.00
Sussex	5	5	4,800.00
Union	17	9	54,200.00
Warren	10	10	47,000.00
Outside of New Jersey	10	10	256,000.00
Totals 1937-38	310	265	$1,095,400.00
1936-37	331	248	977,900.00
1935-36	350	234	937,450.00
1934-35	366	224	765,650.00
1933-34	327	173	518,050.00

PRODUCE DEALERS' LAW

(Article 2, Chapter 11, Title 4)

In May, 1938, the Legislature passed Senate Bill 254 amending Article 2, Chapter 11, Title 4 of the Revised Statutes of 1937 so that licenses under this Act will run from May 1 of one year to April 30 of the following year, rather than from July 1 to June 30 as in the past eight years. In order that growers might become fully acquainted with this change in the law, numerous articles were inserted in newspapers and in issues of the State Department Service.

Compliance on the part of licensees for the term July 1, 1938—April 30, 1939, has been exceptionally good, but it is still necessary for the department to check up on a rather large number of dealers who are inclined to be slow in complying each year, and also to investigate those persons who attempt to evade compliance whenever possible.

Cold storage companies handling produce have been required to obtain licenses this year. Although it is not customary for them to purchase, receive or solicit produce for themselves, it has been found that on numerous occasions they do negotiate the sale of produce for farmers using their warehousing facilities; thus they are brought under the provisions of the Act.

Penalty action was instituted against eight dealers for failure to obtain licenses after being notified that they were operating in violation of the Act. Claims amounting to $2,022.69 were settled through the efforts of the department.

Licenses were issued to 321 dealers who filed bonds totaling $963,000.00.

NUMBER OF LICENSES UNDER PRODUCE DEALERS' LAW

County	Licenses Issued	Bonds Filed	Amount of Bonds
Atlantic	24	24	$72,000.00
Bergen	1	1	3,000.00
Burlington	7	7	21,000.00
Camden	3	3	9,000.00
Cape May	1	1	3,000.00
Cumberland	37	37	111,000.00
Essex	40	40	120,000.00
Gloucester	25	25	75,000.00
Hudson	2	2	6,000.00
Mercer	11	11	33,000.00
Middlesex	4	4	12,000.00
Monmouth	21	21	63,000.00
Passaic	10	10	30,000.00
Salem	14	14	42,000.00
Somerset	1	1	3,000.00
Union	2	2	6,000.00
Outside of New Jersey	118	118	354,000.00
Totals 1937-38	321	321	$963,000.00
1936-37	303	303	909,000.00
1935-36	296	296	888,000.00
1934-35	268	268	804,000.00
1933-34	265	265	795,000.00

CATTLE DEALERS' LAW

(Article 1, Chapter 11, Title 4)

Investigation of the records of the dealers shows an increase in the number of cattle being handled. There are also indications that producers are interested not only in increasing the size of their herds, but also in improving the quality of the milk produced. Both of these factors naturally tend to increase the number of complaints concerning animals which failed for one reason or another to produce the quantity and quality of milk expected of them. Every complaint reported to the department was investigated, and in those instances wherein a violation of the Act was committed, a satisfactory settlement was required from the one at fault.

There has been a decided increase in the number of dealers obtaining their licenses on time. This aids in efficiency by permitting the time previously spent checking up on delinquent dealers to be used for other work.

All complaints filed during 1937-38 were satisfactorily settled either by cash payments or by replacements of stock.

NUMBER OF LICENSES UNDER CATTLE DEALERS' LAW

County	Licenses Issued
Bergen	8
Burlington	12
Camden	4
Cape May	5
Cumberland	12
Essex	13
Gloucester	4
Hudson	3
Hunterdon	13
Mercer	9
Middlesex	6
Monmouth	9
Morris	16
Ocean	5
Passaic	12
Salem	14
Somerset	10
Sussex	23
Union	9
Warren	14
Outside of New Jersey	4
Totals 1937-38	205
1936-37	204
1935-36	201
1934-35	203
1933-34	193

AGRICULTURAL WEEK

The sixty-fifth annual Agricultural Week and Farm Show held January 25 to 28, 1938, attracted thousands of farmers in New Jersey who met

to discuss mutual problems at various organization and commodity meetings. At the twenty-third annual convention, official delegates from these associations met as prescribed by law to elect two members to the State Board of Agriculture. Favorable weather aided materially in making this event one of the most successful in the long series of Agricultural Weeks.

The New Jersey Farm Show, a component part of Agricultural Week, was held concurrently in the Second Regiment Armory in Trenton. Acclaimed as the finest show in many years, the exposition presented a cross-section of agricultural interests including displays of choice farm products and all types of machinery and equipment necessary in modern farming operations. As in the past several years, more than 15,000 persons visited the Farm Show during its four days of operation.

THE NEW JERSEY JUNIOR BREEDERS' FUND

During the fiscal year 1937-38, a larger amount of money was loaned to New Jersey farm boys and girls by the Junior Breeders' Fund than at any time since 1928-29, and for the first time in nine years the amount outstanding exceeded $10,000, or one third of the total amount available. The amount outstanding on June 30, 1938, was $10,293.91, as compared with only $7,950.33 outstanding on June 30, 1937. Eighty-two loans were made during the year, totaling $6,435.82. Forty-three of them were for the purchase of dairy animals, eight for pigs, thirty for chickens, and two for turkeys.

A comparison of the loans by years since the Fund was established follows.

SUMMARY OF LOANS BY YEARS

Fiscal Year	*Calf Loans*		*Pig Loans*		*Poultry Loans*		*Total Loans*	
	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	*31	*1,644.82	82	6,435.82
Totals	957	$83,800.00	224	$13,043.28	*324	*$14,992.14	1,505	$111,835.42

*Includes 2 turkey loans, $30.

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

County	*Calf Loans*		*Pig Loans*		*Poultry Loans*		Total
	Previous	1937-38	Previous	1937-38	Previous	1937-38	
Atlantic	....	....	....	....	....	....	....
Bergen	....	....	1	....	....	....	1
Burlington	41	3	18	2	22	10	96
Camden	....	....	....	....	....	....	....
Cape May	7	....	....	....	4	....	11
Cumberland	61	....	11	....	25	....	97
Essex	....	....	....	....	19	....	19
Gloucester	25	3	2	....	10	....	40
Hudson	....	....	....	....	....	....	....
Hunterdon	94	9	3	....	4	3	113
Mercer	156	6	81	1	21	*2	267
Middlesex	104	4	2	3	41	4	158
Monmouth	71	....	12	....	84	1	168
Morris	49	3	1	....	6	....	59
Ocean	17	....	....	....	9	1	27
Passaic	....	....	....	....	2	....	2
Salem	78	1	79	1	27	2	188
Somerset	32	....	1	....	....	....	33
Sussex	81	3	2	1	14	3	104
Union	....	....	....	....	....	....	....
Warren	98	11	3	....	5	5	122
Totals	914	43	216	8	293	*31	1,505

*Includes two turkey loans.

Of the 82 loans made during the year, 55 were to 4-H Club members and 27 to vocational agricultural students. Twenty-three of the vocational loans were for poultry, 3 for swine, and 1 for a dairy animal. The total amount loaned to vocational students to date is $4,338.61.

The interest rate was continued at 4 per cent. This income was used to pay half the loss resulting from death of animals, for awards at the New Jersey State Fair and local fairs, and for small administrative expenses. The total loss due to death of animals during the year was $500, while receipts from emergency fee charges amounted to only $249.15. The interest received during the year 1937 was $221.39 less than total charges, thereby resulting in a loss of that amount.

Cash awards totaling $137.50 were given to exhibitors at the New Jersey State Fair, and $35 in cash was presented, with banners, at local fairs for the best animal purchased through the Fund. Silver cups were presented at the New Jersey State Fair for the prize-winning animal in each breed having the highest record of production, which was purchased through the Fund.

To further encourage the keeping of production records for dairy animals, provision was made for the awarding of production certificates whenever a cow's production meets the required number of pounds of butterfat and the records are kept in such a manner as to meet the approval of the

committee in charge. Under this plan, 19 certificates were awarded on January 26, at the annual dairy banquet held during Agricultural Week.

The sum of $1,000 was set aside by the Board of Trustees for lending money for agricultural projects other than the raising of purebred livestock. Half of this sum was transferred from the amount previously used for poultry feed purchases, and the other half was taken from interest that had served as a reserve for several years. This new fund provided for loans for vegetable production, poultry meat projects, the purchase of poultry feed, and other types of agricultural projects.

Changes in regulations made during the year were as follows:

1. Provision was made for lending money for two projects to be carried on simultaneously when recommended by the county club agent or vocational teacher, the maximum amount for the two projects to be $150.00.

2. Loans for the purchase of dairy animals over one year of age were continued for a period of two years, but for animals under one year of age the period was extended to three years, with the provision that one third should be paid at the end of two years.

3. The minimum age for dairy animals was reduced from four months to two months.

4. The minimum age limit for poultry other than day-old chicks was fixed at 8 weeks instead of 12, and it was also required that all birds purchased must be from pullorum-tested flocks.

5. Provision was made for turkey loans for a period of one year. Purchases must consist of day-old poults, and it is preferred that the turkeys be raised in isolation from other poultry and preferably kept in confinement on wire floors.

6. The emergency fee on dairy animals was changed to provide coverage when three-year loans are made. The emergency fee for calves purchased on two-year loans was continued at $1.25 for each $25 or fraction thereof, and for three-year loans the fee was fixed at $1.85 for each $25 or fraction thereof borrowed.

Acknowledgment is made of the splendid cooperation given by the county club agents and vocational agricultural teachers of the state, on whose recommendations all loans are made. The care used in the selection of potential borrowers and the instruction given after the loans are made are responsible for the fine record attained by these young people. Nearly all accounts are taken care of promptly, only $995.14, or 9.28 per cent, being one month or more overdue.

PUBLICITY AND PUBLICATIONS

As a means of disseminating useful agricultural information and letting farmers and other interested persons know of the progress being made along agricultural lines, news articles were regularly furnished to the press

of the state. Through the cooperation of newspapers, the department was thus able to call to the attention of farmers and others the services and facilities available for their assistance. The public was further acquainted with agricultural activities and information through special magazine articles, radio and public talks and occasional "spot" news pictures.

A large part of this work has been described with the operations of Consumer Information Service, as in many instances projects were carried on jointly.

Following is a list of the printed publications issued during the past fiscal year:

Circular No. 283—New Jersey Plan of Poultry Standardization.

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

Circular No. 285—The Culture of Neoaplectana Glaseri on Veal Pulp.

Circular No. 286—New Jersey Peach Industry: Number of Trees by Varieties and Ages.

Circular No. 287—Record of Performance and Register of Merit Breeding Flocks Under Official Supervision in New Jersey, 1938.

Circular No. 288—Laws, Rules and Regulations Pertaining to the Shipment of Nursery Stock Out of New Jersey.

Circular No. 289—Factors Influencing the Production of New Jersey Official Grade A Milk.

Circular No. 290—New Jersey Climate: A Graphic Summary.

Circular No. 291—Cattle Herds in New Jersey Classified by Size.

Circular No. 292—Roster of County Boards of Agriculture and State Agricultural Organizations for 1938.

Circular No. 293—New Jersey Prices of Hired Farm Labor, Feedstuffs and Fertilizer Materials and Their Index Numbers, 1910-1937.

Circular No. 294—Spraying for the Control of the Japanese Beetle on Ornamentals and Non-Commercial Fruit Holdings.

Circular No. 295—The Nursery Industry in New Jersey.

Circular No. 296—The Apple Industry of New Jersey: Number of Trees by Varieties and Ages.

Circular No. 297—Fresh Eggs in New Jersey.

Circular No. 298—The Canning Industry in New Jersey During the 1937 Season.

Folder—New Jersey Grade A Pasteurized Milk.

Folder—New Jersey Hatching Eggs, Baby Chicks and Breeding Flocks Under State Supervision.

Folder—List of Breeding Flocks and Hatcheries Under Official Supervision in New Jersey, 1938.

Twenty-second Annual Report of the New Jersey Department of Agriculture, 1936-1937.

Agricultural Week Programs, Women's Agricultural Week Programs, Farm Show Contracts and bulletin of the Premium List for the New Jersey Farm Show, Agricultural Week, Trenton, N. J., January 25-28, 1938.

Twelve issues of monthly publication State Department Service.

Report of Bureau of Animal Industry

R. A. HENDERSHOTT, *Chief*

TUBERCULOSIS CONTROL

September 1, 1937, looms large when reviewing the work of the past year with respect to control of tuberculosis. An act to control this disease, which was a menace to human as well as animal health in New Jersey, first was passed by the legislature in 1893. The report of the Secretary of Agriculture in 1916, 23 years later, listed only 24 herds under supervision for the control of this disease.

During 1918, the cooperative federal and state accredited herd plan for combating tuberculosis was inaugurated and the report for that year shows 43 herds under supervision.

In 1920, the legislature appropriated $75,000 for indemnity, and during the year 218 herds of 10,519 cattle were submitted to test with 877 or 8.3 per cent of the total number of cattle under supervision reacting.

In 1924, the annual report reveals that there were 1,540 herds comprising 25,825 cattle under supervision and that the state removed as reactors 4,296 animals or 16.64 per cent of the total cattle population under supervision.

The following year, in cooperation with the federal bureau of animal industry, plans were outlined for the interstate movement of only healthy tuberculosis-free cattle from herds under state or federal supervision.

Up to this point the work of eradicating tuberculosis was primarily a human and animal health measure but consideration also was given to the work from an economic standpoint. The larger milk companies and receiving stations became more exacting in regard to the quality of milk they distributed and strengthened their requirements. They assisted with the work by paying a bonus to herd owners for diseased animals condemned as a result of the tuberculin test.

Officials of larger cities, towns and townships of the state passed and made operative ordinances governing the production and distribution of milk and other dairy products. One hundred and twelve cities, boroughs, towns and townships within the state adopted ordinances providing that raw milk be produced by tuberculosis-free animals.

This guaranteed a better and safer food product which insured a better health standard, especially among children, and protected the animal industry of the state by decreasing the loss occasioned through this disease.

About this time (1927) the refrigerator tank car with a capacity of

6,000 gallons was perfected for the transportation of milk long distances, making it possible to ship milk and cream from the Middle Western States to eastern markets and deliver it in prime condition. This competition had to be met by the dairymen of our state who were required to make replacements in their herds by purchasing high priced dairy cows and feed at an advanced value over that paid by the western competitor.

On January 1, 1927, the legislature made operative a law known as the "Raw Milk Bill" which provided that any raw milk or cream used for human consumption in New Jersey must be produced by cattle which had successfully passed a tuberculin test within a year. Preparatory to this bill becoming operative on January 1, 1928, there was increased activity on the part of the dairymen to have their herds tested to meet the provisions of this statute. A more favorable attitude on the part of the dairymen developed toward the test as practically 30 per cent of the cattle population were placed under cooperative supervision.

At the end of the fiscal year 1927-1928, there were 8,179 herds of 66,851 animals under supervision. Of the 83,778 tests made on these cattle 7,026 reactors were removed or 10.5 per cent of the total number of cattle under supervision at that time.

During the following year, the New Jersey Board of Agriculture promulgated and made operative regulations to prevent the entrance of any dairy or breeding cattle into the state unless they had been previously tuberculin tested under state and federal cooperative supervision and certification to this fact made by the livestock sanitary official at point of origin.

It was during this year also that testing of cattle under the survey plan in areas was commenced and the southern part of the state, including Atlantic and Cape May counties and a few townships in Burlington, Cumberland and Ocean counties were placed under quarantine and submitted to test.

The Legislature enacted a law known as the "Area Test Law," effective March 19, 1927, which provided for the testing of cattle on an area basis but it was not until March of 1929 that the Board of Agriculture authorized the testing of cattle within the state under the provisions of the law. At this time there were under supervision in the state 9,323 herds of 82,209 cattle and during the year 106,108 tests were made with 5,689 reactors or 6.92 per cent of the cattle population of the state.

Increased appropriations were made for advancing the testing program, and by 1932 the number of herds under supervision had increased to 12,218 comprising 136,020 cattle. A total of 190,333 tuberculin tests were made of these cattle during the year and 17,078 reacted or 12.56 per cent.

Although the Board of Agriculture had authorized the testing under the area plan in 1929, it was not until 1932 that a sufficient number of herds and cattle had been placed under supervision to meet the require-

ments of the area test law which provided that when a majority of the cattle owners, representing 75 per cent of the cattle in an area, had placed their cattle under supervision, it was possible for the department to proceed to eradicate the disease by the area plan. It also provided that when 90 per cent of the cattle owners in an area had placed their cattle under supervision, the department could enter the premises of the remaining 10 per cent and test cattle without the consent of the owners, where such owners refused to submit their herds to test.

In 1933, all efforts of the bureau were concentrated on the untested herds still remaining in the state. It was on August 16, 1933, that Atlantic County was officially declared a modified accredited area, the percentage of infection being reduced to less than one half of one per cent. The accreditation of this county was followed shortly by Cumberland, Cape May and Camden counties, thus accrediting practically the southern section of New Jersey.

During the year 1933-34, 205,725 tests were made of the 18,939 herds comprising 184,343 cattle. This resulted in removing 7,694 reactors, or 4.17 per cent of the total cattle population under supervision.

From this point forward, the remaining counties on test revealed a reduction of infection to a point that warranted their accreditation. The last two counties to qualify were Middlesex and Salem, both of which were accredited during the early summer of 1937.

The celebration of the accrediting of the entire state was well attended by members of health associations, farmer producers, distributors, breed association members and veterinarians.

It is true that New Jersey was one of the last states in the Union to be certified as tuberculosis accredited. However, this was unavoidable. Because of the fact that New Jersey is a replacement importing state, it was impossible to attain accreditation in advance of the time when states from which the animals were imported had themselves reached that state of perfection.

The fact that an area is accredited does not imply absolute freedom from the disease, as the accreditation is authorized only when the infection in the area is reduced to one half of one per cent.

During the past year efforts to eradicate tuberculosis have been continued by submitting to test all cattle in the state. As a result, the state-wide percentage of infection was lowered from .97 of the cattle population in 1937 to .72 as of June 30, 1938.

Although the cattle population of New Jersey is 99.28 per cent free from tuberculosis, effort must be concentrated on protecting this gain by inspecting every herd and eliminating the .72 per cent reactors remaining, which cannot be permitted to threaten the welfare of the great dairy industry of New Jersey.

The percentage of reaction on all tests has decreased from .82 for the

year 1936-1937 to .56 for the year 1937-1938. During this fiscal year 27,338 cattle were imported as compared with 28,472 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:

	July	August	September	October	November	December
New Jersey	$41.66	$44.59	$42.41	$37.14	$41.30	$38.09
New York	34.39	37.89	33.76	36.93	32.22	33.71

	January	February	March	April	May	June
New Jersey	$39.73	$38.30	$39.10	$39.90	$41.78	$44.11
New York	36.61	35.75	35.49	33.60	33.76	33.48

The amount of state indemnity paid during this fiscal year for reactors condemned increased from an average of $49.36 for the fiscal year 1936-1937 to $53.24 for 1937-1938.

The following is a brief summary of the work accomplished in tuberculosis eradication during the year ending June 30, 1938.

At the close of the fiscal year ending June 30, 1937, there were under state and federal cooperative supervision in New Jersey, 18,823 herds comprising 196,774 cattle. At the close of the fiscal year ending June 30, 1938, there are under supervision 18,185 herds consisting of 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 12-month period, 253,025 tuberculin tests were made of cattle under supervision, resulting in 1,428 or .56 per cent reaction.

Representatives made, during this fiscal year, 1,595 initial tests on 8,323 cattle. On test, 65 or .78 per cent reaction were found. This is a decrease in the percentage of reaction found last year when 1,780 herds of 7,661 animals were initially tested with 101 or 1.32 per cent reacting.

The percentage of reactors found in out-of-state cattle added to herds under supervision during the fiscal year 1936-1937 was 1.84. Of 17,488 cattle tested, 322 reacted. During the year 1937-1938, 11,785 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 1936-1937, 207,126 animals were tested on retest and 1,489 or .72 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 1936-1937 indemnity was paid for 1,543 reactors of which 130 were registered animals and 1,413 grade animals. During the year 1937-1938, indemnity was paid for 1,176 reactors, 92 of which were registered and 1,084 grade animals.

The following summary is the total amount received by the dairymen and breeders for 1,176 reactors slaughtered as a result of the tuberculin

test during the fiscal year 1937-1938. This shows an average of $116.24 per head.

Amount received from salvage of reactors	$ 47,627.32
Amount paid by the State of New Jersey in indemnities	62,602.99
Amount paid by the United States Government in indemnities	26,469.33
Total	$136,699.64

TOTAL STATE INDEMNITY PAID, BY COUNTIES

July 1, 1937 to June 30, 1938

Atlantic	$ 121.67
Bergen	390.61
Burlington	3,357.28
Camden	26.67
Cape May	78.34
Cumberland	1,911.26
Essex	1,014.77
Gloucester	859.37
Hudson	
Hunterdon	6,685.22
Mercer	953.24
Middlesex	1,352.77
Monmouth	3,668.41
Morris	2,000.98
Ocean	2,203.11
Passaic	68.38
Salem	7,899.95
Somerset	2,524.62
Sussex	21,589.62
Union	168.93
Warren	5,727.79
State	$62,602.99

TOTAL STATE INDEMNITY PAID, BY COUNTIES, FROM THE BEGINNING OF ACCREDITED HERD WORK IN 1916 TO JUNE 30, 1938

Atlantic	$ 8,215.75
Bergen	32,574.38
Burlington	313,184.69
Camden	13,608.31
Cape May	10,390.62
Cumberland	74,410.03
Essex	35,769.99
Gloucester	62,797.35
Hudson	4,455.78
Hunterdon	332,858.13
Mercer	176,455.97
Middlesex	71,661.49
Monmouth	114,472.90
Morris	125,455.10
Ocean	29,314.82
Passaic	32,606.20
Salem	342,348.15
Somerset	213,376.85
Sussex	909,893.25
Union	34,724.11
Warren	358,184.16
State	$3,296,758.03

The following summary indicates the amount of state indemnity paid for reactors resulting from the tuberculin test during the year ending June 30, 1938.

Class of Cattle	Number of Animals	Amount Paid
Registered Animals	92	$ 7,886.24
Grade Animals	1,084	54,716.75
Registered and Grade	1,176	$62,602.99

Average State Indemnity Paid Per Head—

Registered Animal	$85.72
Grade Animal	50.48
Registered and Grade	53.24

The following summary indicates the amount of salvage received by owners for reactors resulting from the tuberculin test during the year ending June 30, 1938.

Class of Cattle	Number of Animals	Amount Paid
Registered Animals	92	$ 4,527.52
Grade Animals	1,084	43,099.80
Registered and Grade	1,176	$47,627.32

Average Salvage Received Per Head—

Registered Animal	$49.22
Grade Animal	39.76
Registered and Grade	40.50

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	1,176	$26,469.33

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)	$136,699.64
Average Amount Received per Head by Owners for Reactors	116.24

HERDS AND CATTLE UNDER STATE AND FEDERAL SUPERVISION, JUNE 30, 1938

County	Herds Under Supervision	Herds Fully Accredited	Number of Cattle *Under Supervision* 6/30/38			No. of Cattle *Fully Accredited* 6/30/38		
			P. B.	Grades	Total	P. B.	Grades	Total
tlantic	313	273	.....	529	529	2	373	375
ergen	252	213	173	2,836	3,009	159	2,520	2,679
urlington	1,313	1,186	2,034	19,817	21,851	1,988	17,919	19,907
amden	341	306	228	1,391	1,619	266	1,273	1,539
ape May	241	212	19	974	993	29	820	849
umberland	1,283	1,140	434	6,533	6,967	335	5,790	6,125
ssex	153	135	193	2,043	2,236	184	1,341	1,525
loucester	1,147	1,012	710	4,706	5,416	728	4,284	5,012
udson	25	23	.....	129	129	.....	106	106
unterdon	2,193	1,982	2,368	23,936	26,304	2,121	21,471	23,592
ercer	970	873	1,172	8,282	9,454	926	6,586	7,512
iddlesex	1,327	1,190	616	7,559	8,175	591	4,546	5,137
onmouth	1,558	1,297	1,098	8,323	9,421	767	6,768	7,535
orris	1,065	903	1,725	10,339	12,064	1,747	9,362	11,109
cean	380	319	10	1,673	1,683	8	1,442	1,450
assaic	229	215	36	2,770	2,806	29	2,230	2,259
alem	1,330	1,126	937	14,485	15,422	879	12,132	13,011
omerset	1,201	1,064	2,268	9,592	11,860	2,270	8,529	10,799
ussex	1,276	1,032	2,366	30,403	32,769	1,638	23,796	25,434
nion	239	209	72	3,475	3,547	69	1,370	1,439
arren	1,349	1,197	1,785	21,435	23,220	1,477	19,595	21,072
Total	18,185	15,907	18,244	181,230	199,474	16,213	152,253	168,466

INITIAL TESTS MADE AND REACTORS RESULTING, BY COUNTIES,

July 1, 1937 to June 30, 1938

	Number of Herds Tested	Animals Tested		Animals Reacting		Percentage Reacting		Total Animals Tested	Total Animals Reacting	Percentage of Total Reacting
		Registered	Grade	Registered	Grade	Registered	Grade			
Atlantic	40	....	64	....	....	....	....	64	....	....
Bergen	32	....	173	....	....	....	....	173	....	....
Burlington	93	12	682	....	2	....	.29	694	2	.29
Camden	36	....	130	....	....	....	....	130	....	....
Cape May	25	....	69	....	....	....	....	69	....	....
Cumberland	126	3	277	....	....	....	....	280	....	....
Essex	10	....	67	....	....	....	....	67	....	....
Gloucester	114	5	250	....	2	....	.80	255	2	.78
Hudson	2	....	5	....	....	....	....	5	....	....
Hunterdon	135	52	1,325	....	10	....	.75	1,377	10	.73
Mercer	68	18	165	....	....	....	....	183	....	....
Middlesex	117	10	286	....	1	....	.35	296	1	.34
Monmouth	198	28	657	....	14	....	2.13	685	14	2.04
Morris	117	12	467	....	1	....	.21	479	1	.20
Ocean	60	....	130	....	2	....	1.54	130	2	1.54
Passaic	13	....	60	....	....	....	....	60	....	....
Salem	81	32	507	1	6	3.13	1.18	539	7	1.29
Somerset	114	58	436	....	6	....	1.37	494	6	1.21
Sussex	108	9	1,477	1	17	11.11	1.15	1,486	18	1.21
Union	20	....	41	....	....	....	....	41	....	....
Warren	86	75	741	....	2	....	.27	816	2	.25
Total	1,595	314	8,009	2	63	.64	.79	8,323	65	.78

CATTLE TESTED IN NEW JERSEY UNDER THE ACCREDITED HERD PLAN BY VETERINARIANS OF THE STAFF OF THE UNITED STATES DEPARTMENT OF AGRICULTURE, JULY 1, 1937 TO JUNE 30, 1938

	INITIAL TESTS					*HERD ADDITION TESTS*					*OTHER TESTS*				
		Tested		Reactors			Tested		Reactors			Tested		Reactors	
	Lots	Regist'd	Grade	Regist'd	Grade	Lots	Regist'd	Grade	Regist'd	Grade	Lots	Regist'd	Grade	Regist'd	Grade
1937															
July	28	3	147	....	....	3	....	48	....	3	199	60	824	....	....
August	5	....	44	....	....	....	1	70	....	1	85	51	839	....	....
September	9	5	65	....	....	....	....	95	....	2	89	44	858	1	3
October	16	14	67	....	....	....	9	203	....	3	94	403	1,992	7	21
November	5	....	47	....	....	....	....	222	....	2	65	30	2,506	....	....
December	4	....	37	....	....	....	....	95	....	....	67	56	599	....	....
1938															
January	6	....	86	....	3	....	16	148	....	2	83	277	1,124	3	4
February	9	1	57	....	....	....	11	133	....	2	144	110	1,257	....	6
March	8	....	27	....	....	....	16	186	....	2	87	150	1,081	4	2
April	2	....	6	....	....	....	35	218	....	1	105	251	2,591	....	15
May	4	....	10	....	....	....	11	169	....	....	150	256	2,729	....	6
June	9	....	25	....	....	....	13	189	....	....	176	68	949	1	2
Totals	105	23	618	....	3	3	112	1,776	....	18	1,344	1,756	17,349	16	59
Percentage of Reactors	....	....	....	....	.49				....	1.01				.91	.34
Average Percentage	....	....	....		.47					.95					.39

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

July 1, 1937 to June 30, 1938

	INITIAL TESTS					*HERD ADDITION TESTS*					*OTHER TESTS*				
		Tested		Reactors			Tested		Reactors			Tested		Reactors	
	Lots	Regist'd	Grade	Regist'd	Grade	Lots	Regist'd	Grade	Regist'd	Grade	Lots	Regist'd	Grade	Regist'd	Grade
1937															
July	51	....	299	....	....	1	....	78	....	1	440	337	4,781	1	9
August	30	1	68	....	....	....	....	47	....	2	254	208	3,457	3	9
September	33	7	194	...	4	....	....	40	....	....	337	367	3,796	....	22
October	62	17	320	....	2	1	3	88	....	3	488	950	7,069	5	31
November	56	1	299	....	1	....	1	155	....	4	495	768	9,431	....	51
December	56	21	355	....	7	1	....	254	....	1	419	903	6,057	2	38
1938															
January	57	2	256	1	6	3	....	222	....	2	638	374	7,158	2	81
February	58	3	328	....	6	2	2	194	1	8	529	918	6,612	....	44
March	43	22	312	....	1	3	7	157	....	1	485	570	7,386	1	22
April	39	....	167	....	4	2	28	90	....	1	459	1,215	6,473	....	32
May	45	3	151	....	1	1	....	11	....	....	486	1,189	7,081	1	28
June	69	1	301	....	....	3	....	125	....	....	609	911	6,974	4	19
Totals	599	78	3,050	1	32	17	41	1,461	1	23	5,639	8,710	76,275	19	386
Percentage of Reactors	....	....	....	1.28	1.05	....	....	....	2.44	1.57	....	....	....	.22	.51
Average Percentage	....	....	....	1.05		....	....	....	1.6		....	....	....	.48	

CATTLE TESTED UNDER THE ACCREDITED HERD PLAN BY VETERINARIANS ACCREDITED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE

July 1, 1937 to June 30, 1938

	INITIAL TESTS					*HERD ADDITION TESTS*					*OTHER TESTS*				
		Tested		Reactors			Tested		Reactors			Tested		Reactors	
	Lots	Regist'd	Grade	Regist'd	Grade	Lots	Regist'd	Grade	Regist'd	Grade	Lots	Regist'd	Grade	Regist'd	Grade
1937															
July	72	8	236	....	1	70	58	877	....	11	853	813	8,221	9	69
August	60	9	496	....	2	52	18	612	....	6	785	811	9,499	10	71
September	75	32	301	....	3	53	14	575	....	8	843	883	8,405	....	39
October	116	31	562	....	2	87	71	1,282	....	6	1,361	2,260	11,895	1	55
November	79	24	413	....	....	59	15	568	....	7	1,078	1,157	9,229	4	59
December	48	12	273	....	5	71	8	806	....	6	862	896	9,295	....	48
1938															
January	79	5	261	....	2	105	33	787	....	10	1,049	1,557	9,559	7	62
February	58	51	244	1	3	55	24	706	1	12	869	849	9,778	6	65
March	39	11	516	....	2	67	36	598	....	4	552	822	6,983	....	50
April	80	5	468	....	5	52	5	593	....	4	1,164	854	13,399	3	62
May	119	14	356	....	1	34	31	365	....	7	1,430	936	11,763	3	63
June	66	11	215	....	2	52	16	297	....	4	715	548	8,415	2	67
Totals	891	213	4,341	1	28	757	329	8,066	1	85	11,561	12,386	116,441	45	710
Percentage of Reactors	....	....	....	.47	.65	....	....	....	.3	1.05	....	....	....	.36	.61
Average Percentage	....	....	....		.64	....	....	....		1.02	....	....	....		.59

SUMMARY OF CATTLE TESTED UNDER ACCREDITED HERD PLAN

July 1, 1937 to June 30, 1938

	Registered Animals	Grade Animals	Total
Initial Tests			
Tested	314	8,009	8,323
Reacted	2	63	65
Percentage of Reactors—.78			
Herd Addition Tests			
Tested	482	11,303	11,785
Reacted	2	126	128
Percentage of Reactors—1.09			
Other Tests			
Tested	22,852	210,065	232,917
Reacted	80	1,155	1,235
Percentage of Reactors—.53			
Total			
Tested			253,025
Reacted			1,428
Percentage of Reactors			.56
Percentage of Reactors based on Cattle Population			.72

TESTS MADE ON NATIVE CATTLE NOT UNDER STATE AND FEDERAL SUPERVISION

July 1, 1937 to June 30, 1938

Tested by Private Veterinarians

	Number of Lots	Animals Tested	Animals Reacting	Per Cent Reacted
1937				
July	2	2	....	....
August	3	4	....	....
September	1	2	....	....
October	1	1	....	....
November	2	4	....	....
December	2	6	....	....
1938				
January	4	11	....	....
February	6	11	1	9.09
March	....	....	....	....
April	2	3	....	....
May	3	9	....	....
June	2	2	....	....
Totals	28	55	1	1.81

INSPECTING AND RELEASING INSHIPPED CATTLE

During the past year regulations governing imported cattle were changed. For years once tested tuberculosis-free cattle and cattle originating in modified accredited herds had been permitted to enter New Jersey. This rule, while very effective some years ago, actually, during the past two or three years, made it mandatory that New Jersey consigned cattle be selected from the heavier infected areas. It also, to a large extent, prohibited the shipment of young dairy cows. The change made in the regulations permits the purchase of heifers and young cows in six-year modified accredited areas of the West.

It is believed that this change will be responsible for the introduction of an average younger dairy replacement, less likely to be affected with subacute or chronic mastitis.

