

STATE OF NEW JERSEY  
DEPARTMENT OF AGRICULTURE

W. H. ALLEN, *Secretary*



**Fortieth Annual Report**  
OF THE  
**New Jersey**  
**State Department of Agriculture**

July 1, 1954 — June 30, 1955

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Trenton, N. J., June 30, 1955

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Messrs. Heritage and Ritchie will retire from the Board on June 30, 1955. The new members will be Ernest C. Bell of Bellmawr and Michael J. Klein of Clifton.

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STATE OF NEW JERSEY  
DEPARTMENT OF AGRICULTURE  
W. H. ALLEN, *Secretary*  
TRENTON

June 30, 1955

*To His Excellency, the Governor, and Members of 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 Fortieth Annual Report of the New Jersey  
Department of Agriculture, for the fiscal year ended June 30, 1955.

Respectfully yours,

*W. H. Allen*

## FORTIETH ANNUAL REPORT OF THE NEW JERSEY DEPARTMENT OF AGRICULTURE

### *The Year In Review*

The over-all financial picture for New Jersey farmers in the year ending June 30, 1955 was one that would lend little encouragement to expansion or new ventures. Numerous lines of agricultural activity felt the effects of lower prices to such an extent that the gross value of agricultural products in the calendar year of 1954 was almost 5 per cent below that of the previous year.

The most severe decline was felt by egg producers whose total value of products shrank about 15 per cent. Somewhat better off but still under the previous year's gross were the producers of vegetables and poultry meat who faced a drop of 8 per cent in their gross farm value. Others whose products experienced a slight decline in farm value were the grain, meat animal and berry growers.

On the more favorable side the nursery industry and potato growers each had an increase in gross farm value of better than 20 per cent over 1953. The nursery business is becoming an increasingly important segment of New Jersey agriculture in some measure due to demands for landscaping material in new residential developments as well as improvements of established homes. The increase in value of potatoes was because of substantially higher prices for a smaller crop compared with the previous year. Other products for which a very slight increase was shown in total farm value were milk, fruits and hay.

Gross farm values for 1954 are expressed below in tabular form:

Product	Gross Farm Value	Increase (Per cent)	Decrease (Per cent)
Eggs	\$112,600,000		15.0
Milk	65,800,000	0.9	
Vegetables	54,500,000		8.4
Poultry, including turkeys, ducks, etc.	34,000,000		8.4
Nursery and greenhouse	33,000,000	22.2	
Grains	23,850,000		1.7
Meat animals	17,700,000		1.7
Hay	17,043,000	3.1	
Tree fruits	10,626,000	4.3	
Berries	7,265,000		0.2
White potatoes	6,816,000	23.0	
Miscellaneous (seeds, honey, lumber)	1,300,000	18.2	
Total	\$384,500,000		4.87

## THE WORK OF THE DEPARTMENT

Since the inception of the Department much of its major work has been in the regulatory field, comprising the enforcement of laws which have been enacted by the Legislature. These have had to do mainly with animal disease eradication, inspection of apiaries, inspection of nurseries for the issuance of annual certificates showing freedom from insect and disease injury, enforcement of the fresh egg law and the licensing and bonding of dealers in milk, produce, eggs and live poultry and the licensing of cattle dealers.

Over the years promotional endeavors have been developed to meet requests of various agricultural interests. These have primarily been concerned with grades and standards for fruits, vegetables, eggs and milk and with various marketing services, concerned chiefly with the sales activities of the cooperative marketing associations.

Long important in the regulatory activity has been the attention given to the eradication of tuberculosis in cattle. Since the beginning of this work back in 1916 nearly \$4,000,000 of State money has been expended to indemnify farmers for losses of reacting cattle. Now 40 years later the expenditures required for this purpose amount to less than \$15,000 per year. This is due to an extremely low rate of reaction amounting at present to only one animal in about 950. During the fiscal year the amount received by owners for condemned animals averaged \$215.49 of which 39 per cent was paid by State indemnity, 13 per cent from Federal funds and 48 per cent from salvage for meat and hides.

Vesicular exanthema in hogs is showing signs of abatement and no active symptoms of the disease have been evident since October 1954. This encouraging development has been brought about by a growing utilization of the cooking process so that more and more garbage-fed swine are being fed cooked rather than raw garbage. The cooking process properly carried out destroys the disease organism and safeguards the health of swine. Adoption of cooking has been on a voluntary basis. Such voluntary rather than a mandatory program has proved the sounder approach to control and eradication of this disease.

Recognizing the need for a more concentrated effort nationally to reduce brucellosis in cattle the Federal government made increased funds available to the different states to promote an accelerated program. These additional funds allocated for use in New Jersey have made it possible to accelerate the testing programs and to lay the groundwork for a realistic testing program which would eventually bring all dairy cattle under supervision. At the end of the fiscal year 73 per cent of all herds, comprising about 85 per cent of the total cattle population, were in a brucellosis testing plan. April 1, 1958 has been set by the State Department of Health as the



date after which all milk sold in New Jersey must come from brucellosis-free herds. It is important that this accelerated testing program be continued so that none of the milk produced in New Jersey will be shut off from its normal market because of failure to have the herds properly tested.

The Department's work in the field of marketing continued in the pattern of functions and services which have been beneficial to a considerable number of growers. All of this work has been basically promotional in character. However, where products are marketed according to grades and standards adopted by the State Board of Agriculture as the State grades such products are required to conform to the respective grade designations.

About 57 million pounds of asparagus were delivered to New Jersey processing plants, last year the majority of it for freezing. All of this volume was purchased under contracts negotiated by grower and packer on the basis of our State standards. Another sizable operation in which official grades were used for contract purposes was in the case of processing tomatoes of which 130,462 tons were so delivered. Also important, but in somewhat lesser amounts, were the volumes of lima beans, peas, spinach and other vegetable crops which were bought by processors on the basis of official standards. It is felt that all of this work has had a stabilizing influence on the vegetable industry in the southern half of the State as is indicated by the growth of acreage devoted to this purpose.

Continued cooperation was extended to the various farmer-owned auction markets in the State which sold many millions of dollars of New Jersey products during the year. The largest amount dollarwise was in the case of eggs sold at five auction markets throughout the State. Likewise, a considerable volume of a variety of fruits and vegetables moved through the nine produce auctions operating in season. In addition, several farmer-owned livestock auction markets were an outlet for farm animals, primarily for slaughter purposes.

A new and serious insect pest appeared in New Jersey during the fiscal year and posed a threat to the vegetable industry. The white-fringed beetle, normally restricted to the southeastern States, was found doing considerable damage to a sweet potato crop in the Vineland area. In the spring of 1955 treatments were applied to the immediate area and a substantial border around it through the cooperative efforts of State and Federal authorities. It is believed that these efforts have been successful and that the threatened invasion has been stopped before it could spread. Its potential threat lay not only in the severe damage to crops but in the fact that it could exist on several hundred different kinds of host plants, both wild and cultivated.

Another important activity of the Department has been the seed certification project. Through a rigid control and inspection program it has been possible for growers to produce seed which is true to name, free from

disease and with high germination counts. During the current fiscal year some 86 thousand pounds of tomato seed were State certified. Considerable amounts of such special seed have been used throughout the United States as well as in Cuba, Mexico, Ceylon, Africa and other tomato-producing countries of the world.

Grains have formed a large bulk of the seed certification work and this year growers produced nearly 66 thousand bushels of State certified seed, the second-highest volume on record since seed certification work started in New Jersey. From the volume standpoint wheat was the most important, followed by barley and hybrid corn. These three grains collectively accounted for more than 80 per cent of the total volume of State certified seed.

#### ACKNOWLEDGMENT

The diligence and efforts which the members of the staff have devoted to their respective projects are acknowledged. These efforts collectively represent a substantial contribution by this Department to the agricultural welfare of New Jersey, resulting in benefits both direct and indirect to the economy of the State as a whole and to its citizens.

#### LICENSING AND BONDING

The State Department of Agriculture is responsible for the enforcement of the Milk Dealers' Licensing and Bonding Act (Article 1, Chapter 12, Title 4), the Produce Dealers' Licensing and Bonding Act (Article 2, Chapter 11, Title 4), the Cattle Dealers' Licensing Act (Article 1, Chapter 11, Title 4) and the Licensing of Operators of Disposal Plants (P. L. 1953, Chapter 415 (C. 4:5A-1 to C. 4:5A-19) of New Jersey).

#### MILK DEALERS' LICENSING AND BONDING ACT

The gradual downward trend in the total number of dealers purchasing milk from New Jersey farmers which started several years ago continued this year. By the end of the 1954-55 licensing year there were 10 fewer licensees than on June 30, 1954 although the total value of bonds filed was greater. Licenses were issued to 179 dealers who filed bonds totaling \$4,433,000.00; last year 189 dealers filed bonds totaling \$4,407,500.00.

Finding it more difficult to operate at a profit because of an increasing overhead some of the smaller dealers are becoming subdealers for the larger distributors who realize that they must increase their volume in order to meet rising costs.

During 1954-55 claims and complaints totaled \$529.20.

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## MILK DEALERS LICENSED AND BONDED

July 1, 1954 to June 30, 1955

County	Licenses Issued	Bonds Filed	Amount of Bond
Atlantic	4	4	\$57,000.00
Bergen	7	7	147,000.00
Burlington	9	9	243,000.00
Camden	6	6	102,000.00
Cape May	3	3	5,000.00
Cumberland	9	9	149,000.00
Essex	10	10	371,000.00
Gloucester	9	9	100,000.00
Hunterdon	11	11	475,000.00
Mercer	16	16	303,000.00
Middlesex	12	12	285,000.00
Monmouth	20	20	261,000.00
Morris	12	12	252,000.00
Ocean	3	3	68,000.00
Passaic	12	12	405,000.00
Salem	6	6	50,000.00
Somerset	10	10	244,000.00
Sussex	1	1	100,000.00
Union	5	5	134,000.00
Warren	4	4	38,000.00
Out-of-State	10	10	644,000.00
Total: 1954-55	179	179	\$4,433,000.00
1953-54	189	189	4,407,500.00
1952-53	198	200	4,517,000.00
1951-52	210	210	4,276,000.00
1950-51	214	214	

## PRODUCE DEALERS' LICENSING AND BONDING ACT

This was the first full year that live-poultry and egg dealers had to be licensed under the Produce Dealers' Licensing and Bonding Act unless they qualified under one or more of the exemptions provided in the statute. For the 18 months that the amendment has been in effect two investigators have been spending most of their time checking whether any of the unlicensed dealers are operating in violation of the Act. An additional field man will be employed because of the extent of the work.

During the spring a severe frost damaged the peach crop in several southeastern States. This resulted in an increased demand for New Jersey peaches. Some out-of-state dealers who generally buy their peaches from other sources obtained licenses in New Jersey for 1955-56 so they could have solicitors in the State to contact the growers.

Licenses were issued to 551 dealers who filed bonds totaling \$1,391,000.

Claims and complaints for 1954-55 totaled \$7,646.61.

## STATE DEPARTMENT OF AGRICULTURE

## PRODUCE DEALERS LICENSED AND BONDED

May 1, 1954 to April 30, 1955

County	Licenses Issued	Bonds Filed	Amount of Bond
Atlantic	65	65	\$173,000.00
Bergen	2	2	3,500.00
Burlington	2	2	6,000.00
Camden	20	20	50,000.00
Cape May	3	3	4,500.00
Cumberland	83	83	211,500.00
Essex	36	36	100,500.00
Gloucester	34	34	97,500.00
Hudson	3	3	6,500.00
Hunterdon	9	9	12,500.00
Mercer	22	22	61,000.00
Middlesex	19	19	45,000.00
Monmouth	43	43	102,000.00
Morris	3	3	9,000.00
Ocean	35	35	41,500.00
Passaic	15	15	43,000.00
Salem	13	13	31,500.00
Somerset	6	6	18,000.00
Sussex	1	1	3,000.00
Union	1	1	3,000.00
Warren	8	8	24,000.00
Out-of-State	128	128	344,500.00
<hr/>			
Total: 1954-55	551	551	\$1,391,000.00
1953-54	364	364	1,084,500.00
1952-53	366	366	1,098,000.00
1951-52	383	383	1,149,000.00
1950-51	396	396	1,191,000.00

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## CATTLE DEALERS' LICENSING ACT

Licenses were issued to 174 cattle dealers, 18 fewer than in 1953-54.

## CATTLE DEALERS LICENSED

July 1, 1954 to June 30, 1955

County	Licenses Issued
Bergen	1
Burlington	20
Camden	5
Cape May	1
Cumberland	11
Essex	6
Gloucester	2
Hunterdon	13
Mercer	7
Middlesex	3
Monmouth	12
Morris	9
Ocean	7
Passaic	5
Salem	17
Somerset	11
Sussex	19
Union	7
Warren	15
Out-of-State	3
Total:	
1954-55	174
1953-54	192
1952-53	213
1951-52	224
1950-51	229

## DISPOSAL PLANT LAW

This was the first full year the Disposal Plant Act was in effect. Shortly after the law became effective on January 1, 1954 over 130 persons who might have to comply with the act were contacted.

Since the plants, equipment, trucks and clothing of the persons engaged in the operation of disposal plants must meet specified sanitary requirements it was necessary to inspect each place of business and advise the owners as to what improvements must be made before a license would be issued.

The owners were willing to comply with suggestions. A few plants, trucks and equipment were found to need considerable improvement so time was allowed to make the necessary changes. When reinspected the plants were found to be qualified for licenses.

A complaint was received in August against one operator to the effect that his place of business was dirty, offensive and a nuisance to the community. An immediate investigation showed these accusations had no basis in fact.

In October a complaint was made against another operator accusing him of being a serious menace to the livestock of neighboring farmers. Investigation disclosed there was no violation of the act on the part of the licensee.

Licenses were issued to 17 operators.

#### DISPOSAL PLANT OPERATORS LICENSED

July 1, 1954 to June 30, 1955

County	Licenses Issued
Burlington	1
Camden	1
Hudson	2
Monmouth	1
Morris	2
Sussex	3
Union	1
Out-of-State	6
Total:	17
1954-55	17
1953-54	10

#### THE NEW JERSEY JUNIOR BREEDERS' FUND

During the fiscal year 1954-55 members of the New Jersey Junior Breeders' Fund negotiated 138 loans totaling \$16,637.24, 20 per cent under last year when loans totaled \$23,314.89. The decline is due to a 55 per cent reduction in dairy calf purchases. In 1953-54 members purchased 136 calves for \$16,462.50 while in 1954-55 there were 63 purchases totaling \$7,358.95. Most other types of loans were about the same as in the previous year except feeder calf loans which increased from \$5,598.50 to a record high of \$7,070.73.

Charges against the emergency fund for livestock losses incurred by members totaled \$940.12 for the year. These losses included four ewes, four dairy calves and two beef heifers. Of the four dairy calves, two were non-breeders.

Earnings from interest charged on loans provided all members subscriptions to breed journals and awards at the following events:

Flemington State 4-H Dairy Show	\$175.00
Cumberland County 4-H Dairy Show	60.00
State FFA Livestock Show	145.00
4-H Baby Beef Show	140.00
	<hr/>
	\$520.00

The New Jersey Agricultural Society continued its awards to members exhibiting the four best fitted entries at the Flemington State 4-H Dairy Show, Cumberland County 4-H Dairy Show, the 4-H Baby Beef Show and to winners of 4-H Meritorious Milk Production Records. The Freling-

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huysen Memorial Awards recognizing members whose dairy animals made the highest milk production records in the 4-H and vocational agricultural programs again were presented by Joseph S. Frelinghuysen, Jr. at the annual Dairy Dinner, Farmers Week. In addition William A. Haffert has provided subscriptions to New Jersey Farm and Garden for all members of the Fund.

Resources of the New Jersey Junior Breeders' Fund to New Jersey farm youth have been available for 34 years. During that time they have transacted more than 3,700 loans in excess of 320 thousand dollars. The original endowment of 30 thousand dollars is still intact.

## TOTAL AMOUNT LOANED BY COUNTIES

	Loaned 1954-55	Total Loans Since 1921
Atlantic	\$858.77	\$4,828.94
Bergen	294.30	881.80
Burlington	260.00	18,395.91
Camden	1,265.85	1,942.00
Cape May	.....	3,177.43
Cumberland	992.70	11,144.33
Essex	.....	805.30
Gloucester	673.55	9,387.85
Hudson	.....	.....
Hunterdon	550.00	24,088.21
Mercer	1,317.40	33,018.35
Middlesex	1,760.25	39,166.84
Monmouth	2,640.21	29,598.11
Morris	.....	7,509.00
Ocean	490.00	4,196.00
Passaic	.....	716.25
Salem	876.46	32,046.16
Somerset	156.25	19,015.45
Sussex	3,434.00	52,265.85
Union	200.00	200.00
Warren	867.50	28,142.23
Total	<u>\$16,637.24</u>	<u>\$320,526.01</u>



## ***Report of Division of Information***

FRED W. JACKSON, *Director*

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Each year the subject of communications commands greater attention among leaders in nearly every phase of American life. Agriculture is no exception and there is a constantly expanding field for conveying information to the general public as well as to farmers, farm organizations and allied trades and industries.

In New Jersey agriculture is intensive and highly diversified and exists as a minority industry in the over-all economy of the State. Consequently, there is always a definite need to stress its importance, interpret trends and adjustments, encourage a favorable attitude toward agriculture and promote interest in New Jersey farm products. To that end the activities of the Division of Information have been directed during the past year.

Other principal projects have included (1) bringing to the attention of farmers and farm organizations the services and regulatory functions of the State Department of Agriculture; (2) cooperating with commodity groups in promoting the sale and distribution of New Jersey farm products; (3) handling the advance, current and follow-up publicity and arrangements concerned with the annual Farmers Week and (4) general publicity and the editorial work related to servicing Department of Agriculture publications.

In pursuing these principal objectives the Division of Information has continued to place all of its facilities and personnel at the service of the press, news services, radio, editors of magazines and house organs, State House reporters and others in order to secure recognition for New Jersey agriculture. Such activities involve daily requests and frequent contacts throughout the year with interested individuals or organizations. Each year these have resulted in an increasing number of requests for data and statistics on a local, county, statewide or commodity basis as well as regulations, photographs, biographies, reports and general information.

As was reported last year the editors and members of the staffs of most of the New Jersey dailies and weeklies have rendered outstanding cooperation. Likewise acknowledgment should be made of the interest of the New Jersey and suburban editors of the New York and Philadelphia daily and Sunday papers. Without such cooperation the Division would be able to reach only a fraction of the farmers, consumers and leaders in allied industries and particularly the general public. Similar cooperation has been ex-



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tended by the Philadelphia, New York and local New Jersey radio stations. These relationships as well as those with the press involve constant contacts and a continual effort to render every possible service in order to retain their interest and cooperation.

During the past year considerable time was devoted to the milk industry in view of the efforts of New Jersey producers to obtain a special Federal marketing order for New Jersey. Another expanded activity during the past year was the cooperative service carried on with the Agricultural Marketing Service of the United States Department of Agriculture. Negotiations were concluded which provide for conducting a joint USDA-NJDA crop and conditions reporting service and issuing reports through the Division of Information. This service will help to meet the needs and frequent calls for statistics on New Jersey agriculture.

## EDITORIAL ACTIVITIES

*News Releases*

During the past fiscal year a total of 266 news releases were prepared and issued to approximately 200 newspapers, radio stations and correspondents serving the New York City-Philadelphia-New Jersey area. Most of these releases are prepared so as to permit mailing four or five days prior to the specified release date. No clipping service is retained by the Department of Agriculture but a regular inspection of 10 to 12 weeklies and four or five dailies indicates rather consistent use throughout the State.

As usual an effort is made to recognize and publicize the important functions and regulations of the Department of Agriculture. Classified according to subject matter and the respective divisions concerned, the releases issued last year included:

Administration		15
Division of Animal Industry		17
Division of Markets		
Truck Crop News	24	
Other	21	45
Division of Plant Industry		22
Division of Information		
Farmers Week		
Advance	16	
Current	43	
New Jersey Mid-Atlantic		
Farm Show	17	
Other	40	116
Office of Milk Industry		27
Miscellaneous		24
Total		<hr/> 266

The following tabulation shows a comparison of the number of releases issued during the past three fiscal years :

	1954-55	1953-54	1952-53
Administration	15	21	14
Division of Animal Industry	17	7	11
Division of Markets	45	41	42
Division of Plant Industry	22	14	13
Division of Information	116	105	96
Office of Milk Industry	27	32	57
Miscellaneous	24	19	22
Totals	266	239	255

### *Photographs*

The increasing use of photographs in newspapers and magazines has resulted in a greater demand from editors for such pictorial copy. Because of the expense involved the Division of Information has not been able to meet all of such requests or make the most of the many opportunities presented for additional publicity. Obviously it has been impossible to meet requests for illustrations in color.

During the past year about 450 glossy prints of photographs have been issued including a number in special sizes to meet the needs of those papers using Fairchild equipment. Eight sets of mats were issued averaging between 25 and 30 mats in each mailing.

### *Farm Magazines*

Acknowledgment should be made of the continued cooperation of the editors and staff of *New Jersey Farm and Garden* during the past year and in particular for the special January issue which featured Farmers Week. In addition the editorial page has been made available exclusively each month for a message from the Secretary of Agriculture thus providing an excellent means of reaching directly the 25,000 readers represented in the New Jersey circulation. The columns of *New Jersey Farm and Garden* also are available each month for 1,200 to 2,000 words on current farm topics. Excellent cooperation also has been extended by the *American Agriculturist*, *Pennsylvania Farmer* and *Rural New Yorker* as well as the editors of newsletters and house organs of the farm commodity groups.

*Publications and Circulars*

The following circulars, pamphlets and reports were edited and published during the past year:

- Circular No. 394—A Study of Nutritional Problems of the American Elm.
- Circular No. 368—Supplement to The N. J.-U. S. National Poultry Improvement (Revised) Plan and the N. J.-U. S. National Turkey Improvement Plan.
- Circular No. 395—Licensed Dealers Under the Milk Dealers' Licensing and Bonding Act, Produce Dealers' Licensing and Bonding Act, Cattle Dealers' Licensing Act and Disposal Plant Operators' Licensing Act.
- Circular No. 396—Facts and Figures—Annual Potato Summary—Crop of 1954.
- Pamphlet—An Act Providing for the Licensing of Cattle Dealers, Brokers and Agents (Article 1, Chapter 11, Title 4, of the Revised Statutes of New Jersey).
- Pamphlet—Commission Merchants, Dealers, Brokers and Agents Law. Article 2, Chapter 11, Title 4, of the Revised Statutes of New Jersey, as amended and supplemented.
- Pamphlet—An Act Providing for the Licensing and Bonding of Dealers in Milk and Cream (Article 1, Chapter 12, Title 4, of the Revised Statutes of New Jersey).
- Report—Thirty-eighth Annual Report of the New Jersey State Department of Agriculture—July 1, 1952-June 30, 1953.
- Binding—New Jersey State Department of Agriculture Circulars Nos. 383-393.
- Binding—12 issues of *New Jersey Farm and Garden*, for calendar year 1954.
- Farm Service News*—Six issues—July, September, November, 1954; January, March, May, 1955.

As of June 30, 1955 the following have been edited but delivery has not been completed by the printer:

- Circular No. 397—New Jersey Agricultural Statistics: 1944-1954.
- Report—Thirty-ninth Annual Report of the New Jersey State Department of Agriculture—July 1, 1953-June 30, 1954.

Publications edited and issued prior to or during 1955 Farmers Week are as follows:

- 1955 Farmers Week Program
- Flyers—Crops and Livestock
- Poultry
- Women's Program—1955 Farmers Week
- Highlights of Your Convention
- Citations for Distinguished Service to New Jersey Agriculture, 1955

*Farm Service News* was continued with six bi-monthly issues during the past year. This publication serves as a direct medium for reaching about 18,000 farm and rural readers within the State. The March issue was devoted exclusively to the listing of the hatcheries and breeders whose baby chicks and breeding stock had qualified under the Federal-State Poultry Improvement Plan, thus eliminating the cost of publishing such a listing in a separate circular. The January issue was devoted exclusively to Farmers Week.

## FARMERS WEEK PUBLICITY

One of the major activities of the Division of Information during October, November, December and January is concerned with the arrangements and the advance and current publicity related to Farmers Week. Extended now to include six days of meetings, Farmers Week has become the major event of New Jersey agriculture in which over 40 farm and commodity groups participate. Attendance has grown each year. Acknowledgment is made of the excellent cooperation of *New Jersey Farm and Garden* as well as of press and radio editors who render effective aid in promoting Farmers Week. Each year the editorial staff of the Agricultural Extension Service of Rutgers University, a number of farm publications and most of the radio farm editors render valuable assistance in handling the publicity during Farmers Week.

## FARM PRODUCTS PROMOTION

During the past year the agricultural activities of the State Promotion Section, a unit of the Department of Conservation and Economic Development, again were serviced on a cooperative basis through the Division of Information. The Division served in a liaison capacity with the participating agricultural commodity groups. This arrangement which has been in effect since 1938 has proved satisfactory to the State agencies concerned as well as to the cooperating farm organizations.

The allotment for agriculture was divided among seven projects. The allotments for each were supplemented by funds furnished by each of the cooperating commodity groups. However, the activities of each necessarily were curtailed because of the limited funds available.

As during the previous year an effort was made to compensate for the lack of advertising space by making the most of every opportunity to provide editors, particularly food editors, with copy and photographs for use in reader column space. Considerable success was achieved in enlisting the cooperation of other agencies, the trade and the utilities by getting them to mention New Jersey products in their advertisements and releases and to use them as much as possible in their demonstrations.

Acknowledgment again should be made of the cooperation of the members of the home economics staffs of all four of the principal New Jersey utilities. These include about 40 home economic specialists who are responsible for a large number of meetings and demonstrations on food subjects scheduled throughout the year. Consequently there are many opportunities when New Jersey farm products can be featured or included in recipes, thus presenting them directly to thousands of housewives. Two of the utilities again prepared at their own expense consumer leaflets on New Jersey

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products. One utility concern continued as sponsor of a series of general institutional advertisements emphasizing the availability of local products and illustrated with photographs made on New Jersey farms.

Brief outlines of the projects carried on cooperatively with the farm commodity groups during the 1954-55 year follow:

*The Cooperative Marketing Associations in New Jersey, Inc.*

A considerable volume of New Jersey grown fruits and vegetables is marketed through the nine cooperative produce auction markets which are organized in a statewide cooperative. This organization sponsored a series of advertisements which appeared in *The New York Packer* and *The Produce News*, the two principal publications circulating among the produce trade. There were four insertions in each of these publications, running in July and August 1954 and six insertions each running in April, May and June 1955. During the 1954 season a total of over 1,100 different buyers from 13 states and Canada purchased New Jersey products at the auctions which furnish an outlet for a considerable volume of New Jersey produce. They also establish a price level for many other transactions and so are beneficial in maintaining other market prices.

*Blueberry Institute*

This group, which marketed a large crop of cultivated blueberries, operates through a well planned sales promotion program. The value of the cultivated blueberry crop exceeds that of cranberries or any other small fruit. The Institute carries on a consistent advertising and publicity program toward which a small allotment of State funds met the cost of a series of mat releases and trade paper advertisements.

*New Jersey Field Crop Improvement Cooperative Association, Inc.*

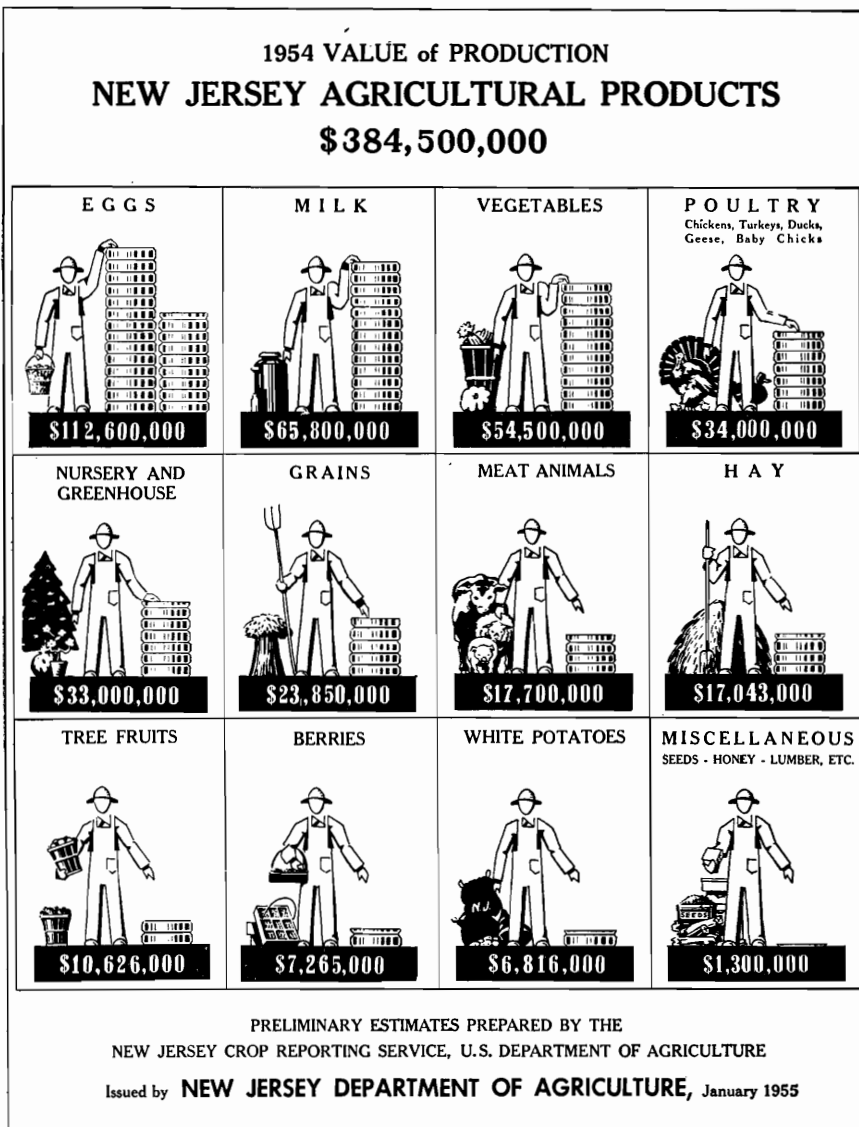
This organization produces and sells certified field crop seeds which are of special importance to New Jersey dairymen and poultrymen who produce home-grown feeds. The New Jersey hybrid varieties of corn have been featured in the series of cooperative advertisements with some mention of State-certified soybeans, wheat, oats and barley in season. The advertisements now on a full year basis again were carried in 12 issues of *New Jersey Farm and Garden*.

*New Jersey Peach Industry Committee*

This statewide organization continued last year with its promotional activities to call attention to the new varieties of New Jersey peaches now available. As usual the campaign was conducted with the cooperation of food editors, radio commentators, representatives of the wholesale and re-



tail trade and others concerned with the promotion of food products. A review of the season's prospects was prepared and gift boxes of peaches and cultivated blueberries were distributed at a dinner conference and visit to an orchard. There was an excellent response in terms of newspaper reader column space, editorial mention and time on both radio and television programs.



*New Jersey Apple Institute*

The New Jersey growers experienced little serious difficulty in moving the main season varieties of apples, so much of the promotional effort was concentrated again on the summer varieties. Consequently, a series of releases, photographs and recipes was issued illustrating how the Starr and Twenty Ounce varieties could be used by consumers.

In addition the services of a publicity agent in New York City were retained on a cooperative and part-time basis to handle relations with the food page editors of newspapers and magazines, radio food editors and the representatives of the utilities. Gift packages of Stayman apples were sent to the editors in December and repeated with Rome Beauty apples in March.

A conference and visits to two orchards and dinner were scheduled at the College Farm in New Brunswick with about 60 food editors and guests attending, most of them making the trip in a special bus. As usual the response in terms of publicity throughout the winter has been excellent and aided materially in moving the crop. A series of announcements scheduled on the Alfred McCann Food Hour on WOR again proved very effective in moving late holdings of Rome Beauty.

*New Jersey Poultry and Egg Cooperative Marketing Association, Inc.*

A request was received from the group of cooperatives marketing eggs under the New Jersey State Certified label for aid in combating the depressed market situation. An allotment was made to cover the cost of posters and egg carton inserts as part of a promotion program arranged with the stores and milk dealers handling this brand of New Jersey eggs.

*New Jersey Sweet Potato Industry Association*

This new organization was formed to promote the improved types of New Jersey sweet potatoes. A request was granted for an allotment of funds which were used principally to provide a series of advertisements in the two principal produce trade papers as well as for a series of mats of photographs of new sweet potatoes.

## PUBLIC RELATIONS

As in previous years the Division of Information continued efforts to further understanding and good will between the farm and non-agricultural interests which dominate the life and economy of New Jersey. Such activities are conducted in a number of fields, many at the request of interested groups.

The director continues to serve as secretary of the Farm Electrification Council of New Jersey, a program which originated in the Department of Agriculture in 1928. The Council has sponsored an active educational program during the past year devoted to more efficient use of electricity on New Jersey farms now that the project of extending electrical service to nearly every farm is practically completed. Monthly mailings of articles on types and uses of electrical equipment have been prepared for extension workers and teachers of vocational agriculture. A similar service has been developed for home economics workers to promote the more efficient use of electricity in farm homes.

Another similar assignment for the director is that of serving as secretary of the Committee on Agriculture of the New Jersey State Chamber of Commerce. That activity consists largely of arranging for and conducting the farm-industrial tours scheduled by the committee. These tours have been held annually since 1938 and have helped to develop excellent relations between business and agriculture in New Jersey. The 1954 tour was postponed until December when the industrial group visited the New Jersey Mid-Atlantic Farm Show in Atlantic City.

Other activities have included the preparation of special articles, most of them with photographs, for the Associated Press, *Newark Sunday News*, *Washington Star*, *New York Times*, *Dairymen's League News*, *American Agriculturist*, *New Jersey Counties*, *Bridgeton Evening News*, *Vineland Times Journal*, *Philadelphia Bulletin* and *Asbury Park Press*. Cooperation has been extended frequently to feature writers and regularly to members of the Associated Press staff preparing special articles on agriculture.

In response to a request from an overall dairy industry group, a publicity program was prepared and carried through for the Garden State Milk Council. To further advance the interests of the industry the new organization now operates on a year-round basis.

Other activities also included publicity projects associated with the New Jersey Vegetable Queen, New Jersey Agricultural Society, New Jersey Cannery Association, New Jersey 4-H Baby Beef Show and Sale and the New Jersey Mid-Atlantic Farm Show.

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# ***Report of the Division of Animal Industry***

DR. R. A. HENDERSHOTT, *Director*

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## REVIEW OF THE YEAR'S ACTIVITIES

### *Anthrax*

On May 2 a report was received of a case of suspected anthrax on the Mink ranch of M. Pindale, Millville. Material was collected and sent to the Division laboratory which proved to be anthrax. On June 2 an animal ear was received from the farm of Raymond Brooks, Elmer. Examination made in the Division laboratory proved that the cow died of anthrax. The remainder of the Brooks herd was treated with penicillin. The cow supposedly affected with shipping fever and sent to slaughter is believed to have been suffering from anthrax and the offal from the Irell Slaughter House sent to the Pindale Mink Farm is thought to have introduced the infection on that farm.

Another case of anthrax was diagnosed on the farm of Russell Brink, Branchville, and the carcass and premises were cared for under the supervision of Dr. R. A. Wilson. No further cases developed.

The Division continued to offer preventive vaccination to stockmen of southern New Jersey, normally considered the "anthrax district" of the State, and 732 cattle and 7 horses were given anthrax preventive vaccinations.

### *Scabies (Mange)*

During the past year scab in sheep was diagnosed on 17 farms in the State. Affected flocks were quarantined and the owners instructed in means of eradication. Affected and exposed sheep are dipped twice in Lindane at 12- to 14-day intervals and the premises cleaned and treated with Lindane.

This highly transmissible parasitic disease of livestock was eradicated from the sheep of the western States about 25 years ago. Its appearance in states east of the Mississippi caused the United States Department of Agriculture to call a meeting of all state livestock sanitary officials in Chicago for March 1, 1955. At this meeting all were requested to make a drive to eradicate the infestation.

Before the Chicago meeting all field veterinarians in New Jersey were instructed to inspect each flock of sheep observed in their daily travels. At present all but two affected flocks have been released from quarantine.

During the year 128 inspections have been made of 4,191 sheep on 115 farms and 17 cases of psoroptic scabies infestation were disclosed and the disease eradicated.

## SHEEP INSPECTION REPORT

July 1, 1954 to June 30, 1955

County	Total Inspections	Total Sheep Inspected	Total Farms Affected	Total Dippings	Total Farms Released From Quarantine
Atlantic	1	14	..	..	..
Bergen	2	20	..	..	..
Burlington	18	300	4	3	3
Camden	..	..	..	..	..
Cape May	5	122	..	..	..
Cumberland	..	..	..	..	..
Essex	..	..	..	..	..
Gloucester	8	20	5	7	5
Hudson	..	..	..	..	..
Hunterdon	9	450	..	..	..
Mercer	25	755	..	..	..
Middlesex	7	235	..	..	..
Monmouth	14	374	2	2	2
Morris	1	250	..	..	..
Ocean	5	107	..	..	..
Passaic	2	12	..	..	..
Salem	5	320	2	1	1
Somerset	18	899	3	5	2
Sussex	..	..	..	..	..
Union	4	85	1	1	1
Warren	4	228	..	..	..
Totals	128	4,191	17	19	14

*Encephalomyelitis*

Encephalomyelitis or brain fever in horses and pheasants was reported in one horse during May of this year. This diagnosis made by the local veterinarian, was unconfirmed by laboratory diagnosis. It also was somewhat unusual with respect to the time of the year. Our past experience has been that this disease has been found following the rains occurring in early summer and up until the time of a hard frost.

Encephalomyelitis is a virus disease and is transmitted by the mosquito. An excellent vaccine is available for preventive treatment and horse owners are advised to have their animals vaccinated in April or May, prior to the build-up of the mosquito population.

*Ornithosis*

During the year ornithosis, a disease of birds transmissible from birds to man, appeared in a flock of turkeys in Central New Jersey. An investigation was conducted jointly with the State Department of Health and samples of blood collected from a number of turkey breeding flocks revealed positive reaction.

Several meetings were held with members of the New Jersey Turkey Association and the salient features of the disease disclosed in talks by the State Poultry pathologist, the director of the Division of Animal Industry and the chief veterinarian of the Department of Health. Turkey raisers were informed about measures which should be taken to protect the health of themselves and their employees.

This disease has been reported to have affected 149 persons engaged in the slaughtering and dressing of turkeys in Texas. Several laboratory workers have become affected from contact with infected birds presented for diagnosis.

Several research projects are underway and others are planned, designed to answer many questions with regard to the disease. Meanwhile a number of New Jersey turkey flocks have been tested and found free of reaction and flock owners are being advised to fill their needs as far as possible from these clean sources. It is recognized however that New Jersey does not have sufficient surplus of flocks to supply home demand. Ornithosis is important in this State because of the heavy importation of turkey hatching eggs and poults from areas where ornithosis has been diagnosed.

## LIVESTOCK AUCTION MARKETS

Following is a report of the work performed at Harris Sales by Dr. Arthur R. Gemberling who was appointed supervisor at the market by this Division:

Cattle Transferred	Lots	Cattle Tuberculin Tested	Swine Immunized
Inshipped	3	55	
Local	450	799	28
Totals	453	854	28

## LIVESTOCK SOLD AT HARRIS SALES STABLES

July 1, 1954 to June 30, 1955

Lambs	Cattle	Bulls	Calves	Hogs	Goats & Sheep	Steers	Horses	Reactors	Eggs
1,489	6,027	494	15,177	4,507	1,104	1,241	311	395	1,695 doz.

During the year the following livestock was received in carload lots unloaded in Jersey City and lightered to New York:

## DIRECT RECEIPTS OF LIVESTOCK AT JERSEY CITY STOCK YARDS

July 1, 1954 to June 30, 1955

1954	Cattle	Sheep	Calves	Hogs	Horses
July	14,154	30,120	5,438	11,079	2
August	13,676	32,618	7,605	17,680	..
September	11,687	49,631	8,273	16,613	..
October	13,416	42,917	11,608	18,866	..
November	11,623	42,420	6,771	19,616	..
December	11,095	54,160	7,722	18,580	2
1955					
January	10,614	71,797	5,681	20,372	1
February	9,559	65,551	4,212	16,120	51
March	9,045	71,133	1,850	21,304	..
April	8,864	75,664	1,167	16,729	23
May	9,622	49,532	3,384	18,338	24
June	10,083	17,798	4,864	11,820	3
Totals	133,438	603,341	68,575	207,117	106

In addition livestock is received in the Yards from points in New Jersey and from adjacent States. Following is a record of such stock received and sold for slaughter purposes during the year:

## LIVESTOCK SOLD AT THE JERSEY CITY YARDS FOR SLAUGHTER

July 1, 1954 to June 30, 1955

1954	Calves	Sheep	Cows	Bulls	Hogs	Steers	Horses
July	1,868	281	525	16	..	42	..
August	935	293	812	35	..	1	..
September	910	302	873	53	..	23	..
October	552	273	958	89	..	6	..
November	528	218	1,278	54	..	78	..
December	400	32	1,164	52	..	38	..
1955							
January	608	86	902	29	..	76	..
February	227	..	814	24	..	24	..
March	130	..	817	22	..	124	..
April	191	93	658	41	..	..	..
May	697	29	783	63	..	17	24
June	605	22	492	25	..	16	..
Totals	7,651	1,629	10,076	503	..	445	24

## FORTIETH ANNUAL REPORT

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## POULTRY INSPECTION AT NEWARK TERMINAL

July 1, 1954 to June 30, 1955

State of Origin	Truck Loads	Birds	Approximate Weight
Connecticut	306	483,000	1,950,000
Delaware	588	1,022,000	4,000,000
Maryland	30	48,000	205,000
Massachusetts	40	57,000	285,000
New Hampshire	475	603,000	3,000,000
New Jersey	1,710	2,540,000	11,300,000
New York	185	240,000	1,200,000
Pennsylvania	779	1,102,000	4,895,000
Rhode Island	7	7,000	35,000
Vermont	1	1,000	5,000
Virginia	56	53,000	400,000
West Virginia	149	77,000	260,000
Totals	4,326	6,233,000	27,535,000

## POULTRY CONDEMNED AT POULTRY TERMINALS

July 1, 1954 to June 30, 1955

	Birds Condemned	Approximate Weight in Pounds
1954		
July	2,600	10,400
August	1,500	6,000
September	2,000	8,000
October	2,900	11,600
November	2,800	11,200
December	3,200	12,800
1955		
January	3,700	10,800
February	2,000	8,000
March	1,800	7,100
April	2,500	10,000
May	1,700	6,800
June	2,300	9,200
Totals	29,000	111,900

## PULLORUM DISEASE CONTROL

There were 31,030 more birds tested than last year, or a total of 1,013,313 in 1954-55 compared with 982,283 in 1953-54.

The poultrymen of the State are becoming more aware of the simplicity of the field test and more applications for flock tests have been received. This is evident by the decrease in number of birds tested by the tube method in the Division laboratory which this year amounted to 34,579 compared with 47,314 last year. The rate of infection disclosed on field tests this year rose from 0.03 per cent in 1953-54 to 0.04 per cent in 1954-55. This could be due to the increased number of flocks initially tested this year.