Following is a summary of the cattle shipped into New Jersey by months, those condemned on tuberculin test and those shipped out of the state during the year ending June 30, 1938:

Month	Number of Cattle Shipped into New Jersey	Number of Cattle Condemned on Tuberculin Test	Number of Cattle Shipped out of New Jersey
July	2,737	104	36
August	2,953	104	2
September	3,098	82	24
October	2,753	136	27
November	3,001	128	57
December	2,068	107	40
January	1,597	185	18
February	1,052	155	35
March	1,643	89	20
April	1,481	127	14
May	2,317	110	62
June	2,638	101	26
Totals	27,338	1,428	361

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

1933-1934	1934-1935	1935-1936	1936-1937	1937-1938
24,823	26,760	24,626	28,472	27,338

IMPORT CATTLE RECEIVED FROM VARIOUS STATES FOR DAIRY AND BREEDING PURPOSES, 1937-1938

Point of Origin	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Alabama	....	....	....	....	20	....	....	....	....	....	....	....	20
Athenia (Quarantine)	14	....	....	....	....	....	....	....	....	....	....	....	14
Canada	82	83	125	106	96	131	89	34	129	73	106	60	1,114
Connecticut	....	2	....	7	6	2	7	....	....	1	1	2	28
Delaware	1	....	1	....	....	3	1	....	....	....	....	5	11
District of Columbia	....	....	....	....	....	....	....	....	1	....	....	....	1
Georgia	....	....	....	....	....	....	1	....	....	....	11	....	12
Illinois	....	....	35	....	....	....	1	....	....	....	....	....	36
Indiana	....	6	....	....	....	....	....	....	....	....	....	....	6
Iowa	....	32	....	....	....	....	....	....	....	....	....	....	32
Kentucky	....	....	....	....	....	1	....	....	....	....	....	2	3
Lancaster Yards	50	....	216	100	62	82	20	30	53	35	80	106	834
Maine	....	....	....	....	6	....	....	....	....	....	....	....	6
Maryland	128	155	54	95	67	74	66	47	63	85	68	147	1,049
Massachusetts	....	1	....	4	....	1	2	....	....	4	....	....	12
Michigan	351	506	659	429	483	275	337	188	254	265	395	438	4,580
Minnesota	1	....	....	23	93	22	....	28	20	52	119	90	448
Missouri	2	....	....	....	....	....	....	....	....	....	....	....	2
New Hampshire	....	1	....	....	....	....	....	....	....	1	....	....	2
New York	42	86	63	193	68	109	40	82	108	54	29	61	935
North Carolina	8	....	....	9	....	....	....	....	9	....	....	....	26
Ohio	604	769	692	590	685	429	356	266	193	246	343	586	5,759
Pennsylvania	187	118	182	127	120	142	155	57	141	145	211	157	1,742
Rhode Island	....	....	....	....	....	....	1	....	....	....	....	....	1
South Carolina	....	....	....	1	....	....	....	....	....	....	....	....	1
Tennessee	24	....	....	....	....	26	....	....	....	....	....	81	131
Vermont	....	5	7	1	....	2	....	....	....	....	....	....	15
Virginia	25	13	29	25	28	10	....	....	....	....	64	86	280
Washington	1	....	....	....	....	....	....	....	....	....	....	....	1
Wisconsin	1,217	1,176	1,035	1,043	1,228	759	521	320	672	520	890	817	10,198
Wyoming	....	....	....	....	39	....	....	....	....	....	....	....	39
	2,737	2,953	3,098	2,753	3,001	2,068	1,597	1,052	1,643	1,481	2,317	2,638	27,338

CATTLE SHIPPED OUT OF THE STATE DURING THE FISCAL YEAR 1937-1938

Month	Number of Lots From Herds Under Supervision	Number of Animals From Herds Under Supervision
July	13	36
August	2	2
September	14	24
October	11	27
November	13	57
December	10	40
January	7	18
February	10	35
March	7	20
April	7	14
May	16	62
June	6	26
Totals	116	361

Due to the fact that a number of the states to which New Jersey cattle have been shipped during previous years have passed rules and regulations excluding all cattle that do not come from Bang's disease accredited free herds, there has been a reduction of 50.88 per cent in the number of cattle exported during this year as compared with last.

BANG'S DISEASE CONTROL

Work throughout the entire nation in the control of this major disease of livestock has proceeded at a rapid pace.

Four years ago, comparatively few states were equipped to adequately take care of the control of Bang's disease. Pennsylvania, New Jersey, New York and Maryland were among these. In 1934, the federal government under the Jones-Connolly Bill for a cattle reduction program, elected to provide indemnity for Bang's reactors and reduce the cattle population by the removal of carriers of this disease. As time went on and the farmers learned the economic value of maintaining Bang's free herds, a demand was made to continue the appropriation for eradication. Numerous new laboratories were set up to aid in this work so that today in every state in the Union, an endeavor is being made to eradicate this disease from the cattle population.

Bang's disease might be called a triple threat. It creates a menace to human health through spread of undulant fever in man; it strikes at the very foundation of the livestock industry, the unborn calf; and, in its wake, it leaves shy breeding, retained placentas, sterility and lessened milk production.

Invariably the owner of an accredited Bang's disease free herd will point out in addition to other advantages, the saving in professional service fees resulting from the elimination of this disease from his herd.

That undulant fever in man may result from drinking milk infected with Brucella organism has been demonstrated beyond doubt, although the majority of cases occurring in humans are found to result from contact with infected animals.

Dr. R. A. Kern, Professor of Medicine at the University of Pennsylvania, in a recent publication was quoted as saying, "That Bang's disease is transmissible to man has been abundantly demonstrated. Moreover, as the various guises in which the disease can appear are being recognized, the number of human cases is mounting from year to year. It is certainly a much more important public problem than is typhoid fever. The section on public health of the League of Nations in 1933 designated this disease as ranking first in importance as a human health problem."

The trend of today, relative to the control of this disease is indicated by the federal government report which shows, on June 7, 1938, control programs operated in all states of the Union with 9,075,327 or 17 per cent of the total breeding cattle under supervision, as compared with December 1, 1935, when 4,182,539 were reported as being tested.

The following depicts the progress made in control of this disease in the states bordering New Jersey and also in those states from which the major portion of our replacements come.

State	Percentage of Cattle Tested	State Indemnity Paid	Number Cattle Exported to New Jersey in 1938
New York	4.	Yes	650
Pennsylvania	33.8	Yes	3,456
Delaware	39.6	Yes	18
Maryland	34.1	Yes	1,273
Virginia	78.9	Yes	268
Michigan	13.9	No	4,414
Wisconsin	32.9	Yes	8,434
Ohio	23.2	No	6,560

Interest in the control of this disease has increased in New Jersey during the same period but has not kept pace with that prevailing throughout the United States.

During the fiscal year ending June 30, 1938, there were under supervision for the eradication of Bang's disease 266 herds of 11,657 cattle. This was an increase of 15.15 per cent in the number of herds and 6.56 per cent in the number of cattle over the preceding year. Twenty additional herds received their accredited certificates during this time, bringing the total of herds thus classified to 124.

At the present time considerable difficulty is encountered in rendering great service through lack of personnel and expense money for this project. The varied programs offered by the department today should encourage all owners of dairy cattle to avail themselves of the opportunity to become informed of the presence and extent of the disease in their animals. The only mandatory rule to be observed by them is disposal when they see fit,

of reacting and suspicious animals to slaughter only, and by written permit.

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

Total Number of Animals Bled Since the Work Commenced..		262,113
Total Number of Animals Showing Positive Reaction.....	11,664 - 4.45%	
Total Number of Animals Showing Negative Reaction.....	236,576 - 90.26%	
Total Number of Animals Showing Suspicious Reaction.....	13,873 - 5.29%	
Total Number of Animals Bled on Initial Test Since the Work Commenced.....		22,299
Total Number of Animals Showing Positive Reaction.....	4,772 - 21.4%	
Total Number of Animals Showing Negative Reaction.....	17,527 - 78.6%	

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, 1938

County	Number of Herds Under Supervision	Number of Herds Fully Accredited	Number of Animals Under Supervision
Atlantic	....	....	....
Bergen	12	3	298
Burlington	17	7	1,038
Camden	4	4	130
Cape May	6	4	130
Cumberland	8	2	476
Essex	4	1	157
Gloucester	5	3	370
Hudson	1	....	4
Hunterdon	19	4	751
Mercer	33	21	1,151
Middlesex	19	2	2,317
Monmouth	26	11	595
Morris	20	7	1,142
Ocean	1	1	36
Passaic	4	2	310
Salem	6	2	172
Somerset	65	41	1,752
Sussex	4	3	378
Union	2	1	8
Warren	10	5	442
State	266	124	11,657

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

County	Number of Tests	Negative Reactions	Positive Reactions	Suspicious Reactions
Atlantic	....	....	....	....
Bergen	1,161	1,107	9	45
Burlington	4,191	4,118	13	60
Camden	304	304	....	....
Cape May	436	410	1	25
Cumberland	1,683	1,650	7	26
Essex	1,108	1,082	5	21
Gloucester	1,205	1,191	....	14
Hudson	13	11	1	1
Hunterdon	4,043	3,882	57	104
Mercer	8,151	7,791	104	256
Middlesex	11,336	10,872	175	289
Monmouth	2,269	2,197	33	39
Morris	11,522	11,087	131	304
Ocean	116	109	5	2
Passaic	2,584	2,524	15	45
Salem	857	803	11	43
Somerset	7,626	7,337	106	183
Sussex	2,610	2,345	136	129
Union	21	21	....	....
Warren	2,863	2,681	60	122
State	64,099	61,522	869	1,708

CALFHOOD VACCINATION

The experimental vaccination of calves to immunize them against Bang's disease was continued with Strain 19 vaccine supplied by the United States Department of Agriculture. The following tabulated form gives the result of this work to date.

Total Number of Calves Vaccinated	1,003
Total Number of Calves Released for Breeding	646—64.41%
Total Number of Calves Not Released for Breeding	199—19.84%
Total Number of Calves Withdrawn from Supervision Before Being Released for breeding	158—15.75%
Total Number of Calves Attaining Breeding Age With Available Reports	408
Number of Calves Which Calved Normally First Breeding	*358—87.74%
Number of Calves Aborting	7— 1.72%
Number of Retained Placentas	13— 3.19%
Number of Calves Sold as Non-Breeders	22— 5.39%
Number of Calves Having Difficulty with Breeding	8— 1.96%

Of the total number of calves vaccinated (1,003) 31 were reported as having died and 124 calves were sold and slaughtered as a result of being positive to the tuberculin test, mastitis, Bang's disease or udder trouble.

*Of this number 68 calved normally the second time and 4 calved normally the third time.

GOATS

Considerable interest has been manifested by the goat raisers of the state to provide themselves with disease-free milk producers. The following is a summary of the herds and animals under supervision.

GOAT HERDS UNDER SUPERVISION

	Tuberculosis		*Bang's Disease*	
	No. Herds	No. Animals	No. Herds	No. Animals
Atlantic	....	....	....	....
Bergen	3	18	2	14
Burlington	....	....	....	....
Camden	3	32	3	32
Cape May	....	....	....	....
Cumberland	1	1	....	....
Essex	4	18	4	18
Gloucester	3	39	3	39
Hudson	....	....	....	....
Hunterdon	4	67	2	54
Mercer	1	9	1	6
Middlesex	2	13	2	13
Monmouth	1	2	....	....
Morris	11	113	12	114
Ocean	....	....	....	....
Passaic	3	49	3	49
Salem	....	....	....	....
Somerset	1	3	1	3
Sussex	1	4	1	4
Union	....	....	....	....
Warren	1	1	1	1
State	39	369	35	347

To date, but one reactor to the tuberculin test has been found and but one has shown any reaction to the Bang's test.

LIVESTOCK AUCTION SALES MARKET SUPERVISION

The results of the first full year of veterinary supervision of a livestock auction market follow.

Number of Cattle Checked	Number of Cattle Tuberculin Tested		Number of Cattle Ear Punched for Slaughter	Number of Cattle Bled for Bang's Test	Number of Swine Treated	
	Tested	*Reacted*			*Single*	*Double**
266	1,833	....	41	4	744	2,524

This supervision began in March, 1937, at the insistence of the livestock auction market owner and has proved beneficial both to the livestock company and the farmers who patronize the market.

All animals offered for sale on this market must be in a good state of health and must be certified to have come from tuberculosis accredited herds and submitted to tuberculin test prior to movement to other farms.

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

ENCEPHALOMYELITIS

Encephalomyelitis, or brain fever in horses, again made its appearance in southern New Jersey during the past year. Fortunately, only ten cases of this fatal disease were reported. In no instance was a previously vaccinated horse afflicted, and in a number of cases reported, a vaccinated horse was the stable mate of the one infected.

The experience gained through the minor outbreak this past year strengthens the belief that immunization prior to the normal seasonal outbreak is the proper course to pursue.

In March, 1938, the members of this bureau through the cooperation of the county agents in Cape May, Atlantic, Cumberland and Salem counties and the Rockefeller Institute for Medical Research submitted 1,834 horses to vaccination. In the experimental vaccination work this year, a living virus prepared by the Rockefeller Institute for Medical Research was employed.

All signs point to a recurrence of the disease in horses of the West, and dependent upon weather conditions, New Jersey may look forward to some cases again this summer.

Following is a summary of the vaccination experiment carried on this year:

County	Number of Premises Where Horses Were Vaccinated	Number of Horses Vaccinated
Salem	221	724
Cumberland	297	656
Cape May	119	212
Atlantic	174	242
Totals	811	1,834

SWINE DISEASE CONTROL

HOGS INOCULATED AS A PROTECTION AGAINST CHOLERA INFECTION, BY MONTHS

July, 1937 to June, 1938

Vaccinations Made by Private Veterinarians

Month	Number of Hogs Given Single Treatment	Number of Hogs Given Double Treatment
July	....	480
August	....	154
September	6	256
October	2	268
November	6	294
December	3	221
January	....	187
February	7	298
March	5	279
April	8	134
May	6	520
June	1	9,054
Totals	44	12,145
Total Single	44	
Total Double	12,145	
Grand Total	12,189	

HOGS INOCULATED AS A PROTECTION AGAINST CHOLERA INFECTION, BY COUNTIES

July, 1937 to June, 1938

Vaccinations Made by Private Veterinarians

	Single Treatment	Double Treatment
Atlantic	8	329
Bergen	....	....
Burlington	....	484
Camden	....	....
Cape May	10	376
Cumberland	8	6
Essex	2	32
Gloucester	....	20
Hudson	....	7,264
Hunterdon	....	40
Mercer	....	309
Middlesex	3	624
Monmouth	7	850
Morris	....	491
Ocean	5	57
Passaic	....	....
Salem	....	4
Somerset	....	181
Sussex	....	....
Union	1	957
Warren	....	121
State	44	12,145
Total Single	44	
Total Double	12,145	
Grand Total	12,189	

GLANDERS

This year, as in the previous one, no positive cases of glanders were reported to the bureau by private veterinarians. Of the 109 horses tested, 85 were for admission to the state while 24 were tested for export.

MALLEIN TESTS CONDUCTED AND REPORTED
July 1, 1937 to June 30, 1938
Tests Made by Private Veterinarians

Month	Negative	Positive
July	1	....
August	20	....
September	....	....
October	17	....
November	14	....
December	2	....
January	20	....
February	4	....
March	3	....
April	....	....
May	....	....
June	28	....
Total	109	....

ANTHRAX

This disease, at one time a scourge to farmers of southern New Jersey, was successfully controlled again during the past fiscal year through vaccination of livestock in that area constituting the natural anthrax district. This spore-bearing disease germ, which thrives under adverse conditions, lurks in the soil of those counties subjected to periodic inundation by the Delaware River.

In controlling the disease, the bureau veterinarians, during February and March, vaccinated 1,231 cattle and 109 horses. The number treated represents a substantial increase over the number vaccinated a year ago.

STALLION REGISTRATION

Bureau representatives examined and licenses were issued for 22 stallions during the past fiscal year.

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

STALLIONS LICENSED, BY BREEDS
JULY 1, 1937 TO JUNE 30, 1938

Belgian (Purebred)	4
Morgan (Purebred)	1
Percheron (Purebred)	11
Suffolk (Purebred)	2
Grade Drafts *	3
Pony (Grade—Breed not known)	1
Total	22

* Includes grade Percheron and Belgian

STALLIONS LICENSED, BY COUNTIES
JULY 1, 1937 TO JUNE 30, 1938

Atlantic	....
Bergen	....
Burlington	2
Camden	1
Cape May	....
Cumberland	1
Essex	1
Gloucester	....
Hudson	....
Hunterdon	8
Mercer	....
Middlesex	1
Monmouth	....
Morris	1
Ocean	...
Passaic	....
Salem	3
Somerset	1
Sussex	....
Union	....
Warren	3
State	22

FOWL POX AND LARYNGOTRACHEITIS VACCINATION

Permits were issued to poultrymen making requests for the vaccination of their personally owned flocks as a protection against fowl pox and laryngotracheitis. Samples of vaccine offered for sale within the state were submitted to test through the cooperation of Dr. F. R. Beaudette of the New Jersey Agricultural Experiment Station and were found to be of sufficient potency to warrant permitted sale.

Following is a record of the permits issued during the calendar year 1937:

Fowl pox permits	2,536
Laryngotracheitis permits	362

POULTRY INSPECTION

As a protection to the poultry industry of the state, the department has continued inspection of truck and carlots of poultry consigned to the New Jersey terminals.

In addition, in order to provide a ready movement of live poultry to metropolitan markets, the inspectors of the bureau have received additional training and are now qualified as inspectors under the rules of the United States Bureau of Agricultural Economics. This has greatly facilitated the clearance of New Jersey poultry through to the New York market.

The following is a summary of the number of carlots of poultry received during the year and the points of origin of such consignments.

CARLOTS OF POULTRY FROM VARIOUS STATES RELEASED AT RAILROAD TERMINALS IN NEW JERSEY, JULY 1, 1937 to JUNE 30, 1938

Place of Origin	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Alabama	....	....	....	....	2	1	1	2	1	....	....	....	7
Connecticut	5	11	7	5	6	5	6	3	6	4	5	6	69
Delaware	7	12	8	7	10	8	10	10	22	23	29	25	171
Georgia	....	....	....	....	....	....	....	....	1	....	....	....	1
Illinois	10	12	9	6	7	4	9	3	5	3	4	8	80
Indiana	14	25	36	20	31	23	14	4	4	7	8	14	200
Iowa	1	1	3	....	1	3	1	....	....	....	....	....	10
Kentucky	....	....	....	....	....	1	4	7	3	8	7	6	36
Maine	....	....	....	....	....	....	....	....	....	1	1	1	3
Maryland	....	....	....	....	3	....	1	....	6	3	3	3	19
Massachusetts	1	6	7	4	6	3	4	....	5	5	5	6	52
New Hampshire	2	1	2	....	....	....	....	1	1	2	1	1	11
New Jersey	....	....	....	....	....	....	....	....	8	9	8	12	37
New York	....	1	2	1	3	1	5	....	7	10	8	14	52
North Carolina	....	....	....	....	....	....	....	....	4	2	1	....	7
Ohio	4	4	7	11	7	9	9	1	3	5	8	13	81
Pennsylvania	4	9	7	4	6	1	3	....	7	5	6	11	63
Rhode Island	1	1	2	....	2	3	....	....	2	5	6	9	31
South Carolina	....	...	13	....	....	1	....	....	....	....	....	....	14
South Dakota	5	7	....	5	8	5	1	....	....	....	....	5	36
Tennessee	....	1	1	1	13	4	8	7	16	6	6	5	68
Virginia	1	4	8	4	9	9	8	5	9	10	8	14	89
	55	95	112	68	114	81	84	43	110	108	114	153	1,137

CARLOTS OF POULTRY RELEASED AT THE VARIOUS RAILROAD TERMINALS IN NEW JERSEY
July 1, 1937 to June 30, 1938

Month	D. L. & W. J. C.	D. L. & W. Nrk.	Erie Nrk.	Pa. Nrk.	Total
July	2	....	34	19	55
August	....	....	57	38	95
September	....	....	54	58	112
October	....	1	26	41	68
November	....	....	13	101	114
December	....	....	7	74	81
January	....	....	31	53	84
February	....	....	....	43	43
March	....	....	....	110	110
April	....	....	....	108	108
May	....	....	....	114	114
June	....	....	....	153	153
	2	1	222	912	1,137

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

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
New Jersey	55	95	112	68	114	81	84	43	110	108	114	153	1,137
New York	209	182	290	298	403	420	280	245	280	278	214	209	3,308

PULLORUM DISEASE CONTROL

Although both the tube and field tests were offered to the poultry industry during the past year, few availed themselves of the opportunity to have the tube test conducted. While it is admitted that the laboratory test probably is a little more accurate, the field test has met with wide approval because of its economy of time and its value as a pullorum disease eradicator.

Both tests will be offered to poultrymen during the coming year.

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

July 1, 1937 to June 30, 1938

County	Number of Fowls Tested	Number of Fowls Reacting	Per Cent Reacting
Atlantic	604	3	.5
Bergen	498	....	....
Burlington	8,428	136	1.61
Camden	....	....	....
Cape May	1,528	58	3.8
Cumberland	13,884	125	.9
Essex	415	4	.96
Gloucester	9,077	36	.4
Hudson	....	....	....
Hunterdon	2,640	13	.49
Mercer	9,861	150	1.5
Middlesex	162	....	....
Monmouth	3,464	42	1.21
Morris	8,079	13	.16
Ocean	914	7	.77
Passaic	....	....	....
Salem	5,939	142	2.39
Somerset	1,686	27	1.6
Sussex	4,421	124	2.8
Union	....	....	....
Warren	38	3	7.89
State	71,638*	883	1.23

* Of this number 2,640 birds were subjected to the tube agglutination test only.

WORK DONE IN THE BUREAU LABORATORY

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

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

Number of Tests Set Up and Read	1,429
Number Giving Positive Reaction	258
Number Giving Highly Suspicious Reaction	68
Number Giving Slightly Suspicious Reaction	222
Number Giving Negative Reaction	881

EQUINE INFECTIOUS ABORTION

Number of Tests Set Up and Read	18
Number Giving Positive Reaction	7
Number Giving Highly Suspicious Reaction	1
Number Giving Slightly Suspicious Reaction	1
Number Giving Negative Reaction	9

BACTERIOLOGICAL EXAMINATIONS

Animal	Material	Number	Condition Suspected	Findings
Equine	Placenta	1	Bang's Disease	Suspicious Streptococcus
Avian	Chicken	1	Pullorum Disease	Positive S. Pullorum
Avian	Chicks	3	Pullorum Disease	Positive S. Pullorum
Avian	Chick	1	Unknown	Decomposition—No Diagnosis
Bovine	Fetus and Placenta	1	Bang's Disease	Negative Brucella Abortus
Avian	Chicks	3	Pullorum Disease	Positive S. Pullorum
Avian	Chicks	6	Pullorum Disease	Negative
Avian	Chicks	4	Pullorum Disease	Positive S. Pullorum
Avian	Chicks	6	Pullorum Disease	Negative
Avian	Chicks	4	Pullorum Disease	Negative
Bovine	Milk	4	Mastitis	Negative, Hotis, Bromthymol and Blood Agar plate
Avian	Chicks	3	Pullorum Disease	Positive S. Pullorum
Avian	Chicks	3	Pullorum Disease	Negative
Avian	Chicks	3	Pullorum Disease	Coccidiosis
Avian	Chicks	3	Pullorum Disease	Negative
Bovine	Ear	1	Anthrax	Negative
Bovine	Milk Samples	14	Mastitis	10 Positive to Hotis Test
Avian	Chicks	3	Pullorum Disease	Negative

MICROSCOPIC EXAMINATIONS

Animal	Material	Condition Suspected	Findings
Porcine	Parasite	Measley Pork	Negative (Fly Larvae)
Bovine	5 Samples Uterine Exudate	Trichomoniasis	Negative
Bovine	Mediastinal Lymph Gland	Tuberculosis	Positive, Acid Fast Bacilli
Bovine	5 Samples Uterine Exudate	Trichomoniasis	Negative
Avian	Feces	Coccidiosis	Positive
Canine	Feces	Parasites	Round Worms
Bovine	Lung, Liver and Lymph Node	Tuberculosis	Positive, Acid Fast Organism
Bovine	Feces	Coccidiosis	Positive

POST MORTEM EXAMINATIONS

Animal	Number	Condition Suspected	Findings
Avian	1	Laryngotracheitis	Negative
Avian	2	Enterohopatitis	Decomposition—no diagnosis
Avian	9	Range Paralysis	Parasitism
Avian	1	Range Paralysis	Acites
Avian	1	Range Paralysis	Ruptured oviduct
Avian	5	Infectious Laryngotracheitis	Positive

Report of the Bureau of Markets

WARREN W. OLEY, *Chief*

During the year 1937-1938, that feeling of optimism which prevailed in the spring of 1937 was dissipated as the marketing season advanced. Prices remained low, with few exceptions, and this in itself was a keen disappointment to fruit and vegetable growers, and to the poultrymen. Early indications pointed to the end of the depression. Later, the so-called recession was very evident in eastern prices of agricultural products. As the year drew toward its close, prices of strawberries and asparagus, and some few other crops were more favorable. Generally, however, these were offset by lower returns for other crops.

The marketing work of the bureau has shown considerable progress in practically all lines. With no changes in the bureau personnel, it is proper that this should be so. Standardization work and grades inspection work have grown considerably, except in the work with producers and dealers supplying the Official Grade A Milk. In this project, while the volume of such milk produced has increased, the number of producers has declined slightly, and the lack of continued growth is due to circumstances beyond our control.

All auction markets, whether produce or poultry, have made great strides forward. They have increased their usefulness to members by adding new services in sales and purchases. One thing is evident, however; while at the beginning self-sacrificing men gave their time and energies to organization and actual operations, today, due to the increases in operations, it is too much to expect such complete assistance to the association. Membership has grown to nearly 8,000 farmers, and services are rendered to many non-members. The time has come when greater emphasis must be placed on efficient management.

Marketing in New Jersey has been greatly helped during the year through the cooperation of the Federal Surplus Commodities Corporation. Due largely to the efforts of the department, an office was set up at Hightstown and a price set at which the Corporation would buy potatoes for relief purposes. During the year, purchases amounted to 337 cars of potatoes, 68 cars of apples, 45 cars of sweet potatoes, and 5,129 packages of cabbage and snap beans. As the year closed, cabbage, beans and carrots were being bought daily and plans to purchase tomatoes had been arranged. Purchases of these vegetables were made chiefly at the Newark Farmers' Market and at the Hightstown, Vineland and Glassboro auction markets. All purchases were subject to grades inspections, and prices were on a par with commodity prices of the same quality in the terminal markets.

Marketing also was greatly benefited by the advertising program of the New Jersey Council. The intense competition New Jersey growers must meet, not only from raw products grown in other states, but from the advertising of processed food products of all kinds, is becoming more and more evident. Poultrymen, dairymen and fruit and vegetable men have been generously supported by the Council. A detailed report of these activities will be found under the Consumer Information Service.

The bureau has cooperated closely with other agencies in the state, with similar marketing agencies in other states and with the United States Department of Agriculture. The outlined project work of the bureau was continued without change except as to improvements. The 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. This latter objective is attained through the distribution of short analyses of crop and market conditions for leading New Jersey crops.

During the past year these objectives were kept in mind, and such changes were made as were necessary to fit existing economic conditions. Market news to remain efficient and to meet varying conditions must be adjusted from time to time. Several new projects were inaugurated during the past year, including the installation of a teletypewriter system for sending daily quotations; the use of an automatic voice-recording device at the potato information office at Hightstown; the publication of a report entitled "New Jersey Fresh Produce," for the benefit of the farmers' markets of Newark and Paterson; and the development of an "Inter-State Crop and Market News Service."

DAILY MARKET NEWS SERVICE

As in former years, the collection and dissemination of daily market news was conducted in cooperation with the United States Bureau of Agricultural Economics. One cooperative employee of this department and the federal government was stationed at Philadelphia and another at New York. A part of each man's time was devoted to New Jersey produce. This was the most economical method of securing the necessary information and prevented duplication of effort. In addition, the department was able to avail itself of the nation-wide resources of the United States Department of Agriculture, in order to secure data on conditions in other sections of the country.

No changes in the personnel were made at either market during the past year. Under an arrangement made last year, the man in charge of the office at each market was the cooperative employee of this department, and was responsible for obtaining the necessary information on New Jersey crops at his particular market.

The dissemination of daily market reports was again carried on through the daily press. An early morning report of prices and conditions at the New York market was released to one of the press agencies, which in turn released it to their member papers. At present, over 25 daily newspapers of the state are availing themselves of this service, and in addition the report is carried by several large dailies of the metropolitan area. This means that in most instances the farmers of the state are able to secure a report of prices late the same day that they are released.

Radio broadcasts, as a means of transmitting market reports, have not proved of great value in this area. Most of the larger stations are interested in national news only, while the coverage of the smaller stations is limited. Toward the close of the year, an arrangement was made with a Trenton station, for the broadcast of leading items on the New York market at an early morning hour. This service should prove of some value to farmers located in the central part of the state.

WEEKLY MARKET SUMMARIES

The crops and markets information service attempts to fulfill the second object of the project by issuing weekly summaries. The most important of these is entitled "Market Conditions." These reports analyze conditions in competing areas, going a step further than most market reports by attempting to give some of the causes for such happenings as low prices, excessive receipts, weather changes and economic information of a similar nature.

Market Conditions reports totaled 195 issues during the year. These included: apples, 39 reports; sweet potatoes, 31; white potatoes, 30; peaches, 17; asparagus, 12; strawberries, 12; onions, 11; tomatoes, 10; lettuce, 10; spinach, 4; and miscellaneous truck crops, 19. These last-named reports contained information on such crops as snap beans, lima beans, cabbage, peppers, eggplant, celery, cauliflower, beets, carrots and other crops.

Most of the information was obtained through correspondence and personal contacts. Cooperation on the part of the produce trade in supplying the necessary information was excellent. In addition, it was necessary to secure from growers in this state information on New Jersey crop conditions, which could be exchanged for data in competing states.

Weekly Market Review, a second of the weekly summaries, was issued regularly throughout the year. This report was arranged particularly for

poultrymen and dairymen. It contained such features as grain and feed prices, egg and poultry quotations at New York and also at the auction markets of the state, a brief summary of fresh fruit and vegetable prices at New York and Philadelphia, and a statistical table, which showed changes in leading items from week to week, and also from the corresponding week of the previous year.

The mailing list for this report became so cumbersome during the past year that the entire list was circularized early in the spring. This made the list a live one and increased the efficiency with which it can be released. At present, approximately 1,100 farmers receive this report.

Auction News has now become one of the regular reports of the service. The object of this report is to keep the directors of the various produce auction markets of the state more closely advised as to the joint activities of the markets, and also to advertise the advantages of the markets to the produce trade of the country. At present, there are approximately 500 names of produce dealers to whom this report is mailed weekly throughout the active marketing season. Toward the close of the year, this report was closely tied in with some of the advertising work of the New Jersey Council, and several requests for the report came from produce merchants because of advertisements of New Jersey products in the leading trade papers. As was the case last year, the costs of mailing were paid for by the cooperating markets.

New Jersey Fresh Produce was issued in response to the request of the farmers' markets of Newark and Paterson for assistance in marketing during the year. This special market news bulletin was issued semi-monthly throughout the active harvesting season for produce from northern New Jersey. Its purpose was to advertise the advantages of the farmers' markets as a source of fresh, high quality produce, and to keep the trade informed as to leading items moving through each market. At present, the mailing list for Newark consists of about 1,000 produce merchants; the Paterson report is sent to 500 merchants.

SPECIAL SERVICES

HIGHTSTOWN POTATO INFORMATION OFFICE

This was the tenth season during which the New Jersey Department of Agriculture conducted a market news field office at Hightstown during the active marketing season for white potatoes in this state. The Department of Agriculture maintains this office in order to aid growers and shippers in the disposal of their crop. Information is collected and distributed daily on carlot movements from New Jersey and competing states, primary destinations of New Jersey potatoes, f.o.b. prices throughout the potato belt, prices at leading city markets, and economic data concerning conditions in

competing areas. Close cooperation is maintained with the Philadelphia office of the United States Bureau of Agricultural Economics, which furnishes the figures on car shipments and destinations.

This past season the office was opened July 19, and was operated for a period of nine weeks, closing September 18. The nature of the services given this past season was much the same as in previous seasons, with one new feature added. This was the operation of an automatic telephone, an experiment in conjunction with the research department of Bell Laboratories of the American Telephone Company. By means of this device, the man in charge of the office was able to place a message on the machines twice daily, and as many as nine incoming calls could be answered at the same time. The reception of this service was gratifying, with an average of 150 to 175 calls being made daily, and the total for the season amounting to approximately 6,000 calls.

The 1937 potato deal in this state was unfavorable, with low prices and a very slow demand. Prices at shipping point ranged, during most of the season, around 80 to 90 cents f.o.b. for U. S. No. 1; 10 cents lower for U. S. Commercial. Compared with $1.85 to $2.00, during the 1936 season, this year's deal was considered poor.

Commercial plantings were increased by 3,400 acres this season, which brought the figures to 48,300 acres. Total plantings were increased only 4,000 acres, so that most of the increase took place in the commercial potato belt of the state. Yields for the commercial crop were generally good, although the period of heavy rains late in August made digging difficult, and cut down the final figures to some extent. The average for the commercial crop for the entire state was estimated at 185 bushels compared with 172 bushels in 1936. Commercial production amounted to 8,930,000 bushels, which was the largest commercial crop of the past ten years.

The distribution of the crop this year was somewhat restricted, due to heavier competition in midwestern markets. As usual, Pennsylvania was New Jersey's best potato customer, but primary destinations to that state were somewhat lighter than the previous season. Wider outlets were made to cities in New England and New York State by rail, and truck shipments were also quite liberal all season to these points. The western demand this year was a disappointment, with Indiana and Illinois cities taking only a fraction of the number of cars of the previous year. For example, Illinois received over 1,000 cars during the 1936 deal, but this past season that state took 225 cars. Chicago, the chief market of that state, was supplied liberally all season by offerings from Nebraska, Idaho, and early potatoes from Minnesota and Wisconsin. Southern markets were required to absorb a larger percentage of the total New Jersey shipments, and in most instances, the figures for destinations to those areas were much higher than those of 1936. The export field was used to a greater extent this season, as dealers found it necessary to find all possible outlets for shipments during a season

of restricted trading and low prices. The total rail movement was heavier than expected during a year of low prices, and equaled 7,844 cars.

AUCTION MARKET QUOTATIONS

During the active marketing season, usually extending from May 1 to October 15, the department is called upon to furnish the growers patronizing the produce auction markets of the state with an early morning report each day of the prevailing prices of leading products at New York. This service was continued during the past season.