During the year the Division representatives continued their periodic inspection of the flock of poultry owned by Louis Kickasola, Delmont, where fowl typhoid was diagnosed a year ago. The entire flock was retested in an effort to eliminate the disease. At the present time it is believed that all danger of the disease has been eliminated from his flock but since no birds have been added to the flock it will be necessary to wait until more tests are made. The overall picture appears good since chicks have been hatched on the premises and subsequently proved negative for typhoid and pullorum.

Throughout the testing season Division representatives kept a much closer check on the field agents doing pullorum control work. This seems to have proved very beneficial not only to the Division but also to the poultrymen. The Division notified the United States Department of Agriculture to show that these flocks had been checked in accordance with the provisions of the National Poultry Improvement Plan.

FOWL BLOOD-TESTED FOR PULLORUM DISEASE  
 NUMBER AND PER CENT REACTING AND RECORD OF CHECK TESTS MADE BY COUNTIES  
 July 1, 1954 to June 30, 1955

County	Fowl Tested in Field	Number Reacting	Per Cent Reacting	Fowl Tested in Labora- tory	Number Reacting	Per Cent Reacting	Fowl Tested	Fowl Reacting	Per Cent Reacting	Total Laboratory Check Tests Conducted	Number Reacting	Per Cent Reacting
Atlantic	28,235	3	0.01	....	....	....	28,235	3	0.01	....	....	....
Bergen	6,982	....	....	77	....	....	7,059	....	....	....	....	....
Burlington	27,082	1	0.004	748	....	....	27,830	1	0.004	....	....	....
Camden	....	....	....	835	....	....	835	....	....	....	....	....
Cape May	22,651	68	0.30	1,062	....	....	23,713	68	0.29	....	....	....
Cumberland	166,426	38	0.02	....	....	....	166,426	38	0.02	....	....	....
Essex	....	....	....	....	....	....	....	....	....	....	....	....
Gloucester	42,939	....	....	944	1	0.11	43,883	1	0.002	....	....	....
Hudson	....	....	....	....	....	....	....	....	....	....	....	....
Hunterdon	128,305	57	0.04	23,978	3	0.01	152,283	60	0.04	3	2	66.67
Mercer	51,774	42	0.08	148	....	....	51,922	42	0.08	....	....	....
Middlesex	48,792	4	0.008	2,700	1	0.04	51,492	5	0.009	....	....	....
Monmouth	226,002	126	0.06	427	....	....	226,429	126	0.06	18	....	....
Morris	621	....	....	....	....	....	621	....	....	....	....	....
Ocean	202,494	5	0.002	941	....	....	203,435	5	0.002	....	....	....
Passaic	5,933	15	0.25	377	....	....	6,310	15	0.24	....	....	....
Salem	34,152	17	0.05	....	....	....	34,152	17	0.05	....	....	....
Somerset	14,742	1	0.007	170	....	....	14,912	1	0.007	....	....	....
Sussex	5,162	....	....	2,008	2	0.10	7,170	2	0.03	....	....	....
Union	....	....	....	....	....	....	....	....	....	....	....	....
Warren	1,021	....	....	164	....	....	1,185	....	....	....	....	....
State	1,013,313	377	0.04	34,579	7	0.02	1,047,892	384	0.04	21	2	9.52
1953-54												
Totals	982,283	260	0.03	47,314	269	0.57	1,029,597	529	0.05	12	....	....

POULTRY DISEASE CONTROL

During the year certificates were issued for the shipment of both hatching eggs and baby chicks as well as breeding birds to foreign countries. Some countries require an inspection of the flock and the chicks to be shipped, others will accept the shipment on the certificate which states that the flock is operated under the National Improvement Plan. From the tabulation of the shipments made it can be noted that the largest consignments were destined for Puerto Rico and the British West Indies.



## NEW JERSEY EXPORTS OF HATCHING EGGS AND POULTRY

July 1, 1954 to June 30, 1955

Country to Which Consigned	Hatcheries Shipping	Hatching Eggs	Baby Chicks	Cockerels	Hens	Pullets	Bantam Eggs	Bantam Chicks	Pigeons
Azores	1	.....	3,500	.....	.....	.....	.....	.....	.....
Brazil	1	24,432	.....	.....	.....	.....	.....	.....	.....
British Guiana	1	.....	360	.....	.....	300	.....	.....	.....
British West Indies	2	.....	34,200	.....	.....	.....	.....	.....	3
Canada	2	1,080	430	.....	.....	.....	.....	.....	.....
Cuba	2	.....	116	.....	.....	.....	.....	30	.....
Ecuador	2	.....	1,100	.....	.....	1,600	.....	.....	.....
Greece	1	.....	.....	926	584	1,470	.....	.....	.....
Italy	1	.....	700	.....	.....	.....	.....	.....	.....
Panama	1	.....	.....	.....	.....	.....	96	.....	.....
Puerto Rico	3	64,800	184,930	500	.....	1,000	.....	.....	8
Thailand	1	36	.....	.....	.....	.....	.....	.....	.....
Totals		90,348	225,336	1,426	584	4,370	96	30	11

## CATTLE IMPORTED AND RELEASED FOR DAIRY AND BREEDING PURPOSES

July 1954 to June 1955

Origin	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
California	...	...	...	...	...	...	...	...	...	3	...	...	3
Canada	29	67	51	26	69	62	45	30	50	48	116	183	776
Colorado	...	...	...	...	...	...	...	...	...	...	...	2	2
Connecticut	30	15	...	24	30	28	14	2	1	4	9	3	150
Delaware	46	13	5	22	...	45	27	...	10	...	23	29	220
Florida	...	...	...	...	...	...	1	...	2	1	...	1	5
Georgia	...	...	...	...	...	...	...	...	5	...	...	...	5
Idaho	...	...	...	...	18	...	...	...	...	...	...	...	18
Illinois	1	...	1	...	...	1	...	...	...	1	...	...	4
Indiana	1	...	...	...	...	...	...	...	...	...	...	...	1
Iowa	1	4	...	1	...	1	...	...	...	...	...	...	7
Ireland	2	...	...	...	...	...	...	...	...	...	...	...	2
Kansas	...	...	...	...	7	...	...	...	2	3	...	...	12
Maryland	14	8	32	30	15	13	26	...	...	2	14	11	165
Massachusetts	3	...	...	3	3	...	1	...	7	1	6	2	26
Michigan	207	150	142	117	104	47	57	68	16	90	103	287	1,388
Minnesota	...	...	9	...	19	...	...	1	...	3	2	50	84
Missouri	...	...	3	2	...	...	...	...	1	7	...	...	13
New York	393	488	418	431	379	333	323	252	266	336	337	533	4,489
North Dakota	...	...	...	...	...	...	...	...	...	...	...	13	13
Ohio	92	32	78	17	87	18	11	5	1	...	54	164	559
Oklahoma	...	...	3	...	...	...	1	3	6	...	...	1	14
Pennsylvania	65	53	26	82	63	61	15	49	39	92	59	41	645
Rhode Island	...	1	...	...	...	1	...	...	...	...	...	3	5
South Carolina	...	...	...	8	1	...	13	...	3	...	...	...	25
Scotland	...	...	...	...	...	...	4	...	...	...	...	...	4
Texas	1	...	1	...	1	...	1	...	1	...	2	21	28
Washington	1	...	...	...	...	...	...	...	...	...	...	...	1
Vermont	4	...	...	2	...	...	...	...	...	1	...	...	7
Virginia	21	9	30	13	4	1	2	...	14	1	2	41	138
Wisconsin	486	473	651	270	564	311	149	244	178	219	585	501	4,631
Totals	1,397	1,313	1,450	1,048	1,354	922	690	654	602	812	1,312	1,886	13,440

## DAIRY AND BREEDING CATTLE UNDER SIX MONTHS OF AGE IMPORTED AND RELEASED

July 1954 to June 1955

Origin	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Maryland	...	...	...	...	...	...	1	1	...	...	...	...	2
Massachusetts	...	...	...	...	...	...	...	...	...	...	...	1	1
Michigan	...	...	...	...	...	...	...	1	...	...	...	...	1
New York	4	...	...	...	...	4	6	3	4	...	11	1	33
Pennsylvania	...	...	...	...	2	5	2	...	4	...	...	...	13
South Carolina	...	...	...	1	2	...	...	...	...	...	...	...	3
Totals	4	...	...	1	4	9	9	5	8	...	11	2	53

## FEEDER STEERS IMPORTED AND RELEASED

July 1954 to June 1955

Origin	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Delaware	...	22	...	...	...	...	...	...	...	...	...	10	32
Florida	51	5	...	...	...	...	...	...	...	...	...	...	56
Idaho	...	...	...	...	...	...	...	...	30	...	...	...	30
Lancaster, Pa.	69	27	109	210	67	40	200	68	187	291	286	100	1,654
Maryland	5	...	...	6	52	26	3	35	...	...	...	11	138
Ohio	...	...	...	...	...	...	...	...	40	...	...	48	88
Pennsylvania	17	...	...	...	3	...	...	...	...	...	14	...	34
Totals	142	54	109	216	122	66	203	103	257	291	300	169	2,032

## SUMMARY OF INSHIPMENTS

July 1954 to June 1955

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Total cattle imported	1,397	1,313	1,450	1,048	1,354	922	690	654	602	812	1,312	1,886	13,440
Calves under 6 months imported	4	...	...	1	4	9	9	5	8	...	11	2	53
Total dairy and breeding cattle imported													
July 1954 to June 1955	1,401	1,313	1,450	1,049	1,358	931	699	659	610	812	1,323	1,888	13,493
Total dairy cattle imported													
July 1953 to June 1954	1,098	1,784	1,284	1,910	1,152	1,272	831	603	744	704	973	1,196	13,551
Feeder steers imported													
July 1954 to June 1955	142	54	109	216	122	66	203	103	257	291	300	169	2,032
Feeder steers imported													
July 1953 to June 1954	110	37	80	101	137	359	119	56	401	140	237	220	1,997
Total dairy cattle and feeder steers imported													
July 1954 to June 1955	1,543	1,367	1,559	1,265	1,480	997	902	762	867	1,103	1,623	2,057	15,525
Total dairy cattle and feeder steers imported													
July 1953 to June 1954	1,208	1,821	1,364	2,011	1,289	1,631	950	659	1,145	844	1,210	1,416	15,548

## FORTIETH ANNUAL REPORT

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## BLOOD TESTS MADE ON INSHIPPED ANIMALS

July 1, 1954 to June 30, 1955

Origin	Lots Bled	Cattle Bled	Reactors Number	Resulting Percentage
California	4	4	....	....
Canada	75	718	6	0.84
Colorado	2	2	....	....
Connecticut	23	128	....	....
Delaware	21	233	4	1.72
Florida	5	5	....	....
Georgia	3	6	....	....
Illinois	4	5	....	....
Indiana	4	14	....	....
Iowa	6	7	2	28.57
Ireland	1	1	....	....
Kansas	6	13	....	....
Maryland	49	154	1	0.65
Massachusetts	17	2	....	....
Michigan	81	1,397	8	0.57
Minnesota	10	106	....	....
Mississippi	2	7	....	....
Missouri	6	14	....	....
New Hampshire	1	3	....	....
New York	642	4,485	58	1.29
North Dakota	2	13	....	....
Ohio	43	533	4	0.75
Oklahoma	7	11	....	....
Pennsylvania	145	697	6	0.86
Rhode Island	4	4	....	....
South Carolina	7	13	1	7.69
Scotland	2	4	1	25.00
Texas	12	49	1	2.04
Vermont	8	11	1	9.09
Virginia	23	74	1	1.35
Wisconsin	231	4,647	9	0.19
Totals	1,444	13,379	102	0.76

In addition to the above one lot of 18 Idaho cattle was shipped in and tested on arrival and one or 5.56 per cent reaction was disclosed.

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

1954-55	1953-54	1952-53	1951-52	1950-51
15,525	15,548	16,339	19,565	19,996

These figures include dairy, breeding and feeding cattle and calves.

## STATE DEPARTMENT OF AGRICULTURE

## CATTLE SHIPPED OUT OF NEW JERSEY

July 1954 to June 1955

1954	Lots From Herds Under Supervision	Animals From Herds Under Supervision
July	66	165
August	285	499
September	197	371
October	195	319
November	116	278
December	80	133
1955		
January	93	156
February	90	152
March	121	381
April	175	330
May	118	532
June	288	544
Totals	1,824	3,860

## BUREAU OF TUBERCULOSIS ERADICATION

At the close of the 1953-54 fiscal year the tuberculosis picture appeared as follows:

238,747 tests conducted  
 245 reactors disclosed  
 0.10 per cent reactions  
 91 herds listed as infected at the end of the year.

The picture at the close of the 1954-55 fiscal year was:

228,919 tests conducted  
 241 reactors disclosed  
 0.11 per cent reactions  
 96 currently infected herds.

It will be noted that fewer tests were conducted during 1954-55 than during the previous fiscal year and yet reactions were approximately the same; in fact, four less than were disclosed during last fiscal year. It is thought the fewer tests conducted can be partly attributed to the skipping of the one to five-animal herds in the counties and to the large number of reactions disclosed in accredited herds many of which proved to be "no visible lesion" cases when slaughtered. The latter necessitated fewer retests before being released from quarantine. In other words, herds disclosing reactions that show lesions when slaughtered are in all instances subjected to three and sometimes four retests before being released from quarantine; herds of long accreditation standing, disclosing one or two reactions

## FORTIETH ANNUAL REPORT

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that prove to be "no visible lesion" cases when slaughtered, are sometimes released from quarantine after one or two retests conducted at longer than 60 day intervals. However, in all instances, when a herd discloses a reaction or reactions its accreditation status is suspended and the herd cannot be reaccredited until it has passed the indicated number of retests and a year has elapsed since reactions were disclosed.

There were 96 herds being carried as infected at the end of the year compared with 91 being carried at the close of 1953-54. This increase of five infected herds in spite of fewer tests conducted is believed to be caused by the seemingly large number of inexplicable reaction disclosures in accredited herds. Such accredited herds disclosing reactions, with more than 80 per cent proving to be "no visible lesion" cases, are designated as infected and in New Jersey are carried and treated as infected herds.

## STATUS OF HERDS DISCLOSING REACTIONS

1954	Reactors	Accredited		Infected Herds		Initial Test		Total Herds	Not
		Herds	Reactors	Herds	Reactors	Herds	Reactors	Disclosing	
July	5	1	1	1	1	1	3	3	4
August	1	1	1	...	...	...	...	1	...
September	11	5	5	1	6	...	...	6	1
October	30	18	28	2	2	...	...	20	5
November	25	20	22	1	1	1	2	22	11
December	55	26	53	1	1	1	1	28	7
1955									
January	41	30	36	3	4	1	1	34	14
February	19	12	13	2	6	...	...	14	6
March	28	22	28	...	...	...	...	22	9
April	15	11	14	1	1	...	...	12	4
May	11	5	8	2	3	...	...	7	2
June	...	...	...	...	...	...	...	...	...
Totals	241	151	209	14	25	4	7	169	63

To summarize, of the 241 reactions disclosed during the year 209 or 86.72 per cent were disclosed in 151 accredited herds, 25 or 10.37 per cent were disclosed in 14 infected herds and 7 or 2.91 per cent were disclosed in 4 herds at the time of the initial test of the herds.

Of the 241 reactions disclosed 63 or 26.14 per cent were of the herd addition variety. These herd addition reactions seem to be increasing over the years and could prove to be a factor in causing an increase in the yearly reaction totals.

The 241 reactions for the year were disclosed in 169 herds which averages less than two reaction disclosures to the herd. In other words, there were no large breaks in herds. Those disclosing the most reactors were as follows:

The Elston Brothers herd in Sussex disclosed six reactions in September out of a total of 58 tested. In this herd there were 31 reactions in April 1954 and 19 reactions in June 1954. The herd passed a test in November 1954 and has passed all retests since that time.

The Shadow Isle Farm herd in Red Bank disclosed nine reactions out of a total of 349 tested in late September and early October 1954. The infection was believed to be introduced into the herd through an animal purchased at the Steveway Farm, Nashville, Tennessee in June 1953.

The animal was tested three times in the Shadow Isle herd, was sold at the May 1954 dispersal sale and left at the farm by the purchaser to be bred. She became ill the latter part of August and died on the Shadow Isle premises September 7, 1954. An autopsy was performed by three veterinarians and the animal was found to be affected with generalized tuberculosis. This diagnosis was confirmed by a laboratory investigation. The herd was immediately placed under quarantine pending three clean tests. These retests were made in December, February and May. After the third clean retest the herd was released from quarantine.

The herd belonging to William Cloke of Sussex which is comprised of 40 animals was tested in November 1954 and seven reactions were disclosed. This herd was assembled in 1946 and no reaction had been found previously. The herd was retested in January, April and June 1955 and disclosed one reaction during the second test.

The herd owned by Vennel Brothers of Marlton is comprised of 32 animals and was tested in December, disclosing nine reactions. The receipt of a Federal Slip reporting tuberculosis lesions in a slaughter animal originating in the Vennel herd brought about the December test. This herd was initially tested in 1928 and disclosed 44 reactions up to 1947. No reactions had been disclosed in the herd from 1947 until the time of the December test.

### VIOLATIONS

During the year there were two importation of cattle violations cited and both offenders were summoned to appear for a hearing.

An Otisville, New York man was apprehended while moving seven animals from New York State to Blairstown without interstate health papers. The animals were ordered to be slaughtered and the man was summoned to appear for a hearing and was fined 200 dollars.

August 5 a Plainfield man was apprehended while unloading six New York dairy animals that did not have health papers. The animals were returned to New York State and the violator was summoned to appear for a hearing. Due to extenuating circumstances he was given a warning and fined 50 dollars.



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## PERSONNEL

Dr. Leon Sutton of Annandale joined the tuberculosis control force as of July 15 and was assigned to the Warren and Northern Hunterdon County area, previously supervised by Dr. M. K. Mann.

Dr. Mathew J. Bonese, who joined the staff in June 1942 and was supervising activities in Burlington and Ocean counties, resigned as of November 30 to accept a position with the State Department of Health. Activities in the area were temporarily taken over by Dr. E. L. Brower of Freehold in addition to his supervisory work in Monmouth and part of Ocean counties. Dr. Walter M. Address of Audubon joined the tuberculosis control force as of March 1 and was assigned the territory formerly supervised by Dr. Bonese.

## PERSONNEL IN TUBERCULOSIS CONTROL FIELD

*State Staff**Area*

Dr. Leon Sutton, Annandale .....	Warren-Hunterdon
Dr. H. A. Roney, Andover .....	Sussex-Warren
Dr. R. A. Wilson, Sussex .....	Sussex
Dr. C. K. Jewell, Basking Ridge .....	Somerset-Middlesex
Dr. T. A. Newlin, Parsippany .....	Morris-Passaic
Dr. B. F. Clapham, Clarksville .....	Mercer-Middlesex
Dr. E. L. Brower, Freehold .....	Monmouth-Ocean
Dr. Walter M. Address, Audubon .....	Burlington-Ocean
Dr. Samuel Novich, Haddonfield .....	Camden-Gloucester-Cumberland-Atlantic
Dr. R. S. Armstrong, Salem .....	Salem-Cape May

*Federal Staff*

Dr. S. D. Bamber, Flemington .....	Hunterdon
Dr. Alfred G. Olivier, Trenton .....	Middlesex-Union-Essex-Hudson-Bergen
Dr. George J. Gruenewald, Maplewood .....	Middlesex-Union-Essex-Hudson-Bergen

The State Board of Agriculture on December 9, 1953 approved a recommendation to limit tuberculin tests and bleeding of herds of one to five animals to once in two years as an economy measure. The tuberculin tests were to be applied to all herds in an area, including those of from one to five animals, the year the area is due for reaccreditation. This policy resulted in a considerable saving. About half of the counties become due for reaccreditation each year which means that all herds in these counties must be tested each year. The annual saving will depend upon the comparative number of herds and cattle in counties due for reaccreditation during the year.

There also has been some saving brought about by the stepped up testing on the part of regularly employed State veterinarians. During 1953-54 State veterinarians conducted 18.75 per cent of the tests, Federal veteri-

narians 3.96 per cent and private practitioners 77.29 per cent. During this fiscal year State veterinarians conducted 21.77 per cent of the tests, Federal veterinarians 4.43 per cent and private practitioners 73.80 per cent, an increase of over 3 per cent in tests conducted by State veterinarians.

Ten counties qualified and were listed for reaccreditation for a two-year period as free from bovine tuberculosis.

## COUNTIES LISTED FOR REACCREDITATION

	Herds	Cattle	Reactors
MIDDLESEX COUNTY			
July 1, 1952	502	6,652	....
July 1, 1954	428	6,220	3
	Decrease 74	Decrease 432	
HUNTERDON COUNTY			
August 1, 1952	1,476	29,310	4
August 1, 1954	1,477	32,913	7
	Increase 1	Increase 3,603	
OCEAN COUNTY			
August 1, 1952	139	1,149	....
August 1, 1954	141	1,182	....
	Increase 2	Increase 33	
PASSAIC COUNTY			
August 1, 1952	104	784	....
August 1, 1954	87	658	....
	Decrease 17	Decrease 126	
MONMOUTH COUNTY			
September 1, 1952	795	9,863	....
September 1, 1954	709	10,583	....
	Decrease 86	Increase 720	
GLOUCESTER COUNTY			
September 1, 1952	712	6,090	....
September 1, 1954	638	6,513	....
	Decrease 74	Increase 423	
MERCER COUNTY			
January 1, 1953	441	8,585	2
January 1, 1955	418	8,285	4
	Decrease 23	Decrease 300	
BERGEN COUNTY			
March 1, 1953	97	1,293	....
March 1, 1955	83	1,021	....
	Decrease 14	Decrease 272	
ESSEX COUNTY			
May 1, 1953	38	786	....
May 1, 1955	39	854	....
	Increase 1	Increase 68	
SUSSEX COUNTY			
May 1, 1953	946	36,096	5
May 1, 1955	903	35,829	11
	Decrease 43	Decrease 267	

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There was a decrease in the number of herds in seven counties and an increase in three counties. The number of cattle increased in five counties and decreased in five counties.