In previous seasons, the service was performed by means of the telephone, but this year a teletypewriter system was installed. Three of the leading auction markets in the southern part of the state were included on this service. In addition, the report was transmitted by the same means to the Cumberland County agricultural agent's office, and to a radio station at Bridgeton. The Tri-County Auction at Hightstown was supplied by means of a telephone message.

Daily information was secured fram the cooperative employee at New York at 8:15 A. M., and placed on the teletype simultaneously for four of the points in the southern part of the state, making it available to the farmers by 8:30 A. M. each day. The Cedarville Market, operating under standard time, received its report at a slightly later time.

Several of the auction masters found this service a great benefit because it enabled them to answer questions from buyers and potential buyers at their market, regarding the trend of values. They were also able to induce growers to patronize the market by being able to show them comparative prices at the auction and at New York City.

INTER-STATE CROP AND MARKET NEWS SERVICE

Growing fresh fruits and vegetables for market represents one of the most important branches of agriculture in this state, and also in the United States. The production of these crops on a commercial scale is naturally localized in strategic areas throughout the country. Favorable soils, climate and proximity to market, are the chief determinants in the location of most of the important areas. Because of the widespread distribution of these areas, they naturally compete with one another in the distribution of their crops. In order to make the market news service of greater value to the growers of New Jersey, a cooperative project with the various producing areas, by means of a regular news letter, was developed during the year. The letter included a brief summary of weather conditions, crop conditions, crop movement and special economic data, such as labor difficulties, new packages, branding, and standardization requirements.

A small start was made on the service this past year, with cooperation received from such states as Connecticut, New York, Maine and Virginia. The main difficulty in extending the service to other states has been the lack of funds or personnel to undertake the work. Nearly all states reported that the service would be valuable, but lack of funds would not permit them to undertake the project at the present time.

In addition to other states, the service is being used by a national association of chain stores, and by one of the leading produce trade papers of the country. Both of these latter outlets are excellent media for the advertisement of New Jersey crops.

A detailed outline of the proposed service has been prepared and was presented before the National Association of Marketing Officials.

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 Breeder's 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 most successful year, although the price returns were slightly under the previous year. Figures taken from the reports of the Milk Control Board showed a net weighted average return to all producers for all milk sold in the state of $2.72 per hundred pounds for the year as against $2.80 per hundred for the previous year. This amount was much higher than that received by producers in adjoining states. The decrease was undoubtedly due to the volume of fluid milk purchased, and to decreased buying power during the business recession.

The chaotic condition of surrounding milk marketing areas, principally the New York City and Philadelphia metropolitan areas, both of which extend into New Jersey, brought into the picture a new factor, the Federal Milk Marketing Agreement, which confronted nearly every New Jersey producer. Producers in both marketing areas asked the Federal Department of Agriculture to put into effect in their respective territories an AAA Marketing Order which would effect every producer whose milk was shipped interstate. In an attempt to retain control of New Jersey's supply, representatives of various farm organizations asked the Milk Control Board to apply for an order to cover the entire State of New Jersey.

While federal intervention of some sort seems inevitable, there are many problems still to be solved. Consumption continues to lag; production within the borders of the state increases without check; the price structure built up throughout the years of dealer control is still in force and badly in need of simplification and modernization; distribution systems are similarly antiquated, and not enough attention has been given to the marketing end of the business. The need is great for a coordinated long-time plan for the reorganization of the milk industry that would benefit equally the producer, distributor, and consumer.

NEW JERSEY OFFICIAL GRADES

The New Jersey official grades continued to be the principal project of the milk marketing work. Dealers and producers concerned in the production and distribution of milk under the New Jersey grades were quite evenly distributed in the principal dairy counties of the state, the bulk of the milk being produced in the counties of Hunterdon, Warren, Morris and Sumerset. The principal center of distribution was the northern metropolitan milk shed, with southern New Jersey and seashore cities slowly increasing in volume.

There are at present 62 dealers processing 5,848 quarts of milk daily under the New Jersey official grades, a net increase of 7.13 per cent in volume over the previous fiscal year. Of these 62 dealers, 29 sold raw milk only, 19 sold pasteurized milk only and 14 dealers sold both raw and pasteurized milk. The volume of milk distributed was 64.36 per cent pasteurized and 35.64 per cent raw, practically the same percentage as in the previous fiscal year. While there was an increase in volume of milk processed, there was a decrease in the number of producers, from 197 the previous fiscal year to 184 producers this year. This clearly indicated the tendency of distributors to eliminate small dairies, replacing them with larger producers. There was also a tendency among producer dealers to produce more of their milk on their own farms, thus increasing their spread.

The 62 dealers processing New Jersey Official Grade A Milk sold in turn to 201 sub-dealers, the milk being distributed in 209 municipalities of the state.

One of the important functions of New Jersey Grade A inspection is the physical examination of cattle to eliminate diseased cows. During the fiscal year just passed, this involved the inspection of 11,163 cattle. This work is performed by private veterinarians designated by the Bureau of Animal Industry, the work being supervised by a representative of the Bureau of Markets and paid for by fees collected from the cooperating dealers.

Following is a table indicating the physical examination of cattle during the fiscal year 1937-1938 by counties, and the results of the examinations:

PHYSICAL EXAMINATION OF CATTLE, FISCAL YEAR 1937-1938
BY COUNTIES

County	Number of Herd Examinations	Number of Animal Examinations	Number of Animals Passed	Number of Animals Isolated	Number of Animals Condemned
Bergen	12	288	241	30	17
Burlington	24	660	585	37	38
Cumberland	10	241	232	1	8
Essex	5	91	87	3	1
Hunterdon	82	2,595	2,446	68	81
Mercer	11	308	273	21	14
Middlesex	4	270	248	12	10
Monmouth	4	67	59	6	2
Morris	107	3,299	3,054	147	98
Passaic	3	77	64	6	7
Salem	24	532	506	8	18
Somerset	77	1,778	1,628	55	95
Sussex	2	88	82	4	2
Union	6	167	142	7	18
Warren	15	702	656	26	20
Totals	386	11,163	10,303	431	429

SUMMARY

Number of Herd Examinations Made	386
Number of Herds in Which All Animals Passed	126—32.64%
Number of Herds in Which Animals were Isolated	84—21.76%
Number of Herds in Which Animals Were Condemned	69—17.88%
Number of Herds in Which Animals Were Both Isolated and Condemned.	107—27.72%
Number of Animals Passed	10,303—92.30%
Number of Animals Isolated	431— 3.86%
Number of Animals Condemned	429— 3.84%

This veterinary inspection was established at the time the New Jersey official grades were promulgated, and at the present time serves as a model for several other inspection agencies, both within and without this state. The veterinary inspection is made twice a year, in the spring and in the fall. The above figures show a number of replacement herds and for that reason do not check with the number of permanent producers. The average number of cows per herd was 28.9 cows, as compared with 27.9 cows per herd in the previous fiscal year, indicating a decided trend to larger production herds. This was also nearly three times the number in the average herd of New Jersey, which a recent survey showed as 10.8 animals.

One of the requirements of the New Jersey official grades is the physical examination twice each year of all employees of farms producing New Jersey Grade A Raw Milk and of employees of bottling plants handling New Jersey Grade A Pasteurized Milk. This involved the examination of 525 individuals, the medical certificates being on file in the Bureau of Markets.

During the past fiscal year, 1,816 samples of milk were collected for examination and analysis. With few exceptions, bacteria counts were maintained well below the requirements of not more than 30,000 per cubic centimeter for New Jersey Grade A Raw Milk and 20,000 per cubic centimeter for New Jersey Grade A Pasteurized Milk. All high counts were not only

reported numerically, but the types of organisms were identified and so served as clues to factors contributing to high counts. Consequently, indications of trouble were readily traced and conditions immediately corrected. Counts on New Jersey Grade A Pasteurized Milk before pasteurization were also made in order that conditions surrounding production of milk to be pasteurized were practically the same as for New Jersey Grade A Raw Milk. The average butterfat content of the 1,816 samples collected for analysis was 4.10 per cent as compared to 4.06 per cent for the previous year, and with 4.09 per cent for the past five years, indicating that the butterfat average has stabilized itself very definitely between 4.05 per cent and 4.1 per cent.

The New Jersey Grade A project is self-supporting to a considerable degree. Fees are based on a sliding scale according to the amount of milk processed by the distributor. The income to the Bureau of Markets from fees averaged $22.91 daily, and the total income collected for the fiscal year was $8,360.43.

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

	1933-34	1934-35	1935-36	1936-37	1937-38
Number of Cooperating Dealers	35	50	57	60	62
Number of Producers	125	210	219	197	184
Daily Production of Milk	30,070	53,328	56,372	52,128	55,848
Number of Cows Examined Annually	3,238	11,090	11,942	11,321	11,163
Number of Employees Examined Annually	317	409	516	550	525
Samples Collected for Analysis	876	1,116	1,231	1,838	1,816
Butterfat Average	4.11%	4.08%	4.10%	4.06%	4.10%
Average Daily Fee	$15.03	$22.77	$23.74	$22.34	$22.91

ADVERTISING

The bureau wishes to acknowledge the helpfulness in advertising this grade of milk made by the New Jersey Council. The leaflets prepared by them, and especially the radio service of "Martha Deane," were greatly appreciated.

The New Jersey Official Grade A program has now completed its seventh year. Conducted on a commercial marketing basis, it has proved the soundness of the program as a means of selling quality New Jersey milk to discriminating consumers.

"The New Jersey Dairy Bulletin" was issued monthly during the past fiscal year. So much interest was displayed in many of the articles, that they were compiled in Circular No. 289 entitled "Factors Influencing the Production of New Jersey Official Grade A Milk." The supply of these booklets was speedily exhausted.

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. Members of the staff of the Bureau of Markets cooperated with the Association in preparing a milk exhibit at the Morris County Fair at Far Hills during September, 1937, and also in the preparation of a newspaper advertising campaign in connection with the radio program of the New Jersey Council.

SPECIAL SERVICES

NEW JERSEY DAIRYMEN'S COUNCIL

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

SPECIAL INVESTIGATIONS AND HEARINGS

During the year, chaotic conditions arose in milk industry situations in the adjoining states of New York and Pennsylvania which had a direct influence on conditions in New Jersey.

The first was the milk strike in New York State during November, 1937, following the organization of the Dairy Farmers' Union. A member of the staff of the Bureau of Markets spent some time in the area affected, visiting 40 milk plants in 15 counties and reporting on the progress of the strike and effect of the Union.

Another development that arose during the year was the proposed Federal Milk Marketing Agreements. Early in 1938 hearings were held in Philadelphia on an agreement which would affect southern New Jersey, and in May hearings were held in New York State on a proposed agreement for the New York metropolitan area. A representative of the bureau staff attended all these hearings, and information supplied by him formed the basis for a brief, presented in the name of the New Jersey Dairymen's Council, setting forth the position of New Jersey in regard to the proposed New York agreement.

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 in carrying out certain of the field activities necessary in the administration of this Fund. This necessitated 18 farm visits during the year; also attendance at seven fairs in various parts of the state. He also served as a member of a committee 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

The work of this division continued to be the leading project in point of personnel and varied activities. New Jersey leads as a market garden state and ranks fourth in the United States in importance as a vegetable

marketing state. The work in this project is more nearly self-supporting than in other projects. With a relatively small appropriation from the legislature, the project collected during the year $38,000 in fees for services rendered. This money was re-appropriated for work in fruit and vegetable marketing. Nearly all of it was spent for salaries and travel of an inspection force, which carried out the work for which fees were paid.

Inspection work is a direct aid in marketing the products of the growers. During the past year, more than 5,000 carlot equivalents of potatoes were inspected and certificates as to grade issued. These certificates aided in selling the potatoes in out-of-state markets and protected the shipper from attempts, on the part of unscrupulous buyers, to reduce prices on the argument that the potatoes received did not meet the contracted quality. The inspection work at auction markets not only increased prices for goods offered, but was the basis of settlement of arguments as to quality and price between grower and buyer. The apple inspection work made export sales possible, and also increased sales to large-scale buyers.

One of the most valuable outlets for New Jersey growers is the processing plants. Great strides have been made in "quick freezing." Several thousand acres are contracted for annually by the largest of such plants located in the state. Canneries also are important to growers. Thirty such factories are located in the state, and the money paid by them to growers in 1937 exceeded $4,000,000. The bureau inspected raw products for eight of the largest processing plants. The work is increasing in popularity with the growers and is a universally acknowledged benefit to the processors.

CERTIFYING CANNERY TOMATOES

Since 1932, a major portion of the New Jersey cannery tomato crop has been contracted on the basis of the official state grades, with payment according to the quality of each load. Department inspectors selected two or more representative baskets and graded them into U. S. No. 1, U. S. No. 2, and Culls. Each grade was weighed, and the percentage of each grade, as found in the sample, was used in establishing the price and value of the load.

Contracts with delivery and payment on this basis were an advantage to growers who delivered high quality raw stock, as payment was made in accordance with quality delivered. By obtaining a high quality raw product, the processor may manufacture a high quality finished product at a reduced cost. The operation of this service by an impartial agency assured both canner and grower of consummation of their contract on a fair and impartial basis.

Experience during past seasons proved that weather conditions during harvest time were the most important factor in determining the yield and quality of the crop. Unfavorable weather and insect damage were prime factors in curtailing the production and quality of the 1937 crop. The unusual dry, hot weather during July retarded growth, and in many instances

caused a light set of tomatoes. Sunscald and sunburn, caused by partial defoliation of plants, lowered the quality in many fields. In many sections of the state the horn worm damaged fields and reduced production.

With these conditions, the 1937 crop matured early and deliveries were heaviest during the middle of August. During the week ending August 21, approximately 38,000 tons were inspected. This was about one third of the total volume inspected during the season. At this time, with peak deliveries, a northeast storm caused heavy loss. Many growers reported that the rains, which lasted three days, caused a loss of from four to six tons per acre.

The following table shows the volume inspected and the average grades each week, and the summary of past years:

SEASON OF 1937

Week Ending	No. of Loads	Total Tons	U. S. No. 1 Per Cent	U. S. No. 2 Per Cent	Culls Per Cent
July 31	447	706.7	63.65	33.46	2.89
Aug. 7	1,311	3,204.7	59.28	37.91	2.81
14	4,912	15,915.3	55.35	41.36	3.29
21	10,419	38,607.8	58.72	37.67	3.61
27	7,159	17,181.6	43.62	51.86	4.52
Sept. 4	4,769	16,924.6	51.86	44.57	3.57
11	4,040	10,576.8	45.72	50.16	4.12
18	2,874	7,713.0	55.21	41.57	3.22
25	1,114	2,420.6	56.88	39.81	3.31
Oct. 1	302	546.7	51.32	43.13	5.55
Total for Season	37,347	113,379.7	53.48	42.84	3.68

SUMMARY OF PAST YEARS

Seasons	Total Tons	U. S. No. 1 Per Cent	U. S. No. 2 Per Cent	Culls Per Cent
1937	113,379.7	53.48	42.84	3.68
1936	183,027.0	63.71	33.12	3.17
1935	120,524.0	61.88	35.45	2.67
1934	91,060.5	58.00	39.00	3.00
1933	62,979.5	52.00	44.00	4.00
1932	151,140.5	58.00	39.00	3.00

CERTIFYING CANNERY ASPARAGUS

With the continued consumer preference for "all green" canned and frozen asparagus, processors in the state, and from nearby states, continued to pack and market successfully an increasing proportion of the "Jersey" production.

During the 1938 season, completed July 6, a record canned or frozen pack was a great factor in increasing returns to growers who contracted with processors, and also to those who sold on the open market. An accurate estimate of the percentage of the total production processed is not available as purchases were made through contracts, on shipping point auctions, and in nearby city markets.

Two large processors contracted with growers for a great proportion of the season's production. All contracts were on the basis of the official state grades, with the quality and value of each determined by the grading of a

representative sample from the lot by department inspectors. Contracts were the same as those of the 1937 season, with the same prices established for the different sizes graded.

The canning season extended from April 15 to July 6. During this period, samples from each lot were graded and certificates of grade issued. A total of 18,650 growers' lots were inspected. This volume represented a considerable increase over the 12,854 lots certified during the 1937 season.

Production started earlier than normal, and with favorable weather the season's peak and the quality were best during April. With cool weather during May, the crop was relatively light. During the last week in May and the first three weeks of June, production was normal, and growers reported returns per acre equal or greater than average. During this entire period, quality was exceptionally good, and according to general reports, the canned or frozen pack was of the best quality obtained during the past several years.

The production and quality during the last week of June and the first week of July, 1938, were seriously affected by adverse weather conditions. High temperatures and storms seriously affected the quality, and the culls delivered during this two-week period exceeded those during the other nine weeks of the season.

An outstanding development during the season was the cooperation between growers, processors and department inspectors in an effort to maintain suitable quality. The new certificate form, which included items to be checked by the inspector indicating the cause of lower quality of a particular load, was a valuable aid to growers in supervising proper harvesting methods. Cooperative efforts apparently controlled the asparagus beetle successfully, and damage from this pest was considerably lower than that experienced during the 1937 season.

The following table shows the number of loads inspected and the average grades each week during the 1938 season:

Week Ending	Lots Inspected	N. J. No. 1 Large Per Cent	N. J. No. 1 Medium Per Cent	N. J. No. 1 Small Per Cent	Culls Per Cent	Butts Per Cent
Apr. 30	1,905	31	34	4	6	25
May 7	2,049	33	33	2	7	25
14	1,684	33	33	2	7	25
21	1,674	30	37	3	6	24
31	2,433	28	39	4	6	23
June 4	1,134	27	39	4	6	24
11	2,006	26	39	4	6	25
18	1,968	24	38	4	8	26
25	2,042	20	41	4	8	27
July 2	1,306	17	40	4	12	27
9	449	17	45	6	9	23
Season	18,650	28	37	3	7	25

INSPECTION OF POTATOES

A total of 5,180 carlot equivalents of potatoes, shipped by rail or truck, were inspected and certified as to grade during the 1937 season. Compared

with the 323 cars inspected during the 1936 season, this was an unusual increase in the use of the inspection service. One of the chief causes for the increased use was the widespread practice of buying and selling potatoes on the basis of the United States grades, with sales contracts specifying delivery of a particular grade. An official certificate showing the grade practically insured acceptance by the buyer. Many states now have mandatory grading and branding laws, and activities of the Federal Food and Drug Administration, in seizure of shipments misbranded as to grade, make the use of inspection valuable in avoidance of penalties from such regulations.

Of the total volume inspected during the season, approximately two-thirds met the requirements of U. S. No. 1 grade. Other shipments usually met the requirements of U. S. Commercial grade, with a few lots being Unclassified. Lots which failed to grade U. S. No. 1 generally were of lower quality because of one of three defects. These defects were wire worm, sunburn or scab.

The following tables show the percentage of carlots and trucklots of potatoes certified as meeting the requirements of the different grades:

CARLOTS

	U. S. No. 1	U. S. Commercial	Mixed Grades	U. S. No. 2	Unclassified	Total
No. of Cars	2,906	1,282	21	2	141	4,352
Per Cent	67	30	....	....	3	100

TRUCKLOTS

	U. S. No. 1	U. S. Commercial	Mixed Grades	U. S. No. 2	Unclassified	Total
No. of Inspections	358	280	8	5	60	711
Car Equivalents	463	308½	8¾	5	42¾	828
Per Cent	56	37	....	....	7	100

The following tables show carlots shipped by rail, and carlot equivalents shipped by truck, which were certified as U. S. Commercial, U. S. No. 2, and Unclassified. The lots were classified according to the defect which occurred most frequently in the lot, causing it to be classified in a grade lower in quality than U. S. No. 1.

CARLOTS SHIPPED BY RAIL

	U. S. Commercial				
Major Defect	88 to 94% U. S. No. 1 Quality	80 to 87% U. S. No. 1 Quality	Unclassified	U. S. No. 2	Mixed Grade
Worm and Insect	365	251	82	....	....
Scab	123	94	17	....	....
Sunburn	260	114	31	....	....
Cuts and Bruises	14	9	1	....	....
Second Growth	17	15	2	....	....
Vascular Discoloration Necrosis	4	11	....	....	....
Other	3	2	8	2*	21‡
Totals	786	496	141	2	21

*U. S. No. 2, Size B
‡Two or more grades in shipment

SHIPMENTS BY TRUCK*

Major Defect	U. S. Commercial 88 to 94% U. S. No. 1 Quality	U. S. Commercial 80 to 87% U. S. No. 1 Quality	Unclassified	U. S. No. 2	Mixed Grade
Worm and Insect	136	35	22¾	....	....
Scab	32½	15	11¾	....	....
Sunburn	61	19½	6½	....	....
Cuts and Bruises	3½	1½	....	....	....
Second Growth	....	1	....	....	....
Vascular Discoloration Necrosis	1½	....	....	....	....
Other	1	1	1¾	5†	8¾‡
Totals	235½	73	42¾	5	8¾

*Carlot equivalents
†U. S. No. 2, Size B
‡Two or more grades in shipment

The use of the inspection service at shipping point generally aids growers and shippers in many ways in the orderly marketing of the crop. The classification of each lot, as it is graded or loaded into the car, enables the shipper to market his product intelligently. Lots may be segregated according to quality and grade, and sold according to market value. It also is of great value to both the farmer and shipper to locate trouble at its source where adjustments may be made at less cost than allowances and reconditioning in distant terminal markets. The purpose of the above tables is to show the principal causes for lower grades than U. S. No. 1, and to eventually develop ways and means for elimination of these troubles causing losses in price returns.

INSPECTIONS ON AUCTION MARKETS

The federal-state inspection service was continued on the Cedarville Auction Market during the year. This service was started in 1933 at the request of the auction market officials. The regular inspection service was provided on all fruits and vegetables sold through the market. Strawberries and onions were inspected and classified according to the New Jersey grades before sale, and checked for uniformity of pack and quality when delivery was made to the buyer. Other commodities sold by sample through the market were checked for uniformity of quality and pack compared to the sample displayed at time of delivery to the buyer.

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

The following is a list of the quantities of different commodities and number of growers' lots inspected on the market during the 1937-1938 fiscal year:

Green Beans	195,142	bushels
Onions	80,798	50-lb. sacks
Lima Beans	73,361	bushels
Strawberries	43,098	32-qt. crates
Peppers	41,401	bushels
Peas	11,007	bushels
Miscellaneous	9,190	packages
Total	453,997	

On the Tri-County auction, the use of the inspection service is increasing each season. During the 1937-1938 fiscal year, a large volume of potatoes, berries, and other commodities sold on the "platform sale" were inspected as they were loaded on the platform and were sold on the basis of the grade established by the inspection. Buying and selling on this basis generally proved satisfactory to grower and buyer. (Figures covering volume and price of potatoes sold on this basis are listed under the report of shipping point markets.)

The inspector stationed on this market also acted as arbitrator between buyer and seller in disputes on uniformity of quality and pack of lots sold on samples displayed at the time of sale.

On the Beverly, Glassboro and Swedesboro markets, inspectors acted chiefly as arbitrators between buyers and sellers, where lots were sold by sample and the buyer insisted that the sample was not of the same pack and quality as the lot delivered.

By working with growers, both on the market and on the farm, the inspectors assisted them in making changes in methods of packing, grading and harvesting which increased their net returns.

CERTIFYING PRODUCE FOR MARKET

Farmers and produce dealers, who sold fruits and vegetables in interstate commerce, continued the making of sales contracts on the basis of official state grades. Sales contracts made on this basis have proved satisfactory, as buyer and seller have a common basis of trading and are generally in a position to carry out delivery and acceptance of produce on a practical basis. The Perishable Agricultural Commodities Act, which established and regulated fair practices along with the use of official certificates of grade, has established fair and efficient methods of marketing produce moving into interstate commerce. A number of growers and dealers had shipments certified to insure delivery and acceptance in accordance with sales contracts.

With the exception of potatoes, which are covered separately in this report, growers and dealers used the inspection service to a greater extent on apple shipments than for any other commodity. During the season, 33 large commercial growers and five shippers and storage corporations used the service on this commodity. A number of commercial growers are exporting an increased volume of this crop each season. Sales last season were made in several foreign countries, as well as some in Continental Europe and Central America, Brazil, Palestine and Canada. A number of

these shipments were packed in the standard apple box. Growers reported that certain countries paid a premium for fruit so packed and are expanding the use of this type of package.

A considerable volume of fruit packed and stored for sale during the winter months was graded according to the official state grades, with inspection and certification at packing time. The daily check of the grade and pack by department inspectors, and an official certificate showing size and grade and the department lot number stamped on each package proved a valuable aid in marketing, and increased returns for such stock sold on the domestic and export market.

In addition to potatoes and apples certified for grade at the request of growers and dealers, the department certified the grade of other commodities shipped to domestic markets. Such inspections were generally made at the request of grower-shippers or dealers who used the certificates to insure delivery in accordance with sales contracts.

The following table shows the number of inspections and grade on shipments (except potatoes) during the 1937-1938 year:

Combination

	U. S. No. 1	U. S. Utility	U. S. No. 1 Utility	U. S. Commercial	N. J. Fancy	Mixed Grades	Unclassified	Total
Apples, Domestic	95	7	41	1	1	9	3	158
Apples, Export	212	....	10	3	9	....	....	233
Onions	28	....	....	....	....	....	33	61
Snap Beans	....	....	2	....	....	....	1	3
Sweet Potatoes	45	....	....	....	....	....	....	45
Pears	1	....	....	....	....	....	....	1
Totals	381	7	53	4	10	9	37	501

TEN-YEAR RECORD OF SHIPPING-POINT INSPECTIONS BY PRODUCTS

Product	1928-29	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38
Apples	13	1	549	168	230	91	94	333	160	391
Beans	....	....	11	33	40	162	91	17	43	3
Cabbage	....	....	....	....	....	....	....	1	....	....
Cucumbers	....	....	....	....	....	....	....	1	....	....
Celery	....	....	....	....	1	....	....	....	....	....
Corn	....	....	....	....	....	1	....	....	....	....
Lima Beans	....	....	....	....	....	75	1	....	3	....
Mixed Fruit	....	....	....	11	9	1	....	....	....	....
Onions	....	....	2	16	30	223	36	55	42	61
Peaches	....	83	4	24	2	2	....	....	1	....
Pears	....	....	29	14	15	5	....	16	....	1
Peas	....	....	4	....	1	20	2	2	....	....
Peppers	....	....	....	....	....	18	3	....	....	....
Potatoes	789	312	911	217	10	20	40	121	323	5,180
Spinach	....	....	....	....	....	1	....	....	....	....
Strawberries	....	....	47	23	152	125	1	1	1	....
Sweet Potatoes	....	1	....	6	....	....	....	....	....	45
Totals	802	397	1,557	512	490	744	268*	547*	573*	5,681*

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

PEACH INSPECTIONS

The use of the outline map of the State of New Jersey as a means for identifying quality in farm products was further emphasized during the 1937 peach season. Cooperating with the State Horticultural Society, the bureau "policed" the use of a label featuring the Garden State brand and carrying the seal of the Society and the outline map of the state.

Early in the season 65 growers applied for permission to use the label. Each grower was visited, and where conditions were such that the label should not be used because of the impossibility of complying with the requirements of the state grade, the growers were discouraged in its use. Twenty-three growers successfully met the requirements and sold a part of their production under the label. This required more than 3,000 miles of travel by inspectors. Their expenses were paid by the Horticultural Society. Indications were that increased prices were obtained by those growers meeting the grade requirements.

Plans have been made for continuance of this plan for 1938. Attempts will also be made for the proper advertising of the special peach varieties.

MARKET ACTIVITIES

SHIPPING POINT MARKETS

The bureau has continued its close cooperation with the auction markets, organized largely through the cooperation of this office with the county agricultural agents. A representative of the bureau has spent more than half his time working with market masters in developing improvements on the markets. The bureau has been represented at most of the monthly directors' meetings of the market associations.

The sales on each auction and the comparison with the 1936 season are shown in the following table. The slight increase in prices during the 1937 season did not continue during the early part of the 1938 season, although volume this spring was far above that of the 1937 season. Figures for the first part of 1938 are not shown.

SUMMARY OF SALES AT FRUIT AND VEGETABLE AUCTION MARKETS

	Season of 1937		*Season of 1936*	
Market	Number of Packages Sold	Value of Sales	Number of Packages Sold	Value of Sales
Beverly	216,405	$100,532.25	194,063	$111,366.81
Cedarville	414,861	455,140.59	445,685	476,212.31
Cologne	3,968	2,147.26	.....	.....
Glassboro	887,519	431,811.95	803,227	433,729.95
Hammonton	119,085	200,402.22	94,946	184,509.85
Hightstown	524,274	294,230.59	478,596	312,698.34
Landisville	523,360	399,055.10	489,942	292,560.65
Rosenhayn	50,174	92,879.99	43,066	70,218.51
Swedesboro	172,979	144,700.37	116,892	52,791.33
Vineland	453,855	291,477.99	458,768	274,448.88
Totals	3,366,480	$2,412,378.31	3,125,185	$2,208,536.63

Average price per package, 1937 ..... $0.716
Average price per package, 1936 ..... 0.706
Per cent of increase in price per package, all commodities 1937 over 1936 season 1.416%

An analysis of the sales on all of the markets indicated that sales are made from at least one market every month of the year. The 14 most important commodities sold on the produce auctions were selected for the following table, to show the sales months and the total volume. The various packages reported have been converted to a common measure.

ANALYSIS OF AUCTION SALES BY COMMODITIES

Commodity	Period of Sale	Total Volume
Apples	July to December	75,825 bushels
Sweet Corn	June to October	57,187 bushels
Lima Beans	July to October	88,000 bushels
Onions	June to October	112,389 50-lb. sacks
Peaches	June to October	147,273 bushels
Peppers	June to November	476,381 bushels
Pickles and Cucumbers	June to August	208,826 bushels
Snap Beans	June to October	240,258 bushels
Strawberries	May to July	1,962,008 quarts
Tomatoes	June to October	618,449 12-qt. climax
Sweet Potatoes	January to December	170,586 bushels
White Potatoes	July to December	147,096 100-lb. sacks
Raspberries	June to September	1,120,348 pints
Blackberries	June to August	879,360 quarts

THE COOPERATIVE MARKETING ASSOCIATIONS IN NEW JERSEY, INC.

The association of marketing organizations, begun in a previous year as "The Cooperative Marketing Associations in New Jersey, Inc." functioned with great benefit to its members. This organization, through the spirit of cooperation that it has developed between markets, has prevented any antagonism and ill-feeling which might have occurred between competing markets, and developed a friendly spirit of rivalry that has been most healthy.

The annual meeting of the Association, in November, 1937, was attended by representatives of all the member associations, and by visiting directors of two non-member poultry and egg associations. Nearly 100 directors and managers of local associations attended the meeting, and together discussed common problems and made plans for further cooperation for the 1938 season. One item of direct cooperation was the pooling of office supplies, whereby a saving of more than $1,500 was effected.

The Association continued to pay the cost of mailing the "Auction News," prepared by the bureau. This weekly sheet of auction market information has been widely requested by buyers in many markets in this and nearby states.

The continued growth of the produce auctions is an indication of their popularity with growers and buyers alike. The auctions were first established in New Jersey in 1928 and are now in their eleventh season. A record of achievement of the first 10 years is contained in the following table:

TEN YEARS' RECORDS OF SALES AT
NEW JERSEY PRODUCE AUCTIONS

Year	Packages	Gross Sales
1928	160,656	$274,711.09
1929	246,925	455,532.98
1930	594,062	816,712.08
1931	902,637	839,604.32
1932	1,311,929	937,417.94
1933	2,064,055	1,243,074.69
1934	2,324,838	1,557,797.04
1935	2,980,162	1,967,128.70
1936	3,125,185	2,208,536.63
1937	3,366,480	2,412,378.31
Totals	17,076,929	$12,712,893.78

POTATO SALES BY AUCTION

Inasmuch as the sale of potatoes by auction has taken some business from established potato dealers in the central New Jersey section, there has been some criticism of the auction market, and suggestions have been made that the price level has been lowered by such sales. It is a known fact that the extremes, either low prices or high prices, are always quoted by individuals to prove points in contention. The dealers' prices for potatoes during all of August and most of September were, in the most part, 75 cents per hundredweight for U. S. No. 1 stock and 65 cents for U. S. Commercial. Therefore, the following table has been prepared. The entire volume sold by the "platform sale" method at Hightstown is shown divided into grades as offered, with the average weighted price received.

A much larger volume of potatoes was sold directly from the trucks as offered from the lines at the regular block. These potatoes were sold ungraded based on the samples shown. The offerings were graded simply as large or small potatoes. Figures have been included in the following table to show the volume and weighted average price, by months, by this method of sale. It should be stated that higher prices in some instances on these sales were due to two factors. First, small lots offered, which enabled local buyers needing small lots to buy and pay a higher price; and second, the presence in the line of some exceptionally fine lots of potatoes.

1937 POTATO SALES AT HIGHTSTOWN AUCTION ON GRADED BASIS

100 Pound Sacks

Month	*U. S. No. 1*			*Commercial*			*Unclassified*			*Other*		
	Total Sacks	Total Price	Weighted Average Price	Total Sacks	Total Price	Weighted Average Price	Total Sacks	Total Price	Weighted Average Price	Total Sacks	Total Price	Weighted Average Price
uly	6,065	$5,603.54	$0.92	2,491	$2,069.96	$0.83	....	....	....	2,483	$1,037.84	$0.42
ugust	4,517	3,377.75	0.75	4,212	2,949.44	0.70	7,999	$5,067.00	$0.63	6,943	2,713.52	0.39
eptember	1,070	816.52	0.76	6,138	4,239.48	0.69	3,779	2,378.41	0.63	5,927	2,308.80	0.39
Totals	11,652	$9,797.81	$0.84	12,841	$9,258.88	$0.72	11,778	$7,445.41	$0.63	15,353	$6,060.16	$0.39

1937 POTATO SALES AT HIGHTSTOWN AUCTION BLOCK UNGRADED

100 Pound Sacks

Month	*Large* Total Sacks	*Large* Total Price	*Large* Weighted Av. Price	*Small* Total Sacks	*Small* Total Price	*Small* Weighted Av. Price
July	9,621	$ 9,005.82	$0.93	2,440	$ 959.82	$0.39
August	20,521	15,127.17	0.74	6,505	1,697.61	0.26
September	14,731	10,397.60	0.71	2,565	820.47	0.32
October	15,559	12,473.44	0.80	6,143	2,314.17	0.38
November	11,078	9,797.41	0.88	3,902	1,533.74	0.39
December	752	714.09	0.95	239	80.29	0.34
Totals	72,262	$57,515.53	$0.80	21,794	$7,406.10	$0.34

A study of these two tables shows that 145,680 sacks of potatoes were sold by the market for a gross of $97,463.89, or an average of all offerings of 67 cents per sack. This price is low, but it is due to the preponderance of low-grade potatoes on the market. Only 22.5 per cent of the sales during July, August and September were U. S. No. 1 as compared with 67 per cent of the more than 5,000 carlots for which certificates were issued in dealer sales. It should also be noted that in determining actual net returns to growers the auction sales returned all but 3 cents of the sales price, while dealer sales in most instances were several cents more than the net return to the grower.

MUNICIPAL MARKETS

For years the bureau has had the cooperation of certain municipal markets and obtained from them daily records of sales by weeks. The Trenton and Atlantic City market masters continued these reports during the last year. These figures enable us to check prices and to evaluate the city and shore markets as places for disposal of Jersey produce. A condensed summary of these two markets' activities follows:

TRENTON AND ATLANTIC CITY MARKETS

July 1, 1937 to June 30, 1938

Market	Bushels or Packages of Produce	Dozens of Eggs	Pounds of Poultry	Value of Sales
Atlantic City	761,831	187,052	102,410	$ 775,059.47
Trenton	171,982	69,010	158,830	280,263.00
Totals	933,813	256,062	261,240	$1,055,322.47

NEWARK FARMERS' MARKET

In Newark this year, the farmers' market commenced a system of market reporting. Each night the market master obtained the volume of all products offered for sale from each farmer and tabulated the same. From this, much information was obtained which was of value in market publicity work. In the crops and markets information service, this information is the basis for the material in the semi-monthly news letter which is sent to buyers on the city markets. In another year, a complete year's

record of the volume and value of all commodities on the Newark Market will have been obtained. The new reporting system was not started until June of this year. No detailed report will be attempted at this time.

DEMONSTRATIONS AND EXHIBITS

In addition to taking care of the constant requests by individuals for an explanation of grades the following demonstrations were held or assistance given to county agents by the bureau:

VINELAND: A demonstration with explanation of grades for cucumbers for slicing and pickling was given for the benefit of a number of growers in this area. The demonstration was held at the Vineland Produce Market in cooperation with the local county agricultural agent.

BRIDGETON: At a meeting of growers and shippers of potatoes in southern New Jersey the bureau explained the Perishable Agricultural Commodities Act and demonstrated the actual grading of potatoes and the requirements for the United States grades generally used.

CHERRYVILLE: Working in cooperation with the county agricultural agent, the bureau demonstrated the requirements of the cannery tomato grades.

CRANBERRY: At a meeting of approximately 100 potato growers called by the county agricultural agent, inspectors demonstrated proper grading and the requirements of the United States grades.

ATLANTIC CITY: At the annual meeting of the State Horticultural Society, the bureau exhibited various types of packages for apples being used in eastern states. This display was of particular interest to apple growers, as the various producing areas during the past season had made a number of changes in types of containers used.

TRENTON: At the New Jersey Farm Show, an apple packing contest for vocational agricultural students was conducted by the bureau. The apple and sweet potato exhibits at this show were cared for by the bureau, and many questions answered by the bureau attendant. The new class for commercial packs of apples was the feature of the exhibit. Apples entered in this class were from commercial packs stored by growers. Samples displayed were selected by representatives of the bureau from 100 bushel lots entered by contestants.

SWEDESBORO AND BLUE ANCHOR: A demonstration of the requirements of the U. S. No. 1 and U. S. Extra No. 1 grades for sweet potatoes was given. This was for the information of growers interested in selling sweet potatoes to the Federal Surplus Commodities Corporation.

PUBLICATIONS

A mimeographed report of the results of grading cannery asparagus and tomatoes was of interest to growers and canners. This report gave a summary of weather conditions and other factors affecting the yield and quality of the crops during the season. Included were tabulations of volume inspected and average grades.

A mimeographed report of the inspections made on approximately 5,000 cars of potatoes was of interest to growers and shippers using this service. Included in this report were tabulations of the volume inspected which met the requirements of each grade, and tabulations according to importance of factors lowering the grade on individual lots.

POULTRY PRODUCTS MARKETING

The work of the poultry division in the Bureau of Markets was carried forward in the interest of more efficient handling of hatching eggs, baby chicks, market eggs and poultry meat. The current problems in the established work were met insofar as possible, and considerable attention was given to formulating programs of activity which would bring about greater efficiency in all of the work.

The more favorable feed-egg ratio increased returns to producers. This improvement over the previous year created an increased desire on the part of producers to carry forward an aggressive program of production and marketing. There was a decided increase in the interest given to the higher classes in the breed improvement program. More eggs and poultry were received at the auctions, which also had the advantage of an increased number of buyers. Retailers displayed more interest in the merchandising of high quality eggs as fresh eggs under the New Jersey Fresh Egg Law. These developments, along with the beginning of the New Jersey State Certified Fresh Egg advertising program and the establishment of state grades for live poultry, were fundamental in creating a desirable situation for this division to go forward another year.

The third year of cooperating with the National Poultry Improvement Plan was completed in a satisfactory way, and contracts have been signed for a continuation of this same work. The demand for N. J.-U. S. Record of Performance cockerels increased to the point where the available supplies were practically all sold. More birds were entered in the N. J.-U. S. Certified classification. However, fewer birds were placed in the N. J.-U. S. Approved classification. Twenty-four hatcheries were in the breed improvement and disease control program this year, with a total incubator capacity of 534,352 eggs. This represented a slight decrease in incubator capacity as compared with the previous season, and was due to the decrease in the number of birds entered in the lower stages of the program.

The Record of Performance program in New Jersey has been going through a stage of development which will place it on a more permanent basis. There was a decrease in the number of Record of Performance flocks in the program, due to the fact that some of the flocks entered the previous year were sold, and in one or two other cases the flocks were not large enough to justify the detailed work required in this program. Careful observations among the poultry breeders in New Jersey indicated that breeders who had large enough flocks and who were capable of carrying on a practical breeding program were definitely interested in entering the program for another year. The workers of this division have taken the attitude that Record of Performance work must be built on a sound basis, and are of the opinion that much progress is being made in that direction.

Each of the cooperative auction market associations sold a larger number of eggs during the year, and those handling live poultry also increased their volume of poultry meat. This growth was due to the continued fine service rendered by these associations, while the increase in the number of buyers apparently was due to a widespread appreciation of the dependability of the high quality poultry products which could be obtained at these markets. Because of the larger number of buyers, there was no difficulty in selling the increased volume of products brought to the associations. The establishment of state grades for live poultry was well received by both producers and buyers and became a definite part of the grading and inspection service rendered by the Bureau of Markets. Preliminary trials on the use of the "Grade B" for eggs were started, and the experience to date indicates that this suggested grade will prove practical.

The New Jersey Fresh Egg Law inspection service completed its fourth year of operation, with the trade demonstrating greater confidence in the usefulness of the law. The inspections at retail stores and other retail outlets were handled by the Bureau of Markets. Fair and unbiased consideration was given to each individual violation before it was turned over to the administrative authorities of the department who handle the hearings and other legal phases of the enforcement of this law. Four full-time inspectors, and one temporary inspector, working during the months of July, August and September, made a total of 19,410 inspections, among which 149 cases were turned over to the administrative authorities.

The inspectors gave more time to the visiting of wholesale egg establishments in order to acquaint candlers and egg distributors with the aims and purposes of the New Jersey Fresh Egg Law. It is necessary that the trade understand the law, and the inspectors demonstrated excellent ability in this connection. This policy will be continued on a conservative basis.

The New Jersey Egg Marketing Committee, appointed by the executive board of the New Jersey State Poultry Association, formulated and put into use definite plans for the cooperatives to distribute State Certified Fresh Eggs directly to retailers. This distributing program was supplemented with a newspaper advertising program in the form of an experiment. Although the work was started on February 5, and expanded to several additional territories, the program is still looked upon as being on an experimental basis. It appears that the results to date justify a continuation of this form of marketing eggs, and with the distributing facilities well organized there are possibilities of handling fresh-killed poultry.

The work of this division is necessarily directed at long-time developments which will benefit all of the poultry interests. With a well-rounded program, the regulatory work becomes more effective and serves a more useful purpose to producers, distributors and consumers.

POULTRY STANDARDIZATION

The poultry breed improvement and pullorum disease control program was carried on in the regular manner, completing the third year of cooperation with the National Poultry Improvement Plan. It was necessary to employ a temporary inspector to supplement the work of the two full-time inspectors. The several classes for breed improvement and pullorum disease control were as follows:

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

One change in the terminology was made in the state last year. The class formerly called "New Jersey Crossbred" was changed to "N. J.-U. S. Pullorum-Tested." This change clarified the interpretation of this class of breeding flocks which were tested for pullorum disease without any official inspection for breed improvement.

A complete work program for this project was developed, including publicity. A folder describing the purpose of the standardization work was issued, and a mimeographed list of cooperating breeders and hatcherymen was issued early in the chick season for the benefit of those in the program. Two circulars were prepared, one containing only the Record of Performance and Register of Merit breeding stages, while the other circular listed the names, addresses, etc., of all cooperating poultrymen and hatcherymen. By separating the two folders, the type of records presented were more readily understood. Another circular, describing the complete details of the program. The majority of the birds entered in the program were Single-changes in the National Poultry Improvement Plan during the past year, it will be possible to use this same circular for the 1938-1939 season.

All flocks entered in the breeding stages of the standardization work were required to be blood tested for pullorum disease under the supervision of the Bureau of Animal Industry. Both the tube agglutination and the stained-antigen whole-blood tests were offered last year and the cooperator chose the test to be used on his or her flock. The percentage of reactors in the flocks regularly entered in the program has been reduced each year and much progress has been made in this direction.

There were 162 flocks in the work as compared with 159 flocks for the previous year. These 162 flocks contained 72,813 birds, or approximately 5,000 fewer birds than were inspected during the 1936-1937 season.

This year there were approximately 35,000 breeding birds entered in the N. J.-U. S. Certified stage as compared with 24,000 birds in the same classification the previous year. From the standpoint of improving the poultry breeding flocks in New Jersey, it was desirable that the increase take place in this classification. There were 3,338 breeding birds listed as "N. J.-U. S. Certified Pullorum-Clean."

Of the 24 cooperating hatcheries, 18 were considered breeder hatcheries with a capacity of 149,352 eggs, and six were commercial hatcheries having an incubator capacity of 385,000 eggs. The 24 hatcheries produced for sale during the year a total of 879,418 chicks.

The accompanying tables show the distribution of the several major breeds entered in the work, and also a classification of the several stages of the program. The majority of the birds entered in the program were Single-Comb White Leghorns. However, there was a definite increase in the number of general purpose breeds and Jersey Black Giants inspected this year.

The Record of Performance project proved to be of definite value in the poultry breeding program of New Jersey, inasmuch as the Record of Performance breeders experienced an increased demand for these officially banded birds. There were 26,233 Record of Performance eggs set, from which 13,475 Record of Performance pedigree chicks were produced. From these chicks will come the N. J.-U. S. Record of Performance males to be used in the Certified flocks during the coming year. Most of the pullets will be used for Record of Performance work on the farms where they were produced. However, there is an increased demand for pullets of this grade.

During the year three breeders produced 90 birds which qualified for the N. J.-U. S. Register of Merit stage in the program. There were 3,897 Register of Merit eggs set, from which 2,025 Register of Merit pedigree chicks were produced. This phase of the work offers excellent possibilities for breeders who devote their major attention to poultry breeding activities. It is encouraging to note that this was approximately a 200 per cent increase over the Register of Merit classification for the previous year.

All the field work in connection with the breed improvement program was done by the regular staff of the poultry division. A total of 206 flock inspections and 157 sanitary inspections were made for the purpose of carrying out the rules and regulations of the plan. There were 34 hatchery inspections made during the year, and an additional 296 farm visits made in connection with all the poultry work carried on by the bureau. There were 58 Record of Performance inspections made during the year. Egg weights were also taken at the time of these inspections. In addition, the breeder obtained egg weights for three consecutive days each month, beginning in January and continuing for the remainder of the record year. The inspector also obtained the body weight of each bird entered for Record of Performance, twice during the year.

A new chick box label was prepared and used during the 1938 hatching season. Federal coordinators were in the state on two different inspections. They found the work was being carried on in a satisfactory manner and made some suggestions for spreading the influence of the program in New Jersey.

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

		Number of Birds							
		N. J.-U. S. Certified			*N. J.-U. S. Approved*			N. J.-U. S.	
unty	No. of Flocks	Pullorum Tested	Pullorum Passed	Pullorum Clean	Pullorum Tested	Pullorum Passed	Pullorum Clean	Pullorum Tested	Totals
tlantic	1	....	....	....	278	....	....	....	278
ergen	1	....	....	....	....	....	498	....	498
urlington	15	4,027	....	....	1,154	....	....	2,288	7,469
ape May	1	....	....	....	1,470	....	....	....	1,470
umberland	35	12,000	....	....	1,651	248	....	39	13,938
ssex	2	408	....	....	....	....	....	3	411
loucester	9	7,827	....	....	658	....	....	859	9,344
unterdon	6	642	....	....	1,110	66	....	....	1,818
ercer	33	524	....	2,021	4,315	1,615	931	448	9,854
iddlesex	1	....	....	162	....	....	....	....	162
onmouth	4	495	....	....	116	....	....	697	1,308
orris	7	4,667	....	1,155	540	....	....	1,704	8,066
cean	1	....	....	....	907	....	....	....	907
alem	23	....	....	....	3,988	....	....	1,723	5,711
omerset	6	1,241	....	....	418	....	....	....	1,659
ussex	16	....	....	....	2,261	....	858	1,121	4,240
arren	1	....	....	....	....	....	....	13	13
Totals	162	31,831	....	3,338	18,866	1,929	2,287	8,895	67,146

POULTRY AND EGG AUCTION MARKETS

The five egg and poultry auction markets of New Jersey handled the largest total volume of sales in their history during the year. A total of $3,494,111.61 worth of eggs and live poultry were sold during that period. There were 317,292 cases of eggs sold, compared with 288,865 cases for the 1936-1937 period. The increase of 28,427 cases was a remarkable growth, in view of the fact that extremely heavy production occurred during the previous year. The value of the eggs sold this year amounted to $2,653,629.20. These markets sold a total of 84,159 crates of live poultry, weighing 3,957,288 pounds, for a total of $840,482.41. During the previous year, 81,358 crates of live poultry were sold, weighing 3,877,124 pounds for a total of $722,916.38

This was the first year that all five of these markets handled live poultry. The first poultry sales at the Hightstown market were started in November and proved satisfactory for both producers and buyers. The total volume and the value of all the poultry products sold at the five auction markets during the past five years is as follows:

Year	Number Cases of Eggs	Number Crates of Poultry	Total Combined Value
1937-38	317,292	84,159	$3,494,111.61
1936-37	288,865	81,358	3,253,303.74
1935-36	225,721½	59,438	2,598,942.69
1934-35	177,908	47,845	2,022,357.29
1933-34	144,321½	37,060	1,336,292.49

The increase in the volume of the products handled was due to the continued fine success of these organizations. Four of the five auctions had an increase in membership, bringing the total membership of the five organizations up to 5,140. This was 589 more members than during the previous year. In addition, the New Jersey Federated Egg Producers' Cooperative Association, Inc, at Toms River cooperated with the bureau in its several activities. This was one more way in which the work of the bureau was extended, and the relationship with this cooperative will be well worth while.

The average sale price of eggs at the auctions was $8.36 per case, as compared with $8.76 for the year 1936-1937. These figures are based on the total volume of all eggs at the five auction markets for the year. The decrease in gross returns per case was due to generally lower price levels for most commodities, and the fact that egg prices did not advance as rapidly during the fall, due to heavy storage holdings, and also a comparatively rapid decline during the winter months.

Data obtained by the Bureau of Markets show that the returns for eggs through the auction markets have been well above the New York quotation for eggs of similar quality. The accompanying table shows that the five auction markets returned to their members $211,163.03 more than the highest New York quotations for the same grade of eggs. This is a substantial increase in price and offers excellent inducements to producers to market

their eggs through the auctions. These markets also provide a more convenient and less expensive method of selling eggs. A comparatively small percentage of eggs sold in this manner reach the terminal markets, which no doubt helps prices on those markets to some extent at certain seasons of the year. The auctions establish the selling price for all eggs in their respective communities; therefore, producers who have private outlets for their eggs are materially benefited by the presence of this marketing agency. As New Jersey egg producers become better aware of the fact that these markets are established on a cooperative basis they have a personal interest in the welfare of the marketing agencies. The accompanying table also shows the volume of eggs handled by each market, along with the gross price and the value on the basis of the New York quotations. The amount of "new money" brought to the respective communities was greater than during the previous year. The fact that prompt payments are made to producers makes these markets desirable.

An accompanying table shows the volume and value of the live poultry sales at the five markets. The poultry sales at the Hightstown market were not started until November 4, 1937. The total receipts for live poultry at each market are shown in relation to the New York quotations. It is unfair to compare these figures to those obtained during the previous year because of the several changes made in quoting prices on the New York live poultry markets. Other factors have also entered into the prices on the New York market which make some difference in this respect. The comparison of prices for poultry made on the auctions with the Philadelphia quotations, which have been made on the same basis, show a favorable price relationship for the auction poultry sales. During the spring months, all poultry sales at the auctions were the largest in their history.

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

July, 1937—June, 1938

Market	Number of Cases	Gross Price At Auction	New York Quotation	Difference in Favor of Auction
Flemington	120,079	$1,005,353.12	$ 915,075.43	$ 90,277.69
Hightstown	40,822	347,268.88	317,965.72	29,303.16
Mount Holly	15,272	123,374.41	114,430.65	8,943.76
Paterson	24,078	205,998.38	188,773.33	17,225.05
Vineland	117,041	971,634.41	906,221.04	65,413.37
Totals	317,292	$2,653,629.20	$2,442,466.17	$211,163.03

SALES AT NEW JERSEY'S POULTRY AUCTION MARKETS

July, 1937—June, 1938

Market	Number of Crates	Pounds of Poultry	Gross Price At Auction	New York Quotation
Flemington	47,046	2,154,795	$458,943.62	$464,002.09
Hightstown	3,296	162,178	32,143.41	33,215.77
Mount Holly	13,756	727,892	174,210.52	173,761.57
Paterson	6,564	319,194	63,646.28	66,650.50
Vineland	13,497	593,229	111,538.58	115,550.47
Totals	84,159	3,957,288	$840,482.41	$853,180.40

NUMBER OF BIRDS INSPECTED BY COUNTIES AND BREEDS

ounty	No. Flocks Inspected	S. C. White Leghorns	R. I. Reds	Barred Rocks	White Rocks	Jersey Black Giants	New Hampshires	Pullorum Tested	Totals
tlantic	1	283	....	....	....	....	....	....	283
ergen	1	600	....	....	....	....	....	....	600
urlington	15	4,377	....	170	197	992	....	2,588	8,324
ape May	1	....	....	....	....	....	1,589	....	1,589
umberland	35	13,011	45	428	1,089	....	....	48	14,621
ssex	2	483	....	....	....	....	....	8	491
loucester	9	8,056	....	218	....	....	761	936	9,971
unterdon	6	699	201	1,212	....	....	....	....	2,112
ercer	33	3,763	546	3,559	....	741	1,693	480	10,782
iddlesex	1	166	....	....	....	....	....	....	166
onmouth	4	594	....	....	124	....	....	766	1,484
orris	7	5,591	....	1,220	....	....	....	1,730	8,541
cean	1	1,017	....	....	....	....	....	....	1,017
alem	23	....	....	1,830	2,387	....	....	1,824	6,041
omerset	6	1,387	....	281	....	....	180	....	1,848
ussex	16	3,192	....	547	....	....	....	1,188	4,927
arren	1	....	....	....	....	....	....	16	16
Totals	162	43,219	792	9,465	3,797	1,733	4,223	9,584	72,813

Observation of the table showing the distribution of membership by counties definitely indicates that the services of these markets are being extended over a wider area. A substantial increase in membership in those counties bordering the one in which the market is located was obtained during the year. In the case of the larger auctions, practically all of the egg and poultry producers located near to the market are members. In addition to the 5,140 members, there were approximately 500 non-member producers who used the poultry auctions, most of them located in Cumberland County.

AUCTION MARKET MEMBERSHIP, BY COUNTIES

County	Flemington Auction	Hightstown Auction	Mount Holly Auction	Paterson Auction	Vineland Auction	FEPCO	Total
Atlantic	....	....	2	....	249	....	251
Bergen	....	....	....	68	....	....	68
Burlington	7	19	865	....	3	....	894
Camden	2	....	29	....	19	15	65
Cape May	....	....	....	....	40	5	45
Cumberland	6	....	....	....	433	11	450
Essex	2	....	....	16	....	....	18
Gloucester	....	....	....	....	133	....	133
Hunterdon	1,634	....	....	....	....	....	1,634
Mercer	162	162	6	....	....	....	330
Middlesex	27	74	....	....	....	....	101
Monmouth	5	148	9	....	....	21	183
Morris	46	....	....	90	....	....	136
Ocean	4	10	24	....	....	69	107
Passaic	2	....	....	95	....	....	97
Salem	....	....	....	....	77	....	77
Somerset	214	1	....	1	....	....	216
Sussex	12	....	....	21	....	....	33
Union	32	....	....	3	....	....	35
Warren	247	....	....	16	....	....	263
Out-of-state	....	....	4	....	....	....	4
Totals	2,402	414	939	310	954	121	5,140

ENFORCEMENT OF STATE GRADES AT THE AUCTION MARKETS

The New Jersey wholesale grades for eggs are used at four of the auction markets and are proving satisfactory. During the year, it was observed that an additional grade, which will be called "Grade B," might be desirable. Such a grade was used locally by one of the markets, and the brief experience there indicated the desirability of this plan. The grades and standards for eggs are of value to producers in that they provide a fair and honest method of advertising the quality of their products. The state inspectors at each of the markets are competent men, and have taken considerable time to assist producers with their egg quality problems. These grades have become a definite standard among buyers and have, no doubt, helped to attract the increased number of buyers to the markets.

Every effort has been put forth to maintain the high standards of egg quality through this service. One of the workers in the Bureau of Markets

continued to make check inspections on the egg grading. The results of these inspections were presented in the reports which were furnished to the auction masters and officers of the cooperatives. This service resulted in more uniform interpretation of the grades and also enabled the workers in this division to observe the trends of egg quality in the state.

In this connection, three of the workers of this bureau and one state inspector attended the Cornell Egg Grading School in September. The school was held for the purpose of extending information on egg quality and to assist egg inspectors to be uniform in their interpretation of egg grades. It was highly desirable for these people to attend the conference because of the additional information which they obtained.

On October 6, the state grades for live poultry were used for the first time. Approximately 1,000 coops of poultry were handled on this sale at the Flemington Auction Market, and the results of this sale demonstrated to buyers the value of standards for live birds. On the second sale, the buyers expressed their confidence in these grades by paying a premium for New Jersey No. 1 poultry. The producers expressed the desire to cooperate and were taught to grade their birds. During the remainder of the year, producers became considerably interested in this grading program and graded their birds satisfactorily. The coops of birds were inspected by qualified inspectors and any change in the grade was made by the state inspector. Records of these changes were made so that the inspector could show the producer why the birds were placed in a different grade.

As the program continued, buyers expressed greater confidence in it and were willing to pay a premium for the higher quality birds. Analysis of the comparatively small amount of data available shows that the No. 2 grade of birds returned about the same average price as was returned for all birds, and sold on an ungraded basis, while the premium for No. 1 birds was from 50 cents to $1.50 per coop.

The policy of permitting buyers to reject inferior birds was continued, and was materially helped by the grading program. This proved more satisfactory than permitting a tolerance in each coop and took care of any birds of inferior quality which might have been overlooked by the inspectors. The number of rejected birds was reduced about 300 per cent. Furthermore, the inspector had a definite standard which he could use for dealing with buyers who rejected birds. The buyers were also more satisfied when they had a standard to guide them.

Definite grades and standards were used from the beginning of the Hightstown poultry sale, and producers have responded satisfactorily. The grading of certain classes of birds into No. 1 and No. 2 grades was also started at the Vineland auction. In all cases, the plan has proved satisfactory, which indicates further that live poultry can be graded to the advantage of both producers and buyers.

FLEMINGTON EGG AND POULTRY AUCTION MARKET

The Flemington Auction Market Cooperative Association, Inc., handled the largest volume of eggs and poultry in its history. The egg sales were increased by 2,499 cases, and the poultry sales were increased 118,227 pounds. The average selling price for eggs was 28 cents a dozen. The cost of selling the eggs averaged 5 per cent of the gross receipts. The average selling price received for live poultry was 21¼ cents a pound, with a selling cost of 4.1 per cent of the gross receipts.

A field worker was used during a part of the year, and this additional service to producers proved to be highly desirable. The plan was for this worker to visit producers whose eggs did not at least meet 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 were increased.

This market cooperated with all phases of the New Jersey State Certified Fresh Egg advertising campaign, and gave 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. This market has continued to grow rapidly and is providing an excellent service for its members. An increase of over 10,000 cases of eggs handled during the year demonstrated that the market is being handled in an efficient and profitable way. Considerable emphasis was placed on egg quality by the management, and producers responded with eggs of higher quality. The egg room in the auction building was air conditioned through the use of humidifiers which maintained an average relative humidity of around 90 per cent.

The returns of the poultry sale proved successful, in spite of the fact that it was started during a period when supplies were low. Grading and handling of the poultry on this sale was handled efficiently and this part of the market becomes increasingly important. The average price received for eggs was 28⅓ cents a dozen, and the selling cost was 3.88 per cent of the gross egg receipts. The average price received for the poultry was 19¾ cents a pound, and the charges were 4.38 per cent of the gross poultry receipts.

MOUNT HOLLY POULTRY AND EGG AUCTION MARKET

The Burlington County Cooperative Poultry Auction Association, Inc., had the highest percentage of increase in membership, most of which came from Burlington County. This market 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 24 cents a pound, and the selling cost was 3.16 per cent of the gross poultry sales. The reason for the increased average price per pound for poultry on this market was due to the fact that a large number of roasting chickens were sold. Eggs sold for an average of 27 cents a dozen, and the selling cost amounted to 3.71 per cent of the gross egg receipts.

PATERSON EGG AND POULTRY AUCTION MARKET

The North Jersey Cooperative Egg Auction Association, Inc., is located 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 this auction.

The average price received for eggs was 28½ cents a dozen, and the selling cost was 4.27 per cent of the gross egg receipts. The average selling price for poultry was 20 cents a pound, and the charges amounted to 3.67 per cent of the gross poultry receipts. There was a slight decrease in the number of cases of eggs and also the number of pounds of poultry handled by this market. These figures were influenced by the large number of retail routes operated in the Paterson area.

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 building, which was erected during the previous year, facilitated efficient operation. The records show that the egg sales were increased by 14,319 cases. The average of all egg sales was 27⅔ cents per dozen. The cost of selling the eggs amounted to 3.86 per cent of the gross egg sales. The live poultry sales were increased by 79,264 pounds. The average price received for live poultry was 18¾ cents a pound, and the selling cost was 5 per cent of the gross poultry receipts.

The fact that these auction markets are becoming comparatively large with respect to the volume handled, makes it increasingly important for them to 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, INC.

This is an organization of several producer associations and has served in an efficient way to market the products of the members. Considerable cooperation was given to this organization during the year. Some of the

eggs were carefully candled and placed in one-dozen size cartons for distribution to retailers. During the last half of the year, the state label, which was developed for cartons of New Jersey State Certified Eggs, was used. This practice will be continued for the purpose of assisting to identify the high quality of the eggs packed by this organization.

NEW JERSEY FRESH EGG LAW

The New Jersey Fresh Egg Law has been in operation for four complete years. It has proved to be of definite benefit to egg producers, distributors and consumers. Originally, it was the intention of those who were administering the law to eliminate the unfair selling of low quality eggs for fresh eggs. This aim was accomplished. The present objective is to bring about the greater use of high quality eggs in the retail stores, and the sale of those eggs as fresh when the quality justifies. In this respect, the retailers appeared to show greater interest in fine eggs.

In addition to the enforcement work, the four full-time inspectors employed by the Bureau of Markets gave out fundamental information on egg quality. The bureau believes that retailers of eggs will be able to render a greater service to both consumers and producers if they are familiar with some of the facts pertaining to the food value and the keeping qualities of eggs. In addition, the inspectors assisted many retailers with suggestions on merchandising methods.

The inspectors continued to work in assigned territories and the arrangement appeared to work satisfactorily. The chief inspector gave considerable assistance to the administrative officers in supplying evidence at the hearings. It was desirable to have a temporary inspector work during the months of July, August and September so that more territory could be covered, and with this additional help it was possible to make inspections at practically every retail outlet in the state.

The inspectors made daily reports to the Bureau of Markets, and any unusual circumstances were reported at the same time. These reports were carefully checked and when no violation was evident, the report was recorded and filed with previous reports on the same retail outlet. When a violation was recorded the case was turned over to the administrative officers of the Department of Agriculture for further consideration. Hearings were held in Newark for those violators who operated businesses in northern New Jersey while other hearings were held in Trenton.

There were 149 cases considered at such hearings, from which 106 warnings were issued, and 40 cases were penalized for a total of $215. Two cases were turned over to the assistant attorney general's office for prosecution and one case was dismissed.

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

OPERATION OF NEW JERSEY FRESH EGG LAW

July, 1937 to June, 1938

Inspections

Type	Number
Wholesale Stores	39
Retail Stores	18,434
Roadside Markets	486
Retail Routes	451
Total Inspections	19,410
Total Violations Detected	2,357

Fewer inspections were made in retail units during the year because of the fact that the chief inspector gave more time to presenting evidence at the hearings. The inspectors were asked to visit the egg plants of wholesale and jobber distributors. During these visits, they discussed egg quality problems, such as the grades required by the fresh egg law, the keeping qualities of eggs, and other matters pertaining to the administration of the law. Experience has demonstrated that suitable contacts with the egg distributors will eliminate misunderstandings, and in some cases have brought about the purchase of higher quality eggs. A sufficient number of inspections were made, and this additional service rendered by the inspectors made it more valuable to everyone concerned in the egg industry.

The data presented in the accompanying table relative to the percentage of eggs meeting the fresh egg law requirements indicates that a higher percentage of the eggs inspected in the past year met the requirements of the law. There are variations, however, due to the different routes and territories covered by the inspectors. With the introduction of a detailed egg merchandising program, it is expected that larger quantities of eggs will probably be sold as fresh in accordance with the fresh egg law requirements.

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

July, 1937 to June, 1938

Month	Number of Stores Inspected	Newark District 1*	Newark District 2‡	Rural District 1	Rural District 2	Seashore District 1	Seashore District 2	Philadelphia District 1	Philadelphia District 2	Total Volume 1	Total Volume 2	Per Cent 1	Per Cent 2	Weekly Volume of Eggs Sold per Store 1	Weekly Volume of Eggs Sold per Store 2
July	1,593	21,542	48,789	2,324	1,865	20,704	33,645	227	1,725	44,797	86,024	34.24	65.76	28.12	54.00
Aug.	1,515	19,048	40,189	6,426	2,683	8,547	44,793	675	1,391	34,696	89,056	28.04	71.96	22.90	58.78
Sept.	1,502	20,737	67,215	1,660	4,188	2,166	8,928	6,028	9,565	30,591	89,896	25.39	74.61	20.37	59.85
Oct.	1,408	16,658	60,877	1,225	185	1,198	6,625	5,100	22,052	24,281	89,739	21.30	78.70	17.25	63.74
Nov.	1,356	12,729	48,714	1,260	343	4,252	4,729	4,563	24,125	22,804	77,911	22.64	77.36	16.82	57.46
Dec.	1,526	18,610	55,612	5,070	4,425	4,662	5,613	4,518	20,464	32,860	86,114	27.62	72.38	21.53	56.43
Jan.	1,481	18,360	50,395	9,291	11,286	5,391	4,741	1,175	1,654	34,217	68,076	33.44	66.56	23.10	45.97
Feb.	1,026	14,982	26,915	5,513	4,203	3,448	2,818	8,952	11,821	32,895	45,757	41.82	58.18	32.06	44.60
Mar.	1,697	23,847	63,477	1,088	2,719	6,009	4,665	7,589	24,905	38,533	95,766	28.70	71.30	22.71	56.43
Apr.	1,310	40,420	62,067	2,225	1,994	377	990	2,180	6,030	45,202	71,081	38.88	61.12	34.51	54.26
May	1,755	24,272	47,264	8,519	5,908	3,349	1,812	8,091	13,767	44,231	68,751	39.15	60.85	25.20	39.17
June	1,786	22,282	37,368	13,875	9,303	8,944	11,810	2,389	4,272	47,490	62,753	43.07	56.93	26.59	35.14
											Weighted State Average	31.73	68.27		

* The number 1 indicates the number of dozens of eggs which met the fresh egg law requirements.
‡ The number 2 indicates the number of dozens of eggs which did not meet the fresh egg law requirements.

The records being obtained on the fresh egg law inspections required a large amount of office work, however, these data are proving of value from the standpoint of determining trends in the egg merchandising in the state. A new report form was made up during the year and will be more practical for both the inspectors and the office records. The recording of the reason for eggs being out of grade, when such is the case, has also provided valuable information relative to egg quality problems. Information of this sort can be referred back to the producers, who are becoming more conscious of egg quality problems, particularly about a sufficient amount of humidity in their egg rooms.

A circular, "Fresh Eggs in New Jersey," was prepared primarily for egg retailers, however, it is of such a character that it will be useful in giving fundamental egg quality information to consumers. The State Certified Egg advertising program naturally has considerable influence upon the selling of high quality eggs in New Jersey. This is reported as a separate project in this report.

NEW JERSEY STATE CERTIFIED FRESH EGG CAMPAIGN

The New Jersey Egg Marketing Committee recognized the problem that New Jersey eggs were not being identified directly to consumers in sufficient quantities. Therefore, plans were made for operating a long-time egg merchandising program which was started on February 5, in four test cities, as an experimental campaign.