*Summary*

On June 30 there were 9,483 herds with 204,620 head of cattle under supervision, a decrease of 314 herds and 9,592 cattle from the number recorded at the beginning of the fiscal year.

During the year initial tests were conducted on 496 herds of 3,359 cattle, resulting in the disclosure of 8 reactors or 0.24 per cent reaction. The rate of reaction disclosed on tests of cattle added to herds under supervision was 2.35 or 58 reactors in 2,472 cattle tested.

A total of 228,919 tuberculin tests were conducted resulting in 241 reactors or 0.11 per cent reaction as compared with 0.10 per cent a year ago. Of the 241 reactors disclosed 173 were eligible for indemnity. Of these eligible 25 were registered and 148 grade animals.

## 10-YEAR SUMMARY OF TUBERCULIN TESTING

Year	Herds Under Supervision	Animals Under Supervision	Tests Conducted	Reactors Resulting	Per Cent Reaction
1945-46	14,867	201,349	256,183	962	.38
1946-47	14,347	202,034	255,447	949	.37
1947-48	13,478	201,238	248,997	411	.17
1948-49	12,692	200,817	236,937	378	.16
1949-50	11,962	205,105	230,187	242	.11
1950-51	11,273	200,496	227,980	298	.13
1951-52	10,683	207,959	232,611	234	.10
1952-53	10,415	215,660	239,489	176	.07
1953-54	9,797	214,212	238,747	245	.10
1954-55	9,483	204,620	228,919	241	.11

In 1954-55 there were 13,493 head of dairy cattle imported, of which 2,472 were retested as herd additions, disclosing 58 reactors. Last year 13,551 head of dairy cattle were imported and 2,877 were subjected to herd addition tests, resulting in 53 reactors.

State indemnity paid for reactors condemned increased from an average of \$82.10 for 1953-54 to \$84.21 for 1954-55. During the year 13,493 dairy cattle and 2,032 steers—a total of 16,525 head—were imported compared with 15,548 during the previous year, an increase of 977 over the number imported during last fiscal year.

## STATE DEPARTMENT OF AGRICULTURE

## CATTLE TUBERCULIN TESTED UNDER ACCREDITED HERD PLAN

July 1, 1954 to June 30, 1955

## INITIAL TESTS

	Lots	Registered Animals	Grade Animals	Total
Tested	496	411	2,948	3,359
Reacted	....	1	7	8

Percentage of Reactors: 0.24

## HERD ADDITION TESTS

	Lots	Registered Animals	Grade Animals	Total
Tested	650	148	2,324	2,472
Reacted	....	1	57	58

Percentage of Reactors: 2.35

## OTHER TESTS

	Lots	Registered Animals	Grade Animals	Total
Tested	7,425	40,199	182,889	223,088
Reacted	....	16	159	175

Percentage of Reactors: 0.08

Tested	228,919
Reacted	241
Percentage of Reactors	0.11
Percentage of Reactors Based on Cattle Population	0.12

## STATE INDEMNITY PAID FOR REACTORS TO TUBERCULIN TEST

July 1, 1954 to June 30, 1955

Class of Cattle	Animals	Amount Paid	Average State Indemnity Paid per Head
Registered	25	\$3,655.39	\$146.22
Grade	148	10,913.43	73.74
Registered and Grade	173	\$14,568.82	84.21

## SALVAGE RECEIVED BY OWNERS FOR REACTORS TO TUBERCULIN TEST

July 1, 1954 to June 30, 1955

Class of Cattle	Animals	Amount Paid	Average Salvage Received per Head
Registered	25	\$2,783.36	\$111.33
Grade	148	15,014.13	101.45
Registered and Grade	173	\$17,797.49	\$102.88

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## FEDERAL INDEMNITY PAID FOR REACTORS TO TUBERCULIN TEST

July 1, 1954 to June 30, 1955

Class of Cattle	Animals	Amount	Average Federal Indemnity Paid per Head
Registered	25	\$1,244.18	\$49.77
Grade	148	3,668.77	24.79
	<hr/>	<hr/>	
Registered and Grade	173	\$4,912.95	\$28.40
Total amount received by owners for reactors (Sum of salvage, Federal and State indemnity)			\$37,279.26
Average amount received per head by owners for reactors			\$215.49

## TOTAL STATE INDEMNITY PAID FOR TUBERCULIN TEST REACTORS

July 1, 1954 to June 30, 1955

County	
Burlington	\$1,561.28
Cumberland	596.48
Hunterdon	763.37
Mercer	150.00
Middlesex	38.71
Monmouth	1,642.52
Morris	1,050.00
Ocean	75.00
Salem	1,098.85
Somerset	598.95
Sussex	5,357.47
Warren	1,636.19
	<hr/>
State	\$14,568.82

## STATE DEPARTMENT OF AGRICULTURE

TOTAL STATE INDEMNITY PAID FOR TUBERCULIN TEST REACTORS  
FROM BEGINNING OF ACCREDITED HERD WORK IN 1916  
TO JUNE 30, 1955

County	
Atlantic	\$10,229.81
Bergen	37,793.59
Burlington	531,418.95
Camden	19,452.55
Cape May	10,954.64
Cumberland	85,345.63
Essex	40,686.29
Gloucester	67,231.56
Hudson	4,455.78
Hunterdon	376,583.99
Mercer	191,352.90
Middlesex	85,593.88
Monmouth	143,474.25
Morris	164,720.24
Ocean	34,274.08
Passaic	37,153.60
Salem	383,445.17
Somerset	229,430.04
Sussex	1,066,794.17
Union	40,867.91
Warren	401,133.38
	<hr/>
State	\$3,962,392.41

## HERDS AND CATTLE UNDER STATE AND FEDERAL SUPERVISION

## TUBERCULIN TESTS MADE AND REACTORS DISCLOSED

County	Herds Under Supervision June 30, 1955	Herds Fully Accredited June 30, 1955	Cattle Under Supervision June 30, 1955			Tuberculin Test Made July 1, 1954 to June 30, 1955	Reactors Disclosed	Per Cent of Infection
			Reg.	Gr.	Total			
Atlantic	112	83	28	488	516	298	....	....
Bergen	74	68	328	692	1,020	1,138	....	....
Burlington	820	735	3,668	20,999	24,667	25,280	26	.10
Camden	148	132	502	1,249	1,751	1,854	....	....
Cape May	86	76	80	354	434	325	....	....
Cumberland	506	440	565	5,667	6,232	6,539	6	.09
Essex	39	35	325	529	854	860	....	....
Gloucester	629	567	1,068	5,213	6,281	5,315	1	.02
Hudson	....	....	....	....	....	36	....	....
Hunterdon	1,483	1,311	5,869	26,092	31,961	32,693	15	.05
Mercer	400	372	2,541	5,734	8,275	8,619	4	.05
Middlesex	408	361	70	5,725	5,795	8,237	....	....
Monmouth	708	632	3,448	6,131	9,579	11,618	17	.15
Morris	562	484	2,968	7,919	10,887	12,896	20	.16
Ocean	140	112	107	1,044	1,151	1,206	1	.08
Passaic	80	69	31	541	572	534	....	....
Salem	847	761	1,010	16,497	17,507	19,458	28	.14
Somerset	595	530	3,999	8,715	12,714	13,473	9	.07
Sussex	894	769	5,723	29,985	35,708	43,799	83	.19
Union	39	33	27	272	299	979	....	....
Warren	913	818	2,376	26,041	28,417	33,762	31	.09
State	9,483	8,388	34,733	169,887	204,620	228,919	241	.11

## STATE DEPARTMENT OF AGRICULTURE

## INFECTED HERD RECORD

June 30, 1955

County	Infected Herds	Cattle
Burlington	12	523
Cumberland	6	231
Gloucester	1	34
Hunterdon	11	465
Mercer	2	143
Monmouth	6	249
Morris	16	807
Ocean	1	53
Salem	15	794
Somerset	5	223
Sussex	9	397
Warren	12	574
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State	96	4,493

NEW JERSEY STATE LIBRARY



## CATTLE TESTED UNDER ACCREDITED HERD PLAN BY VETERINARIANS ON

## NEW JERSEY DEPARTMENT OF AGRICULTURE STAFF

July 1, 1954 to June 30, 1955

	Lots	INITIAL TESTS				Lots	HERD ADDITION TESTS				Lots	OTHER TESTS				
		Tested Reg.	Gr.	Reactors Reg.	Gr.		Tested Reg.	Gr.	Reactors Reg.	Gr.		Tested Reg.	Gr.	Reactors Reg.	Gr.	
1954																
July	17	29	89	..	..	6	5	152	..	..	52	7	817	..	..	
August	1	..	1	..	..	1	..	5	..	..	42	62	603	..	1	
September	12	48	25	..	..	1	..	7	..	..	101	233	2,016	..	8	
October	7	7	12	..	..	2	8	3	1	..	143	1,019	2,242	..	2	
November	10	9	17	..	..	..	..	3	..	1	201	2,208	5,069	..	..	
December	13	35	10	..	..	..	..	7	..	..	91	1,032	2,140	..	12	
1955																
January	9	4	48	..	..	..	..	17	..	1	185	1,717	4,146	1	5	
February	4	1	12	..	..	..	..	20	..	1	103	287	2,736	..	7	
March	10	5	47	..	..	..	..	25	..	2	192	1,859	5,131	..	2	
April	12	18	25	..	..	..	..	18	..	..	150	2,372	5,427	1	1	
May	22	9	43	..	..	2	..	16	..	3	139	520	4,843	2	5	
June	14	2	48	..	..	..	..	..	..	..	104	651	1,875	..	..	
Totals	131	167	377	..	..	12	13	273	1	8	1,503	11,967	37,045	4	43	
Per Cent Reaction				..	..				7.69	2.93					0.03	0.12
Average Per Cent Reaction				..	..				3.15						0.10	

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## CATTLE TESTED UNDER ACCREDITED HERD PLAN BY VETERINARIANS ON

## UNITED STATES DEPARTMENT OF AGRICULTURE STAFF

July 1, 1954 to June 30, 1955

	Lots	INITIAL TESTS		Reactors		Lots	HERD ADDITION TESTS		Reactors		Lots	OTHER TESTS		Reactors	
		Tested	Gr.				Tested	Gr.				Tested	Gr.		
		Reg.		Reg.	Gr.		Reg.		Reg.	Gr.		Reg.		Reg.	Gr.
1954															
July	5	..	7	..	..	2	..	36	..	..	21	61	285	..	..
August	3	1	5	..	..	..	..	..	..	..	9	7	165	..	..
September	6	..	8	..	..	..	..	..	..	..	7	..	127	..	..
October	..	..	..	..	..	..	..	..	..	..	18	14	55	..	..
November	1	1	2	..	..	..	..	..	..	..	43	29	700	..	..
December	3	..	58	..	..	1	3	1	..	1	52	51	1,033	..	..
1955															
January	7	..	33	..	..	..	..	..	..	..	66	660	1,739	..	..
February	5	..	8	..	..	..	..	..	..	..	59	56	870	..	..
March	1	..	1	..	..	..	..	..	..	..	38	344	889	..	..
April	..	..	..	..	..	..	..	..	..	..	56	499	953	..	..
May	4	..	80	..	..	..	..	2	..	..	36	14	490	..	..
June	4	..	6	..	..	..	..	2	..	..	43	45	805	..	..
Totals	39	2	208	..	..	3	3	41	..	1	448	1,780	8,111	..	..
Per Cent Reaction				..	..				..	2.44				..	..
Average Per Cent Reaction				..	..				..	2.27				..	..

CATTLE TESTED UNDER ACCREDITED HERD PLAN BY VETERINARIANS ON

UNITED STATES DEPARTMENT OF AGRICULTURE STAFF

July 1, 1954 to June 30, 1955

	Lots	INITIAL TESTS				HERD ADDITION TESTS				OTHER TESTS			
		Reg.	Gr.	Reactors Reg.	Gr.	Lots	Reg.	Gr.	Reactors Reg.	Gr.	Lots	Reg.	Gr.
1954													
July	8	5	48	..	3	39	16	83	..	1	62	304	255
August	7	..	44	..	..	54	32	123	..	..	76	669	517
September	18	40	137	..	..	38	10	202	..	1	119	899	2,357
October	28	39	284	..	..	61	4	373	..	4	574	1,494	12,481
November	35	28	370	..	2	64	14	205	..	8	531	2,226	17,667
December	37	3	221	..	1	49	13	165	..	6	561	3,389	16,728
1955													
January	42	42	286	1	..	68	2	164	..	13	708	3,774	23,244
February	25	29	264	..	1	43	1	75	..	4	588	2,193	16,774
March	37	10	214	..	..	65	5	177	..	7	969	4,820	25,865
April	43	24	236	..	..	31	7	80	..	4	758	4,159	14,866
May	37	22	154	..	..	60	12	142	..	..	336	1,380	4,437
June	9	..	105	..	..	63	16	221	..	..	192	1,145	2,542
Totals	326	242	2,363	1	7	635	132	2,010	..	48	5,474	26,452	137,733
Per Cent Reaction				0.41	0.30				..	2.39			
Average Per Cent Reaction				0.31						2.24		0.05	0.08

FORTIETH ANNUAL REPORT

## SIX-YEAR SUMMARY SHOWING PER CENT OF TUBERCULOSIS INFECTION FOUND ANNUALLY

County	July 1954 to June 1955					July 1953 to June 1954				
	Animals Under Supervision	Animals Reacting	Per Cent Reaction on Total Cattle Population	Tests Made	Per Cent Reaction on Tests Made	Animals Under Supervision	Animals Reacting	Per Cent Reaction on Total Cattle Population	Tests Made	Per Cent Reaction on Tests Made
Atlantic	516	...	...	298	...	658	...	...	749	...
Bergen	1,020	...	...	1,138	...	1,291	...	...	1,292	...
Burlington	24,667	26	0.11	25,280	0.10	25,794	16	0.06	27,668	0.06
Camden	1,751	...	...	1,854	...	2,007	1	0.05	1,837	0.05
Cape May	434	...	...	325	...	478	...	...	986	...
Cumberland	6,232	6	0.10	6,539	0.09	6,828	4	0.06	5,950	0.07
Essex	854	...	...	860	...	748	...	...	771	...
Gloucester	6,281	1	0.02	5,315	0.02	6,544	5	0.08	7,189	0.07
Hudson	...	...	...	36	...	37	...	...	37	...
Hunterdon	31,961	15	0.05	32,693	0.05	32,493	14	0.04	34,271	0.04
Mercer	8,275	4	0.05	8,619	0.05	8,593	2	0.02	8,995	0.02
Middlesex	5,795	...	...	8,237	...	5,929	3	0.05	9,301	0.03
Monmouth	9,579	17	0.18	11,618	0.15	10,055	3	0.03	12,362	0.02
Morris	10,887	20	0.18	12,896	0.16	11,708	27	0.23	13,346	0.20
Ocean	1,151	1	0.09	1,206	0.08	1,183	...	...	1,271	...
Passaic	572	...	...	534	...	792	...	...	1,372	...
Salem	17,507	28	0.16	19,458	0.14	18,873	30	0.16	21,720	0.14
Somerset	12,714	9	0.07	13,473	0.07	13,234	7	0.05	14,562	0.05
Sussex	35,708	83	0.23	43,799	0.19	36,821	110	0.30	41,758	0.26
Union	299	...	...	979	...	1,083	...	...	1,849	...
Warren	28,417	31	0.11	33,762	0.09	29,063	23	0.08	31,461	0.07
State	204,620	241	0.12	228,919	0.11	214,212	245	0.11	238,747	0.10

SIX-YEAR SUMMARY SHOWING PER CENT OF TUBERCULOSIS INFECTION FOUND ANNUALLY

County	July 1952 to June 1953					July 1951 to June 1952				
	Animals Under Supervision	Animals Reacting	Per Cent Reaction on Total Cattle Population	Tests Made	Per Cent Reaction on Tests Made	Animals Under Supervision	Animals Reacting	Per Cent Reaction on Total Cattle Population	Tests Made	Per Cent Reaction on Tests Made
Atlantic	675	...	...	439	...	652	4	0.62	1,078	0.37
Bergen	1,257	...	...	1,296	...	1,268	...	...	1,421	...
Burlington	26,766	11	0.04	27,303	0.04	25,419	47	0.18	28,284	0.17
Camden	2,002	...	...	2,007	...	1,948	...	...	2,008	...
Cape May	501	...	...	514	...	496	...	...	498	...
Cumberland	7,131	5	0.07	7,435	0.07	6,905	13	0.19	7,543	0.17
Essex	786	...	...	838	...	775	...	...	784	...
Gloucester	6,783	1	0.01	7,086	0.01	6,587	1	0.02	7,142	0.01
Hudson	27	...	...	29	...	29	...	...	...	...
Hunterdon	31,735	16	0.05	33,372	0.05	30,461	16	0.05	31,449	0.05
Mercer	8,468	2	0.02	9,229	0.02	8,551	2	0.02	9,181	0.02
Middlesex	6,728	1	0.01	9,392	0.01	6,649	...	...	10,246	...
Monmouth	10,283	6	0.06	11,761	0.05	9,863	2	0.03	11,260	0.02
Morris	11,407	35	0.31	12,874	0.27	11,403	54	0.47	12,514	0.43
Ocean	1,250	...	...	1,361	...	1,149	...	...	1,108	...
Passaic	774	...	...	733	...	901	...	...	1,024	...
Salem	19,454	29	0.15	22,509	0.13	18,409	13	0.07	20,361	0.06
Somerset	14,336	5	0.03	15,206	0.03	13,690	6	0.04	15,194	0.04
Sussex	36,059	45	0.12	41,284	0.11	34,094	60	0.18	40,866	0.15
Union	1,283	...	...	2,408	...	1,755	...	...	2,872	...
Warren	27,955	20	0.07	32,413	0.06	26,955	16	0.06	27,778	0.06
State	215,660	176	0.08	239,489	0.07	207,959	234	0.11	232,611	0.11

## SIX-YEAR SUMMARY SHOWING PER CENT OF TUBERCULOSIS INFECTION FOUND ANNUALLY

County	July 1950 to June 1951					July 1949 to June 1950				
	Animals Under Supervision	Animals Reacting	Per Cent Reaction on Total Cattle Population	Tests Made	Per Cent Reaction on Tests Made	Animals Under Supervision	Animals Reacting	Per Cent Reaction on Total Cattle Population	Tests Made	Per Cent Reaction on Tests Made
Atlantic	538	4	0.74	914	0.44	572	2	0.35	1,102	0.18
Bergen	1,382	1	0.07	1,450	0.07	1,645	2	0.12	1,994	0.10
Burlington	24,340	46	0.19	26,208	0.18	24,701	46	0.19	27,222	0.17
Camden	1,697	...	...	1,889	...	1,772	...	...	1,943	...
Cape May	541	...	...	1,297	...	503	...	...	507	...
Cumberland	6,829	12	0.18	6,772	0.18	6,917	15	0.22	7,859	0.19
Essex	972	...	...	987	...	1,005	...	...	1,154	...
Gloucester	5,939	5	0.08	6,700	0.07	5,942	6	0.10	6,579	0.09
Hudson	35	...	...	63	...	32	...	...	32	...
Hunterdon	28,969	37	0.13	31,966	0.12	29,416	29	0.10	31,267	0.09
Mercer	8,299	1	0.01	8,746	0.01	9,323	7	0.08	8,280	0.08
Middlesex	6,557	4	0.06	9,471	0.04	6,380	7	0.11	9,894	0.07
Monmouth	9,413	42	0.45	10,673	0.39	8,823	12	0.14	9,991	0.12
Morris	11,433	2	0.02	12,669	0.02	11,492	2	0.02	11,263	0.02
Ocean	1,149	...	...	1,201	...	1,193	2	0.17	1,274	0.16
Passaic	987	...	...	1,018	...	1,565	1	0.06	1,098	0.09
Salem	16,997	38	0.22	21,279	0.18	16,871	32	0.19	21,737	0.15
Somerset	12,829	16	0.12	14,429	0.11	13,002	5	0.04	14,242	0.04
Sussex	33,873	59	0.17	39,144	0.15	35,655	49	0.14	41,686	0.12
Union	1,636	...	...	2,739	...	1,796	1	0.06	2,324	0.04
Warren	26,081	31	0.12	28,365	0.11	26,500	24	0.09	28,739	0.08
State	200,496	298	0.15	227,980	0.13	205,105	242	0.12	230,187	0.11

## FORTIETH ANNUAL REPORT

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## GOATS

## TUBERCULOSIS

County	Under Supervision June 30, 1955				Fully Accredited June 30, 1955				Tested July 1954 to June 1955			
	Herds	Reg.	Grade	Total	Herds	Reg.	Grade	Total	Herds	Reg.	Grade	Total
Atlantic	12	24	70	94	8	24	57	81	5	24	58	82
Bergen	20	13	87	100	16	13	65	78	21	13	88	101
Burlington	13	..	100	100	10	..	95	95	3	..	72	72
Camden	7	2	23	25	3	..	14	14	7	2	23	25
Cape May	4	1	9	10	1	..	4	4	4	1	5	6
Cumberland	5	..	40	40	4	..	37	37	5	..	39	39
Essex	4	3	60	63	4	3	60	63	4	3	60	63
Gloucester	28	3	74	77	18	3	52	55	8	..	35	35
Hudson	..	..	..	..	..	..	..	..	..	..	..	..
Hunterdon	35	254	101	355	18	235	58	293	11	246	54	300
Mercer	11	8	31	39	7	7	23	30	9	7	28	35
Middlesex	13	8	52	60	6	1	39	40	3	6	12	18
Monmouth	24	54	69	123	19	50	57	107	11	68	33	101
Morris	47	76	221	297	31	67	171	238	38	73	198	271
Ocean	5	..	11	11	1	..	4	4	2	..	6	6
Passaic	10	27	52	79	7	27	43	70	3	27	31	58
Salem	11	2	23	25	4	..	5	5	2	1	8	9
Somerset	33	319	102	421	25	312	92	404	21	587	72	659
Sussex	9	15	60	75	5	15	41	56	9	15	60	75
Union	4	9	9	18	4	9	9	18	2	..	5	5
Warren	15	23	124	147	11	19	117	136	15	23	124	147
State	310	841	1,318	2,159	202	785	1,043	1,828	183	1,096	1,011	2,107

## BRUCELLOSIS

County	Under Supervision June 30, 1955				Fully Accredited June 30, 1955				Tested July 1954 to June 1955			
	Herds	Reg.	Grade	Total	Herds	Reg.	Grade	Total	Herds	Reg.	Grade	Total
Atlantic	19	26	89	115	12	26	73	99	1	..	6	6
Bergen	19	12	96	108	9	5	51	56	19	12	93	105
Burlington	21	4	96	100	8	..	59	59	3	..	45	45
Camden	6	..	20	20	2	..	13	13	2	..	12	12
Cape May	4	..	9	9	..	..	..	..	1	..	2	2
Cumberland	5	..	39	39	3	..	35	35	4	..	37	37
Essex	5	..	60	60	5	..	60	60	3	..	56	56
Gloucester	34	8	104	112	7	..	22	22	8	2	16	18
Hudson	..	..	..	..	..	..	..	..	..	..	..	..
Hunterdon	43	26	287	313	12	5	234	239	9	28	225	253
Mercer	12	9	33	42	9	8	27	35	9	7	25	32
Middlesex	12	7	54	61	4	..	37	37	7	5	25	30
Monmouth	23	39	51	90	14	21	36	57	10	21	39	60
Morris	39	83	179	262	30	83	151	234	28	20	187	207
Ocean	10	4	21	25	1	..	3	3	1	..	2	2
Passaic	10	28	50	78	9	28	48	76	7	5	68	73
Salem	10	2	18	20	1	..	2	2	1	..	1	1
Somerset	41	97	476	573	22	76	417	493	17	36	559	595
Sussex	7	16	74	90	6	5	72	77	4	15	39	54
Union	6	15	12	27	5	9	10	19	2	..	5	5
Warren	17	66	60	126	8	64	17	81	13	80	26	106
State	343	442	1,828	2,270	167	330	1,367	1,697	149	231	1,468	1,699



## BUREAU OF SWINE DISEASE CONTROL

## VESICULAR EXANTHEMA

The vesicular exanthema situation throughout the State has improved considerably during the year. On July 1 there was only one farm, the North Bergen Stock Farm, North Bergen, that had been released from Federal quarantine. That herd is comprised of approximately 9,000 swine.

Since July 1 great strides have been made in the release of individual farms, both grain fed in quarantined areas and garbage fed that have turned to approved cooking of garbage.

Entire townships were released during the year. These were:

December 18	Delran Township	Burlington County
December 18	Washington Township	Burlington County
December 18	Bass River Township	Burlington County
December 18	Shamong Township	Burlington County
December 18	Tabernacle Township	Burlington County
February 17	Chesterfield Township	Burlington County
February 17	Medford Township	Burlington County
June 6	Easthampton Township	Burlington County
June 6	Mansfield Township	Burlington County
June 6	Springfield Township	Burlington County
April 11	Upper Freehold	Monmouth County

On August 26 all of Cape May County was released excepting areas in which three raw garbage farms are located. On May 13 all of Bergen County was released from quarantine as all garbage feeders in the county changed to the feeding of cooked garbage or grain.

*Personnel*

Dr. Henry Recht of Nutley was assigned on July 1 to the North Jersey area to supervise swine disease control measures and personnel in the field from Trenton north.

Dr. Gerald Donner of Highland Park is in charge of activities in the area from Trenton south. In addition to the two veterinarians there are four lay personnel making routine semi-monthly inspections of all raw garbage feeding farms. Cooked garbage feeding farms are inspected and checked periodically as to their cooking operations and garbage temperatures.

The State force is matched or supplemented with a like or increased force by the Federal government. The Federal force consists of three veterinarians who devote all or part time to swine disease control, at least four lay inspectors who perform the same duties as the State lay personnel and from 9 to 12 enforcement personnel. The enforcement operators check the interstate and intrastate movement of swine to determine whether the shipments are legal and have the proper permits.

*Inspections*

During the year the State and Federal inspection force made 103 periodic inspections of grain fed hog farms and 9,072 inspections of raw and cooked garbage fed hog farms. The raw garbage fed hog farms are inspected semi-monthly and the cooked and grain fed hog farms are inspected at non-scheduled intervals. In addition the State and Federal inspection force and private veterinarians issued 7,087 permits for the movement of 299,435 grain, cooked and raw garbage fed swine for slaughter, feeding or breeding purposes. Active lesions of vesicular exanthema were encountered on five raw garbage feeding farms during the year as follows:

July 9, William Lafferty & Sons, Sewell. Differential test was completed July 19 and proved to be vesicular exanthema.

August 13, William Zengel, Secaucus. Differential test was completed August 23 and proved to be vesicular exanthema.

August 13, Jersey Feed Farms, Secaucus. Differential test was completed August 23 and proved to be vesicular exanthema.

October 13, Clarendon Stock Farm, Secaucus. Differential test completed October 23 and proved to be vesicular exanthema.

October 21, H. Henkel & Sons, Secaucus. Differential test completed October 31 and proved to be vesicular exanthema.

No evidence of active lesions of vesicular exanthema has been encountered since the October outbreak. Evidence of old lesion reports during the last months of the year dwindled to the point where none were being received.

*Violations*

During the year enforcement agents and inspection personnel apprehended swine movements in violation of regulations. On July 8 a Philadelphia trucker was apprehended while moving swine without a permit from Westville via Chester Ferry to Pennsylvania. The swine were consigned to a slaughtering establishment for special processing and the trucker was cited to the Justice Department in Washington, D. C. for action. Four days later he was apprehended again while transferring swine to his truck in Westville.

On August 9 three Pennsylvanians were apprehended while moving swine under a forged permit. The pigs were confiscated and the occupants of the car were jailed pending a hearing at a later date.

On January 20 another case of moving swine without a permit was reported. The swine were confiscated and the violators were jailed. Ten days later another case was reported involving the movement of 30 swine without a permit. The man was jailed and the swine and truck were held pending the outcome of the hearing.

On March 7 a Somerville man was apprehended for peddling 34 swine in the Secaucus area. The swine were taken to a slaughtering establishment for special processing. On May 9 the same man was reported by a Delaware State veterinarian as having been apprehended in Delaware peddling Jersey swine without a permit. On May 25 he was apprehended again, this time for having a tampered permit.

On June 20 the Philadelphia trucker was followed across the Chester Ferry and was found with a load of swine picked up in Thorofare. He again was reported to the Justice Department in Washington.

#### *Miscellaneous*

Regulations and laws covering operations for the control of vesicular exanthema and other swine diseases with but few exceptions have been the same throughout the year. One exception was approved on July 28 by the State Board of Agriculture. The Board agreed on a change which provided for the release of infected farms from quarantine 30 days after the finding of active infection in the absence of evidence of infection. Previously they could not be released until after complete depopulation of all swine on the premises.

On July 19 the Secaucus feeders employed a sanitary engineer and two assistants to make a study of sanitary conditions in the area and report recommendations for improvement. The report, received in the fall, included the recommendations to be supervised cooperatively by the State Department of Health and the Board of Health of Secaucus. Nothing has been done to date toward carrying out these recommendations.

On November 9 a meeting was held in the office of Commissioner Daniel Bergsma, State Department of Health, attended by representatives from the Health Department, U. S. Public Health Service, United States and New Jersey Departments of Agriculture and the State Attorney General. The meeting was called to discuss the U. S. Public Health Service regulation, promulgated in 1941, prohibiting the interstate movement of raw garbage if fed raw. This regulation has not been enforced. The U. S. Public Health Service does not have jurisdiction over activities within a State but only over the interstate movement of the garbage. The determination as to whether the garbage was fed raw after moving interstate, constituting the violation, would be up to the regulatory personnel of the State in which the garbage was received.

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There was some hesitancy on the part of the representatives from the New Jersey Department of Agriculture and no assurance given that personnel engaged in swine disease control in New Jersey would assume such a responsibility. No further action is known to have been taken on the enforcement of the regulation to date. However, some raw garbage feeders in the State have received a letter from the U. S. Public Health Service stating that after July 16 the movement of raw garbage interstate will be prohibited unless it is cooked before being fed.

The question again arises as to what agency is going to enforce the regulation. Although the U. S. Public Health Service regulation has not as yet been and perhaps cannot be effectively enforced, it is felt that the threat has stimulated interest in the cooking of garbage among some members of the industry.

## HERDS AND SWINE UNDER INSPECTION

June 30, 1955

County	NON-INFECTED				INFECTED				TOTALS	
	Grain Fed Herds	Swine in Grain Fed Herds	Garbage Fed Herds Raw	Cooked	Swine in Garbage Fed Herds Raw	Cooked	Infected Herds Fed Garbage	Swine in Infected Herds Feeding Garbage	Herds	Swine
Atlantic	67	2,537	51	1	5,258	400	....	....	119	8,195
Bergen	15	749	...	6	....	4,844	....	....	21	5,593
Burlington	222	3,900	40	2	12,495	7,500	....	....	264	23,895
Camden	147	1,228	14	1	3,077	200	....	....	162	4,505
Cape May	104	2,388	45	...	4,344	....	....	....	149	6,732
Cumberland	314	2,295	10	1	1,018	400	....	....	325	3,713
Essex	7	299	2	...	631	....	....	....	9	930
Gloucester	562	3,962	88	12	82,932	33,450	....	....	662	120,344
Hudson	...	...	26	7	39,991	32,817	....	....	33	72,808
Hunterdon	381	6,804	5	1	2,987	1,600	....	....	387	11,391
Mercer	103	1,685	14	...	1,799	....	....	....	117	3,484
Middlesex	112	2,112	13	...	2,980	....	....	....	125	5,092
Monmouth	319	5,044	50	3	3,825	8,200	....	....	372	17,069
Morris	138	1,449	18	...	7,855	....	....	....	156	9,304
Ocean	77	940	12	1	602	1,600	....	....	90	3,142
Passaic	6	15	3	...	168	....	....	....	9	183
Salem	588	5,585	3	...	35	....	....	....	591	5,620
Somerset	157	2,757	10	...	1,853	....	....	....	167	4,610
Sussex	168	1,541	9	...	1,844	....	....	....	177	3,385
Union	12	351	4	...	361	....	....	....	16	712
Warren	193	1,971	1	...	8	....	....	....	194	1,979
State	3,692	47,612	418	35	174,063	91,011	....	....	4,145	312,686

## VESICULAR EXANTHEMA INSPECTIONS

July 1, 1954 to June 30, 1955

## INFECTED PREMISES

## NON-INFECTED PREMISES

County	Garbage Fed Farms			Grain Fed Farms			Raw			Garbage Fed Farms Cooked			Infected Premises	Non-Infected Premises	Total Inspections
	State	Federal	Total	State	Federal	Total	State	Federal	Total	State	Federal	Total			
Atlantic	11	...	11	15	...	15	887	19	906	16	...	16	11	937	948
Bergen	...	...	...	7	...	7	107	...	107	7	...	7	...	121	121
Burlington	...	12	12	...	3	3	3	835	838	...	27	27	12	868	880
Camden	2	...	2	...	...	...	283	...	283	5	...	5	2	288	290
Cape May	...	...	...	21	...	21	592	...	592	2	...	2	...	615	615
Cumberland	...	...	...	11	...	11	191	...	191	18	...	18	...	220	220
Essex	...	...	...	1	...	1	13	...	13	...	...	...	...	14	14
Gloucester	33	31	64	...	...	...	65	2,207	2,272	...	110	110	64	2,382	2,446
Hudson	6	22	28	...	...	...	178	691	869	7	62	69	28	938	966
Hunterdon	...	...	...	4	...	4	148	...	148	7	...	7	...	159	159
Mercer	...	...	...	...	...	...	234	...	234	...	...	...	...	234	234
Middlesex	...	...	...	15	...	15	281	...	281	1	...	1	...	297	297
Monmouth	...	...	...	...	...	...	910	...	910	23	...	23	...	933	933
Morris	...	...	...	...	...	...	327	...	327	...	2	2	...	329	329
Ocean	...	...	...	...	1	1	...	240	240	...	13	13	...	254	254
Passaic	...	...	...	2	...	2	45	...	45	...	...	...	...	47	47
Salem	...	...	...	1	...	1	9	...	9	...	...	...	...	10	10
Somerset	...	...	...	19	...	19	199	...	199	...	...	...	...	218	218
Sussex	...	...	...	2	...	2	97	...	97	...	...	...	...	99	99
Union	...	...	...	...	...	...	94	...	94	...	...	...	...	94	94
Warren	...	...	...	1	...	1	...	...	...	...	...	...	...	1	1
State	52	65	117	99	4	103	4,663	3,992	8,655	86	214	300	117	9,058	9,175

## VESICULAR EXANTHEMA PERMITS ISSUE FOR MOVEMENT OF GRAIN FED SWINE

July 1, 1954 to June 30, 1955

County	State	PERMITS ISSUED BY			SWINE MOVEMENTS			Total Swine Moved
		Federal	Private	Total	For Slaughter Intra and Inter State	Feeders Intra and Inter State	Breeders Intra and Inter State	
Atlantic	10	1	14	25	115	32	41	188
Bergen	4	3	4	11	11	158	...	169
Burlington	49	46	77	182	1,029	353	113	1,495
Camden	5	9	14	28	203	178	15	396
Cape May	26	...	6	32	597	39	...	636
Cumberland	14	...	9	23	690	26	4	720
Essex	14	...	7	21	262	37	...	299
Gloucester	26	31	166	223	1,169	190	108	1,467
Hudson	...	14	...	...	224	...	...	224
Hunterdon	88	262	130	494	2,058	2,364	13	4,435
Mercer	61	10	64	135	768	130	6	904
Middlesex	72	3	30	105	523	334	61	918
Monmouth	247	1	81	329	1,570	1,788	28	3,386
Morris	15	10	89	114	470	110	...	580
Ocean	54	4	7	65	443	96	...	539
Passaic	...	...	5	5	25	...	...	25
Salem	1	2	1	4	1,685	55	2	1,742
Somerset	24	32	74	130	981	33	85	1,099
Sussex	46	1	55	92	925	672	31	1,628
Union	...	...	6	6	2	127	...	129
Warren	12	2	107	121	933	178	1	1,112
State	768	431	946	2,145	14,683	6,900	508	22,091

STATE DEPARTMENT OF AGRICULTURE



## VESICULAR EXANTHEMA PERMITS ISSUED FOR MOVEMENT OF COOKED GARBAGE FED SWINE

July 1, 1954 to June 30, 1955

## PERMITS ISSUED BY

## SWINE MOVEMENTS

County	State	Federal	Total	For Slaughter	Feeders	Breeders	Total Swine Moved
				Intra and Inter State	Intra and Inter State	Intra and Inter State	
Atlantic	6	...	6	173	...	...	173
Bergen	15	2	17	75	1,130	...	1,205
Burlington	2	97	99	8,039	2,047	235	10,321
Camden	...	5	5	45	198	20	263
Cape May	...	...	...	41	...	1	42
Cumberland	3	1	4	107	120	...	227
Essex	...	27	27	6,457	...	...	6,457
Gloucester	31	228	259	16,692	8,157	170	25,019
Hudson	160	73	293	16,154	42	62	16,258
Hunterdon	63	10	13	522	1,779	...	2,301
Middlesex	4	1	5	367	...	...	367
Monmouth	17	6	35	1,478	1,757	2	3,237
Morris	13	3	4	306	...	...	306
Ocean	...	27	27	471	352	...	823
State	314	480	794	50,927	15,582	490	66,999

FORTIETH ANNUAL REPORT

## VESICULAR EXANTHEMA PERMITS ISSUED FOR MOVEMENT OF RAW GARBAGE FED SWINE

July 1, 1954 to June 30, 1955

County	State	PERMITS ISSUED BY		SWINE MOVEMENTS				
		Federal	Total	For Reg. Slaughter	For Slaughter and Special Process.	To Farms for		Total Raw Garbage Fed Swine
						Feeding	Breeding	
Atlantic	101	9	110	549	100	3,884	113	4,646
Bergen	44	1	45	48	93	2,524	15	2,680
Burlington	21	246	267	4,617	620	12,967	177	18,381
Camden	17	60	77	45	...	2,569	286	2,900
Cape May	61	4	65	497	497	2,231	6	3,231
Cumberland	43	...	43	138	...	45	...	183
Essex	3	...	3	...	6	...	...	6
Gloucester	80	1,314	1,394	8,415	6,124	66,375	1,876	82,790
Hudson	1,345	54	1,399	29,667	35,941	3,013	149	68,770
Hunterdon	67	32	99	1,781	423	2,086	...	4,290
Mercer	61	1	62	865	...	758	31	1,654
Middlesex	52	...	52	445	1,612	104	...	2,161
Monmouth	247	11	258	3,047	675	9,255	29	13,006
Morris	89	46	135	1,019	1,250	363	...	2,632
Ocean	2	52	54	454	734	305	...	1,493
Passaic	8	1	9	76	33	...	...	109
Somerset	38	1	39	571	132	161	...	864
Sussex	25	...	25	214	124	...	2	340
Union	10	...	10	126	83	...	...	209
Warren	2	...	2	...	...	...	...	...
State	2,316	1,832	4,148	52,574	48,447	106,640	2,684	210,345

STATE DEPARTMENT OF AGRICULTURE

## SUMMARY OF PERMITS ISSUED FOR MOVEMENT OF SWINE AND NUMBER OF SWINE MOVED

July 1, 1954 to June 30, 1955

County	PERMITS ISSUED				SWINE MOVEMENTS			
	Total Grain Fed Swine	Total Raw Garbage Fed Swine	Total Cooked Garbage Fed Swine	Total Permits Issued	Total Grain Fed Swine	Total Raw Garbage Fed Swine	Total Cooked Garbage Fed Swine	Total Swine Moved
Atlantic	25	110	6	141	188	4,646	173	5,007
Bergen	11	45	17	73	169	2,680	1,205	4,054
Burlington	182	267	99	548	1,495	18,381	10,321	30,197
Camden	28	77	5	110	396	2,900	263	3,559
Cape May	32	65	...	97	636	3,231	42	3,909
Cumberland	23	43	4	70	720	183	227	1,130
Essex	21	3	27	51	299	6	...	305
Gloucester	223	1,394	259	1,876	1,467	82,790	26,429	110,686
Hudson	...	1,399	293	1,692	224	68,770	21,305	90,299
Hunterdon	494	99	13	606	4,435	4,290	2,301	11,026
Mercer	135	62	...	197	904	1,654	...	2,558
Middlesex	105	52	5	162	918	2,161	...	3,079
Monmouth	329	258	35	622	3,386	13,006	3,604	19,996
Morris	114	135	4	253	580	2,632	25	3,237
Ocean	65	54	27	146	539	1,493	1,104	3,136
Passaic	5	9	...	14	25	109	...	134
Salem	4	...	...	4	1,742	...	...	1,742
Somerset	130	39	...	169	1,099	864	...	1,963
Sussex	92	25	...	117	1,628	340	...	1,968
Union	6	10	...	16	129	209	...	338
Warren	121	2	...	123	1,112	...	...	1,112
State	2,145	4,148	794	7,087	22,091	210,345	66,999	299,435

## STATE DEPARTMENT OF AGRICULTURE

## SWINE IMPORTED FOR SLAUGHTER PURPOSES

July 1, 1954 to June 30, 1955

	Swine
Armour and Company, Jersey City	189,735
Delaware Packing Company, Trenton	3,243
John Englehorn & Son, Newark	363,702
Fisher Brothers, Bridgeton	75
Frank Gazzaro, Hammonton	2,145
Charles Haag, Incorporated, Hoboken	102,662
Jersey City Stock Yards, Jersey City	8,920
C. Miller & Company, North Bergen	128,255
O. W. Struble, Newton	50
Swift & Company, Jersey City	174,434
Trenton Packing Company, Trenton	10,633
Van Wagenen & Schickhaus, Harrison	139,738
Wildwood Packing Company, Wildwood	2,303
Total	1,125,895

A total of 46,328 swine weighing approximately 11,269,215 pounds were moved during the fiscal year to Charles Haag, Inc., Abattoir, Secaucus, for special processing.

## FEEDER AND BREEDING SWINE IMPORTED

July 1, 1954 to June 30, 1955

County	Feeders	Breeders
Atlantic	306	..
Bergen	150	..
Burlington	1,515	..
Camden	...	2
Cape May	469	..
Gloucester	14,445	1
Hudson	43,635	1
Hunterdon	6,158	..
Monmouth	5,504	1
Morris	119	..
Ocean	...	3
Salem	81	6
Sussex	10	..
Warren	70	..
State	72,456	14

## BUREAU OF BRUCELLOSIS CONTROL

The fiscal year 1954-55 saw the dairymen and stockmen of New Jersey make more progress toward brucellosis eradication than during any previous year. By June 30 there were 6,937 herds with 173,091 cattle enrolled in brucellosis testing Plan A or B. Those enrolled include 73 per cent of the herds and 85 per cent of the cattle in the State. Of the herds tested 91 per cent with 80 per cent of the cattle are clean.