The eggs were obtained from one of the cooperative associations where they were carefully candled under state supervision, and placed in a specially designed carton, which was sealed with a carton label from the Department of Agriculture. This was a new label, which referred to New Jersey Certified Fresh Eggs rather than either of the two official grades. The eggs were then delivered in half-case lots, or more, to retail outlets, which included grocery, meat, delicatessen and drug stores, and dairy route operators. Two deliveries were made each week, and the price was changed once a week when price changes became necessary.

The price was determined by calculating the weighted average price of the eggs purchased on the regular auction sale. To this was added the cost of the services, including the packing, candling, trucking, advertising, etc. The committee allowed the retailer eight cents per dozen net profit and guaranteed the quality of the eggs for a period of seven days. The retail price was suggested in each case, and practically no price cutting was observed. The retailers have been doing an excellent piece of work with respect to the selling of these eggs.

The eggs were advertised in the local newspapers, along with display material available for use in the stores. The advertising material was expensive, and part of it was paid for by individual contributions from 589 poultrymen.

Even though the campaign was operated as an experiment, the eggs have been distributed to several additional territories, including practically all of the northern New Jersey metropolitan area. They have also been distributed along the shore. Much valuable experience was gained from this program, and the committee members believe that it will be continued as a permanent program in New Jersey.

As a result of this campaign, the several cooperative egg marketing associations in the state have taken steps to organize what will be called the "New Jersey Poultry and Egg Cooperative Marketing Association." This proposed organization will be responsible for administering the egg advertising program and will have authority to carry out the detailed policies of the committee.

During June, an average of approximately 4,500 dozens of eggs were sold each week in this program. All of these were large eggs and were sold under the handicap of a rising market. It was planned that both pullet and medium size eggs will be sold in cartons of the same design, during the high price season. A large volume will probably not be obtained until prices begin to decrease in January. These conditions make it desirable to give careful observation to the entire program when a complete report of one year's experience will become available.

MISCELLANEOUS ACTIVITIES

The bureau representatives conducted the annual New Jersey Chick and Egg Show for which they designed a new chick box which attracted a large amount of favorable attention. One man also assisted with the Egg Show at the Poultry Industries Exposition in New York City. Some help was given in handling the affairs of the Jersey Chick Association. The supervisor of this project acts as secretary of the Northeastern Poultry Producers' Council. Our men also cooperated with personnel in the poultry department of the Agricultural College in carrying out several functions for the good of the poultry industry. This fine relationship enabled the bureau to be more useful in its several poultry activities. Talks were given at many meetings relative to the activities being carried on in the state, and the program for the coming year was developed.

CONSUMER INFORMATION SERVICE

The past year witnessed some outstanding developments in the consumer information project, which began in November, 1932. Pioneering in this field, the New Jersey Department of Agriculture was one of the first in the nation to recognize the need for carrying its marketing program through to the consumer.

At the close of the fiscal year, the New Jersey consumer information project, completing its sixth year of service to New Jersey producers and consumers, was conducting a greatly expanded program, due mostly to the

cooperative efforts of various agricultural groups and the establishment of the New Jersey Council.

The objectives of the service are to promote as a measure of health, as well as home and farm economy, the increased use of all New Jersey agricultural products, using every possible means of disseminating information concerning their availability, cost, quality and food value through the use of radio, news releases, booklets, circulars, public talks, demonstrations and exhibits.

New Jersey producers of milk, eggs, fruits and vegetables, and other farm products cannot consider as competitors only those farmers who are growing similar products in other states and distributing them in New Jersey markets in competition with New Jersey products. Every food item, regardless of its source, is a direct competitor for a share of the housewife's food dollar. Of these competing food products, those which are processed are the most serious competitors because they are promoted by liberally financed educational and sales campaigns.

The intensive advertising and promotional drives of the processed food distributors are successful in their appeal to the housewife. Her disbursements are naturally favorable toward those products to which she has been attracted. Further, she will be inclined to consider less favorably those products about which she hears or knows little. She may remain neutral or have only a casual interest in them. Most of New Jersey's agricultural products can be included in the latter group. Growers, distributors and marketing officials are confronted with the need to develop and cultivate consumer interest in the raw, natural food products if any considerable share of the housewife's food dollar is to be saved for unadvertised fresh fruits, vegetables, milk and eggs.

NEW JERSEY COUNCIL

The Legislature of 1937 enacted a law providing for the establishment of the New Jersey Council and authorized it to promote the resources of the state through advertising. Among the 16 members of the Council, three were appointed to serve as the Committee which represented agriculture. They were: the state secretary of agriculture, the master of the State Grange and the president of the New Jersey Farm Bureau. The director of consumer information service in this bureau was designated by the secretary of agriculture as the contact man in serving agriculture and assisting the secretary in the work that the development of Council activities imposed.

The objectives of the Council committee on agriculture were recognized to be almost exactly the same as those of the consumer information service, and the committee recommended that the two projects be combined and operated jointly. This procedure has been followed with the result that the funds of the Council have supplemented our program and made it possible to proceed in a much more effective manner.

Of the total sum of $150,000, constituting the budget of the Council, an allotment of approximately $32,000 was made to agriculture. This sum has been tentatively budgeted to projects scheduled for eggs, apples, milk, nursery stock, field crop seed, potatoes and fruits and vegetables sold over the auctions.

The procedure followed has been that of holding preliminary conferences attended by representatives of the various commodity groups. Such conferences have been held for eggs, milk, nursery stock, vegetable auctions, field seed crops, blueberries and potatoes. The results of such conferences have been referred to the Federal Advertising Agency, with recommendations as to final action and for estimates. Each commodity campaign or program was developed individually. The status of each Council project follows:

Apples. In the campaign scheduled from March 17 to April 30, approximately 244,000 pieces of literature were distributed through central warehouses of corporate chain stores, and through wholesale distributors serving independent or voluntary grocery chain units. Three impressive advertisements were carried in all of the New Jersey dailies. It is difficult to supply specific figures on the movement of apples from the storage houses, but reliable estimates from growers, storage house operators and buyers agree on a figure of about 400,000 bushels moved during the scheduled Apple Jubilee, which extended to May 30.

Reports from three important storage concerns in southern New Jersey, located at Riverton, Camden and Glassboro, indicated that approximately one-third to one-half of their holdings of apples were moved during the Apple Jubilee. Growers have already made favorable comments on the assistance rendered, not only in moving the apples, but also in holding prices in spite of intense competition from similar promotional efforts made by apple growers in other areas, particularly the Northwest, the Appalachian group and the New York-New England Apple Institute. In addition, the campaign was in most direct competition with the program of the citrus fruit growers whose crops were of record volume and moved at bargain prices.

Milk. A total of 335,315 milk recipe folders—"The Great Whiteway of Health"—were placed in the hands of 255 milk dealers for distribution. Beginning May 2, and continuing for eight weeks, a daily radio broadcast was scheduled over Station WOR by Martha Deane. During her hour, 3:00 to 3:45 P. M., Miss Deane made alternate mention of New Jersey-produced eggs and New Jersey-produced milk. She made special mention of cartoned State Certified Eggs and the official New Jersey grade of milk. Individual dealers supplemented the advertising of the Council with their own leaflets and newspaper advertising.

Eggs. Leaflets totalling 475,000 egg carton stuffers on New Jersey State Certified Fresh Eggs and 475,000 on New Jersey-produced fresh eggs are now being distributed through auctions, dealers, stores, schools and other outlets. The former are for use in the special blue cartons, containing New Jersey State Certified Fresh Eggs. The other edition is primarily for poultrymen who are supporting the New Jersey Egg Marketing Committee with contributions, but who are not using the certified label. Twenty thousand window stickers are also being furnished to stores. An advertising schedule in three daily newspapers during May was completed for the New Jersey Federated Egg Producers' Cooperative Association, Inc. at Toms River. The program of Martha Deane on Station WOR was shared by the milk and egg groups.

Poultrymen have commented favorably on the program of the Council which supplements their own. Prices are better than in 1937 and heavy volume moved orderly.

The impetus furnished by the program of the Council helped to bring to a successful conclusion the test campaign inaugurated by the New Jersey Egg Marketing Committee and conducted in Montclair, Summit, Westfield and Plainfield. All of the poultry marketing associations have combined to form a state-wide egg marketing cooperative, which is now extending the plan, with its own funds, beyond the four test cities.

Fruit and Vegetable Auctions. An advertising schedule for June and July in trade papers was effective. This was aimed to attract buyers to the auctions.

A series of consumer advertisements appeared in May and June in all of the dailies of the state at weekly intervals, stressing the current crops in season. These began with a strawberry advertisement on May 26. A revised edition of "Healthful Foods — How to Buy Them" was prepared for replying to coupon requests.

To date, demand on the auctions has been better than at any time during the last three or four years. Strawberries, although being offered in volume considerably heavier than a year ago, brought much better prices, despite unsettled business conditions. Auction market officials are receiving more inquiries for information on New Jersey produce than ever before. Both they and the producers are well pleased with the stimulus which the Council advertising has furnished in interesting buyers in New Jersey fresh produce.

Nursery. A series of advertisements in the Sunday papers of the state, as well as two in New York and one in Philadelphia, began on April 24 and continued through May 23. With a very limited budget and the use of relatively small space, 1,382 coupon requests were returned to the office of the Council by readers seeking further information on the purchase of New

Jersey nursery stock. These were answered in part with a booklet "How to Make An Outdoor Living Room." This booklet is one of the outstanding pieces of literature issued by the Council and yet is one of the least expensive.

The nurserymen report that the trade this year has been the best since 1928 or 1929.

Certified Field Crop Seeds. A 16-page booklet to promote the sale and use of New Jersey certified field crop seeds was prepared.

Potatoes. With only a small sum available, it was agreed that the best results could be obtained for New Jersey potato growers by advertising in trade papers so as to attract the attention of the wholesale trade during the potato digging season. This schedule planned for advertisements to appear during late July and August in "The Packer" on a page which would include advertisements of New Jersey potato dealers.

Blueberries. At the conferences with the blueberry growers' representatives, it was agreed to supplement the advertising conducted by that organization with a single advertisement in the daily press of six cities in northern New Jersey.

Miscellaneous. The Council is sponsoring a movement to bring to New Jersey a marketing research station which has been provided for by Congress under the AAA Act. A brief and a prospectus are being prepared for Secretary Wallace, pointing out the opportunity New Jersey presents for studying market conditions in a market area where 40 per cent of the nation's urban population and 28 per cent of the nation's total population reside. The funds available for this project total about $1,000,000, and such a station, with its staff, would be a real asset to agricultural interests of New Jersey as well as to the Northeast.

The program of the New Jersey Council has already done much to demonstrate to the agricultural groups the advantages of promoting New Jersey farm products of definite quality standards. Even though the Council program has operated for only two or three months, results are already apparent to a degree which has impressed growers and dealers. This alone is an item of importance because the advertising of the Council has, in the case of several products, been the first effort of its kind in New Jersey. Grower and dealer groups are contemplating extending their own efforts or making new plans to promote New Jersey farm products.

GENERAL PUBLICITY

In addition to the cooperative program conducted with the New Jersey Council, the consumer information project was continued as a Bureau of Markets activity.

During the past year the cooperative arrangement with the Milk Research Council was continued. Supported by distributors and producers

interested in the New York metropolitan market, that agency printed leaflets and clip sheet releases, and met other expenses involved in issuing literature prepared by the consumer service. This arrangement involved no restrictions, and milk and dairy products have been given prominence only to a degree in keeping with their actual importance in the state.

The channels used for publicity included newspaper feature stories, newspaper spot news releases, a few radio talks, leaflets, exhibits, and a few talks before consumer groups.

The press continues to provide, at this date, the most effective means of publicity and the greatest coverage. Weekly feature articles were furnished in clip sheet series, each covering a six-week period. These were mailed to all editors in New Jersey. Mats were furnished free to those papers requesting them and saved the paper the expense of setting type. At present, there are 214 publications using mats regularly and 218 other publications, syndicates and interested individuals receiving only the clip sheets.

Reports on circulation of the releases are difficult to obtain without clipping service, but collected clippings of published articles have indicated a total coverage circulation of about 24,000,000 for each clip sheet, or about 4,000,000 for each week during the past year. It is significant that this circulation has been gained and held in direct competition with a very large volume of reading column "hand-outs" submitted by commercial interests which were also purchasing advertising space. This response of the editors may be considered as one measure of that part of the program which is prepared for the press. A permanent place in the reading columns of the papers of the state has been gained. An effort is made to use a "live" picture with each story. The splendid cooperation of the press is worthy of mention and is acknowledged as of inestimable value in disseminating information to consumers.

During the past year, and in addition to those reported under the New Jersey Council, over 219,822 leaflets have been distributed. Channels utilized for distribution included milk dealers, stores, egg retailers and direct distribution at meetings.

Only three radio talks were given during the past year. These broadcasts covered New Jersey products and consumer marketing problems, and were given without cost over stations WOR, WPG and WNYC, either in special programs or by guest speakers in scheduled programs. Results of radio activities are very difficult to evaluate because of the limited response, lack of continuity and none too favorable hours. In New Jersey the value of using the smaller stations is an unknown factor.

Report of the Bureau of Plant Industry

HARRY B. WEISS, *Chief*

STATISTICAL AND RELATED WORK

It is the duty of this bureau to gather the essential data on the condition of agriculture in the state. Every month the statistical branch of the bureau, in cooperation with the United States Department of Agriculture, Bureau of Agricultural Economics, assembles information on acreages, yields per acre, total production, farm price per unit, total farm value of each commodity grown in the state, as well as data on the numbers of various kinds of livestock raised in the state, their value, quantity of their products, etc.

This information is published eleven months of the year in the "New Jersey Crop and Livestock Report."

NEW JERSEY PEACH INDUSTRY

The severe cold weather which prevailed during the three winters of 1932-1933, 1933-1934 and 1934-1935 weakened New Jersey peach trees considerably. As a result, many trees died from winter injury, and at least as many were damaged to such an extent that their life and usefulness were shortened greatly.

The latest available figures on the number of peach trees in the state were those of the United States Census of January 1, 1935. From that date on, the growers continued their extensive removal of injured trees. At the same time orchardists were planting new trees. Consequently, it was necessary in the spring of 1937 to survey the peach orchards in order to ascertain the status of the industry in the state, i.e., to determine if the industry were advancing, declining, or remaining stationary.

It was also desirable to learn what varieties of peaches were important or were becoming important at the time, and what varieties were declining in number. This knowledge is of value to all growers and nurserymen in planning their future plantings.

The third objective was to determine the number of trees planted in different years, or to classify the trees by age. Such a classification indicates the annual trend of the industry.

With these three main objectives in mind, the Bureau of Plant Industry inaugurated a survey of the peach industry in the state. The survey was conducted from February to June, 1937. Each grower was interviewed personally.

The results of this survey were published in the departmental circular No. 286, under the title "New Jersey Peach Industry. Number of Trees by Varieties and Ages."

THE APPLE INDUSTRY OF NEW JERSEY

The same objectives were followed in surveying the New Jersey commercial apple industry as in the case of the peach industry. Enumerators visited, during the spring of 1937, more than 2,350 apple growers, personally interviewed them, and recorded their findings. The data then gathered were tabulated and published in department circular No. 296, under the title "The Apple Industry of New Jersey. Number of Trees by Varieties and Ages."

CATTLE HERDS IN NEW JERSEY

CLASSIFIED BY SIZE

The following observations have been made from a statistical report compiled by the Bureau of Animal Industry and analyzed by the statistical division of the department, showing the number of herds listed in each county and classified according to the number of animals in each herd.

The sources of the data discussed in this circular are the records gathered by the state veterinarians during the inspection of animals. These data are kept by the Bureau of Animal Industry, New Jersey Department of Agriculture.

It is important to recognize that the figures listed refer to the total number of cattle of all kinds reported on New Jersey farms. In view of the fact that the production unit of a dairy herd is the dairy cow, it should be realized that of the 198,263 animals reported, approximately 145,000 are milking cows or milking heifers, according to the latest estimates. On this basis it would appear that 73 per cent of the total cattle population can be listed as producing cows or heifers. Consequently, 73 per cent of the figures reported would represent a truer picture of the number of producing cows in each classification, although, of course, this percentage would not necessarily prevail in the single and two cow herds.

More than 60 per cent of the farmers in New Jersey are keeping cattle.

In March,1938, the department had 18,318 herds of cattle under supervision for the eradication of bovine tuberculosis. Hunterdon County led all other counties in the number of herds, with a total of 2,215, or 12.1 per cent of all herds under supervision in the state. The smallest number of herds was registered in Hudson County, which reported 25.

TOTAL CATTLE POPULATION

There are 198,263 cows, heifers, calves, steers and bulls in the 18,313 herds reported. Sussex County ranked first in the number of cattle with 32,525 head, or 16.4 per cent of the total cattle population under supervis-

ion in the state. Next to Sussex in order of importance was Hunterdon, with 25,850 cattle. Warren County followed Hunterdon with 22,765 head. Burlington County, with 21,856 cattle, almost equalled Warren. The last one on the list was Hudson County, with 128 head.

AVERAGE NUMBER OF CATTLE PER HERD

The average number of cattle per herd for the state as a whole was 10.8 head. The county averages fluctuated greatly. They ranged from the low of 1.7 head in Atlantic County to the high of 25.8 head in Sussex County. Generally speaking, the availability of good pasturage, as well as suitability of soil for the economical production of hay and grains, influenced the number of cattle in each county. If pasturage and soil were economically suitable, the number of cattle was greater. On the other hand, if the reverse was true, the cattle population was smaller.

SIZE OF HERDS

The size of a herd is of great significance because it reveals whether all or a substantial part of a person's income is derived from dairying, whether dairying is a supplementary source of income, or whether one or two head of cattle are kept for the sole purpose of supplying the family with milk, cream, butter, cheese and perhaps with veal or beef.

DAIRY FARMERS

There were 4,730 herds, or 23.86 per cent of the state total, consisting of 16 or more cattle. Farmers keeping cattle in these numbers derived the main part of their entire income from dairying and from the sale of dairy animals.

Sussex County, with 784 herds of this size, led in the number of commercial dairy herds. Sussex was followed by Warren and Hunterdon, which had 658 and 642 herds respectively. Next in importance were two counties in southern New Jersey, Burlington and Salem, having 494 and 399 herds respectively.

There were 97 herds in the state, ranging in size from 101 to 900 cattle. Of these, Bergen County had 2, Burlington 4, Camden 2, Cumberland 4, Essex 8, Gloucester 2, Hunterdon 9, Mercer 6, Middlesex 13, Monmouth 2, Morris 14, Passaic 2, Somerset 4, Sussex 16, Union 6, and Warren 3.

It is of interest to note that in such urban counties as Bergen, Essex, Passaic and Union there were a number of these large herds. As a matter of fact, Union County had the largest herd in the state, ranging in size from 801 cattle to 900 cattle. Most of such large herds were operated on a barn-unit basis and were not associated with any actual farm operations.

CATTLE KEPT FOR SUPPLEMENTARY INCOME

There were 5,561 herds, or 30.37 per cent of the total number in the state ranging in size from 3 to 15 cattle. It may be safely stated that the owners of these herds are farmers. They practise so-called diversified farm-

ing and do not specialize in one line of agriculture. They have a few cattle, one or two hogs, several hundred chickens and a dozen or more acres of vegetables, fruits and berries. Part of these products is consumed on the farm, and part is sold for cash to provide for the payment of farm operations and living expenses. Burlington, Cumberland, Gloucester, Hunterdon, Mercer, Monmouth, Morris, Ocean, Salem, Somerset, Sussex and Warren counties have a considerable number of farmers of this type. All these counties, with the exception of Mercer, are predominantly agricultural.

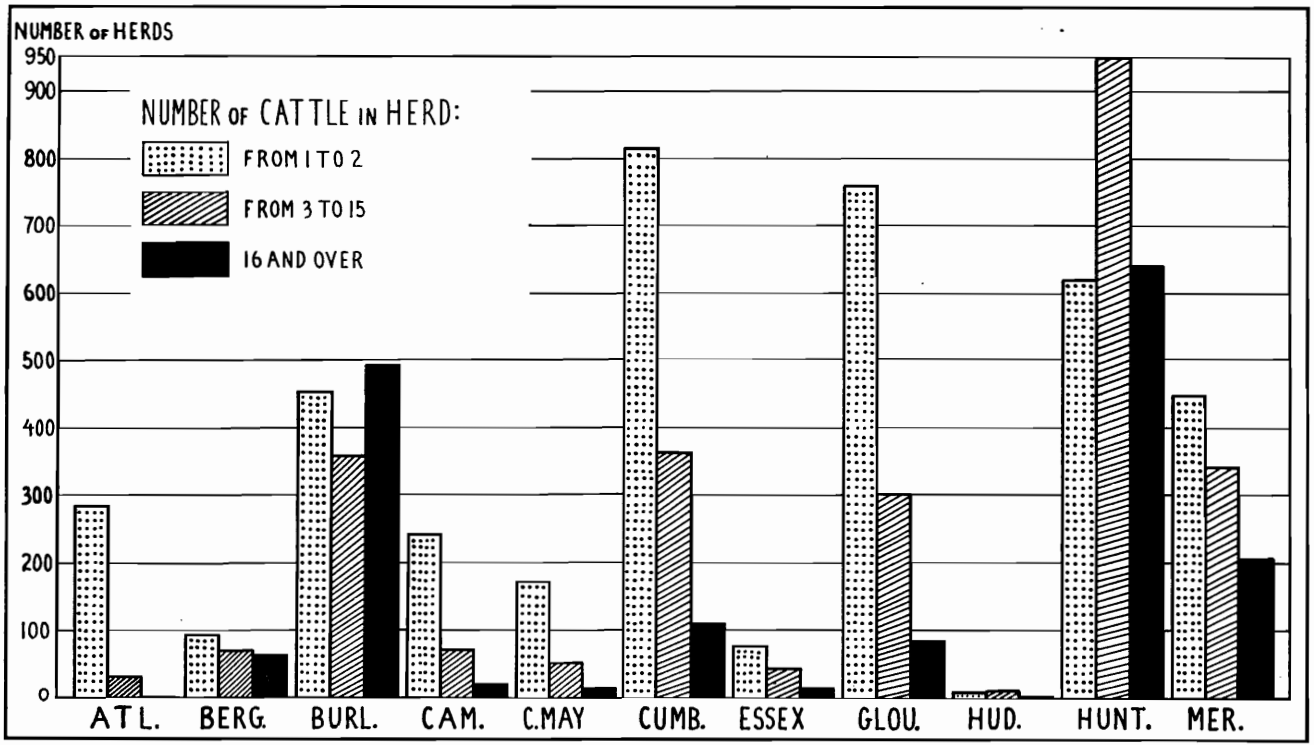
CATTLE KEPT SOLELY FOR HOME NEEDS

Nearly one half of all the herds in the state consisted of one or two head of cattle. The number of them was 8,382, or 45.8 per cent of the total herds in the state. There were 5,392 herds consisting of one head, and 2,990 herds consisting of two dairy animals.

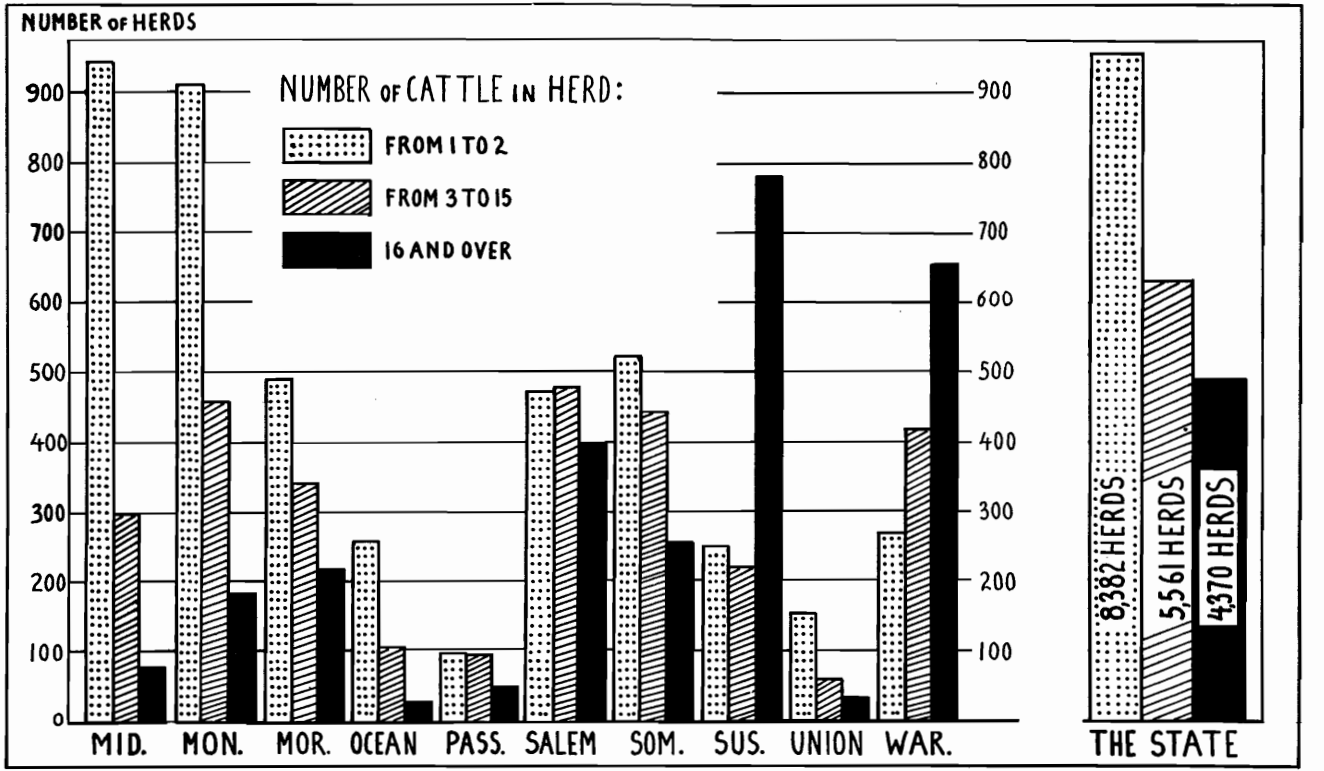
Farmers, factory workers or salaried persons, who keep one or two cows, usually do not sell milk. They have dairy cattle to satisfy their own family's demand for milk, cream, butter, cheese, veal and beef, and in such a way diminish their cost of living, and in case of unemployment, they have such vital items as dairy products readily available for the family.

Atlantic, Bergen, Camden, Cape May, Cumberland, Essex, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, and Union counties had a large number of herds of one or two dairy animals. Of these, Atlantic, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Monmouth, Morris, Ocean, Salem and Somerset counties are predominantly agricultural with farmers engaged in the production of truck crops, fruits, potatoes, milk and grains. Consequently, there is enough land to keep one or two cows for the purpose of supplying dairy products to a family.

On the other hand, Bergen, Essex, Mercer, Middlesex, Passaic, and Union counties are predominantly industrial, or to be more specific, the majority of their population is employed in industrial enterprises. No doubt many persons in these counties, who have one or two cows, are not farmers. These persons keep cattle because they live in rural sections and have an acre or two of land, which provides sufficient pasture in season, and hay for winter.



Number of herds of cattle in Atlantic, Bergen, Burlington, Camden, Cape May, Cumberland, Essex, Gloucester, Hudson, Hunterdon and Mercer counties, classified by size, i.e., from one to two head in a herd, from three to fifteen head in a herd, and sixteen head and over.



Number of herds of cattle in Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, Sussex, Union and Warren counties, as well as the state total, classified by size, i.e., from one to two head in a herd, from three to fifteen head in a herd, and sixteen head and over.

THE CANNING INDUSTRY IN NEW JERSEY DURING THE 1937 SEASON

The processing of New Jersey fruits and vegetables is more than a means of utilizing surplus productions and preserving them in various forms for use throughout the year. It is an important industry that annually depends on considerable acreages in the state for its raw materials. As such, it is of great economic significance to farmers and is an asset to the many communities in which canneries are located.

During the last 14 years, 1924-37, New Jersey canners have manufactured nearly 60,000,000 cases of various finished and unfinished products. The tremendous volume of raw materials needed to manufacture such a quantity of goods has been obtained (1) from those farmers who enter into agreements early in the spring to deliver produce from definite acreages at definite prices during the season, thereby insuring a relative certainty of income to the contracting growers; and (2) from the open market when supplies are plentiful, thus helping to remove surpluses and to benefit prices.

Processing plants in New Jersey employ at least 7,000 persons during the height of the packing season. Many of these derive their livelihood by working in the canneries the year round.

SOURCE OF RAW MATERIALS DETERMINES LOCATION OF FACTORIES

Thirty active canning factories in eleven counties absorbed the Garden State's choicest crops. A study of the counties in which canneries are established indicates that in almost every case, nearness to the source of the commodity to be processed has been the determining factor in the location of the plant.

Southern and central New Jersey provide the acreage for vast cranberry bogs and berry patches as well as the soil and climate to facilitate large-scale vegetable growing. These conditions, to a large extent, account for the fact that Cumberland County has attracted 10 canning houses and Atlantic and Salem counties, each four.

The number of active canning factories during 1937 by counties was as follows:

Atlantic	4	Monmouth	3
Burlington	2	Ocean	1
Camden	1	Salem	4
Cape May	1	Warren	1
Cumberland	10		
Gloucester	2	State Total	30
Mercer	1		

FARMERS RECEIVE 25 PER CENT OF TOTAL VALUE OF FARM PRODUCTS FROM CANNERS

New Jersey farmers received from canners in 1937 approximately 25 per cent of the total farm value of all vegetables and berries grown in the Garden State during the season. The total amount paid for vegetables,

cranberries, raspberries and blackberries was about $4,316,000, with tomato growers alone receiving nearly half, or $2,012,000, and cranberry growers receiving the second largest amount of $705,000.

The estimate of money paid to farmers by canners for individual commodities in 1937 was as follows:

Tomatoes	$2,012,000
Cranberries	705,000
Asparagus	574,000
Lima beans	461,000
Green peas	288,000
Snap beans	174,000
Beets	36,000
Pumpkins and squashes	21,000
Miscellaneous vegetables and fruits	45,000
Total	$4,316,000

TOMATOES EXCEED ALL OTHER COMMODITIES CANNED

Tomatoes, as usual, led among the commodities canned during the 1937 season in New Jersey. However, the quantity of tomato products packed was below average. Canners packed only 3,156,443 cases of finished and unfinished products of various sizes, which was 1,922,731 cases less than in 1936, and 327,461 cases less than the 13-year average annual pack, 1924-1936. Every kind of pack of tomatoes showed a decline from the 1936 output. An especially large drop was registered in the canning of whole tomatoes, pulp and puree.

The main reason for the small pack of tomatoes in 1937 was the shortage of tomatoes in the state. The dry, hot weather during July retarded proper development of the tomato plants. Sun scald, as well as horn worm and other insects, reduced yields. Moreover, at the peak of the harvesting season severe storms and heavy rains occurred, which, in many instances, cut the yield to half of the expected harvest. As a result of all these unfavorable factors, New Jersey farmers harvested in 1937 only about 137,800 tons, or 93,400 tons less than in 1936, and 30,660 tons below the ten-year average annual production, 1926-1936.

Even with New Jersey's subnormal tomato production, the Garden State maintained its rank of fourth among all states for 1937 in the production of tomatoes for manufacture. Only California, Indiana and Maryland attained higher rank.

In the following table the quantities of various tomato products canned in 1937, 1936 and the 13-year average, 1924-1936, annual pack are given.

NUMBER OF CASES OF TOMATOES PACKED IN NEW JERSEY DURING 1937, 1936 AND THE 13-YEAR AVERAGE, 1924-1936

Kind of Pack	Unit	1937 (*cases*)	1936 (*cases*)	13-year Average 1924-1936 (*cases*)
Canned whole	2 doz. No. 3 can	93,521	187,025	203,767
Pulp	½ doz. No. 10 can	1,600,994	2,845,436	2,084,483
Juice	½ doz. No. 10 can	660,622	991,603	449,552
Catsup	2 doz. 16 oz. bottle	698,603	725,543	504,081
Puree	½ doz. No. 10 can	73,586	276,747	198,057
Cocktail	½ doz. No. 10 can	29,117	54,820	43,919
Total	Various sizes	3,156,443	5,079,174	3,483,859

1937 CONTRACT AND OPEN MARKET PRICES SHOW LITTLE CHANGE

In spite of the reduction in the 1937 quantity of tomato products packed, the average contract and open market price per ton of tomatoes in 1937 differed very little from the 1936 price. Tomatoes brought $15.06 and $18.93 per ton for contract and open market sales respectively. In 1936 the contract price was $15.07 per ton, and the price of $18.98 per ton prevailed on the open market. The 1937 contract price per ton was about $1.50 above the 1933 price, when it stood at the lowest level.

QUICK-FREEZING METHODS PROMOTE DEMAND FOR OTHER VEGETABLES

The development of quick-freezing methods for certain vegetables and berries has given added prominence to lima beans, asparagus and green peas, among other foods, and has accounted for the tremendous increase in the use of these products in processing during recent years.

Because of the greater demand for these garden products, New Jersey farmers have expanded their plantings, placing New Jersey among the leading states in such production.

The quantity of lima beans canned and frozen reached the high figure of 650,000 cases in 1937. In the previous year the volume of various products frozen was not available. However, 2,300 cases of lima beans were canned, compared with the average annual output of 113,563 cases during the 13-year period, 1924-1936.

Asparagus frozen and canned amounted to 230,379 cases in 1937, or almost three times the 1936 figures for canned stock only and approximately six times greater than the 13-year average. Greater demands for both canned and frozen asparagus have resulted not only in increasing acreages, but also in utilizing the production of a larger proportion of New Jersey's total acreage.

Green peas frozen and canned in 1937 totaled 400,000 cases. The 1936 volume of peas canned was considerably larger than the 1924-1936 average, 33,827 cases having been packed compared with the 13-year average of 28,612 cases.

NEW JERSEY RANKS SECOND IN CRANBERRY PRODUCTION

New Jersey ranked second among the states in the production of cranberries. In recent years part of this crop has been converted into cranberry sauce and jelly in the New Jersey canneries.

Although the New Jersey Department of Agriculture has no data on cranberry products put out by the canneries, it does have figures on the quantity of berries which were sold to the canners. In the following table the quantity of New Jersey berries used for canning is presented.

BARRELS OF CRANBERRIES USED FOR CANNING AND TOTAL PRODUCTION OF CRANBERRIES IN NEW JERSEY, 1928-1937

Year	Number of Barrels of New Jersey Cranberries Used for Canning (*barrels*)	Number of Barrels of Cranberries Produced in New Jersey	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

It is evident from this data that since 1935 the canners have been utilizing more than one third of the cranberry crop harvested in the state. In 1935, they bought about 32,500 barrels, or 38 per cent of the total crop. In 1936, approximately 25,700 barrels, or 34 per cent of the total crop were used by canneries. An unusual situation developed during 1937, when the canners bought more than half of the total New Jersey crop, absorbing 90,287 barrels of cranberries out of a total 166,000 barrels harvested.

NEW JERSEY PRICES OF HIRED FARM LABOR, FEEDSTUFFS AND FERTILIZER MATERIALS AND THEIR INDEX NUMBERS, 1910-1937

From time to time this bureau has made studies of the changes in the prices of New Jersey hired farm labor, feedstuffs and fertilizer materials. These three items constitute a great part of the cost of production on farms. Therefore, knowledge of the degree of change of each of these factors as well as of them as a unit is essential, because it indicates whether the cost of production in a given month is increasing, remaining stationary or decreasing.

The results of studies conducted during the spring of 1938 were published as department circular No. 293, under the title "New Jersey Prices of Hired Farm Labor, Feedstuffs and Fertilizer Materials and Their Index Numbers, 1910-1937."

VARIATIONS IN WAGES PAID TO HIRED FARM LABOR

From 1924 to 1930, inclusive, New Jersey wages of hired farm labor did not vary greatly. They were, on the average, 125 per cent higher than during the pre-war period, 1910-1914. The decline began in 1931 and continued to 1933, inclusive. The lowest year was 1933, when farmers paid 19 per cent more than during the five-year period, 1910-1914. In 1934, wages showed an upward trend which continued up to 1937, inclusive, reaching the high point of 52 per cent above the 1910-1914 level in 1937.

Wages paid by New Jersey farmers are, on the average, high in proportion to the price received for products sold. The index number of the average price received by farmers in 1931 was only 14 per cent above the 1910-1914 period, yet the index number of the average price of hired farm labor was 81 per cent higher than the pre-war, 1910-1914 level. Approximately the same situation prevailed during 1932 to 1937, with only one difference, namely, the discrepancy between prices received for products and prices paid for labor was somewhat smaller than in 1931. Consequently, the prices received by New Jersey farmers are declining at a greater rate than the prices paid by them for hired farm labor.

Chart I illustrates that New Jersey farmers are paying higher wages than farmers in the country as a whole. In 1937, for example, the New Jersey farmers paid nearly 30 per cent higher wages than farmers in the United States as a whole.

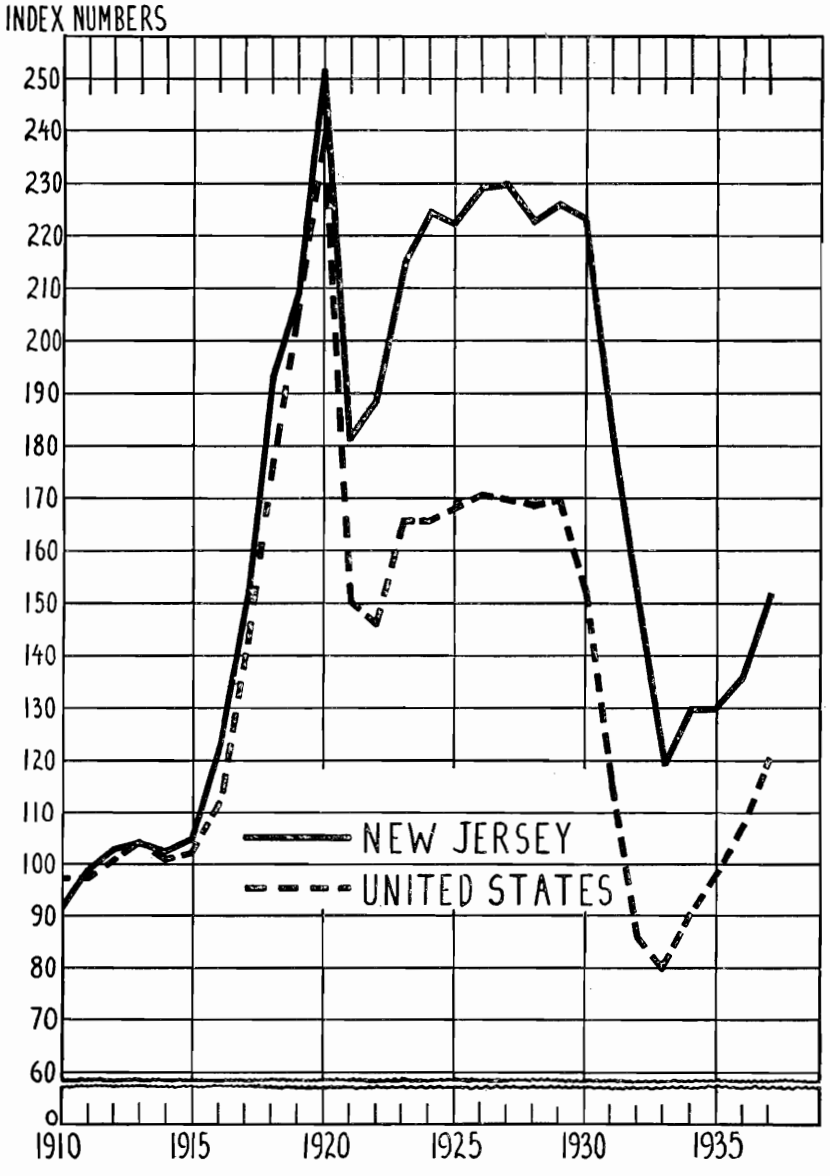


CHART I

Comparison of index numbers of wages paid to hired farm labor in the United States and in New Jersey during 1910 to 1937. (1910-1914=100.)

IMPORTANCE OF GRAIN PRICES IN DETERMINING COSTS OF FEEDSTUFFS

One of the important factors determining the price of feedstuffs is the price of grain. The price of grain in turn depends upon the world supply and demand. During the years 1930, 1931, 1932 and 1933, the price of grain was low because the world-wide economic depression undermined the purchasing power of masses of people. The price of feedstuffs during the same years went down considerably, especially in 1932, when it stood at 68 per cent of the pre-war, 1910-1914 basis. In 1933 the price of feedstuffs began its gradual rise, reaching, in 1937, a high level of 29 per cent above the pre-war average price. The year 1936 witnessed a severe decline in the yield of corn, and in 1937 the country was obliged to import a large quantity of corn from abroad. The price of corn rose, and the price of feedstuffs increased in 1937 about 90 per cent as compared with 1932, when the price was at its lowest level.

AVERAGE PRICES OF FERTILIZER MATERIALS

The annual index numbers of prices of fertilizer materials show one outstanding feature, namely, that from 1931 to 1937 the price stood lower than the pre-war, 1910-1914 level. It is also evident that the fluctuation in price from year to year is considerably smaller than in the case of farm labor and feedstuffs. Since 1935 the price has been gradually increasing, being about 9 per cent lower in 1937 than during the pre-war period, 1910-1914.

The table on general index numbers and Chart II illustrate in summary form the average prices paid by New Jersey farmers for hired labor, feedstuffs and fertilizer materials. The average index number of these three items began to decline in 1930, when the index was 156. In 1931 it stood at 122, in 1932 at 100, and in 1933 at 93. This means that, for example, in 1933, the combined index number of prices paid by New Jersey farmers for labor, feedstuffs and fertilizers was 93 per cent of the pre-war, 1910-1914, basis. In 1934 the price began to go up, and in 1937 it reached a level of 132, or 32 per cent higher than the pre-war, 1910-1914 average price. The rise in the price of labor, feedstuffs and fertilizers amounted to about 42 per cent between 1933, when the price was at its lowest level, and 1937, when it was at a relatively high point.

GENERAL INDEX NUMBERS OF NEW JERSEY HIRED FARM LABOR, FEEDSTUFFS AND FERTILIZER MATERIALS COMPARED WITH THE INDEX NUMBERS OF PRICES RECEIVED BY NEW JERSEY FARMERS

(1910-1914=100)

Year	Index Numbers of Hired Farm Labor	Index Numbers of Feedstuffs	Index Numbers of Fertilizer Material	General Weighted Index Numbers of Hired Farm Labor, Feedstuffs and Fertilizer Materials	Index Numbers of Prices Received by New Jersey Farmers
1910	92	97	101	95	94
1911	99	99	101	99	99
1912	103	105	98	103	105
1913	104	94	101	101	99
1914	102	105	99	102	99
1915	105	105	100	104	93
1916	123	110	125	119	118
1917	151	167	187	165	174
1918	193	184	245	203	195
1919	209	212	197	207	211
1920	253	216	201	228	205
1921	181	113	107	136	142
1922	189	118	120	144	134
1923	215	138	120	162	162
1924	225	135	108	162	162
1925	222	144	120	167	179
1926	229	129	123	164	159
1927	230	144	127	171	155
1928	222	154	128	173	160
1929	226	140	127	168	170
1930	223	123	110	156	144
1931	181	85	80	122	114
1932	149	68	74	100	88
1933	119	78	74	93	109
1934	130	107	80	112	109
1935	130	108	75	112	118
1936	136	112	82	117	127
1937	152	129	91	132	123

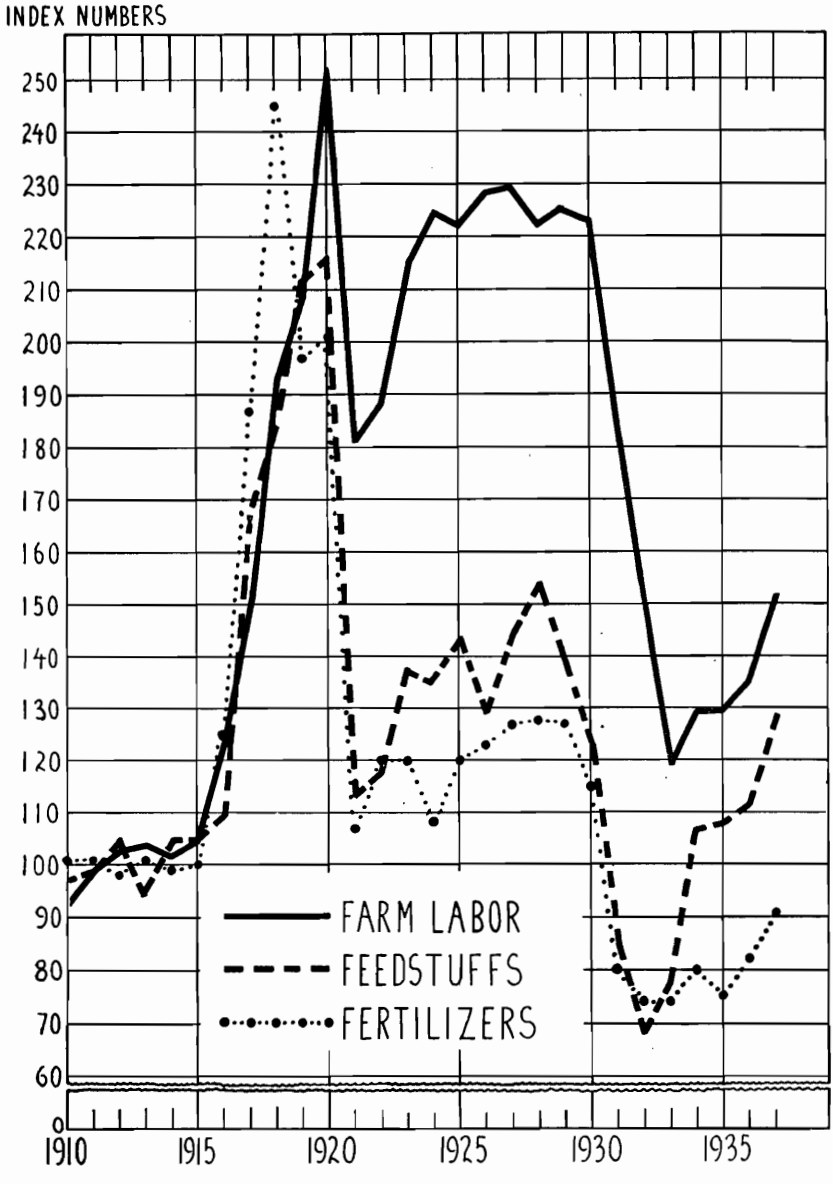


CHART II

Index numbers of prices paid to New Jersey hired farm labor, of wholesale prices of feedstuffs in Philadelphia, and of wholesale prices of fertilizer materials per one pound of plant food in New York City during 1910 to 1937. (1910-1914=100)

COST OF LIVING STUDIES IN NEW JERSEY

Various governmental and private institutions as well as persons are constantly requesting information on the cost of living in New Jersey. To comply with these demands, the statistical branch of the Bureau of Plant Industry inaugurated in 1936 studies of cost of living. On account of insufficient funds, it was decided first to gather information on retail food prices only. This year two more groups of commodities were added, namely, fuel and light, and rentals. Therefore, up to July 1, 1938, information on these three very important components of the cost of living were gathered, tabulated, interpreted and disseminated among the citizens of the state. It is expected that during the 1938-1939 fiscal year the study will be completed by additional information on prices of clothing, household goods, furnishings and sundry items.

WHITE PINE BLISTER RUST CONTROL

Ribes eradication work was performed with W. P. A. funds during the period from May 16 to October 5. Activities were confined to Montague and Vernon townships in Sussex County where eradication was found necessary. A total of five laborers and one foreman was drawn from the W. P. A. rolls and given the necessary training. Due to lack of funds, no supervisor could be hired. However, a trained gipsy moth control supervisor on the state payroll was loaned to the project. This arrangement worked out very satisfactorily, the supervisor giving immediate supervision to this crew, scouting and checking as well as providing transportation in his state-owned car. A total of 1,417 acres was eradicated to protect 442 acres of adjacent white pine. A total of 2,292 acres of white pine were protected by crew and scout activities. A total of 3,132 man hours of labor was expended by the crew in pulling 16,971 Ribes of which all but 15 were wild bushes. The Ribes which were pulled were principally *R. americanum, R. hirtellum,* and a few *R. cynosbati.* They were located principally in wet sites along streambeds and in swampy areas, where conditions were optimum for regrowth.

With the federal appropriation for the year curtailed, and the principal pine stands in the state protected, the allotments for New Jersey were omitted beginning January 1, 1938. As a consequence, no blister rust control work was performed in the second half of the fiscal year.

Nursery sanitation work was performed only about the Soil Conservation Nursery at New Brunswick. This had been previously eradicated and the regrowth of Ribes was confined to rather definite areas. Two hundred and fifty acres were scouted, and 146 escaped gooseberry and current bushes were pulled.

No noticeable spread of the disease was observed; however, more diseased pines were found than at the time of initial eradication. These were

infections which had taken place before initial eradication but which had not become obvious by that time. Ribes infection did not show up until quite late in the summer but was fairly heavy at that time.

Blister rust control posters were placed in many stores, post offices, real estate offices and other places frequented by the public in the areas in northern New Jersey where white pine occurs or has been planted. Literature covering the various aspects of the disease and the method of controlling it was mailed to the few planters, 15, who received white pines from the State Forest Nurseries in 1937. The quantity supplied this year was 54,300 trees.

SEED CERTIFICATION AND RELATED WORK

RASPBERRY PLANT CERTIFICATION

Nine nurserymen and growers applied for inspection and certification of raspberry fields in order that they might ship into states having regulations requiring certification. Two field inspections were made of 109.5 acres, during which 7 acres were rejected as having virus diseases present. The total of 102.5 acres thus passing was declared eligible for shipment with certificates.

SEED GRAIN CERTIFICATION *

Steady growth in the production and use of certified seeds of the field crops and grains was noted for the year. The increase was approximately one third in the number of growers, acreage certified and bushels produced. It is anticipated that a further increase in the production and consumption of certified field crop seeds will materialize as the results from their use become better known. The program of the New Jersey Field Crop Improvement Association, which promotes this work, looks forward to the increased use of seeds of approved and certified varieties as well as the addition of other new varieties as their merit is proved. Winter barley was added to the list this year, offering a crop of many advantages to farmers in the central and southern counties. A table of certification results by varieties follows.

* Conducted in cooperation with the Department of Agronomy, New Jersey Agricultural Experiment Station.

Crop	Variety	Acres Entered	Number of Growers	Acres Certified	Bushels Tagged and Sealed
Barley, spring	Velvet	45	5	45	525
Barley, spring	Comfort	5	1	5	....
Barley, winter	Maryland Smoothawn	35	5	35	869
Barley, winter	Missouri Early Beardless	20	3	20	401
Corn, Hybrid	N. J. Hybrid No. 2	23	4	23	269½
Corn, Hybrid	N. J. Hybrid No. 4	4½	1	4½	110
Corn Standard	Hulsart's Yellow Dent	17	1	17	0
Corn Standard	Lancaster Surecrop	92½	6	92½	705¾
Corn Standard	Mercer White Cap	25	2	25	215½
Corn Standard	Reid's Yellow Dent	41	2	41	320
Corn Standard	Somerset Leaming	55	4	55	416
Oats	Kanota	86	7	50	1,538
Oats	Keystone	134	9	117	1,734
Rye	Raritan	25	3	15	98
Soybeans	Harbinsoy	240½	13	237	2,172½
Soybeans	Wilson-5	18	1	18	36
Wheat	Dawson Golden Chaff	19	1	7	146
Wheat	Leap's Prolific	332½	17	192½	3,441
		1,218	85	999½	12,997¼

WHITE POTATO SEED CERTIFICATION*

1937-1938

The production of certified seed in 1937 was marked by several changes. Less acreage was entered by southern New Jersey growers and a decided increase in the number of entrants and the acreage by central New Jersey growers was shown. The latter is responsible for the increase in total acreage entered for certification, 643.45 acres, in 1937 as compared with the total of 474 acres entered in 1936. This decided increase was due largely to the very unsatisfactory results obtained in the early commercial crop grown from home-grown seed which had been planted with northern certified seed for increase the previous year. Many central New Jersey growers have come to the practice of growing seed in the late summer, and because of the general high quality of the parent seed, did not find roguing or continued certification necessary. The risk taken was finally forcibly brought out, following the combination of some virus diseased plants in the fields as they grew, plus a rather severe outbreak of sucking insects, (aphids), and the growers' failure to rogue the affected plants from the field before the insect vectors became numerous. Failure to keep seed stocks up to the high standards of certification invariably results in a decided increase in virus disease content and a corresponding lowering of productibility .

A total of 96,468 bushels of seed was harvested which is about one-third larger than the 1936 crop of 63,880 bushels, but below the total crop harvested in several other years With 514 acres passing all of the inspec-

* Conducted in cooperation with the State Potato Association.

tions, the average yield of 188 bushels per acre is considerably higher than last year. For the two sections, southern New Jersey registered the higher average yield per acre for all varieties of 199.8 bushels per acre against 161 bushels per acre for central New Jersey. This difference is probably due to two factors. In central New Jersey an outbreak of green tomato hornworms in numerous fields cut the yields as much as one half. A below normal rainfall in this section during September (—1.01 inches) also curtailed yields. In southern New Jersey, by contrast, the deficiency of rainfall in September was not as great (—.77 inches) and because the crop for the most part was planted later, the fields were not so visibly affected by the dry spell and grew rapidly in late September and early October. Frost killed the fields in both sections on October 15, 16 and 17. October rains made digging a difficult matter; however, after the tubers were allowed to dry out, most of the caked dirt was removed.

Insects were troublesome in numerous fields, especially in central New Jersey. As already mentioned, the tomato hornworm did considerable damage which could have been avoided by spraying sooner with arsenicals. In one field in the same area where the hornworm had become plentiful, no worms were found. Questioning the grower revealed that he had included an arsenical in the first Bordeaux spray. It is presumed that he killed the worms soon after hatching, thus preventing the same general outbreak found in other fields. Many fields in central New Jersey had heavy outbreaks of aphids. Very few aphids were noted at the time of the first inspection; however, the population increased rapidly by the time of the second inspection and the large aphid count in the presence of virus diseases, especially leaf roll, was responsible for many rejections. Only three growers used nicotine sprays in attempting to control these pests. It should be strongly pointed out that good control was obtained. However, the excellent kills with nicotine, which was used in combination with Bordeaux, were obtained because the growers had proper nozzle adjustment to place the spray where it was needed, because ample and steady pressure was used, and because the spray was applied during the warmest and quietest part of the day. Leaf hoppers were present in large numbers in a few fields, especially those which were poorly sprayed or not sprayed at all. As in the case of the aphids, rejections were necessary.

The bureau thoroughly believes that in order to grow good seed, one must learn to rogue, rogue early and as often as is necessary. The other prime requisite is to obtain the best possible parent stock seed, seed of the lowest disease readings possible, in order to minimize virus disease increases.

Of the leaf and vine diseases, early blight and late blight were not particularly troublesome, although late blight appeared in a few fields and a very few tubers with mahogany rot were found. Black leg was more prevalent than in many previous years and necessitated considerable roguing.

This disease also appeared in some fields later in the stage of growth of the plants, and was of the type which collapses the stem well up into the tops. The usual type of black leg causes a stunted yellowed plant early in the growth period with the portion of the stem from the ground level to the seed piece rotted and black. This type is usually self roguing in that very little tuber growth is made. However, much of the black leg in 1937 appeared after the tubers were nearly mature in size. Roguing of the tubers in these cases was necessary.

Another noticeable change in 1937 was the increased planting of the Chippewa variety. This increase is also evident for the country as a whole, where an increase of 268 per cent over last year is shown. Seventy and three-fourths acres were entered for certification with forty-five acres passing the inspections. Of the fields rejected, most of the parent seed, although suitable for commercial planting, was not of sufficiently clean readings to make desirable foundation stock. Lack of good foundation stock is due to the sudden popularity of the variety and the consequent rush to increase seed stocks. As in previous years, this variety produced a larger and brighter crop than other varieties. Of the three fields which made a top yield of 312 bushels per acre, two were Chippewa.

Yields for the whole acreage varied from a low of 69 to a high of 312 bushels per acre and averaged 187.7 bushels per acre. The low yields were chiefly registered in the Red Skin variety which apparently forms its tubers very late when the weather is cooler. In 1937 this variety was making rapid growth but was cut down by frost a week or ten days too soon for a full crop.

Seed disinfection dropped to a new low of 28.63 per cent of the seed being treated. Disinfection is recommended not only for the visible tuber diseases but also to control other diseases which may be tuber borne and which are not visible.

Fertilization of the crop was approximately as usual with an average application of 1,987 pounds as compared with 1,944 used in 1936. The lightest application of fertilizer was 1,000 pounds, the heaviest 2,500 pounds. Several more growers reported the use of double strength analyses. Field observations made during growth and the final yields show them to be equal to the single strength mixtures. The double strength mixtures involve less tonnage to handle, which is a saving to be considered.

Most of the foundation stock, or 39.84 per cent, was procured from Prince Edward Island. Maine furnished 29.76 per cent and New Jersey 28.76 per cent. A few bags were obtained from New York, Pennsylvania and Idaho. The latter two lots were not certified and hence were ineligible.

Rejections and withdrawals totaled 129.45 acres or 20.12 per cent. Most of these were for excessive virus disease content. Others were for the combination of virus diseases and sucking insects. Leaf roll was the most prevalent disease with some mosaic and spindle tuber also found.

Approximately two thirds of the whole crop was sold in New Jersey and Pennsylvania. Prices were low, probably due to the fact that throughout the United States, production was the largest on record.

A REVIEW OF THE INSPECTION AND CERTIFICATION WORK OF NEW JERSEY LATE CROP WHITE POTATO SEED IN 1937

Acres Entered for Certification

County	Acres	Per Cent
Camden	4.50	.70
Cumberland	284.00	44.14
Hunterdon	7.50	1.17
Mercer	31.75	4.93
Middlesex	145.75	22.65
Monmouth	52.95	8.23
Salem	117.00	18.18
	643.45	100.00

Seed Source

	Bags	Per Cent
New Jersey	1,437	28.76
Prince Edward Island	1,990	39.84
Maine	1,487	29.76
New York	72	1.44
Pennsylvania (not certified, ineligible)	9	.18
Idaho (not certified, ineligible)	1	.02
	4,996	100.00

Seed Storage

	Bags	Per Cent
Southern New Jersey	2,889	57.83
Central New Jersey	2,107	42.17
	4,996	100.00

Seed Treatment

	Bags	Per Cent
Semesan	1,930	38.63
None	3,066	61.37
	4,996	100.00

Previous Cropping of Field

	Acres	Per Cent
Green Manure Crops	235.45	36.59
Fallow	57.00	8.86
Grain Stubble	78.75	12.24
Sod	204.75	31.82
Early Potatoes	59.50	9.25
Truck Crops	8.00	1.24
	643.45	100.00

Fertilization

Tons Applied (643.45 acres)	639.27	tons
Average Application Per Acre	1,987	pounds
Heaviest Application Per Acre	2,500	pounds
Lightest Application Per Acre	1,000	pounds

Rate of Plantings

	150 lb. Sacks
Total number of bags of seed planted	4,996
Average number of bags per acre	7.76
Heaviest number of bags per acre	15
Lightest number of bags per acre	4

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

Bags Per Acre	Weight of Seed Piece
4.00	0.534 ounces
7.76	1.036 ounces
15.00	2.003 ounces

Yield Per Acre (bushels)

Average yield	187.7 bushels
Lowest yield	69.0 bushels (Red Skins)
Highest yield (Made by 4 growers 2 Chippewa and 2 Cobbler)	312.0 bushels

Preliminary Expenses Per Acre

Seed—7.76 bags at $4.75	$36.86
Fertilizer—1,987 pounds at $27 per ton	26.82
	$63.68

PRODUCTION AND DISTRIBUTION
CERTIFIED CROP OF WHITE POTATO SEED OF NEW JERSEY

	1937	1936	1935
Acres of Seed Certified	514	430	482.12
Total Yield (field run) in Bushels	96,467	63,880	44,422
Average Yield Per Acre in Bushels	187.68	148.04	92.14
Bags of Certified Seed Sold	18,912	11,952	6,463
Bags Sold Within the State	17,455	10,415	6,025
Bags Sold Out of State	1,457	1,537	438
Pennsylvania	1,452	1,534	435
New York (old sacks used)	5	3	3
Bags Sold Untagged (tags not allowed)	460	1,538	996
Total Bags of Seed Shipped	19,372	13,490	7,459
Bags Seed Unsold December 31	15,787	5,172	6,114
Baskets of Seed Retained Own Use	46,396	24,805	28,224
Bushels of Seed Retained Own Use	28,988	15,503	17,640

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

POTATO ACREAGE ENTERED FOR CERTIFICATION 1937

County	Growers	Cobblers	Chippewas	Red Skins	Katahdins	Green Mts.	Idaho Russets	Total
Camden	1	....	0.25	4.25	....	....	....	4.50
Cumberland	28*	171	24.25	66.00	17.75	5.00	....	284.00
Hunterdon	2	....	....	....	....	7.50	....	7.50
Mercer	7	24.75	3.75	....	3.25	....	....	31.75
Middlesex	25	126.125	13.00	....	6.125	0.50	....	145.75
Monmouth	8	45.00	1.00	0.20‡	2.00	4.50	0.25‡	52.95
Salem	9	88.50	28.50	....	....	....	....	117.00
	80*	455.375	70.75	70.45	29.125	17.50	0.25	643.45

* Actual number of growers.
‡ Uncertified seed used—not eligible for certification.

ACREAGE FAILING AND PASSING CERTIFICATION

	Acres	Per Cent
Acreage rejected at first inspection	15.45	2.40
Acreage withdrawn at first inspection	18.00	2.80
Acreage rejected at second inspection	96.00	14.92
Total acreage rejected at end of two inspections	129.45	20.12
Acreage rejected at third tuber inspection	0	0
Acreage withdrawn and rejected three inspections	129.45	20.12
Acreage passing three inspections	514	79.88

WHITE POTATO SEED CERTIFICATION
INDUSTRY OF NEW JERSEY

(For First 10 Years See 1929 Records)

Year	Number of Growers	Acres Entered	Percentage Rejection	Varietal Distribution	
1929	64	621	12.64	Green Mts.	19.0
				Cobblers	584.5
				Red Skins	17.5
1930	64	593	12.65	Cobblers	584.5
				Green Mts.	2.5
				Red Skins	6.0
1931	77	904.5	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	474.5	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
				Idaho Russets	0.25

SUMMARY OF INSPECTION RESULTS IN 1937

	Camden	Cumberland	Hunterdon	Mercer	Middlesex	Monmouth	Salem	Total
Acreage Entered	4.5	284	7.5	31.75	145.75	52.95	117.	643.45
Number of Growers	1	28	2	7	25	8	9	80
Average Number of Acres Per Grower	4.5	10.14	3.75	4.53	5.83	6.62	13.	8.04
Acres Rejected First Inspection*	0	5	0	1.5	9	8.95	9	33.45
Per Cent Rejected First Inspection	0	1.76	0	4.72	6.17	16.90	7.69	5.20
Acres Rejected Second Inspection	0	5.25	0	6.5	34.75	29	20.5	96.00
Per Cent Rejected Second Inspection	0	1.81	0	20.47	23.84	54.77	17.52	14.92
Acres Rejected Third Inspection	0	0	0	0	0	0	0	0
Per Cent Rejected Third Inspection	0	0	0	0	0	0	0	0
Acres Rejected Total*	0	10.25	0	8	43.75	37.95	29.5	129.45
Acres Certified	4.5	273.75	7.5	23.75	102.	15.	87.5	514.
Per Cent Certified	100	96.43	100	74.81	69.99	28.33	74.79	79.88

*Includes withdrawals.

VARIETAL DISTRIBUTION OF REJECTIONS AND WITHDRAWALS

Acres Entered		*Acres Rejected and Withdrawn by Inspections*			Acres Certified
		First	Second	Third	
Irish Cobblers	455.375	23.00	72.25	0	360.125
Chippewas	70.75	.75	22.75	0	47.25
Red Skins	70.45	.20	0	0	70.25
Katahdins	29.125	5.75	1	0	22.375
Green Mountains	17.50	3.50	0	0	14.00
Idaho Russets	0.25	0.25	0	0	0
Total	643.45	33.45	96.00	0	514.000

STRAWBERRY PLANT INSPECTION

A survey and study was made of the strawberry plant situation in New Jersey in order to cope with the recently announced presence of the Red Stele disease. It is now known to be widespread in the states of Maryland, Delaware, Virginia and Illinois, and to be present in some degree in New Jersey, New York and some other states. The purpose of the study was to develop plans for inspection and certification of plants to prevent the general distribution of this disease which is very destructive to strawberry plantings.

TOMATO SEED CERTIFICATION

The history of the tomato seed certification work follows.

VARIETAL DISTRIBUTION CERTIFIED TOMATO SEED ACREAGES

Year	Bonny Best	J.T.D.	Baltimore	Marglobe	Valiant	Break-O'Day	Stokesdale	Rutgers	Grothens Globe	Pritchard	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

The number of pounds of certified seed produced in 1937 were distributed among varieties as follows:

Marglobe	38,776
Pritchard	3,262
Rutgers	20,445
J. T. D.	1,260
Stokesdale	1,560
Bonny Best	1,950
Valiant	900
Glovel	150
Grothens Globe	120
	68,423

NURSERY INSPECTION SERVICE 1937-1938

Certificates of inspection were issued for the year ending June 30, 1938, to a total of 663 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	104
Oyster Shell Scale	56
Juniper Webworm	51
Spruce Gall Aphid	42
Bagworm	34
European Pine Shoot Moth	34
Rhododendron Lace Bug	26
Pine Leaf Scale	22
Euonymus Scale	19
San Jose Scale	14
European Elm Scale	5
Lilac Borer	4
White Pine Weevil	4
Azalea Lace Bug	3
Mottled Willow Borer	3
Boxwood Leaf Miner	2
Willow Cone-gall	2
Peach Borer (*Conopia exitiosa*)	2
Oak Scale (*Asterolecanium variolosum*)	2
Pine Bark Aphid	2
Sycamore Lace Bug	2
Azalea Stem Borer	1
Crown Gall	1
Pine Tip Moth (*Rhyacionia frustrana*)	1
Leopard Moth	1
Pine Sawfly (*Acantholyda erythrocephala*)	1
Woolly Aphis (*apple*)	1
Taxus Mealy Bug	1
Shot Hole Borer	1
Cotton-wood Leaf Beetle	1
Imported Willow Leaf Beetle	1
Dogwood Twig Girdler	1

In all, there were 196 nurseries in which 444 infestations were found, and in which clean-up measures were required before certificates could be issued.

DEALERS' CERTIFICATES

Certificates were issued to 103 dealers in nursery stock for the year ending June 30, 1938. These dealers signed agreements to purchase stock only from listed certified nurserymen.

FOREIGN STOCK INSPECTIONS

There were 116 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 this state from other states of the United States:

	Cases	Cars	Barrels	Bales	Crates	Bundles	Trucks
Fall of 1937	176	5	3	29	9	33	1
Spring of 1938	738	49	....	198	1	....	....
Totals	914	54	3	227	10	33	1

SPECIAL CERTIFICATES

This type of certificate is issued to nurserymen when it is desired 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). This certificate 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 325 of these certificates were 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. Ninety-eight such calls were made during the year ending June 30, 1938.

CANADIAN NURSERY STOCK INSPECTIONS

In compliance with Canadian regulations it was necessary to make 134 inspections of plant material for shipment from New Jersey into Canada.

NARCISSUS BULB INSPECTIONS

During August, 1937, two days were spent in sterilizing bulbs in Cumberland County and one day in April, 1938, for the inspection of these bulbs, so that shipments could be made into those states which require inspection and treatment.

CHRISTMAS TREE INSPECTIONS

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

FLORIST SURVEY

The New Jersey Florist Association requested that this department conduct a survey of their industry for the purpose of furnishing them with accurate statistics. Accordingly, beginning in March, 1938 the nursery inspectors interviewed some 1,200 florists listed with the Agricultural Experiment Station. This survey, which is being made in cooperation with Professor Richard B. Farnham, Extension Specialist in Floriculture, Agricultural Experiment Station, New Brunswick, N. J., and secretary of the New Jersey Florist Association, will attempt to indicate the investment in the florist business, quantities and kinds of plants grown, sales and movement of stock. All the questionnaires had been returned to the office on June 15, and the results should be published within a short time.