In addition to the herds tested 1,084 herds with 23,465 cattle are on Plan C, practicing calfhoo vaccination prior to testing. This means that 84 per cent of the State's herds containing 96 per cent of the State's cattle are engaged in some form of brucellosis eradication activity.

The Cooperative Brucellosis Eradication Program in New Jersey utilizes the three primary tools of brucellosis eradication: testing adults, eliminating reactors and vaccinating calves. In the important activity of removing reactors this fiscal year by far surpassed any other. Under the provisions of Plan A 1,801 brucellosis reactors were slaughtered and indemnified. Many eligible reactors were tagged, branded and sent to slaughter under permit together with reactors eligible for indemnity because the program provides that all reactors disclosed on a given test must be slaughtered in order for any to qualify for indemnity. Numerous retained reactors were sent to slaughter by farmers to qualify herds for Plan A and indemnity on possible future reactors and many reactors were sent to slaughter as part of sound herd management practices.

## TESTING BY PLANS

In order to get a true picture of rate of infection it is necessary to calculate the figure separately for each classification of herds. The true rate of infection for 1954-55 is:

Classification of Herds	Rate of Infection (Per Cent)
Certified Brucellosis-Free	0.18
Plan A (not yet certified)	1.05
Plan B	3.38
Initial Test	4.29

The figures show that herds becoming certified brucellosis-free generally remain free of the disease. Even in the Plan A herds that are not yet certified the rate of infection is low. This is encouraging since this category includes infected herds being cleaned up. Herds in Plan B are all infected but the infection rate is below that on initial tests.

Naturally the rate of infection on initial test of herds is higher than in tested herds. However this figure is much lower than a few years ago. The main factors responsible for this improvement are (1) the chance of buying an infected animal as a replacement has been reduced because of the brucellosis eradication programs in this and other states and (2) resistance to brucellosis infection is induced by calfhood vaccination.

The use of the brucellosis ring test (B.R.T.) constitutes an important part of the Cooperative Brucellosis Eradication Program in New Jersey. The B.R.T. is being employed to an ever-increasing extent throughout the nation. Reports from other states and from the Animal Disease Eradication Branch of the U. S. Department of Agriculture are studied to insure that the B.R.T. is used to full advantage in New Jersey.

In New Jersey milk samples for brucellosis ring tests are collected from dairy farms on a township basis. The certified brucellosis-free and brucellosis clean herds in a township are subjected to brucellosis ring test about midway between annual blood tests of the majority of those herds. Collections by farm visits result in all farms being tested in a given period, samples arriving at laboratory in good condition for testing, little breakage and loss of tubes and containers and a continued good relationship between farmers and disease eradication personnel.

Negative brucellosis ring test of a dairy farm credits that farm with a satisfactory mid-year test. The herd thereby receives a reasonable degree of protection while substantial savings are effected by eliminating semi-annual blood testing. If the results of the brucellosis ring test are suspicious the dairy herd should be blood tested to determine whether or not the animals are brucellosis infected. These blood tests are conducted or arranged for by the area supervisor of brucellosis eradication.

The increasing use of bulk tanks for storage of milk on dairy farms involves an important dilution factor which, some believe, may result in reactors being missed. This belief is based on the fact that most milk samples for brucellosis ring test were collected from single cans or no more than three-can lots. However, experience has indicated that a dairy herd can be reasonably protected by a brucellosis ring test of a milk sample from the farm bulk tank.

Calfhood vaccination provides resistance to brucellosis. For several years there has been a steady upward trend in numbers of calves vaccinated annually. The last year saw a considerable drop probably because fewer calves were raised during the year. Almost all calves raised in New Jersey are officially vaccinated.

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## FEDERAL ANNOUNCEMENT

Because of the excellent progress in brucellosis eradication being made throughout the nation as well as the desire of cattle owners to eliminate this disease the USDA in October announced its "Accelerated Program." The acceleration was sparked by a transfer of funds from the Commodity Credit Corporation to Plant and Animal Disease and Pest Control for the purpose of brucellosis eradication. The extra funds amount to 15 million dollars annually for a two-year period.

The former level of maximum Federal indemnity on brucellosis reactors slaughtered under the provisions of Plan A was restored. The top Federal indemnity again became 25 dollars for grade and 50 dollars for registered cattle. This amount is in addition to the 75 dollars and 150 dollars New Jersey State indemnity and the salvage or beef value of the animal.

Until this time the Cooperative Brucellosis Eradication Program in New Jersey provided that Federal and State indemnity could not be paid on more reactors than would constitute 8 per cent of any herd. As part of the accelerated program this ruling was waived by the USDA and the New Jersey Department. Because of the change in policy infection has been eliminated in many herds where the former policy would have prolonged infection.

## MISCELLANEOUS

During the year a careful study of Plan D (Adult Brucella Vaccinated) herds was conducted. The few remaining herds so classified had discontinued adult vaccination many years ago. Adult vaccination has been entirely replaced by calfhood vaccination in these herds and practically all animals that had been adult vaccinated have been replaced. As a result of the study the remaining Plan D herds were reclassified to Plan B.

Because of the excellent progress in brucellosis eradication made by the dairy and beef cattle breeding industries in New Jersey along with the State Department of Health requirement that all milk be produced by brucellosis-free herds after April 1, 1958 Brucella vaccination of adults is now considered obsolete.

The classification "Certified Brucellosis-Free" is enjoyed by 3,089 herds of 68,048 cattle in New Jersey. Close to that goal are 3,256 herds of 72,980 cattle now on Plan A and approaching certification and in Plan B there are 608 herds of 34,819 cattle.



## STATE DEPARTMENT OF AGRICULTURE

## BRUCELLOSIS TESTING IN NEW JERSEY

1945-55

	All Testing Plans A, B, D		Plan C		All Plans		Calves Officially Vaccinated	Reactors Indemni- fied
	Herds	Cattle	Herds	Cattle	Herds	Cattle		
1945-46	1,592	29,069	...	...	1,592	24,069	...	209
1946-47	1,761	30,548	1,698	54,271	3,459	84,819	13,381	203
1947-48	2,030	45,153	2,390	67,874	4,420	113,027	14,813	206
1948-49	2,595	52,671	2,967	75,878	5,562	128,549	16,183	190
1949-50	3,099	60,930	3,311	82,658	6,410	143,588	18,305	191
1950-51	3,427	66,944	3,224	83,607	6,651	150,551	19,944	166
1951-52	4,019	81,499	3,086	77,489	7,105	158,988	22,394	254
1952-53	5,129	113,225	2,663	64,385	7,792	177,610	23,626	362
1953-54	5,852	144,909	1,783	46,783	7,635	191,692	22,029	653
1954-55	6,937	173,091	1,084	23,465	8,021	196,556	17,886	1,801

## BRUCELLOSIS SERVICE FEES AND INDEMNITY PAID

1945-55

	State Indemnity Paid	Federal Indemnity Paid	State Veterinary Service Fees for Testing	Federal Veterinary Service Fees for Testing	State Veterinary Service Fees for Vaccination
1945-46	\$16,349.96	\$6,835.27	\$1,916.00	\$ .....	\$ .....
1946-47	17,814.89	6,337.06	3,358.90	.....	14,975.00
1947-48	20,666.25	7,077.12	5,312.75	.....	17,210.50
1948-49	18,521.50	6,289.40	6,397.05	.....	18,704.00
1949-50	17,027.83	5,745.34	7,395.05	.....	21,137.50
1950-51	14,070.37	4,904.19	8,973.50	.....	22,447.50
1951-52	23,676.13	7,950.45	12,427.85	.....	24,480.50
1952-53	30,883.20	10,339.77	33,826.95	.....	25,771.50
1953-54	53,787.83	8,071.00	37,602.55	.....	24,121.50
1954-55	142,561.23	46,105.99	24,880.25	18,554.00	20,790.50

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## STATE INDEMNITY PAID FOR REACTORS TO BRUCELLOSIS TEST

July 1, 1954 to June 30, 1955

Class of Cattle	Animals	Amount Paid	Average State Indemnity Paid per Head
Registered	107	\$16,010.96	\$149.64
Grade	1,694	126,550.27	74.71
Registered and Grade	1,801	\$142,561.23	79.16

## SALVAGE RECEIVED BY OWNERS FOR REACTORS TO BRUCELLOSIS TEST

July 1, 1954 to June 30, 1955

Class of Cattle	Animals	Amount Paid	Average Salvage Received per Head
Registered	107	\$11,915.38	\$111.36
Grade	1,694	197,850.32	116.79
Registered and Grade	1,801	\$209,765.70	116.47

## FEDERAL INDEMNITY PAID FOR REACTORS TO BRUCELLOSIS TEST

July 1, 1954 to June 30, 1955

Class of Cattle	Animals	Amount Paid	Average Federal Indemnity Paid per Head
Registered	107	\$5,222.00	\$48.80
Grade	1,694	40,883.99	24.11
Registered and Grade	1,801	\$46,105.99	25.60
Total amount received by owners for reactors (Sum of salvage, Federal and State indemnity)			\$398,432.92
Average amount received per head by owners for reactors			\$221.23

REACTORS TO TEST FOR BRUCELLOSIS APPRAISED, THEIR APPRAISED VALUE AND TOTAL AND AVERAGE AMOUNTS  
RECEIVED BY OWNERS FROM SALVAGE, STATE AND FEDERAL INDEMNITY

July 1, 1954 to June 30, 1955

STATE DEPARTMENT OF AGRICULTURE

County	Reg.	Reactors Appraised		Reg.	Appraised Value		Total Amount Paid to Owners (Salvage, State and Federal Indemnity)			Average Amount Paid Owners per Head		
		Gr.	Total		Grade	Total	Reg.	Grade	Total	Reg.	Grade	Total
Atlantic	...	...	...	\$.....	\$.....	\$.....	\$.....	\$.....	\$.....	\$.....	\$.....	\$.....
Bergen	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....
Burlington	13	303	316	4,435.00	78,290.00	82,725.00	3,875.83	63,467.60	67,343.43	298.14	209.46	213.11
Camden	...	11	11	.....	2,890.00	2,890.00	.....	2,544.73	2,544.73	.....	231.34	231.34
Cape May	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland	6	28	34	2,665.00	8,252.00	10,917.00	1,972.40	6,052.68	8,025.08	328.73	216.17	236.03
Essex	...	1	1	.....	290.00	290.00	.....	253.35	253.35	.....	253.35	253.35
Gloucester	8	27	35	2,735.00	6,760.00	9,495.00	2,561.24	5,283.19	7,844.43	320.16	195.67	224.13
Hudson	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hunterdon	15	133	148	5,680.00	38,305.00	43,985.00	4,466.45	28,432.62	32,899.07	297.76	213.78	222.29
Mercer	5	18	23	1,585.00	4,440.00	6,025.00	1,438.41	3,730.42	5,168.83	287.68	207.25	224.73
Middlesex	1	24	25	300.00	6,120.00	6,420.00	300.00	5,124.70	5,424.70	300.00	213.53	216.99
Monmouth	1	42	43	400.00	10,330.00	10,730.00	295.35	8,895.56	9,190.91	295.35	211.80	213.74
Morris	4	107	111	1,405.00	28,678.00	30,083.00	1,174.37	23,789.07	24,963.44	293.59	222.33	224.90
Ocean	...	2	2	.....	510.00	510.00	.....	338.95	338.95	.....	169.48	169.48
Passaic	1	6	7	350.00	1,855.00	2,205.00	292.14	1,057.45	1,349.59	292.14	176.24	192.80
Salem	10	306	316	3,945.00	89,418.00	93,363.00	2,940.84	66,084.74	69,025.58	294.08	215.96	218.44
Somerset	9	43	52	3,885.00	11,081.00	14,966.00	2,821.07	9,495.86	12,316.93	313.45	220.83	236.86
Sussex	12	254	266	4,345.00	68,092.00	72,437.00	3,783.62	53,058.54	56,842.16	315.30	208.89	213.69
Union	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....
Warren	22	389	411	8,175.00	105,767.40	113,942.40	7,226.62	87,675.12	94,901.74	328.48	225.39	230.90
State	107	1,694	1,801	\$39,905.00	\$461,078.40	\$500,983.40	\$33,148.34	\$365,284.58	\$398,432.92	309.80	215.63	221.23

## REACTORS TO TEST FOR BRUCELLOSIS APPRAISED, AMOUNT OF SALVAGE RECEIVED AND STATE AND FEDERAL INDEMNITY PAID

July 1, 1954 to June 30, 1955

County	Reg.	Reactors Appraised		Amount of Salvage Received			Amount of State Indemnity Paid			Amount of Federal Indemnity Paid		
		Gr.	Total	Reg.	Grade	Total	Reg.	Grade	Total	Reg.	Grade	Total
Atlantic	...	...	...	\$.....	\$.....	\$.....	\$.....	\$.....	\$.....	\$.....	\$.....	\$.....
Bergen	...	...	...	...	...	...	...	...	...	...	...	...
Burlington	13	303	316	1,307.83	33,552.97	34,860.80	1,950.00	22,691.63	24,641.63	618.00	7,223.00	7,841.00
Camden	...	11	11	.....	1,479.43	1,479.43	.....	822.30	822.30	.....	243.00	243.00
Cape May	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland	6	28	34	772.40	3,268.68	4,041.08	900.00	2,100.00	3,000.00	300.00	684.00	984.00
Essex	...	1	1	.....	153.35	153.35	.....	75.00	75.00	.....	25.00	25.00
Gloucester	8	27	35	985.71	2,695.19	3,680.90	1,175.53	2,025.00	3,200.53	400.00	563.00	963.00
Hudson	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hunterdon	15	133	148	1,466.45	15,252.55	16,719.00	2,250.00	9,935.07	12,185.07	750.00	3,245.00	3,995.00
Mercer	5	18	23	438.41	1,962.42	2,400.83	750.00	1,350.00	2,100.00	250.00	418.00	668.00
Middlesex	1	24	25	110.38	2,724.70	2,835.08	139.62	1,800.00	1,939.62	50.00	600.00	650.00
Monmouth	1	42	43	95.35	4,856.89	4,952.24	150.00	3,053.42	3,203.42	50.00	985.25	1,035.25
Morris	4	107	111	374.37	13,142.31	13,516.68	600.00	7,987.84	8,587.84	200.00	2,658.92	2,858.92
Ocean	...	2	2	.....	170.95	170.95	.....	150.00	150.00	.....	18.00	18.00
Passaic	1	6	7	92.14	553.45	645.59	150.00	450.00	600.00	50.00	54.00	104.00
Salem	10	306	316	1,036.84	35,819.27	36,856.11	1,500.00	22,877.04	24,377.04	404.00	7,388.43	7,792.43
Somerset	9	43	52	1,021.07	5,240.17	6,261.24	1,350.00	3,180.69	4,530.69	450.00	1,075.00	1,525.00
Sussex	12	254	266	1,383.62	28,072.80	29,456.42	1,800.00	18,911.35	20,711.35	600.00	6,074.39	6,674.39
Union	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....
Warren	22	389	411	2,830.81	48,905.19	51,736.00	3,295.81	29,140.93	32,436.74	1,100.00	9,629.00	10,729.00
State	107	1,694	1,801	\$11,915.38	\$197,850.32	\$209,765.70	\$16,010.96	\$126,550.27	\$142,561.23	\$5,222.00	\$40,883.99	\$46,105.99

## STATE DEPARTMENT OF AGRICULTURE

## STATE INDEMNITY PAID FOR REACTORS TO BRUCELLOSIS TEST

December 16, 1940 to June 30, 1955

Class of Cattle	Animals	Amount Paid
Registered	1,321	\$135,000.02
Grade	5,612	330,365.67
Registered and Grade	6,933	\$465,365.69

## Average State Indemnity Paid per Head:

Registered	\$102.20
Grade	58.87
Registered and Grade	67.12

## SALVAGE RECEIVED BY OWNERS FOR REACTORS TO BRUCELLOSIS TEST

December 16, 1940 to June 30, 1955

Class of Cattle	Animals	Amount Paid
Registered	1,321	\$126,740.25
Grade	5,612	583,893.04
Registered and Grade	6,933	\$710,633.29

## Average Salvage Received per Head:

Registered	\$95.94
Grade	104.04
Registered and Grade	102.50

## FEDERAL INDEMNITY PAID FOR REACTORS TO BRUCELLOSIS TEST

December 16, 1940 to June 30, 1955

Class of Cattle	Animals	Amount Paid
Registered	1,315*	\$55,895.09
Grade	5,618	119,338.08
Registered and Grade	6,933	\$175,233.17

## Average Federal Indemnity Paid per Head:

Registered	\$42.51
Grade	21.24
Registered and Grade	25.28

\* One claim was paid during the fiscal year 1945-46 involving six animals paid on a registered basis by the State and on a grade basis by the Federal Government.

Total amount received by owners for reactors (Sum of salvage, Federal and State indemnity)	\$1,351,232.15
Average amount received per head	\$194.90

REACTORS TO TEST FOR BRUCELLOSIS APPRAISED, THEIR APPRAISED VALUE, TOTAL AND  
AVERAGE AMOUNT RECEIVED BY OWNERS FROM SALVAGE, STATE AND  
FEDERAL INDEMNITY

December 16, 1940 to June 30, 1955

County	Reactors Appraised			Appraised Valuation			Total Amount Paid to Owners (Salvage, State and Federal Indemnity)			Average Amount Paid Owners per Head		
	Registered	Grade	Total	Registered	Grade	Total	Registered	Grade	Total	Registered	Grade	Total
Atlantic	1	74	75	\$185.00	\$9,915.00	\$10,100.00	\$156.97	\$8,847.66	\$9,004.63	\$156.97	\$119.56	\$120.06
Bergen	5	24	29	1,255.00	6,800.00	8,055.00	1,149.90	6,071.49	7,221.39	229.98	252.98	249.01
Burlington	123	585	708	37,885.00	148,405.00	186,290.00	32,180.78	117,911.45	150,092.23	263.26	201.56	211.99
Camden	12	43	55	3,740.00	9,740.00	13,580.00	3,396.88	8,095.80	11,492.68	283.07	188.27	208.96
Cape May	...	64	64	.....	7,560.00	7,560.00	.....	6,767.27	6,767.27	.....	105.74	105.74
Cumberland	73	264	337	23,250.00	57,177.00	80,427.00	21,070.54	49,563.26	70,633.80	288.64	187.74	209.60
Essex	...	16	16	.....	1,690.00	1,690.00	.....	1,559.27	1,559.27	.....	97.45	97.45
Gloucester	31	190	221	10,695.00	47,000.00	57,695.00	9,273.64	39,785.05	49,058.69	299.15	209.40	221.99
Hudson	...	2	2	.....	730.00	730.00	.....	557.53	557.53	.....	278.77	278.77
Hunterdon	160	417	577	50,154.00	114,893.50	165,047.50	41,124.97	90,687.97	131,812.94	257.03	217.48	228.45
Mercer	110	444	554	30,300.00	92,335.00	122,635.00	25,579.87	81,909.31	107,489.18	232.54	184.48	194.02
Middlesex	87	629	716	14,545.00	86,330.00	100,875.00	13,088.69	77,517.55	90,606.24	150.44	123.24	126.55
Monmouth	68	192	260	18,125.00	41,840.00	59,965.00	15,909.51	35,130.09	51,039.60	233.96	182.97	196.31
Morris	171	445	616	45,032.00	92,472.00	137,504.00	37,921.27	76,822.94	114,744.21	221.76	172.64	186.27
Ocean	...	11	11	.....	2,395.00	2,395.00	.....	2,079.15	2,079.15	.....	189.01	189.01
Passaic	9	60	69	2,685.00	11,295.00	13,980.00	2,269.91	8,954.34	11,224.25	252.21	149.24	162.67
Salem	90	786	876	26,930.00	189,523.00	216,453.00	23,864.87	148,527.95	172,392.82	265.17	188.97	196.80
Somerset	164	347	511	45,120.00	68,189.00	113,309.00	37,318.99	55,487.45	92,806.44	227.55	159.91	181.62
Sussex	119	485	604	37,475.00	137,882.50	175,357.50	31,463.25	105,636.99	137,100.24	264.40	217.81	226.99
Union	...	10	10	.....	1,450.00	1,450.00	.....	1,317.61	1,317.61	.....	131.76	131.76
Warren	98	524	622	25,558.00	133,632.40	159,190.40	21,865.32	110,366.66	132,231.98	223.12	210.62	212.59
State	1,321	5,612	6,933	\$372,934.00	\$1,261,354.40	\$1,634,288.40	\$317,635.36	\$1,033,596.79	\$1,351,232.15	240.45	184.18	194.90