EUROPEAN PINE SHOOT MOTH

Heavy outbreaks of this insect were found in nurseries in Bergen and Passaic counties during the course of the regular nursery inspections. The work of the insect is serious in that it ruins the host evergreens for ornamental purposes. Several nurseries were so severely infested that larvae were found in practically every bud on all trees in the block. In most cases, the nurserymen were able to clip and burn the infested tips.

In two cases, where it was not possible to do this work at the proper time of year, this department placed a quarantine upon the affected blocks. It was thought that concentrated sprays of lead arsenate, as recommended by the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture, might be applied to these plantings in the spring before the adult moth emerges. These sprays were attempted, but the equipment for application was unsatisfactory, and the amount of lead arsenate required for satisfactory results (80 pounds in 100 gallons of water) rendered this program useless. The nurserymen agreed that the clipping and burning of tips was a more practicable means of control, and accordingly, this was done in all infested nurseries.

TWO NEW SAWFLIES

In June, 1937, a heavy sawfly infestation was observed by one of the nursery inspectors at Franklin Lakes. The insect appeared to differ in its habits from native sawflies. The specimens were, therefore, sent to Washington, D. C., for identification, and on April 16, 1938, the bureau was advised that the insect was *Acantholyda erythrocephala* (L.). This insect is

widely distributed in Europe and Asia. Only one record of its occurrence in America existed, that being from Chestnut Hill, Pa. in 1925. The insect in Europe is reported as attacking various species of pines, as well as spruce, larch and fir.

When the infestation was found, the owner of the nursery agreed to follow out instructions of this department in controlling the insect. Due to the fact that the larvae complete their growth in mid-June, entering the soil and remaining there until mid-April, it was necessary to defer control measures until the time when the insect would be feeding on the foliage. Thus, on June 1, 1938, when the insect was devouring needles of the host trees, a spray of lead arsenate was applied in the area. It was necessary to cover some 12 acres, and since equipment was not available to the nurseryman which would allow him to spray at a reasonable cost, the work was done by autogiro, at a cost of about $10.00 per acre. Subsequent inspections showed that the infestation had been reduced to less than 1 per cent.

Since finding this infestation, very light outbreaks have been found at Morristown, Bernardsville, Rutherford, Mountain View, Springfield and Bound Brook. At present the department is conducting a survey in cooperation with the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture to determine the extent of the infestation. The federal department considers the insect a serious pest of evergreens and some attempt may be made to control it. Inspectors of the State of New York have found the insect in several locations there, and it is believed that it will also be found in Pennsylvania.

A SAWFLY OF *Pinus* SP. (*Neodiprion sertifer* GEOFFREY)

In 1925 an insect was taken at Somerville (collector unknown) and forwarded to Washington, D. C., for identification. Eleven years later the insect was identified as *Neodiprion sertifer* Geoffrey, a sawfly known to cause serious damage in Europe. Following the identification of this insect, the New Haven office of the Division of Forest Insects of the Bureau of Entomology and Plant Quarantine dispatched two men into New Jersey and they proceeded to find the insect in several sites in New Jersey in 1936 and again in several new sites in 1937. The New Jersey Department of Agriculture was not informed of these findings. In 1938, however, when the insect was found to be very abundant in several localities in and around Lamington, N. J. with severe damage in several forest plantations, the work of the federal department in this project was turned over to the Morristown Laboratory of the Division of Forest Insects, and on June 16, the New Jersey Department of Agriculture was advised of the presence of the insect. A scouting project was immediately organized, using the gipsy moth inspectors, and the nursery inspectors of this department, to determine the extent and limits of the infestation, which is known to extend as far north as Florham

Park, as far south as Lawrenceville, and as far west as Flemington. Following the scouting work, some information should be available as to the necessity for the application of control measures.

It may be that this insect can still be controlled, in spite of its uninterrupted build-up of at least 13 years. The insect has killed some *Pinus densiflora, P. sylvestris,* and *P. resinosa* in the Lamington area, and its known host list also includes: *P. nigra, P. montana* and *P. Banksiana.*

THE WHITE-FRINGED BEETLE (*Naupactus leucoloma* Boh.)

On June 9, this department was notified by the Chief of the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture of 23 shipments of plant material into New Jersey from areas now known to be infested with the white-fringed beetle. This insect is causing severe damage in limited areas in the southern portions of Alabama, Louisiana, and Mississippi, and northern Florida, and is believed to have been imported from South America where it is known to occur. Virtually all field and garden crops are attacked by the larvae with very severe damage resulting to root crops, such as sweet and Irish potatoes, turnips, carrots and beets.

The shipments into this state were made from areas which have only recently been found to be infested. Some 7,000 plants were involved. Although little information was immediately available as to symptoms of infestation, and habits of the insect, each of these shipments was inspected by a nursery inspector and every possible effort was made to trace the imported stock. It is possible that some of the larvae may have entered New Jersey through their habit of feeding within the stems or roots of plants. The inspectors were unable to find any sign of the presence of the insect on shipments which they were able to trace, but this is no assurance that infestation may not be found in this state. Only one insect need be present to start an infestation, since this weevil is parthenogenetic and is capable of starting an outbreak by laying its 700 (average number) eggs.

The white-fringed beetle, if it becomes established in New Jersey, and is able to maintain itself in this climate, might easily prove to be as important, economically, as the Japanese beetle.

STATUS OF THE EUROPEAN CORN BORER IN NEW JERSEY

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

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

	1934	1935	1936	1937
Monmouth	20.4	43.4	93.7	157.4
Ocean, Burlington, Atlantic	3.4	33.3	19.4	69.0
Middlesex	....	....	6.7	38.1

The percentage of plant infestation is determined by dissecting 10 infested plants out of 100 samples in each field. The samples are taken in orderly fashion, 25 plants in a row in each quarter of the field.

In 1937, a field of late corn in total collapse was seen for the first time. This field of about 15 acres was located at Allentown, in Monmouth County, and showed a population of about 30 larvae in each stalk.

The two-generation form of the European corn borer is the one responsible for most of the damage in New Jersey. Indications were that a heavy and early infestation would be present on sweet corn in 1938, since weather conditions were good for pupation and since April was unusually warm. Moths appeared in abundance, but prolonged cool weather in May prevented maximum oviposition, many moths dying without laying their normal quota of eggs. The result was that the infestation in early sweet corn was no more severe than in 1937. Conditions since then have been ideal for growth and development of the first-generation larvae and it is, therefore, expected that the European corn borer will be unusually abundant in late corn in 1938. During the spring of 1938, first-generation larvae were found in abundance for the first time on early potatoes. Fear of damage was felt in Monmouth County, but observations have shown that each potato stalk can support several larvae without damage to the potatoes. The borer has been present on Long Island for many years on this crop, but no serious damage has resulted.

Eight species of parasites of this insect have been released in New Jersey since 1935. Three species were released in 1938 for the first time. Of the species previously released, three have been recovered, and it appears that these are becoming established. It can be expected, from past experience, that eight or ten years may lapse before these parasites will be able to reduce the corn borer population to any great extent.

OTHER ACTIVITIES OF THE NURSERY INSPECTORS

Seventy-nine man-days were spent collecting data for the truck crop urvey. Five man-days were spent in retagging and sealing certified seed.

PUBLICATIONS

"The Nursery Industry in New Jersey" was published in May, 1938. This circular brought up to date the information published in 1933 (circular No. 238) concerning the statistics of the industry. It is thought that the information contained in this circular is as accurate as it is possible to obtain, since all of the holders of the certificate of inspection from the department returned the questionnaire upon which the survey was based.

In February, 1938, a summary of the laws, rules and regulations pertaining to the shipment of nursery stock out of New Jersey was published. This summary is extremely useful in aiding the nurserymen to comply with the requirements of this department, as well as those of the plant inspection authorities of other states, in the movement of nursery stock.

THE GIPSY MOTH

During July and August, 1937, 100 assembling cages were distributed and patrolled. In addition, 2,880 burlap bands were attached to trees in selected areas. These also were patrolled. No adult moths were taken at any of the cages, and the burlap work produced no gipsy moth larvae. The small W.P.A. crew continued to scout, under the supervision of one of the regular state gipsy moth agents, in Mendham, Morris and Randolph townships, in Morris County. This section is in the vicinity where one male adult gipsy moth was captured two years ago.

The scouting conditions were good during November and December, not too cold, and with very little snow and ice. W.P.A. scouts became more and more accustomed to the scouting work, and proved satisfactory this season. Considerable time was lost during January, but in February the weather conditions improved and there was little interruption in the scouting work. In March the work progressed satisfactorily, and in April, when the foliage appeared, work was slowed up considerably as the scouts found it difficult to see the tops of trees, and underbrush made it necessary for them to work closer together. W.P.A. scouting work continued to June 30. The federal agency decided, inasmuch as no gipsy moth infestation has been found, to discontinue the work at this time. During the scouting season, two state gipsy moth agents, who were not needed for W.P.A. supervision, scouted many likely areas where the gipsy moth has been present in the past. Many of the larger nurseries were inspected for gipsy moth during this survey, some of them having been infested years ago. Considerable checking work was done along the New York state line about 20 miles from the gipsy moth infestations found in New York State at Ellenville and Putnam Valley. As much of the terrain in the northern part of the state is heavy woodland, a close watch must be maintained to prevent an infestation from developing there.

It now appears that the infestation in the Mendham area has been eradicated and the department believes it is safe to continue with programs made in 1932 when the gipsy moth project was organized. At that time definite plans were made for the complete check of the 400 or more square miles of gipsy moth infested territory extending from Mendham south to Englishtown, and from the Atlantic Ocean west to the Delaware River. The finding of one quite severe, and four smaller infestations in and near Mendham Township, Morris County, interrupted the plans until now. Therefore,

the bureau intends to confine the greater part of the coming scouting season to checking work in Bernards, Warren and Bridgewater townships in Somerset County. This area includes the two Watchung ranges where the gipsy moth was present in 1922 to 1928. Much of this section is solid woodland. The work here can be done quickly and inexpensively, as any colony which may have been building up will be large enough to be easily found by an experienced scout. Should weather conditions become severe in the northern part, scouting work will be conducted in the southern part where it is also necessary. Some work will be done in nurseries, especially those within the old gipsy moth infested area.

ANNUAL SUMMARY OF SCOUTING WORK

Work Performed by Regular State Agents

Town	*Open Country Scouted* Apple Trees	*Open Country Scouted* Shade Trees	Woodland Acres Scouted	Number of Infestations
Bridgewater	0	0	36	0
Boonton	0	0	24	0
Bergenfield	0	700	0	0
Belleville	0	925	24	0
Chatham	0	0	248	0
Caldwell	0	0	58	0
Cranford	0	284	27	0
Denville	0	0	38	0
Echo Lake Park	0	315	18	0
Fanwood	0	633	238	0
Glen Rock	0	208	144	0
Hanover	0	0	428	0
Hillsboro	0	0	60	0
Little Silver	0	1,216	154	0
Mendham	0	0	207	0
Morris	0	0	243	0
Madison	122	481	377	0
Maplewood	0	980	52	0
Mountain Lakes	0	1,572	56	0
New Vernon	0	0	101	0
Newark	0	1,550	0	0
Passaic	0	0	29	0
Paterson	0	1,934	2	0
Rutherford	0	2,198	0	0
Ridgefield	0	624	0	0
Ridgewood	0	1,550	42	0
Rockaway	0	1,359	51	0
Scotch Plains	0	0	66	0
Summit	0	984	95	0
South Orange	0	1,873	36	0
Towaco	0	0	55	0
Wayne	0	482	94	0
Warren	0	0	15	0
Westfield	0	947	48	0
West Long Branch	0	0	32	0
West Orange	0	1,780	395	0
Franklin	0	0	18	0
Total	122	22,595	3,511	0

WORK PERFORMED BY FEDERAL W.P.A. WORKERS

Town	*Open Country Scouted* Open Acres Scouted	Miles of Road	Apple Trees	Oak Trees	Shade Trees	Woodland Acres Scouted	Number of Infestations
Morris County							
Mendham	247	6¼	4,485	54	1,944	1,155	0
Morris	202	3½	744	132	3,134	483	0
Randolph	19	2	39	8	544	315	0
Union County							
Westfield	0	¾	0	0	0	316	0
Total	468	12½	5,268	194	5,622	2,269	0

The above work was of a very intensive nature.

	Burlap Bands Applied	Assembling Cages Distributed
Mendham	1,618	36
Hanover	1,262	3
Somerville	0	3
Morris	0	37
Denville	0	4
Randolph	0	17
Total	2,880	100

BEE INSPECTION SERVICE

Regular bee inspection work was carried on throughout the season. In addition, scouting for beekeepers and inspection of dead colonies of bees for bee diseases, during the winter, when the weather and roads permitted, has had a decided effect in eliminating sources of infection in areas where the beekeeper is not acquainted with the destructiveness of American foulbrood. The burning of disease-infected combs and the sterilization of bee equipment at this time has been very noticeable in the season's inspection work.

APIARY INSPECTIONS

During the fiscal year 1937-1938, 608 apiaries were visited; 6,449 colonies of bees and 1,026 nuclei of bees were examined. Twelve colonies were housed in plain boxes; 65 colonies were found with immovable combs.

Information on transferring colonies from box hives and immovable combs was transmitted through printed circulars and by demonstrations of the inspector.

American foulbrood was found in 151 apiaries; 411 colonies were infected; European foulbrood was found in 10 apiaries; 17 colonies were infected.

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

MICROSCOPIC DIAGNOSIS

The microscopic diagnosis of samples of dead bee brood continued to play an important part in the bee disease control work.

One hundred and fifteen samples of dead bee brood were diagnosed microscopically. Eighty of these samples showed the presence of *B. larvae,* the organism which causes American foulbrood.

Twelve showed the presence of *B. pluton,* the organism which causes European foulbrood. Two samples showed the presence of *B. para-alvei,* the organism which causes Para foulbrood. Twenty-one samples showed no evidence of any disease organism.

A mount of dead bee larvae was prepared from samples received by mail. This was shown at the various bee meetings for the purpose of teaching the beekeeper how to prepare samples for mailing to the department for miscroscopic diagnosis.

CERTIFICATES ISSUED

Ten queen rearers' certificates were issued as follows:

Albert G. Hann, Glen Gardner. July 28, 1937, and April 29, 1938.
Elmer G. Carr, Pennington. July 21, 1937, and May 3, 1938.
Henry Brown, Cape May Court House. Aug. 3, 1937, and May 25, 1938.
H. N. Conners, Stockton. Aug. 5, 1937, and May 4, 1938.
William Hayes, Far Hills. July 8, 1937, and May 18, 1938.

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

Three certificates for shipping bees to Florida for the winter were issued to Berlin (37 colonies), National Park (31 colonies) and Bridgeton (497 colonies).

These colonies of bees were returned in May for the pollination of apples, pears, blueberries, cranberries and lima beans. Considerable interest has been shown in this project by horticulturists and beekeepers at large.

MEETINGS AND DEMONSTRATIONS

Field meetings and demonstrations were held at the following places:

Franklin, July 17; Lebanon, July 27; Long Branch, August 18; Riverdale, August 21; Lebanon, April 22; Mount Airy, May 10; Bridgeton, May 11; Haworth, June 11; and Ringoes, June 20.

The honey exhibited at the Flemington Fair, August 31 to September 6, 1937, and the Trenton Fair, September 27 to October 2, was of better quality than that shown at previous fair exhibits. Although New Jersey can produce a good quality of honey, careful grading and packing is necessary to meet the competition of honey shipped into the state.

APIARY INSPECTIONS BY COUNTIES

July 1, 1937 to June 30, 1938

County	Apiaries	Colonies	Nuclei	Box Hives	Cross Combs	Apiaries A.fb.	Colonies A.fb.	Apiaries E.fb.	Colonies E.fb.	Burned	*Brood Samples Diagnosed* Neg.	A.fb.	E.fb.	P.fb.
tlantic	3	5	....	....	....	....	....	....	....	....	2	3	....	....
ergen	52	262	....	....	1	16	33	....	....	....	....	4	....	....
urlington	26	541	....	9	7	4	8	5	9	5	....	15	12	....
amden	13	123	....	....	....	5	12	....	....	....	....	1	....	....
ape May	7	32	347	....	3	1	1	....	....	....	....	1	....	....
umberland	26	765	....	....	....	3	4	....	....	4	4	16	....	2
ssex	39	138	....	....	6	6	14	....	....	....	2	3	....	....
oucester	14	155	....	1	12	7	12	....	....	1	....	4	....	....
unterdon	81	1,703	512	....	5	16	31	3	6	32	1	4	....	....
udson	....	....	....	....	....	....	....	....	....	....	....	....	....	....
ercer	47	418	167	....	6	7	39	....	....	7	....	1	....	....
iddlesex	38	177	....	....	9	10	15	....	....	5	1	3	....	....
onmouth	39	317	....	....	6	18	89	....	....	....	1	2	....	....
orris	37	318	....	2	....	4	4	1	1	1	....	2	....	....
cean	9	112	....	....	....	2	4	1	1	1	....	....	....	....
assaic	41	195	....	....	....	11	30	....	....	5	1	1	....	....
alem	....	....	....	....	....	....	....	....	....	....	3	....	....	....
merset	90	854	....	....	....	29	82	....	....	9	5	17	....	....
ussex	2	6	....	....	....	....	....	....	....	....	....	....	....	....
nion	20	141	....	....	....	5	11	....	....	1	1	3	....	....
arren	24	197	....	....	10	7	22	....	....	1	....	....	....	....
Totals	608	6,459	1,026	12	65	151	411	10	17	72	21	80	12	2

DUTCH ELM DISEASE ERADICATION PROJECT*

This project is able to report definite progress in its fourth year of activity by showing a substantial reduction in the total number of diseased elms found. Repeated observation of 15,000,000 elms in the state, north of Trenton, and definite action taken with 750,000 of these elms during the year, indicate the scope of the project.

The general policy of eradicating the disease instead of controlling it, and the saving of all landscape trees possible, continues to be the practical objective.

Three lines of attack are used under this policy: First, all Dutch elm diseased trees are eradicated as soon as found.

Second, all dead and dying elms affording breeding places for the elm bark beetle (spreader of the disease) are eradicated promptly.

Third, all elms of little value in woodlands and swamps, where the disease appears as a "hot-spot" of infection and re-infection, are eradicated as soon as such areas appear to be localized.

INSPECTION

Approximately 15,000,000 elms were scouted for Dutch elm disease and inspected three times during the year.

All elms showing external symptoms of the Dutch elm disease were tagged and quarantined subject to diagnosis of the disease by the federal laboratory at Morristown.

All elms showing devitalization to an extent of 50 per cent or more were tagged and condemned for eradication.

Aerial scouting for diseased trees with three autogiros was carried on in the wooded and mountainous areas between June 10 and October 15. Such scouting proved economical and quite accurate, especially in the rural areas. Including cost of machines, the expense has been reduced to one fourth that of ground scouting in those areas where it can be used.

CLEARANCE**

Owners of all elms found affected were located and notified of condemnation and contemplated eradication. Owners of other elms not in the dangerous classes but having minor symptoms or in "hot-spot" areas were advised, for their approval of eradication or voluntary pruning and preventive protection against the disease.

Complaints of trespass and initial refusals to cooperate as well as requests for information on procedure of the program by tree owners make up a definite and important part of the clearance work on a program of this size.

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*In cooperation with the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture.

**Specifically, the work of the State Department of Agriculture.

By the courteous approach of trained contact men with full information carefully explained to tree owners, all such resistance to the progress of the work has been reduced during the past year to such a point that only two cases required the attention of the assistant attorney general. These were settled by correspondence of that office, with assistance from the state personnel.

ERADICATION

All elms found by laboratory determination to have the Dutch elm disease were eradicated, and with few exceptions such eradications were effected within ten days of their determination.

All other elms found devitalized or in woodlands and swamps where "hot-spots" occurred were eradicated, particularly during the winter months.

RESULTS IN WORK ACCOMPLISHED

Inspection (three times)	15,000,000	elms
Tagging and Quarantining	30,740	suspected elms
Tagging and Quarantining	208,899	50% devitalized elms
Condemning and Eradicating	310,848	50% devitalized elms including 1937 surplus
Condemning and Eradicating	4,988	Dutch elm diseased elms
Eradicated with Owners' Approval	460,939	elms—clean cutting
Eradicating	7,246	non-graphium suspects
Reconditioned by Owners	175	non-graphium suspects

SPECIFIC WORK OF STATE DEPARTMENT

Notified by Mail	8,631	owners
Contacted by Agents	46,149	owners
Complaints and Special Inquiries Answered	868	
Cleared for Elm-free Work	37,196	acres

DUTCH ELM DISEASE INCIDENCE AS EXHIBITED BY TREES DESTROYED

	1933	1934	1935	1936	1937	Jan. 1-June 30, 1938
Bergen	13	691	609	718	592	99
Essex	609	1,462	1,143	938	398	139
Hudson	9	32	16	3	4	5
Hunterdon	0	0	6	113	264	179
Mercer	0	1	0	3	3	5
Middlesex	2	100	230	273	130	65
Monmouth	0	0	3	8	6	6
Morris	9	497	705	1,304	1,122	125
Passaic	37	600	360	670	392	19
Somerset	3	96	494	1,015	1,300	236
Sussex	0	0	10	9	28	9
Union	58	898	534	725	500	81
Warren	0	0	3	14	91	78
Totals	740	4,377	4,113	5,793	4,830	1,046

SUMMARY

The most significant note of progress in this work was the finding of 963 fewer Dutch elm diseased trees this year than last year. A progres-

sive reduction also continued in the counties in the original center of the infected areas.

The increases where found, have been definitely handled as localized areas and treated intensively by eradicating all elms of low value, and scouting for re-appearances of the disease.

DUTCH ELM DISEASE WEEKLY REPORT FOR ENTIRE AREA FOR WEEK ENDING JULY 2, 1938

	Last Week's Report	Conn.	New Jersey	New York	Pa.	Outside	Present Totals
Number of Employees							
Appointed Dept. Funds	90	13	31	16	2	26	88
W.P.A. Appointees	104	10	62	27	2	2	103
Per Diem Dept. Funds	813	46	257	301	31	162	797
Work Relief Funds	3,049	212	1,628	759	0	19	2,618
State Appointed	16	1	5	10	0	1	17
State Per Diem	74	0	16	57	0	1	74
Work Assignments							
Scouts	2,322	248	1,148	806	20	163	2,385
Laboratory Technicians	27	0	28	0	0	0	28
Eradication Personnel	128	5	212	61	0	0	278
Sanitation Personnel	419	4	127	40	0	12	183
Treating Personnel	259	0	93	0	0	0	93
Scouting Project							
Suspects Coll. This Week..	7,115	351	992	831	16	1,439	3,629
DT Tagged This Week	599	1	54	281	0	34	370
Total DT Tagged	2,784,667	387,057	1,247,210	1,100,004	0	50,766	2,785,037
Sq. Mi. Scouted This Week							
First Go-over	902.56	255.80	344.87	155.27	5	....	755.99
Second Go-over							
Third Go-over							
Sq. Mi. Scouted to Date							
First Go-over	1,482.62	255.80	1,246.82	735.91	8	0	2,238.61
Second Go-over							
Third Go-over							
Laboratory Identification							
Confirmed DED This Week	587	27	555	112	0	3	697
Total Elms Confirmed DED	29,159	423	21,101	8,195	0	137	29,856
Total Reported not DED..	194,399	33,582	62,507	80,593	2,571	20,955	200,208
Suspects Unreported	5,375	596	1,285	1,861	17	839	4,598
Total Suspects Collected....	231,033	34,601	84,893	90,649	2,588	21,931	234,662
DED Eradication Project							
DED Removed This Week	106	14	100	80	0	3	197
Total DED Removed	28,610	391	20,273	8,009	0	134	28,807
Total DED Standing	549	32	828	186	0	3	1,049

Sanitation Project

DT Removed This Week	1,770	1	54	282	0	39	376
Total DT Removed	2,655,053	387,057	1,208,326	1,009,973	0	50,073	2,655,429
Total Tagged DT Standing	129,614	0	38,884	90,031	0	693	129,608
Elms Removed in Clear Cutting Area This Week	7,484	0	425	0	0	0	425
Total Trees Removed in Clear Cutting	1,674,420	84,662	1,547,256	42,927	0	0	1,674,845
Trees Removed in Selective Cutting Oper. This Week	177	4	166	201	0	0	371
Total Trees Removed in Selective Cutting	172,591	14,551	166	158,245	0	0	172,962
Total Trees Removed in Above Oper. to Date	4,530,674	486,661	2,776,021	1,219,154	0	50,207	4,532,043
Trees Chem. Treated This Week	1,103	0	191	0	0	0	191
Total Trees Chem. Treated	665,251	73,345	592,097	0	0	0	665,442
Total Trees Pruned	40,263	1,367	0	29,365	0	9,531	40,263

JAPANESE BEETLE SUPPRESSION

ACTIVITIES OF THE LABORATORY FOR NEMATODE PARASITE DISTRIBUTION

The continued financial support from federal funds begun in 1936, allowed a fairly comprehensive program of work throughout the current year. The project staff consisted of four members actively engaged in the work throughout the year. Some 500 man-days of temporary labor were also required, mainly in the execution of the field work.

FIELD WORK DEVELOPMENTS

The practical failure of the field introduction work for the year 1936-37 clearly demonstrated that the problems of field distribution of the nematode had not received sufficient study. A program anticipating all factors likely to influence the field performance of the parasite was planned and executed. The main divisions of this field program follow.

IMPROVED PERFORMANCE FROM ENSHEATHED PARASITE LARVAE

Most important was a comparison of the parasitism caused in the field by nematodes direct from the artificial cultures, and of nematodes similarly cultured but artificially forced to ensheathe before field introduction. This latter process has been termed "conditioning," and consists of holding the cultured nematodes in the laboratory under specified conditions until they have had an opportunity to ensheathe, after which they are far more resistant to adverse environmental conditions than are those nematodes occurring on the cultures. Comparative plots, each of 9,600 square feet area, were treated with nematodes of each kind (i.e.—unensheathed and ensheathed). The date of treatment, nematode dosage and average grub population, were substantially the same for each plot. Diggings made two weeks after the nematode introductions indicated about a ten-fold superior-

ity in the incidence of parasitism where the ensheathed parasites were used. This work was done in September, 1937. Surveys made the following spring showed the comparative rates of parasitism to be over three-fold in favor of the ensheathed nematode treated plot, and meanwhile the proportionate population reduction in the ensheathed nematode treated plot was over four times as great as in the plot treated with nematodes direct from culture.

In August, 1937, practicable procedures were perfected for "conditioning" the millions of nematodes required in field treatments. After the above-mentioned field test had definitely substantiated the laboratory experiments reported last year, which indicated the superior effectiveness of the ensheathed parasite, all further introductions were made with the "conditioned," or ensheathed, nematodes.

SEASONS SUITABLE FOR NEMATODE INTRODUCTION

Since the nematode functions primarily as a parasite of the larval stages of the Japanese beetle, it is at once evident that introduction of the parasite had best be made when the grubs are present in the soil, active, and thus immediately available for the parasite. Practically, this means from about August 15 to November 1, and in the spring from about April 1 until May 30. It had been claimed that no successful introduction had ever been made in the fall, and a survey of the past results revealed successful introductions only during the latter part of May.

A series of seven field plots, each about 10,000 square feet in area, were treated at intervals throughout the fall from August 16 until October 18 (inclusive), and in the spring six additional plots were treated, beginning April 13 and ending May 23 (inclusive). Survey diggings about two weeks after introduction were made in each plot, and in all cases, many parasitized beetle larvae were recovered. The fall-treated plots were resurveyed in the spring and parasitized grubs were recovered in significant numbers from five of the seven plots, the two failures having been in areas of very low grub population.

A somewhat parallel experiment was run with the nematodes introduced in the fall in small enclosed frames, with no grubs present. During the entire winter the nematodes were also without any host insects. The following spring beetle grubs were placed in the frames, and upon later examination a gratifyingly large number were parasitized.

These results made it evident that the nematodes may be distributed in the field at any period between August 15 and May 30, and that the nematodes will parasitize and kill the host upon the beginning of warm weather. Obviously, periods during which the soil is solidly frozen are not desirable introduction periods.

INFLUENCE OF SOIL TYPES ON THE COURSE OF PARASITISM

The field experimental plots were purposely established in several different soil types. A study of the results of the work does not show that the

various soil types had any influence on the course of parasitism. In addition, six soil types were selected for their widely varying characteristics, and these were tested in the laboratory and greenhouse. It was found that the nematode survived well in all of these, and that parasitism developed as soon as beetle larvae were introduced in the nematode treated soils. Soils of the extreme clay types repress the rapidity of parasitism, due to the mechanical difficulty of the nematodes in traversing such soils; parasitism does occur, but is slower in getting started.

Probably the major factor for consideration in connection with soil types is the water retention characteristics of the soil. Parasitism proceeds best in a soil with good drainage, but not subject to very rapid drying.

HOST DENSITY CORRELATED TO THE DEVELOPMENT OF PARASITISM

It is evident that the more numerous the host grubs, the more opportunity there exists for parasitism to occur. The field work, during which particular attention was directed to this, shows a clear correlation between parasitism and host density. Considering the status of the Japanese beetle infestation at present existing in New Jersey, it does not seem advisable to make nematode introductions in areas having less than 10 grubs per square foot, although parasitism does occur with lesser populations. Heavily infested Japanese beetle territory has a grub population well above 10 per square foot, and in such localities it is not necessary to hunt up extremely high populations in order to establish the parasite. Most of this year's work, in Union County, was in areas where an average of 20 to 40 grubs per square foot was common. Thousands of individual introductions were made in such areas, and the great majority of these subsequently examined yielded dead and parasitized beetle grubs.

DOSAGE OF NEMATODES CORRELATED TO DEVELOPMENT OF PARASITISM

With the successive developments in culturing the nematode, the practice has been to use larger and larger dosages of nematodes as the quantity capable of being cultured increased. Such practice diminishes the potential area which could be treated with any given number of nematodes. In order to definitely establish the relation between parasitism and strength of dosage, a field test plot was chosen and various known dosages applied. It was found that the application of 25,000 nematodes per introduction point was adequate to initiate good parasitism. Lower dosages may be used, but the percentage of successful introductions decreases with doses lower than 25,000, and fewer grubs are parasitized per introduction. Since the previous practice was to use 100,000 nematodes per introduction, this means that four times the area may be covered with the same number of nematodes and the success of the introduction will not be jeopardized.

SPREAD OF NEMATODE INFECTION THROUGH THE SOIL

After the nematodes are introduced, great dependence is placed on the spread of the parasite throughout the soil, so that areas contiguous to the introduction sites will become infective for beetle larvae. The infection may spread by nematode migration, and also by the migration of infected grubs before they die, thus acting as new infective foci. In a larger way, rain, parasitized adults, and infected cadavers scattered about by birds may spread the infection. Some previous work in southern New Jersey indicated a fair rate of spread. Laboratory and greenhouse experiments showed that the nematodes do migrate extensively through the soil, at least under certain conditions. A field test was made to follow carefully the rate of spread of parasitism. The maximum rate of spread found corresponded to one foot in 30.8 days, while calculations on the results as a whole showed that a uniform rate of one linear foot in 218 days could be expected. These are much slower rates than the laboratory experiments indicated, and also slower by far than the spread in the older field plot in southern New Jersey. It seems probable that, in the latter case, the plot was subject to periodic flooding, and there was originally a very high grub population (an average of 87 per square foot); these conditions possibly account for the rapid spread.

Judging from the experiment made this year, the spread of infection seems to be slow. However, this has been followed only one season, and later observation may change the conclusion.

SUCCESSFUL SURFACE SPRAY APPLICATION OF THE NEMATODES

The ordinary procedure in applying the nematodes has been to place a water suspension of them in small shallow holes cut in the soil or turf so that the nematodes were buried when the soil or turf was replaced. These holes generally are spaced about 5 feet apart, and a year or several years may elapse before complete spread occurs over the treated area.

In past years several attempts were made to apply the water suspension of the parasites uniformly as a surface spray over the entire area. For some reason these trials failed. Between May 12 and 17, 1938, four plots in very heavy turf were treated with ensheathed nematodes. Each test plot was 1,000 square feet in area. The treatment was made in bright sunlight, and very little water was used to wash in the suspension of parasites. Dosages of 10-25-50-100,000 nematodes per square foot were applied to the four plots, respectively. Approximately three weeks later the plots were surveyed by diggings, and the percentage of grubs parasitized averaged 17, 37, 50 and 82 per cent respectively, in exact relation to the nematode dose. A second survey in the three plots treated with 10-25 and 100,000 nematodes per square foot was made about one month after the introductions. The grub population reduction was then found to be, respectively, 54, 64 and 98 per cent, again in relation to the nematode dosage.

These are by far the best results ever obtained on any plot, irrespective of the mode of nematode application. The nematodes were applied over the entire treated area, and it was not necessary to wait several years for the infection to spread. Parasitism began at once over the entire area and was progressing rapidly at the time of the last survey.

The indications are that within one season a good control would result when 10,000 nematodes per square foot are applied as a surface spray. In cost of materials alone, this number of nematodes may be cultured for one-third the cost of the amount of lead arsenate recommended for treating turf. The technique of nematode spray application is not more difficult than is the best procedure for applying lead arsenate.

The remarkable success of this experiment over-shadows much of the other field work for the year. However, it will be necessary to investigate several factors before introductions by the surface spray method can be unqualifiedly recommended. Chief of these, perhaps, are the soil moisture and surface temperature at the time of application.

Complete reports covering all details of the field activities have been prepared.

LABORATORY DEVELOPMENTS

The laboratory work consists of the culture of nematodes for field distribution, and such experimental work as may prove of value in furthering either the field or cultural performance of the nematodes. During this year it has been necessary to devote most of the personnel's time to field problems and actual field and associated laboratory work.

ROUTINE

The quantity of nematodes required for the field introductions and for work on the pot treatments was cultured, and most of these cultured nematodes were "conditioned" before being used. About 750 million nematodes were cultured and conditioned.