## REACTORS TO TEST FOR BRUCELLOSIS APPRAISED, AMOUNT OF SALVAGE RECEIVED AND STATE AND FEDERAL INDEMNITY PAID

December 16, 1940 to June 30, 1955

County	Reactors Appraised			Amount of Salvage Received			Amount of State Indemnity Paid			Amount of Federal Indemnity Paid		
	Registered	Grade	Total	Registered	Grade	Total	Registered	Grade	Total	Registered	Grade	Total
Atlantic	1	74	75	\$28.95	\$4,588.41	\$4,617.36	\$78.02	\$2,754.17	\$2,832.19	\$50.00	\$1,505.08	\$1,555.08
Bergen	5	24	29	441.48	3,941.79	4,383.27	471.49	1,565.87	2,037.36	236.93	563.83	800.76
Burlington	123	585	708	12,862.19	64,136.53	76,998.72	14,173.75	40,948.20	55,121.95	5,144.84	12,826.72	17,971.56
Camden	12	43	55	1,149.88	4,411.03	5,560.91	1,647.00	2,746.61	4,393.61	600.00	938.16	1,538.16
Cape May	...	64	64	.....	3,555.61	3,555.61	.....	1,995.17	1,995.17	.....	1,216.49	1,216.49
Cumberland	73	264	337	9,309.52	29,102.81	38,412.33	8,592.12	15,087.42	23,679.54	3,168.90	5,373.03	8,541.93
Essex	...	16	16	.....	1,000.21	1,000.21	.....	351.55	351.55	.....	207.51	207.51
Gloucester	31	190	221	4,332.52	23,485.50	27,818.02	3,605.43	12,180.25	15,785.68	1,335.69	4,119.30	5,454.99
Hudson	...	2	2	.....	357.53	357.53	.....	150.00	150.00	.....	50.00	50.00
Hunterdon	160	417	577	15,732.37	52,692.70	68,425.07	18,417.80	28,532.62	46,950.42	6,974.80	9,462.65	16,437.45
Mercer	110	444	554	10,180.93	50,080.01	60,260.94	10,770.45	22,521.91	33,292.36	4,628.49	9,307.39	13,935.88
Middlesex	87	629	716	5,523.97	43,272.37	48,796.34	4,597.82	21,560.48	26,158.30	2,966.90	12,684.70	15,651.60
Monmouth	68	192	260	7,250.44	20,164.01	27,414.45	5,860.19	11,014.37	16,874.56	2,798.88	3,951.71	6,750.59
Morris	171	445	616	13,000.47	40,093.15	53,093.62	17,310.97	26,390.54	43,701.51	7,609.83	10,339.25	17,949.08
Ocean	...	11	11	.....	1,125.86	1,125.86	.....	723.70	723.70	.....	229.59	229.59
Passaic	9	60	69	823.95	4,716.49	5,540.44	1,015.95	2,979.02	3,994.97	430.01	1,258.83	1,688.84
Salem	90	786	876	10,408.62	85,257.83	95,666.45	9,751.42	48,609.97	58,361.39	3,704.83	14,660.15	18,364.98
Somerset	164	347	511	14,256.68	29,956.64	44,213.32	16,114.60	18,183.90	34,298.50	6,947.71	7,346.91	14,294.62
Sussex	119	485	604	13,285.47	59,369.77	72,655.24	13,023.96	35,577.69	48,601.65	5,153.82	10,689.53	15,843.35
Union	...	10	10	.....	724.60	724.60	.....	399.41	399.41	.....	193.60	193.60
Warren	98	524	622	8,152.81	61,860.19	70,013.00	9,569.05	36,092.82	45,661.87	4,143.46	12,413.65	16,557.11
State	1,321	5,612	6,933	\$126,740.25	\$583,893.04	\$710,633.29	\$135,000.02	\$330,365.67	\$465,365.69	\$55,895.09	\$119,338.08	\$175,233.17

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HERDS AND ANIMALS IN HERDS OPERATING UNDER BRUCELLOSIS TESTING PLANS  
AND THOSE CERTIFIED BRUCELLOSIS-FREE  
June 30, 1955

County	PLAN A		PLAN B		Total Herds	Total Animals
	Herds	Animals	Herds	Animals		
Atlantic	109	522	1	53	110	575
Certified	84	286	...	...	84	286
Bergen	51	711	4	136	55	847
Certified	23	473	...	...	23	473
Burlington	403	14,759	78	4,711	481	19,470
Certified	153	5,197	3	223	156	5,420
Camden	74	1,020	6	389	80	1,409
Certified	44	723	...	...	44	723
Cape May	83	492	...	...	83	492
Certified	75	484	...	...	75	484
Cumberland	437	5,152	21	788	458	5,940
Certified	282	2,987	1	89	283	3,076
Essex	29	484	2	259	31	743
Certified	17	94	1	192	18	286
Gloucester	501	4,912	22	769	523	5,681
Certified	280	2,985	...	...	280	2,985
Hunterdon	1,035	23,949	109	5,130	1,144	29,079
Certified	565	13,635	2	77	567	13,712
Mercer	350	6,748	22	1,174	372	7,922
Certified	235	4,698	1	21	236	4,719
Middlesex	332	2,518	25	3,282	357	5,800
Certified	94	977	4	246	98	1,223
Monmouth	560	8,637	12	966	572	9,603
Certified	268	5,054	1	192	269	5,246
Morris	303	7,419	30	2,323	333	9,742
Certified	155	3,543	...	...	155	3,543
Ocean	120	710	7	319	127	1,029
Certified	76	384	...	...	76	384
Passaic	55	276	5	245	60	521
Certified	11	113	...	...	11	113
Salem	495	13,964	44	1,998	539	15,962
Certified	157	4,216	...	...	157	4,216
Somerset	502	10,592	40	1,774	542	12,366
Certified	275	7,694	1	133	276	7,827
Sussex	429	18,332	82	5,990	511	24,322
Certified	167	7,675	2	1,583	169	9,258
Union	17	99	...	...	17	99
Certified	16	97	...	...	16	97
Warren	444	16,976	98	4,513	542	21,489
Certified	96	3,977	...	...	96	3,977
State	6,329	138,272	608	34,819	6,937	173,091
Certified	3,073	65,292	16	2,756	3,089	68,048



## STATE DEPARTMENT OF AGRICULTURE

## INITIAL TESTS FOR BRUCELLOSIS MADE BY COUNTIES

July 1, 1954 to June 30, 1955

	Initial Clean Tests		Initial Tests With Reactors			Total Initial Tests Made			Per Cent
	Herds	Cattle	Herds	Cattle	Reactors	Herds	Cattle	Reactors	
July	115	537	10	334	32	125	871	32	3.67
August	59	278	9	304	17	68	582	17	2.92
September	83	692	16	738	35	99	1,430	35	2.45
October	52	775	25	978	55	77	1,753	55	3.14
November	98	1,483	60	2,651	175	158	4,134	175	4.23
December	77	1,184	46	2,012	141	123	3,196	141	4.41
January	115	1,376	42	2,197	160	157	3,573	160	4.48
February	119	1,866	57	2,496	185	176	4,362	185	4.24
March	97	1,240	73	3,439	245	170	4,679	245	5.24
April	141	1,566	41	1,914	149	182	3,480	149	4.28
May	106	930	35	1,776	128	141	2,706	128	4.73
June	38	666	12	768	58	50	1,434	58	4.04
Totals	1,100	12,593	426	19,607	1,380	1,526	32,200	1,380	4.29

## AGGLUTINATION TESTS CONDUCTED IN DIVISION LABORATORY ON ANIMALS TESTED IN HERDS UNDER SUPERVISION FOR THE CONTROL OF BRUCELLOSIS

July 1, 1954 to June 30, 1955

County	Samples Received	Negative	Positive	Sus- picious	Samples Not Tested			
					Ins. Sera	Hemo- lyzed	Bro- ken	Cont.
Atlantic	282	256	9	17	..	..	..	..
Bergen	734	680	15	39	..	..	..	..
Burlington	19,157	16,992	735	1,412	8	..	10	..
Camden	1,081	1,006	30	43	1	1	..	..
Cape May	320	312	2	6	..	..	..	..
Cumberland	4,942	4,606	106	222	7	..	1	..
Essex	436	412	8	16	..	..	..	..
Gloucester	4,293	3,999	101	187	4	2	..	..
Hudson	70	60	2	8	..	..	..	..
Hunterdon	25,476	23,703	519	1,242	5	3	3	1
Mercer	6,869	6,373	120	376	..	..	..	..
Middlesex	9,278	8,861	67	350	..	..	..	..
Monmouth	9,114	8,434	106	572	..	1	1	..
Morris	8,608	7,914	238	444	2	5	5	..
Ocean	953	869	22	62	..	..	..	..
Passaic	738	677	23	38	..	..	..	..
Salem	18,789	17,081	599	1,091	13	1	4	..
Somerset	10,456	9,691	199	557	3	5	1	..
Sussex	25,019	22,792	592	1,599	4	10	22	..
Union	76	74	2	..	..	..	..	..
Warren	23,100	20,403	900	1,765	6	2	24	..
State	169,791	155,195	4,395	10,046	53	30	71	1
		Per Cent Negative		91.40				
		Per Cent Positive		2.59				
		Per Cent Suspicious		5.92				
		Per Cent Not Tested		0.09				

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## SUMMARY—BLOOD SAMPLES DRAWN FROM CATTLE—ROUTINE BRUCELLOSIS TESTS

July 1, 1954 to June 30, 1955

Veterinarians Bleeding	Lots	Animals
New Jersey Division of Animal Industry	708	13,704
United States Bureau of Animal Industry	1,201	27,917
Accredited Practitioners (State Expense)	4,887	128,170
Accredited Practitioners (Tests at Owner's Expense)	1,476	11,280
Totals	8,272	181,071

## SUMMARY—BLOOD SAMPLES DRAWN FROM INSHIPPED CATTLE—BRUCELLOSIS TESTS

New Jersey Division of Animal Industry	985	7,590
United States Bureau of Animal Industry	147	1,803
Accredited Practitioners (State Expense)	8	119
Accredited Practitioners (Tests at Owner's Expense)	305	3,885
Totals	1,445	13,397

## SUMMARY—BLOOD SAMPLES DRAWN FROM GOATS—ROUTINE BRUCELLOSIS TESTS

New Jersey Division of Animal Industry	18	157
United States Bureau of Animal Industry	56	385
Accredited Practitioners (State Expense)	75	1,157
Accredited Practitioners (Tests at Owner's Expense)	...	...
Totals	149	1,699

## SUMMARY—MISCELLANEOUS BLOOD SAMPLES DRAWN—ROUTINE BRUCELLOSIS TESTS

New Jersey Division of Animal Industry	...	...
Accredited Practitioners (Tests at Owner's Expense)	...	...
Totals	2	9 Goats
	5	5 Horses
	1	1 Sheep
	3	25 Hogs

## RESULTS OF MILK RING TEST

July 1, 1954 to June 30, 1955

County	Herds	Cattle	Samples Received	Tested	Negative	Positive	Sus- picious	Broken	Unfit to Test
Bergen	7	342	40	40	39	...	1	...	...
Burlington	83	5,028	503	500	458	36	6	3	...
Camden	14	580	44	44	34	...	10	...	...
Cumberland	41	1,463	129	127	117	10	...	...	2
Gloucester	29	1,244	128	128	116	12	...	...	...
Hunterdon	219	8,548	1,072	1,018	924	69	25	23	31
Middlesex	8	239	28	28	27	...	1	...	...
Monmouth	4	157	19	13	12	...	1	...	6
Morris	56	2,532	311	308	303	5	...	...	3
Ocean	6	234	24	24	18	...	6	...	...
Salem	244	9,912	851	815	736	28	51	...	36
Somerset	52	2,168	241	241	226	9	6	...	...
Sussex	153	9,903	947	916	853	44	19	7	24
Warren	105	4,731	520	505	449	29	27	...	15
State	1,021	47,081	4,857	4,707	4,312	242	153	33	117

## CALFHOOD VACCINATIONS REPORTED

July 1, 1954 to June 30, 1955

County	Plan A			Plan B			Plan C			Total		Un-official
	Lots	Calves	Unofficial	Lots	Calves	Unofficial	Lots	Calves	Unofficial	Lots	Calves	
Atlantic	7	52	...	...	...	...	...	...	...	7	52	...
Bergen	6	30	...	3	10	...	2	6	...	11	46	...
Burlington	285	1,196	39	103	450	5	133	527	4	521	2,173	48
Camden	30	176	3	1	9	...	9	32	...	40	217	3
Cape May	10	19	...	...	...	...	1	1	...	11	20	...
Cumberland	95	308	...	16	69	...	9	33	...	120	410	...
Essex	8	50	...	4	47	...	3	5	...	15	102	...
Gloucester	112	385	1	24	102	...	13	31	...	149	518	1
Hunterdon	733	2,307	2	140	487	...	121	317	1	994	3,111	3
Mercer	170	612	2	31	118	...	16	44	...	217	774	2
Middlesex	45	132	...	27	294	...	25	52	...	97	478	...
Monmouth	238	921	...	16	56	...	44	106	...	298	1,083	...
Morris	148	590	5	42	200	...	42	109	...	232	899	5
Ocean	17	48	1	8	30	...	7	21	...	32	99	1
Passaic	6	12	...	3	7	...	2	3	...	11	22	...
Salem	309	1,073	...	38	162	...	35	82	...	382	1,317	...
Somerset	309	1,025	3	41	141	...	22	61	...	372	1,227	3
Sussex	469	1,538	3	121	580	...	295	905	...	885	3,023	3
Union	8	11	...	...	...	...	3	4	...	11	15	...
Warren	361	1,265	4	114	401	...	179	634	...	654	2,300	4
State	3,366	11,750	63	732	3,163	5	961	2,973	5	5,059	17,886	73

## HERDS AND ANIMALS IN HERDS UNDER VARIOUS BRUCELLOSIS CONTROL PLANS INCORPORATING THE USE OF CALFHOOD VACCINATION

To JUNE 30, 1955

County	Plan A		Plan B		Plan C		Total	
	Herds	Cattle	Herds	Cattle	Herds	Cattle	Herds	Cattle
Atlantic	10	313	...	...	1	5	11	318
Bergen	6	416	3	104	3	9	12	529
Burlington	277	13,154	68	4,318	125	3,707	470	21,179
Camden	28	800	5	233	16	365	49	1,398
Cape May	12	196	...	...	2	2	14	198
Cumberland	133	3,661	9	463	13	287	155	4,411
Essex	5	348	2	259	2	2	9	609
Gloucester	114	3,565	14	653	15	242	143	4,460
Hudson	...	...	...	...	...	...	...	...
Hunterdon	836	21,940	109	4,805	213	2,363	1,158	29,108
Mercer	219	5,938	21	720	11	395	251	7,053
Middlesex	120	1,919	15	2,237	24	390	159	4,546
Monmouth	260	7,080	14	1,018	49	558	323	8,656
Morris	161	5,048	24	2,025	48	797	233	7,870
Ocean	26	478	5	296	11	242	42	1,016
Passaic	11	128	2	127	3	7	16	262
Salem	289	10,198	35	1,606	66	840	390	12,644
Somerset	339	9,940	32	1,504	37	379	408	11,823
Sussex	371	17,107	75	5,759	264	8,336	710	31,202
Union	15	96	...	...	5	67	20	163
Warren	334	14,494	81	3,945	176	4,472	591	22,911
State	3,566	116,819	514	30,072	1,084	23,465	5,164	170,356

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## LOTS, CALVES, HEIFERS AND ADULTS VACCINATED FOR BRUCELLOSIS CONTROL

July 1, 1946 to June 30, 1955

County	Lots Vaccinated	Calves Vaccinated	Unofficial Vaccinated
Atlantic	45	299	4
Bergen	86	421	8
Burlington	4,577	21,994	220
Camden	320	1,374	103
Cape May	50	96	...
Cumberland	1,161	4,231	14
Essex	136	818	15
Gloucester	1,222	4,361	31
Hunterdon	9,837	31,238	205
Mercer	2,471	8,838	249
Middlesex	1,055	5,225	16
Monmouth	2,661	10,272	234
Morris	1,887	8,421	350
Ocean	258	866	1
Passaic	111	287	8
Salem	3,093	11,104	62
Somerset	3,875	12,924	103
Sussex	6,991	26,467	383
Union	135	272	12
Warren	4,951	19,053	112
State	44,922	168,561	2,130

## CALVES VACCINATED FOR BRUCELLOSIS

July 1, 1946 to June 30, 1955

County	1946-47	1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	Totals
Atlantic	...	...	3	25	13	102	63	41	52	299
Bergen	19	18	69	53	46	60	60	50	46	421
Burlington	1,898	1,982	2,206	2,566	2,842	2,892	2,797	2,638	2,173	21,994
Camden	82	88	94	115	145	240	210	183	217	1,374
Cape May	...	...	1	4	19	11	20	21	20	96
Cumberland	251	381	451	546	518	596	578	500	410	4,231
Essex	86	99	76	78	94	89	89	105	102	818
Gloucester	239	304	353	364	594	621	746	622	518	4,361
Hunterdon	2,261	2,732	3,005	3,298	3,664	4,200	4,704	4,263	3,111	31,238
Mercer	979	905	845	935	1,092	1,194	1,107	1,007	774	8,838
Middlesex	507	456	521	625	590	731	661	656	478	5,225
Monmouth	780	828	1,136	1,207	1,189	1,343	1,340	1,366	1,083	10,272
Morris	814	890	758	853	972	1,090	1,173	972	899	8,421
Ocean	37	93	88	84	114	120	115	116	99	866
Passaic	32	24	19	26	35	45	39	45	22	287
Salem	723	835	1,010	1,179	1,276	1,476	1,664	1,624	1,317	11,104
Somerset	1,109	1,246	1,349	1,470	1,499	1,711	1,820	1,493	1,227	12,924
Sussex	1,920	2,204	2,368	2,913	3,085	3,711	3,725	3,518	3,023	26,467
Union	22	34	23	22	34	70	31	21	15	272
Warren	1,622	1,694	1,808	1,942	2,123	2,092	2,684	2,788	2,300	19,053
State	13,381	14,813	16,183	18,305	19,944	22,394	23,626	22,029	17,886	168,561

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## DIVISION LABORATORY REPORT

## BLOOD TESTS MADE FOR BRUCELLOSIS ON INSHIPPED ANIMALS

Samples received	13,397*
Insufficient sera	2
Tests completed	13,395*
Reactors	103
Negative	13,292*

\* Includes titre carrying calfhooood vaccinates eligible for entry.

## BLOOD TESTS MADE FOR BRUCELLOSIS ON ANIMALS IN HERDS UNDER SUPERVISION

Samples received	181,813
Samples broken	73
Insufficient sera	63
Tests completed	181,677
Reactors	4,448
Suspicious	10,434
Negative	166,771
Hemolyzed	24

## MILK RING (BRT) TESTS FOR BRUCELLOSIS

Samples received	4,826
Samples broken	33
Samples sour	86
Samples tested	4,707
Suspicious	395
Negative	4,312

## HOTIS TESTS MADE FOR MASTITIS ON MILK SAMPLES OF ANIMALS

Number of animals	112
Number of samples	445
Streptococci	47
Negative	395
Other organisms	7

## BLOOD TESTS MADE FOR PULLORUM DISEASE OF POULTRY

Samples received	34,718
Samples broken	1
Tests set	34,717
Tests read	34,717
Reactors	3
Negative	34,714



## BACTERIOLOGICAL, MICROSCOPIC AND POST-MORTEM EXAMINATIONS

Animal	Number Specimens Received	Specimen Received	Condition Suspected	Laboratory Findings
Avian	245	Birds	Pullorum-typhoid	Negative
Avian	31	Chicks	Pullorum-typhoid	Negative
Avian	15	Turkeys	Pullorum-typhoid	Negative
Avian	59	Embryonated eggs	Pullorum-typhoid	Negative
Avian	33	Birds	Pullorum-typhoid	Pullorum
Avian	10	Chicks	Pullorum-typhoid	Pullorum
Avian	9	Birds	Pullorum-typhoid	Typhoid
Avian	6	Chicks	Pullorum-typhoid	Typhoid
Avian	3	Capons	Unknown	Coccidiosis
Avian	2	Poults	Unknown	Coccidiosis
Avian	2	Chicks	Unknown	Coccidiosis
Avian	9	Birds	Unknown	Undetermined
Avian	3	Birds	Unknown	Chronic Respiratory Disease
Avian	3	Birds	Unknown	Blackhead
Avian	2	Birds	Unknown	Gas forming organisms
Avian	2	Birds	Unknown	Birds were in poor flesh
Avian	1	Duck	Unknown	Botulism
Bovine	6	Ears	Anthrax	Negative
Bovine	2	Ears	Anthrax	Confirmed
Bovine	11	Feti	B. abortus, V. fetus and Trichomonads	Negative
Bovine	1	Fetus	B. abortus, V. fetus and Trichomonads	Evidence of Vibrio fetus

## BACTERIOLOGICAL, MICROSCOPIC AND POST-MORTEM EXAMINATIONS

Animal	Number Specimens Received	Specimen Received	Condition Suspected	Laboratory Findings
Bovine	1	Fetus	Parasites	Few ascaris ova and large number of small flagellates
Bovine	1	Urine	C. renale	Negative
Bovine	1	Pus from abscess	Pathogenic bacteria	Negative
Bovine	1	Gland	Tuberculosis	Negative
Bovine	1	Vaginal discharge	Pathogenic organisms	Negative
Bovine	1	Skin scrapings	Mange mites	Sarcoptic mites
Bovine	1	Skin scrapings	Mange mites	Negative
Cavy	1	Rabbit	Unknown	Undetermined
Cavy	2	Rabbits	Cause of death	Coccidiosis
Equine	4	Urines	Pregnancy	Confirmed
Equine	4	Urines	Pregnancy	Negative
Equine	2	Blood samples	Leptospirosis	Negative
Equine	1	Liver	S. abortus equina	Negative
Feline		Lungs and heart of cat	Tuberculosis	Negative
Ovine	2	Skin scrapings	Mites	Psoroptic mites
Porcine	2	Pigs	Unknown	Necrotic enteritis
Porcine		Pigs feet	B. Abortus and erysipelas	Negative
Porcine		Internal organs of pig	Unknown	Undetermined
Porcine	1	Pig	Cause of death	Severe gastroenteritis

## ***Report of the Division of Markets***

WARREN W. OLEY, *Director*

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Early in the fiscal year certain changes in the national agricultural policy were initiated. On August 28 the President signed the controversial Administration farm bill. This new legislation, known as the Agricultural Act of 1954 and effective January 1, 1955, changed the high fixed price support program for basic commodities to a flexible price support program on five basic crops—wheat, corn, cotton, rice and peanuts.

The flexible price supports range from 82.5 to 90 per cent of parity. The new legislation authorizes a set-aside from commercial markets of 2.5 billion dollars of surplus commodities held by the Commodity Credit Corporation. This set-aside provision covers only wheat and cotton of the basic crops, and serves to ease any drops in support prices because of changes from the rigid to the flexible system. Purchases by the CCC are of doubtful value to New Jersey farmers because they are limited to basic crops and because our most important farm products are adversely affected by high prices of feed grains.