All dead grubs from the field diggings were submitted to the laboratory for microscopical examination to determine whether or not death resulted from the nematode parasite. A total of 7,354 grubs was submitted and examined. In addition, several thousand grubs from the pot treatment experiments were examined.

PROCEDURES FOR PRODUCING ENSHEATHED NEMATODES ("CONDITIONING")

Considerable time was necessary to develop adequate procedures for "conditioning" the cultured nematodes. Several types of apparatus were devised and tested, and a satisfactory method evolved. The equipment finally built has a capacity of about 300 million nematodes per week, and is capable of expansion. The method and machine used are somewhat complex, and have been fully described in other reports.

If cultured nematodes are placed in soil, about 15 per cent become ensheathed and the remainder die, whereas it is possible in the laboratory to artificially induce about 95 per cent to ensheathe, a far less wasteful procedure than nature imposes.

The biology of the ensheathed phase of the second stage nematode was carefully studied, and the form is now fairly well understood. The practical significance of these studies has been amply demonstrated by the field performance to which attention has already been given.

EXTENTION OF KNOWN HOST RANGE OF *N. glaseri*

When work on this nematode was first begun some preliminary trials were made to determine the range of insect species which could be successfully parasitized. These early tests indicated that parasitism was practically confined to the larvae and adults of the Japanese beetle. During the course of this year's investigations on the ensheathed nematodes a more extended study of the host range was made. The later experiments showed that at least ten species of insects in addition to the Japanese beetle may be parasitized by the ensheathed nematodes. The present known host list follows:

(1) *Popillia japonica*	Larval and adult stages
(2) *Anomala orientalis*	Larval stages studied
(3) *Autoserica castanea*	" " "
(4) *Macrodactylus subspinosus*	" " "
(5, 6) *Phyllophaga*, two species	" " "
(7) *Ochrosidia villosa*	" " "
(8) *Cotalpa lanigera*	" " "
(9) *Cotinis nitida*	" " "
(10) *Xyloryctes satyrus*	" " "
(11) *Pyrausta nubilalis*	" " "

This wide range indicates that many other species of insects may be subject to attack. During the field diggings one Noctuid larva was found heavily parasitized, and several pupae of Elaterid beetles were found heavily infected with the parasites. The condition of these cadavers made definite identification impossible. The field of usefulness of the nematode parasite seems capable of expansion to a number of other insect pests having a soil-inhabiting phase. Furthermore, it is gratifying to know that the parasite can survive even when Japanese beetles may be or become scarce. There is an immediate possibility of using the nematodes against *Anomala* larvae on one large New Jersey nursery, where it has been necessary to use chemical larvicides for years, but without satisfactory results.

There is some variation in resistance to infection among the various insects. Some, as *Anomala*, appear to be even more susceptible to infection than is the Japanese beetle, while others (as *Ochrosidia*) are fairly resistant and succumb only after a long exposure, or to a high density of the parasites.

All of these tests were run with the nematodes in soil and the presumed host insect in contact with the infected soil. Conditions thus approximated closely those occurring in nature.

MISCELLANEOUS DEVELOPMENTS

A number of other developments were worked out and are briefly mentioned here. Methods suitable for determining nematode populations in soil and water suspensions were developed, improved, and standardized; the necessary correction factors were determined. Experimental work preceding the field work on surface spray applications was done in the greenhouse, and was of material benefit as a guidance in making the field applications. Several new preservative materials were found satisfactory in the culture procedures, but none of these was better than the Tegosept-formaldehyde mixture developed last year, and consequently is not at present being used. A new and much improved mechanical washer was developed and built during the year. This device is a great help in the procedures attendant to "conditioning". Experiments were made to determine the proportion, if any, of Japanese beetle larvae naturally immune to nematode attack; 7,590 larvae were tested and none was found immune.

Some work was done on the related nematode, *Neoaplectana chresima* (manuscript name). In addition to the localities reported last year, this species has been recovered in New Jersey from the vicinities of Springfield, Summit and Friesburg, in which places it was parasitizing a small percentage of Japanese beetle larvae. These occurrences of the nematode are all natural, as it has never been artificially disseminated. Some attempts to culture this species were made, and fair success obtained with the veal medium devised for use on *N. glaseri*. The investigations were discontinued because of the press of other work.

The New Jersey Department of Agriculture circular No. 285 was prepared and printed during the year. It describes in detail the procedure used in culturing *N. glaseri* on the veal pulp medium developed last year.

POT TREATMENTS

For several years investigations have been under way to determine whether or not the nematodes can be introduced into pots of growing plants and eliminate any beetle which may be present. If this could be done satisfactorily it would be a distinct benefit to New Jersey nurserymen, in that it would offer a procedure by which such plants could be certified for shipment outside the area covered by the Japanese beetle quarantine. There is no possibility of injury to the plants by such treatment, in which respect the treatment is unique.

As a result of the year's work, procedures were developed to the point where an average elimination of 99.27 per cent of the beetle larvae was obtained. The individual experiments ranged from 100 per cent to a low of 96.72 per cent grub elimination. This is a considerable improvement over past performances, and the indications are that the work is approaching a

successful termination. It is planned to extend the scope of these investigations to include work with cooperating commercial growers to determine how the procedures can be adapted to ordinary commercial practices and thus be of minimum inconvenience.

JAPANESE BEETLE TRAPPING WORK

The departmental supply of Japanese beetle traps is rapidly dwindling, due to breakage and general deterioration of the metal parts. Approximately 2,300 of the original 3,500 traps were distributed during the summer of 1937. The weather was not conducive to heavy captures and in many instances the one-gallon traps did not fill to the top during the entire season. The public generally is becoming apathetic to the use of Japanese beetle traps as they have discovered that grub infestations are always heavier in the vicinity of the locations where traps were placed during the summer immediately preceding. The traps were distributed in Salem and Cumberland counties in southern New Jersey and Hunterdon, Somerset, Essex and Union counties in northern New Jersey.

ORNITHOLOGICAL PREDATORS OF FOREST INSECTS

During the past fifteen years forest insects have intermittently seriously defoliated forest trees of northern New Jersey. This situation has assumed new importance because of the considerable number of small land holdings occupied by urbanites during the summer months for recreational purposes. The caterpillars, by virtue of tree defoliation and other unsavory consequences have caused many of these small property owners to become extremely reluctant to make full use of their rural properties during the summer months.

Spraying for the general control of these insects is practically out of the question. This department in cooperation with the Department of Conservation and Development and the National Association of Audubon Societies of New York City has embarked on an experimental program to ascertain the possibility of elevating the insectivorous bird population in areas where canker worms appear to be generally established. This elevation of bird population is to be accomplished by providing suitable nesting and roosting places for the desirable species of birds. To this end bird boxes of special tried European design are being employed on five experimental locations in northern New Jersey and two in southern New Jersey. The boxes were placed on trees on the various plots during June.

JAPANESE BEETLE QUARANTINE

(Calendar Year 1937)

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

SCOUTING

The scouting personnel for 1937 comprised one supervisor, two foremen and six scouts. A total of 550 visits were made to 82 establishments, an average of 6.7 visits per establishment. At 45 establishments 1,622 adult Japanese beetles were collected. This was only a sufficient number to establish their classification.

Prior to the scouting season, the owners of a number of Class III establishments requested a rescout of their premises, hoping for a return to Class I. There were 22 such establishments scouted, but results left their status unchanged.

As a result of the past season's scouting, there remain but seven establishments that enjoy a Class I status.

All Class III establishments having certified greenhouses are scouted periodically throughout the year by the regular personnel during the course of their daily tour of duty.

NURSERIES AND GREENHOUSES SCOUTED DURING 1937

Total Nursery Establishments Scouted	36;	Scoutings Made	202
Total Greenhouse Establishments Scouted	31;	Scoutings Made	284
Total Nursery and Greenhouse Establishments Scouted	15;	Scoutings Made	64
Totals	82		550
Total Nurseries Where Beetles Were Found	29;	Beetles Found	1,098
Total Greenhouses Where Beetles Were Found	3;	Beetles Found	40
Total Nurseries and Greenhouses Where Beetles Were Found	13;	Beetles Found	484
Totals	45		1,622

SAND, PEAT, MANURE, ETC., ESTABLISHMENTS SCOUTED DURING 1937

Total Sand Establishments Scouted	2;	Scoutings Made	7
Total Peat Establishments Scouted	1;	Scoutings Made	2
Total Humus Establishments Scouted	6;	Scoutings Made	27
Totals	9		36
Total Sand Establishments Where Beetles Were Found	1;	Beetles Found	125
Total Peat Establishments Where Beetles Were Found	0;	Beetles Found	0
Total Humus Establishments Where Beetles Were Found	4;	Beetles Found	124
Totals	5		249

ORCHARD AND FARM LAND ESTABLISHMENTS SCOUTED DURING 1937

Total Farm Land Establishments Scouted	4;	Scoutings Made	8
Total Farm Land Establishments Where Beetles Were Found	4;	Beetles Found	14

All scouting was begun July 6, 1937, and discontinued August 28, 1937, except scouting at certified greenhouses which continued intermittently throughout the year. The first beetle was found June 9, 1937, at the Duke Estate, Somerville, N. J. The last beetle was found on November 18, 1937, at the Peter Henderson Co., Red Bank, on Polygonum.

FARM PRODUCTS QUARANTINE

A total of 31 men were employed in the certification of farm produce during the season of 1937. Twenty four of these men were employed intermittently, that is, their services were dependent on the movement of the various farm products.

In the aggregate there was a slight decrease in the amount of farm produce certified, yet upon examination, individual commodities show a surprising rise or fall over the season of 1936. The following figures are significant and refer only to farm products certified.

Percentage of Decrease		Percentage of Increase	
Lima Beans	94.0	Carrots and Beets	750.0
String Beans	30.0	White Potatoes	30.0
Apples	78.0	Sweet Potatoes	150.0
Tomatoes	45.0	Cucumbers	11.0
Peaches	57.0	Cabbage	125.0

According to agricultural statistics, the total value of New Jersey's 1937 farm products was 12 per cent lower than in 1936.

The total farm value for grain crops, hay, tree fruits and berries amounted to about $44,528,000 in 1937, compared with $50,570,000 in 1936 and $43,824,000 for the ten year average 1927-1936.

Vegetable growers experienced a very poor year on account of the low yields per acre. The 1937 farm value of all vegetables, excluding white and sweet potatoes, amounted to about $14,939,000 or $686,000 less than in 1936 and about $170,000 less than the ten year average.

White potatoes yielded an average of 180 bushels per acre for 1937 as compared with 166 bushels per acre in 1936, and 144 bushels per acre for the ten year average. Prices were low, with the monthly price for September at $.45 for 1937 as compared with $1.01 in October, 1936, and the five year average of $.72.

Sweet potatoes dropped in yield, averaging 145 bushels per acre in 1937 as compared with 150 bushels per acre in 1936. Prices dropped as in other products with $.90 in September and $.60 in October.

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

Location	Period Operated	Hours Per Day Open	Number of Men	Packages Certified	Beetles Removed
Bloomfield Office	June 15-Oct. 15	8	1	281	....
Bridgeton	June 15-Sept. 21	8*	‡	15,056	....
Camden	June 15-Sept. 21	8*	‡	19,630	....
Cedarville	June 15-Sept. 21	8*	‡	13,478	187
Clarksburg	Appt. Only	....	†	1,869	5
Cranbury	Appt. Only	....	†	38,111	0
Cream Ridge	Appt. Only	....	†	4,280	32
Dayton	Appt. Only	....	†	3,900	0
Deerfield	Appt. Only	....	‡	5,965	0
Englishtown	Appt. Only	....	†	19,000	0
Freehold	Appt. Only	....	†	10,225	0
Glassboro Office	June 15-Oct. 15	8*	12	6,517	52
Hammonton	Appt. Only	....	‡	43	0
Hightstown	Appt. Only	....	†	31,200	2
Landisville	Appt. Only	....	‡	4,179	0
Lawrence	Appt. Only	....	†	18,300	0
Monmouth Junction	Appt. Only	....	†	7,560	0
Moorestown	Appt. Only	....	‡	1,560	3
Newfield	Appt. Only	....	‡	5,640	7
New Lisbon	Appt. Only	....	†	2,822	0
Pedricktown	Appt. Only	....	‡	5,219	2
Plainsboro	Appt. Only	....	†	900	0
Princeton Junction	Appt. Only	....	†	2,100	0
Prospect Plains	Appt. Only	....	†	29,160	0
Robbinsville	Appt. Only	....	†	30,110	4
Sharon	Appt. Only	....	†	1,500	0
Swedesboro	Appt. Only	....	‡	16,791	1
Tennent	Appt. Only	....	†	31,140	0
Trenton (& W. H. Office)	June 15-Oct. 15	8*	18	50,949	844
Wheat Road	Appt. Only	....	‡	1,255	0
Whitesbog	Appt. Only	....	†	4,300	0
Windsor	Appt. Only	....	†	3,600	0
Yardville	Appt. Only	....	†	9,600	0
				396,240	1,139

* 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 18 men was stationed.

‡ These points handled by Glassboro Office, where a crew of 12 men was stationed.

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	8,735	3
Bananas	2	0
Beans, lima	311	26
Beans, snap	48,523	292
Beets	1,053	3
Blueberries	2,822	0
Broccoli	29	19
Cabbage	2,010	4
Cantaloupe	246	0
Carrots	4,565	693
Corn	14	4
Cranberries	4,300	0
Cucumbers	5,857	0
Eggplant	1,059	10
Grapes	1	0
Huckleberries	8	0
Onions	10,775	0
Parsley	16	0
Peaches	5,635	0
Peppers	11,775	73
Pickles	4,912	0
Potatoes, white	247,318	2
Potatoes, sweet	23,502	0
Radishes	37	0
Squash	1	0
Tomatoes	12,199	9
Miscellaneous Fruit	1	0
Miscellaneous Vegetables	32	0
Cut Flowers	502	1
	396,240	1,139

REFRIGERATOR CAR FUMIGATION AND INSPECTION

Because of early shipping of farm produce, it was necessary to start fumigation of empty refrigerator cars and refrigerator car loads with cyanide as a means of certification. Activities began in the Trenton area, June 21, and in the Bridgeton area the following day. There were 127 empty cars and 96 loaded cars fumigated during the season.

Because of the inability of the railroads to supply ventilated box cars for the potato shippers, and because of cyanide damage to potatoes, it was necessary to modify the requirements of certification. Therefore, starting September 1, daily checks on beetle population were made at the loading

centers. After it had been determined that there existed no danger from infestation, shippers were allowed to load in prefumigated cars provided the potatoes had been run over a mechanical grader inside a warehouse.

In the Hightstown-Freehold area eight inspectors, working in shifts maintained continuous certification service from 9:00 A.M. until midnight daily. Thirteen principal loading points were covered.

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

Fumigator	Fumigation Point	Product	Amount	Number of Cars
C.R.R. of N. J.	Bridgeton Junction	Empties	—	15
	Bridgeton Junction	W. potatoes	3,909 bags	13
	Bridgeton Junction	Onions	3,526 bags	7
	Bridgeton Junction	Peppers	1,820 hprs.	2
C.R.R. of N. J.	Cedarville	Onions	6,503 bags	13
C.R.R. of N. J.	Deerfield	W. potatoes	910 bags	3
P. R. R.	Trenton	Empties	—	60
	Trenton	Cucumbers	4,430 bu.	11
P. R. R.	Yardville	Empties	—	4
P. R. S. L.	Camden (Pavonia)	Empties	—	48
	Camden	Peaches	390 bu.	1
	Camden	W. potatoes	2,100 bags	7
	Camden	Onions	500 bags	1
	Camden	Peppers	955 hprs.	1
	Camden	S. potatoes	11,430 hprs.	32
	Mixed Cars	Peppers	39 bbls.	
		Tomatoes	1,531 bu.	
		Eggplant	1,539 clx.	
		Cucumbers	239 bu.	5
		Peppers	220 bu.	
			32 bu.	
			40,073	223

QUARANTINE ON NURSERY AND ORNAMENTAL STOCK

The following table gives the number of classified establishments dealing in nursery and ornamental stock, etc., and the classification as of December 31, 1937:

	Class I	Class III	Class I & III	Totals
Nurseries	4	77	0	81
Greenhouses	0	30	0	30
Nurseries and Greenhouses	1	113	0	114
Root Growers	0	60	0	60
Plant Growers	0	22	0	22
Miscellaneous Establishments	2	14	0	16
Totals	7	316	0	323

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 1937 follows.

Number of establishments classified as January 1, 1937		336	
Number of establishments added during 1937		8	
Number of establishments classified during 1937		344	
Number of establishments removed during 1937		21	
Number of establishments classified as of Dec. 31, 1937			323
Sq. ft. of glass classified as of January 1, 1937	5,247,814.5		
Sq. ft. of glass added during 1937	1,726.0		
Sq. ft. of glass classified during 1937		5,249,540.5	
Sq. ft. of glass removed during 1937		63,805.0	
Sq. ft. of glass classified as of Dec. 31, 1937			5,185,735.5
No. of acres classified as of Jan. 1, 1937	9,244.292		
No. of acres added during 1937	32.000		
No. of acres classified during 1937		9,276.292	
No. of acres removed during 1937		130.416	
No. of acres classified as of Dec. 31, 1937			9,145.876

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

	Number Plants Shipped	*Sand, Soil, Earth*		*Peat*		*Compost & Manure*	
		Carloads	Pounds	Carloads	Pounds	Carloads	Pounds
Alabama	85,366	1	9,094				2,000
Arizona	3,079	....	1,687				
Arkansas	4,217	1	20,921				
California	35,587	5	56,679	2	2,700		3
Colorado	28,806	....	32,916				
Florida	63,584	4	60,654		150		
Georgia	196,266	3	6,565				
Idaho	1,082	....	235				
Illinois	41,475	93	8,226				11
Indiana	70,371	7	67,966				
Iowa	47,866	2	53,058				3
Kansas	9,867	3	30,321				
Kentucky	1,050,266	9	29,628				11
Louisiana	19,145	3	38,753				
Maine	194,608	13	24,356				200
Maryland	36,772	12	19,933				
Michigan	327,214	73	34,145				203
Minnesota	48,848	2	42,817				8
Mississippi	9,718	....	8,649				
Missouri	66,236	3	4,999				
Montana	1,968	....	1,836				
Nebraska	15,827	....	8,127				5
Nevada	440	....	412				
New Hampshire	23,946	1	3				
New Mexico	2,894	1	10,287				
New York	1,158,058	478	50,484		60	4	5,611
North Carolina	308,772	10	11,727		600	2	1,200
North Dakota	1,754	....	17,668				3
Ohio	452,854	153	14,869				603
Oklahoma	8,768	....	36,750				
Oregon	15,200	....	769				
Pennsylvania	134,363	81	49,274				6,303
South Carolina	75,061	4	55,001				
South Dakota	18,802	....	10,031				
Tennessee	49,745	5	77,590				400
Texas	44,566	10	28,743				3
Utah	6,413	....	12,971				3
Vermont	71,734	5	4,226				10
Virginia	97,800	67	75,513			3	500
Washington	6,294	10	31,173				
West Virginia	985,832	64	35,278			1	
Wisconsin	79,396	5	63,875				203
Wyoming	668		674				
Foreign	32,261	627	77,285				
Totals	6,293,789	1,755	1,226,168	2	3,510	10	17,283

TREATMENTS MADE DURING 1937

Articles Treated	Agent	Units Treated	Totals
Plants (Field)	Miscible CS_2	1,436	
Plants (Initial Treatment)	Lead Arsenate	97,353	
Plants (Retreatment)	Lead Arsenate	27,422	
Plants (No Lead Required)	Lead Arsenate	175,110	301,321
Plants (Tank)	Hot Water	0	
Plants (Tank)	Miscible CS_2	2,200	2,200
Plants	Paradichlorobenzene	25,352	25,352
Total Plants Treated			328,873
Potting Soil	CS_2	2,762.94 cu. yds.	
Potting Soil	Steam	12.00 " "	
Potting Soil	Naphthalene	0.00 " "	
Potting Soil	Lead Arsenate	20.00 " "	
Total Potting Soil Treated			2,794.94
Sand	CS_2	4,183.40 cu. yds.	107 cars
Soil	CS_2	49.41 " "	0 "
Mushroom Soil	CS_2	0.00 " "	0 "
Manure	CS_2	4.00 " "	0 "
Leaf Mold	CS_2	27.20 " "	0 "
Total		4,264.01 " "	107 cars
Surface Soil	CS_2	34,618.75 sq. ft.	
Surface Soil	Miscible CS_2	1,972.00 " "	
Surface Soil	Naphthalene	30,180.00 " "	
Surface Soil	Steam	0.00 " "	
			66,770.75 sq. ft.
(Heeling in Areas, etc.)			
Surface Soil (Initial Treat.)	Lead Arsenate	11,841.0 sq. ft.	
Surface Soil (Retreatment)	Lead Arsenate	132,020.0 " "	
Surface Soil (No Lead Req.)	Lead Arsenate	399,480.0 " "	
			543,341.0 sq. ft.
(Containing Growing Plants)			
Surface Soil (Initial Treat.)	Lead Arsenate	714,120.0 sq. ft.	
Surface Soil (Retreatment)	Lead Arsenate	327,520.0 " "	
Surface Soil (No Lead Req.)	Lead Arsenate	2,401,179.0 " "	3,442,819.0 sq. ft.
Total Surface Soil Treated			4,052,930.75 " "

Berries	CS_2	2,993 crts.	2,993 crts.
Cucumbers	HCN	4,430 bus.	11 cars
Onions	HCN	10,529 bags	21 "
Peaches	HCN	390 bus.	1 "
Peppers	HCN	2,775 hprs.	3 "
Sweet Potatoes	HCN	11,430 hprs. 39 bbls.	32 "
White Potatoes	HCN	6,919 bags	23 "
Mixed Produce	HCN	3,561 units	5 "
Empty Refrigerator Cars	HCN	....	127 "
Total		40,073 Units	223 cars

NUMBER OF MEN EMPLOYED EACH MONTH DURING 1937

	Scouting		*Farm Products*		*Nursery and Greenhouse*		Totals	
	Federal	State	Federal	State	Federal	State	Federal	State
January	....	....	....	....	9	13	9	13
February	....	....	....	....	9	13	9	13
March	....	....	....	....	16	14	16	14
April	....	....	....	....	17	14	17	14
May	....	....	....	....	17	14	17	14
June	....	....	16	3	14	14	30	17
July	8	1	25	6	8	9	41	16
August	8	1	27	4	8	9	43	14
September	....	....	16	4	10	10	26	14
October	....	....	....	....	18	13	18	13
November	....	....	....	....	18	13	18	13
December	....	....	....	....	12*	12	12	12
	16	2	84	17	156	148	256	167

* Three of these men were appointed part state and part federal.

NUMBER OF AUTOMOBILES OPERATED EACH MONTH DURING 1937

	Scouting		*Farm Products*		*Nursery and Greenhouse*		Totals	
	Federal	State	Federal	State	Federal	State	Federal	State
January	....	....	....	....	8	12	8	12
February	....	....	....	....	8	13	8	13
March	....	....	....	....	8	19	8	19
April	....	....	....	....	8	20	8	20
May	....	....	....	....	8	20	8	20
June	....	....	9	6	5	14	14	20
July	2	1	11	13	3	5	16	19
August	2	1	12	12	2	5	16	18
September	....	....	12	12	3	7	15	19
October	....	....	....	....	10	16	10	16
November	....	....	....	....	7	19	7	19
December	....	....	....	....	6	14	6	14
	4	2	44	43	76	164	124	209

SUMMARY

January proved to be very mild, with bulbs sprouting, sap flowing, Forsythia in bloom and beetle grubs very near the surface of the soil. Because of the mild weather one of the larger nurseries had shipped two, and was loading five cars of stock destined for mid-west delivery. Dahlia and rose men were busy.

In February, cut rose growers in southern New Jersey were complaining of damage to blooms from adult beetles in their houses.

March saw such an increase in shipping by nurseries and greenhouses that it was necessary to add six extra inspectors. Potato farmers in the Hightstown-Freehold area started planting the latter part of the month.

April saw the usual spring activity in all branches with strikes attempted and threatened at nurseries. Sea gulls were very active in the Bridgeton area, feeding on Japanese beetle grubs turned up during plowing.

In May, there were no nursery and greenhouse calls, but work was done in conditioning bean machines and the inspection of equipment in preparation for the farm products season. Bumper crops were predicted which held true for apples, with half of the crop in storage in December. Vegetable growers lost out with crop failures. Inventories and leading at nurseries got under way in May. Sand shippers were rushed to move all they could before June 15.

June found the farm products season in full swing in the Trenton area, while the Glassboro area experienced a distressing slump in beans and peas with a proportionate jump in other commodities.

August was a busy month, with a continued flow of farm products to whatever market seemed most lucrative. Fumigation trials continued, using carlot quantities of beans and potatoes.

In September, first potato shippers in the Freehold-Hightstown area were allowed to load in refrigerator cars when daily investigation showed that no beetle hazard was present. The potato certification required two shifts of inspectors working a 14-hour day starting at 9:00 A.M. Cool, wet weather during the early part of the month slowed the movement of farm products. By September 22, the quarantine restrictions were lifted on these commodities.

October found the nurserymen and florists in full operation which carried well into November. The mild, open winter was an incentive to prepare stock for storage for spring delivery. Large quantities of plants were treated with paradichlorobenzene during October. It was necessary to hold over temporary inspectors to handle the demands. Sand shipments picked up appreciably during October and November.

During the first six months of 1937, the number of certified plants increased 63 per cent, and shipments between dealers increased 17 per cent over the corresponding six months of 1936.

However, as the season progressed, plant shipments decreased. In the final analysis, shipments destined for points outside the regulated area increased but 9.6 per cent, and shipments between dealers, 8.7 per cent over those of 1936. In the aggregate, there was a net increase of 9.3 per cent for plants certified for 1937.

The sand shippers enjoyed a busy year which is indicated by a net increase of 12 per cent, or 185 pounds, of certified shipments over 1936.

One hundred twenty-seven empty refrigerator cars were fumigated with cyanide. Ninety-nine of them were subsequently used for shipping certified farm products to points outside the regulated area.

Apples	12 cars	6,299 units
Beans, snap	59 cars	39,150 units
Carrots	2 cars	930 units
Cucumbers	1 car	400 units
Peaches	1 car	387 units
Pickles	10 cars	4,328 units
Potatoes, sweet	14 cars	5,363 units

The remainder of the fumigated cars was either used for shipping farm products within the regulated area or left on the sidings at the close of the season.

SUMMARY OF ARTICLES CERTIFIED ON ACCOUNT OF EUROPEAN CORN BORER

1938 Fiscal Year

Article Certified	Quantity
Asters	16,736
Chrysanthemums	24,228
Cosmos	500
Dahlias	53,026
Shasta Daisies	628
Gladioli	60
Hollyhock	340
Zinnias	1,951
Lima Beans	208
Snap Beans	37,684
Beets	950
Celery	5,105
Rhubarb	13,388
Straw	932
	155,736
Approximate value of above shipments:	$74,584.24
Number of certificates used:	6,064

Official Proceedings of the Twenty-third Annual State Agricultural Convention

The twenty-third 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 25, 1938, by Herman C. Demme, president of the State Board of Agriculture. After the invocation by Reverend Paul W. Kapp of Stewartsville, an address of welcome was given by Robert T. Bowman, President of the Trenton Chamber of Commerce.

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
W. J. Slack	Hammonton	2 Years	Atlantic
H. O. Packard	Hammonton	1 Year	Atlantic
Henry Behnke	Hackensack, R. D.	2 Years	Bergen
David Wortendyke	Woodcliff Lake	1 Year	Bergen
David D. Griscom	Marlton	2 Years	Burlington
Joseph W. Jones	Lumberton	1 Year	Burlington
Samuel DeCou	Merchantville	2 Years	Camden
Samuel Tomlinson	Kirkwood	1 Year	Camden
C. Newton Schellinger	Green Creek	2 Years	Cape May
Allen McClain	Green Creek	1 Year	Cape May
Clifford C. McAllister	Bridgeton, R. D. 2	2 Years	Cumberland
Milton L. Davis	Newport, R. D. 1	1 Year	Cumberland
Marcus W. DeCamp	Roseland	2 Years	Essex
*Herbert Francisco	West Caldwell	1 Year	Essex
John Rode	Swedesboro	2 Years	Gloucester
Ernest Sykes	Williamstown	1 Year	Gloucester
George A. Veltman	Jersey City	1 Year	Hudson
Harold B. Everitt	Flemington, R. D.	2 Years	Hunterdon
Charles Burd	Pittstown	1 Year	Hunterdon
John W. Tindall	Princeton Junction R. D.	2 Years	Mercer
Robert M. Dilatush, Jr.	Trenton, R. D. 2	1 Year	Mercer
Charles Skistimas	New Brunswick, R. D. 1	2 Years	Middlesex
Russell C. Spratford	Cranbury, R. D.	1 Year	Middlesex
Henry G. Wikoff	Robbinsville, R. D.	2 Years	Monmouth
Elvin F. Morris	Farmingdale	1 Year	Monmouth
Herbert W. Bockoven	Mendham	2 Years	Morris
*Clifford Alward	Succasunna	1 Year	Morris
Martin Schubkegel	Lakewood, R. D. 3	2 Years	Ocean
Erwin J. Clement	Lakehurst	1 Year	Ocean
Arthur Butt	Clifton, R. D. 1	2 Years	Passaic
Charles C. M. Hess	Mountain View	1 Year	Passaic

Name	Address	Term	County
Edward Broomell	Woodstown	2 Years	Salem
Marvin H. Coombs	Salem, R. D. 1	1 Year	Salem
Edward M. Haynes	Skillman	2 Years	Somerset
David W. Amerman	Neshanic	1 Year	Somerset
Jacob A. Blakeslee	Newton, R. D. 3	2 Years	Sussex
Lester Price	Lafayette, R. D. 1	1 Year	Sussex
Walter M. Richie	Rahway	2 Years	Union
Charles H. Brewer	Rahway	1 Year	Union
Frank L. Pursell	Alpha, R. D.	2 Years	Warren
Norman VanHorn	Delaware	1 Year	Warren

FROM POMONA GRANGES

Martin Decker	Egg Harbor	1 Year	Atlantic
Charles Ballentine	Paterson, R. D. 3	1 Year	Bergen-Passaic
Fred Lippincott	Moorestown	1 Year	Burlington
P. Wendell Beideman	Haddonfield	1 Year	Camden
Henry H. White	Cape May Court House	1 Year	Cape May
Herbert Bockoven	Mendham	1 Year	Central District
George Brooks	Bridgeton, R. D. 2	1 Year	Cumberland
Earl C. Urion	Woodstown	1 Year	Gloucester
Theodore H. Dilts	Three Bridges	2 Years	Hunterdon
William H. Blackwell	Titusville	1 Year	Mercer
Harry W. Kline	New Brunswick, R. D. 6	1 Year	Middlesex and Somerset
Hubert Voorhees	Asbury Park, R. D. 1	1 Year	Monmouth
Harvey M. Beal	Elmer, R. D.	1 Year	Salem
W. W. Titsworth	Sussex	1 Year	Sussex
Charles Rush	Phillipsburg, R. D.	1 Year	Warren

FROM OTHER ORGANIZATIONS

American Cranberry Growers' Association—James D. Holman, Whitesville, 2 years; Theodore H. Budd, Pemberton, 1 year.

New Jersey State Horticultural Society—Charles A. Collins, Moorestown, 2 years; Tunis Denise, Freehold, 1 year.

New Jersey Association of Nurserymen—Jules A. Trossbach, Trenton, 2 years; William Howe, Jr., Pennington, 1 year.

New Jersey Florists' Association, Inc.—J. Fred Piper, Livingston, 2 years; Francis W. Ruzicka, Chatham, 1 year.

New Jersey State Grange—David H. Agans, Three Bridges, 1 year; Walter H. Whiton, Neshanic, 1 year.

New Jersey State Poultry Association—Charles Cane, Rosemont, 1 year; E. H. Reeman, Vineland, 1 year.

Jersey Chick Association—J. C. Weisel, Frenchtown, 1 year; Elmer H. Wene, Vineland, 1 year.

New Jersey Agricultural Experiment Station—Dr. Jacob G. Lipman, New Brunswick.

New Jersey State College of Agriculture—Dr. Carl R. Woodward, New Brunswick.

Holstein-Friesian Cooperative Association—Stanley Roberts, Port Jervis, R. D. 1, N. Y.

New Jersey Guernsey Breeders' Association—William M. Nulton, Jr., New Brunswick.

New Jersey Alfalfa Association—Franklin G. Rue, Imlaystown.

New Jersey State Potato Association—Milton C. Tice, Deerfield.

Beverly Cooperative Growers' Association—J. Cresswell Stuart, Beverly.

New Jersey Beekeepers' Association—Richard D. Barclay, Riverton.

E. B. Voorhees Agricultural Society—D. B. Webster Suydam, New Brunswick.

APPOINTMENT OF COMMITTEES

The following committees were appointed by President Demme:

COMMITTEE ON RESOLUTIONS

Marcus W. DeCamp, Essex County Board of Agriculture.
Dr. Carl R. Woodward, New Jersey State College of Agriculture.
William Howe, Jr., New Jersey Association of Nurserymen.

GOVERNOR'S ESCORT

James D. Holman, American Cranberry Growers' Association.
David H. Agans, New Jersey State Grange.
Charles A. Collins, New Jersey State Horticultural Society.

COMMITTEE ON CREDENTIALS

C. Newton Schellinger, Cape May County Board of Agriculture.
Stanley Roberts, Holstein-Friesian Cooperative Association
Henry G. Wikoff, Monmouth County Board of Agriculture.

ELECTION OF BOARD MEMBERS

To fill the two vacancies in membership of the State Board of Agriculture which would occur on July 1, Herman C. Demme of Sewell, Richard S. Schomp of Stanton, Jacob A. Blakeslee of Newton and P. Wendell Beideman of Haddonfield were nominated. Ballots were cast and the tellers reported the election of Mr. Blakeslee and Mr. Beideman for four-year terms beginning July 1, 1938.

REPORT OF COMMITTEE OF RESOLUTIONS

The committee on resolutions reported that no resolutions had been submitted to the committee for presentation to the convention but recommended a vote on the subject of diversion of highway funds for any purpose other than that for which they were intended. This motion was duly seconded, put to a vote, and carried.

REPORT OF COMMITTEE ON CREDENTIALS

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