During the last few months when prices of eggs produced in New Jersey reached low levels some producers felt that their predicament could be relieved if the CCC would release at low prices to poultrymen some of the grain held. However, under the law grain cannot be sold in domestic markets for less than 5 per cent above current support prices plus reasonable carrying charges. The only exceptions are when an emergency arises and grain can be supplied for human consumption, or if stocks held are in danger of deterioration. It seems doubtful that New Jersey producers can obtain grain for poultry feeding purposes at lower prices than are charged by poultry feed dealers in the area.

Action by Congress and the United States Department of Agriculture in price support programs do have an influence on New Jersey's marketing. With the exception of some grain there is no direct advantage to New Jersey producers. However, there has been an adverse effect because feed purchased by dairymen and poultrymen has been kept at a relatively high level and many thousands of acres under control programs in other states have been diverted to the growing of crops in direct competition with New Jersey products.

Continued progress has been made in projects carried on by the Division. In the fruit and vegetable program the volume of commodities sold under a grade determination by Department supervised inspectors fluctuated considerably in comparison with the record of the previous year. The processing tomato crop was much lower and the inspection work at canneries was smaller, while the volume of asparagus and other vegetables was larger. Increases were also made in the use of official grades in poultry and eggs. The poultry industry continues to rank first in agricultural production and value. The volume of milk under official grades' supervision remained about the same. There were fewer dealers involved because of mergers but those remaining operated with larger herds.

The work with cooperative associations also was advanced. More co-operatives in the State and their accountants and legal advisors are taking advantage of the services and facilities of the bureaus concerned with cooperatives. As in the past the Division has had close cooperation with other State agencies and with Federal agencies with offices in New Jersey. The Division has excellent relations with the State Department of Health and with the Division of Weights and Measures of the Department of Law and Public Safety and, working through the Division of Information, with the Department of Conservation and Economic Development.

Several cooperative agreements have been continued with the Federal Department of Agriculture. These deal principally with market news and with grading, standardization and inspection work in fruits and vegetables and poultry products. In cooperation with the Agricultural Marketing Service office of the USDA in Trenton a weekly publication entitled "New Jersey Truck Crop News" is issued.

The county agricultural agents and the specialists at Rutgers College of Agriculture work with the Division on mutual problems. The Division also has worked closely with commodity groups in the State and with farmer organizations such as the New Jersey Farm Bureau, the State Grange and the Northeastern Poultry Producers Council.

#### BUREAU OF MARKET REPORTING AND COOPERATIVES

The Bureau has taken over the former crops and markets information project in addition to services to cooperatives. The primary aims of crop and market information service are to keep New Jersey producers informed as to market trends and crop conditions in competing areas so that they can produce and market advantageously and to promote the sale of New Jersey produce by encouraging buyers to use the country assembly points such as the auction markets.

The projects have depended to a great extent on information obtained from other sources. Contacts have been maintained with members of the trade, farmers, trade paper reporters and market analysts from the various land grant colleges as well as with other members of the Department and the United States Department of Agriculture.

#### MARKET REPORTING

The United States Department of Agriculture issues a daily report on the volume, demand, price ranges and types of packages in the principal terminals. This Bureau supplies crop and market information service. Generally reports are issued weekly, with the exception of the daily report on the truck movement of potatoes.

The "Weekly Market Review" is a digest of the prices of grains, feed ingredients, hay, straw, livestock, poultry, eggs, fruits and vegetables at the nearby terminals as well as the volume and prices of eggs, poultry and livestock at New Jersey country auction markets. A four-page publication, one page is devoted to a statistical summary of these commodities with present prices, those of the preceding week and of the same week the previous year.

#### MARKET CONDITIONS REPORTS

The Market Conditions reports cover about 10 commodities during the year, one commodity to an issue. Some short season crops such as strawberries require three or four issues. Crops having longer marketing seasons, as apples, and sweet and white potatoes, require more issues. Pre-season reports cover information from competitive areas such as prospective acreage and planting conditions. The cost of seed and the available supply also are included. As harvest time approaches the yield in competing states, market demand for various qualities, types of packages desired by the trade and the starting date of the harvest in later producing states are stressed.

Three reports were issued on peaches. These covered the 1954 marketing season and conditions until July 1 which affected 1955 marketing. In the spring of 1955 late freezes in the South virtually wiped out production in the Southeastern States, making New Jersey the first State in the East to have a volume of marketable peaches during 1955.

Four reports were issued on tomatoes. The growing season during the spring of 1954 was generally favorable for tomato production. The mid-summer drought restricted volume for a short period but improved weather conditions produced fairly heavy fall supplies. Spring planting for the 1955 season was delayed by dry weather and supplies will probably be later than normal.

The 1954 onion crop brought fairly good prices. In the six reports issued it was pointed out that the early summer crop was expected to be about one-fourth smaller than the 1953 crop. Supplies being closer to demand the price was higher. Prospects for the 1955 crop were good in New Jersey and the dry weather was favorable for curing and preparation for market.

Strawberries were covered in five reports, some of which emphasized the success that Eastern Shore of Virginia growers were having by marketing in pints. The marketing advantage appeared to be achieved only when the better varieties and quality were packed in pints. Prices for 24 pint crates were about 50 cents under the amount received for the 24 quart crates. During the 1954 and the 1955 seasons maximum yields were not reached in New Jersey due to hot, dry weather.

Five asparagus reports included information on the receipts and prices of competing supplies from California in nearby markets. Early 1955 weather in California was cool and retarded first movements of asparagus into the East. Shipments continued late, and with the current New Jersey supplies the market was depressed for several weeks. Some shipments of New Jersey asparagus, both for fresh market and for processing, were moved into Canada.

The apple crop produced for the 1954-55 marketing season was covered by nine reports issued mostly in the fall when information on damage to the crop by the two hurricanes was important. Eastern producing areas, including New Jersey, were unable to capitalize on the short eastern crop because of heavy production in the West and the market settled down to a fairly steady movement and price.

#### DAILY POTATO DESTINATIONS REPORTING

The Department set up a daily truck destination report on white potatoes several years ago. During the marketing season calls are made to about 30 dealers handling New Jersey potatoes to learn the number of sacks and the State to which potatoes had been shipped the previous day. The report is made available to the Federal Market News Service and issued by the USDA from Philadelphia and is placed on the leased wire service the next day. New Jersey shippers receive this report in the morning and usually before the truck shipments from New Jersey are unloaded.

#### NEW JERSEY TRUCK CROP NEWS

Through a cooperative agreement between the Trenton Weather Bureau of the United States Department of Commerce, the New Jersey Crop Reporting Service and the New Jersey Department of Agriculture the New



Jersey Truck Crop News is made available to producers and buyers of New Jersey commodities. For producers it supplies information on the progress of the crop in the State, which varies as much as three weeks between seasons in the northern and southern parts. It acquaints buyers with condition and progress of the crops as well as dates and extent of the harvest, helping them to plan their purchases from the farms of New Jersey.

#### AUCTION NEWS

The Auction News is primarily an advertising and promotional sheet. The farmers' produce auction markets, which it promotes, pay the expenses of the publication, while the Department contributes the clerical service and the market data. The publication is sent to approximately 900 buyers, mostly on the east coast from Maine to Florida, and pin point markets at which they can obtain mixed or straight loads of New Jersey produce.

#### COOPERATIVE TRADE PAPER ADVERTISING

The primary aim of trade paper advertising is to attract new buyers throughout the country to purchase their needs in New Jersey. The Department develops the advertising program as to products and timing. The Cooperative Marketing Associations in New Jersey, Inc., and the State Department of Conservation and Economic Development contribute to the cost.

#### ANNUAL POTATO SUMMARY

The Annual Potato Summary is a printed circular covering the pertinent points of the previous year's crop and marketing season. It contains historical facts that will permit comparison of yields, acreage, production, price, shipments by rail and truck and destinations. In some years charts of grades shipped as determined by the Federal-State Inspection Service are included.

#### SERVICE WORK WITH COOPERATIVES

During the past few years service work has become established as a function of this Bureau. Among the activities are the acceptance and filing of incorporation papers, by-laws, annual financial reports and certificates of dissolution as well as statements of distribution of assets. Special assistance is given groups considering the formation of cooperatives.

As there are more than 100 cooperative associations in the State the Bureau issues a bi-monthly news letter entitled "New Jersey Cooperative News" as a means of disseminating information to the directors, officers

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and managers as well as to their accountants and attorneys. The information includes interpretations of the law as obtained from qualified attorneys, internal revenue regulations and ideas in organization and performance of other cooperatives.

To carry out the aims of this project many cooperative meetings were attended during the year. These were not only directors' meetings and annual meeting of membership but also meetings of the Committee on Cooperatives of the Farm Bureau, the annual Summer Session of the American Institute of Cooperation and special meetings of the Farm Credit Administration held in New Jersey.

Through financial assistance from the cooperatives about 70 young people attended the summer session of the American Institute of Cooperation at Cornell University, Ithaca, New York to acquaint them with the aims and functions of cooperatives not only in New Jersey but throughout the United States, Canada and other foreign countries. Some of the young people that attended discussed the sessions in school, before service organizations and at annual cooperative meetings. The chief of the Bureau headed the committee obtaining financial assistance for the program and arranged transportation for the 70 young people who attended. The boys and girls chosen were from 4-H and vocational agricultural classes and were recommended by teachers and agricultural leaders in the State.

## STATISTICS ON COOPERATIVES IN NEW JERSEY

Cooperatives incorporated in New Jersey	84
Foreign cooperatives domesticated in New Jersey	25
Total cooperatives doing business in New Jersey as of July 1, 1954	109
Cooperatives incorporated during 1954-55	5
Foreign cooperatives domesticated during fiscal year	0
Cooperatives dissolved during fiscal year	0
Foreign cooperatives withdrawn during fiscal year	0
Total cooperatives doing business as of June 30, 1955	114



## DAIRY PRODUCTS MARKETING

The objective of this project is to aid in the development of a practical milk marketing program for the State. The major activity of the project 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 on the part of the Division of Markets to recognize and identify nearby-produced milk of definite quality standards.

Early in the spring of 1955 Department inspectors determined the percentage of total milk delivered by producers to dealers under the New Jersey Official Grades that was paid for at the Class I or fluid milk price. From the plant records obtained covering over 100,000 quarts daily volume more than 96 per cent of all milk delivered was paid for at the Class I price.

## NEW JERSEY OFFICIAL GRADES

The volume of milk sold under Official Grades supervision dropped about 2 per cent from last year. As the year ended 120,175 quarts were being marketed daily. There are 18 dealers processing and handling this volume of whom one distributes raw milk only and 17 handle pasteurized milk. There are 13 dealers who purchase all milk handled; four are producer-dealers and one produces and also buys from farmer-producers. As the year ended there were 319 producers in the program. The herds of a few producers formerly under supervision have been bought by other producers, some of whom are under the State program.

The rigid herd inspection initiated over 20 years ago has been maintained. During the fiscal year there were 10,993 cows examined semi-annually by veterinarians in accordance with grade regulations.

## PHYSICAL EXAMINATION OF COWS

July 1, 1954 to June 30, 1955

County	Herd Exam- inations	Animal Exam- inations	Animals Passed	Animals Isolated	Animals Con- demned
Hunterdon	293	9,153	9,070	78	5
Mercer	25	971	954	17	..
Middlesex	2	53	53	..	..
Monmouth	3	79	79	..	..
Morris	75	2,857	2,833	24	..
Somerset	231	7,071	6,981	90	..
Sussex	31	1,195	1,179	16	..
Warren	13	607	606	1	..
Totals	673	21,986	21,755	226	5

Herds in which all animals were passed  
 Herds in which animals were excepted  
 Animals passed  
 Animals isolated  
 Animals condemned

Number	or	Per Cent
530	or	78.75
143	or	21.25
21,755	or	98.95
226	or	1.03
5	or	0.02

Physical examinations were made of all employees on farms producing milk under the grades and of employees in bottling plants. Each employee taking the medical examination was approved by the examining physician as a safe individual to handle milk and they were issued cards of identification. There were 199 milk handlers cards issued.

As in former years the microscopic analysis of all samples of milk were made at the New Jersey Dairy Laboratories operated by Dr. David Levowitz. During the year 4,623 milk samples were collected and analyzed and reports sent from the Bureau to cooperating producers, dealers and health officers. Conferences have been held with health officers relative to any sample showing evidence of carelessness on the part of a producer. Again not one case of infectious disease has been traceable to this milk supply.

In the fall of 1953 the State Board of Agriculture promulgated a regulation that removed the confusion as to who had the authority to shut off a milk supply to a dealer for sanitary or other reasons. In effect, the Bureau sends out warning letters when high counts are found and attempts through inspectors to correct the conditions at the production point. If the conditions persist and the producer does not comply with the recommendations, the dealer is notified that supply cannot be sold under grade identification. This in effect forces the dealer to lay off the producer until the situation is corrected.

During the year 47 such warning letters were sent to producers and a total of eight suspensions were made. Of these, five were made at the Bureau's request and three by dealers independently. In all cases where requests were made by the Bureau the trouble was quickly corrected and no producer lost his market for more than a day or two.

#### LIVESTOCK AUCTION MARKETS

Now that the livestock auctions in New Jersey are established, work with the organizations handling them is confined chiefly to the collection and filing of reports and the publishing of sales volume and prices. These markets have filled a need in the State and supply an outlet to farmers for expended cows, calves, hogs and other animals for which the farmer was formerly dependent on dealers traveling from farm to farm. Today all sales are open and by auction.

The six markets reporting sold a total of 161,816 head of livestock, 6,708 more than in 1953-54. Gross sales this year amounted to \$7,285,622.78, about 33 thousand dollars more than last year.

OPERATIONS OF THE NEW JERSEY LIVESTOCK AUCTION MARKETS  
1954 - 1955

Market	Head	Value
Flemington	22,701	\$797,023.20
Hackettstown	49,488	2,333,846.29
Mount Holly	3,454	65,742.95
New Egypt	11,483	739,721.05
Sussex	44,239	1,777,501.16
Woodstown	30,451	1,571,788.13
Totals	161,816	\$7,285,622.78

BUREAU OF FRUIT AND VETGETABLE SERVICE

The Division of Markets continued active in relationships with those concerned with the marketing and distribution of fresh fruits and vegetables. The Division has maintained close contact with conditions affecting the trends in marketing. Activities include the establishment and development of outlet facilities such as local shipping point auction markets; terminal markets in large adjacent cities; city market and consumer educational and promotional work to create or stimulate demand for Jersey grown products; rendering assistance to growers and shippers to promote better grading and packaging to increase returns; administration of inspection, grading and certification under Federal or State standards of fresh fruits and vegetables shipped to terminal domestic markets, to export markets or delivered to processing plants.

The most important activity of the Bureau is the inspection and certification of fresh fruits and vegetables for shipment to domestic and foreign markets and grading of crops for processing. Inspection and grading are carried on in accordance with procedures and practices approved by the United States and New Jersey Departments of Agriculture and under Federal or State standards and grades.

The inspection service in New Jersey is operated under a cooperative agreement between the United States Department of Agriculture, the New Jersey Department of Agriculture and the New Jersey Agricultural Society. The service has functioned under this arrangement since 1945. The USDA supplies trained and licensed personnel as needed and trains new personnel if the need arises. It is the joint responsibilities of both Departments to supervise the work including grade interpretation and application and proper certification. The New Jersey Agricultural Society is responsible for collection of fees for services rendered to applicants by Society employees and payment of operation costs of the service. The volume of work performed varies from year to year and is influenced by such factors as

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production, commodity prices and regulations affecting marketing procedures.

Inspections on all commodities at shipping points throughout the State for fresh market shipment were about 90 per cent of last year. Potato inspections were 18 per cent less and decreases were noted for other commodities such as asparagus, green corn and sweet potatoes. The greatest increase was recorded for apples, with slightly over 60 per cent more lots inspected this year than last.

Inspection and grading of products for processing continued. Growth of the frozen food industry in the past decade has had a tremendous effect on marketing of fruits and vegetables throughout the nation. Grading of raw produce for freezing has shown a steady increase from year to year. It has been necessary to give much time and study to the improvement in the grading service as well as to the development of mechanical and visual aids to assist in rendering a more accurate and better service. At the same time that the advancement in the frozen food industry has occurred processors who are engaged in the canning of fruits and vegetables have benefited by improvement in the grading of raw products. This is possible because the grading of raw products for either canning or freezing is largely the same.

## PURPOSE OF INSPECTION

The shipping point inspection service is an aid in the orderly marketing of fresh fruits and vegetables. The service is permissive and furnishes information to growers, shippers and receivers that enables them to trade on a basis of mutual understanding. Sales of fruits and vegetables are generally based on U. S. standards and official inspection and certification. The standards cover size, cleanliness, brightness, color, freshness, firmness, decay and other factors affecting quality and condition and determination of grade. Certificates issued on products inspected are admissible in all courts as prima facie evidence of the truth of the statements therein. The service provides an unbiased official certification at a reasonable cost which makes it possible to sell to buyers at distant points in domestic and foreign trade. It insures that shippers have complied with Federal or State laws and regulations and other requirements governing shipments of specific commodities. Banks require certificates of inspection on certain commodities before authorizing credit or accepting the commodity as security for making loans.

Inspections may be made at railroad sidings, on farms, in cold storages or storage warehouses or at any point of assembly. Although the service is not mandatory most of the trading in fresh commodities throughout this country and with buyers abroad is done on the basis of U. S. Standards. Prices paid by the trade are usually based upon grade.

Through the shipping point inspection service the Bureau renders assistance to New Jersey growers and shippers by supplying their needs for inspection and certification of commodities as well as lending advice in proper grading and packaging practices.

About half, or possibly slightly more, of the acreage planted to vegetables is harvested for delivery to processing plants. The principal crops grown for processing are asparagus and tomatoes. Others include apples, carrots, sweet potatoes, green tomatoes, red sweet peppers, sweet corn, lima beans, snap beans, squash and cucumbers. Most of these commodities are delivered under contracts which specify the terms for establishing agreement of both producer and processor on such factors as quality, condition, size, color and, most important, prices per specified unit of weight. Contracts are signed prior to the harvesting season and for the most part the Federal or State standards are included as the foundation for determining these factors.

Each load of the contracted commodity delivered by the grower is sampled and graded by inspectors employed by the New Jersey Agricultural Society. Results obtained on the graded sample are applied to the entire load for the purpose of determining the value of the load. Prices to growers are directly proportionate to quality delivered.

#### CERTIFYING FRESH PRODUCE

##### *Apples*

Despite the general drought conditions during the early growing season for apples, sufficient moisture and ideal weather in the late summer and early fall resulted in the production of an excellent crop of high quality apples in New Jersey. On the night of October 15 about  $\frac{3}{4}$  million bushels of apples were blown from the trees in New Jersey by the winds of Hurricane Hazel. Many other producing areas had been severely damaged by the same storm and also by an earlier one which missed this area but did severe damage in apple areas in the New England States and New York. In an attempt to salvage as many of the windfall apples as possible a special marketing program was introduced through retail chain stores. An emergency "New Jersey Hurricane Grade" was approved by the State Board of Agriculture but there was only one request for inspection on the basis of the emergency grade. There was a fairly good demand by processors for the smaller sizes and within a short period most of the windfalls were marketed or stored.

In addition to the loss from the windfalls growers faced further loss from the damage to the fruit which clung to the trees and had suffered bruises, skin breaks and scarring. The expected volume was materially reduced and only heavy buying by the processing industry and good prices



for that portion of the crop packed for fresh market consumption prevented severe loss to the apple industry in New Jersey.

This fiscal year 369 lots of apples containing 178,647 bushels were inspected and certified compared with last year's 228 lots containing 83,142 bushels. About 96,940 bushels or almost 55 per cent of the apples inspected this year were certified for export. The U. S. Export Apple and Pear Act makes inspection mandatory for apples to be exported. Another 25 per cent or 45,378 bushels were inspected and certified on the basis of the U. S. Standards for Apples for Processing and shipped to processing plants outside of New Jersey. Most of the remaining 20 per cent of the volume inspected this year was either placed in storages or was inspected in storages and failed to meet grade specifications.

### *Green Corn*

The Cooperative Growers' Association of Beverly again continued the program of marketing green corn in a field-fresh condition. This method of marketing was instituted several years ago. Cooperating growers begin cutting about midnight or shortly thereafter each day. Corn for early morning delivery to stores in the greater Philadelphia area is harvested, graded, packed, inspected and loaded and often moving by 5.00 a. m. Several of the large chain store organizations cooperate in this program.

The Bureau furnishes a Federal-State inspector employed by the New Jersey Agricultural Society to handle the inspection of the lots. Most shipments are delivered directly to cooperating stores in nearby areas, making corn available to housewives when the stores open each morning. Shipments also are made to points outside of the greater Philadelphia area. Corn destined for the more distant points, some going as far as Miami, Florida, is loaded in refrigerated trailers and top-iced.

Volume of green corn this year was materially affected by the drought conditions existing during the growing and harvesting periods. There were many farmers equipped for irrigation but water supply was inadequate to do the job properly. Only those growers with deep wells or nearby streams were able to get sufficient water to irrigate properly.

All shipments of green corn handled by the Cooperative Growers' Association were inspected, but the market did not require certificates on lots which were considerably below grade. This fiscal year certificates were issued on 82 lots for the cooperative, covering 23,812 crates of one bushel capacity. This compares with 112 lots covering 33,112 crates of the same capacity last year.

Nine trucklots of 5,220 crates purchased by the Quartermaster Department were inspected for another shipper in the Burlington County area by an Agricultural Society inspector. Total inspections on green corn this year were 91 trucklots covering 29,032 bushel crates.

### *White Potatoes*

Irregular rainfall and short periods of freezing temperatures did little damage to the growing white potato plants in the early spring. However, as the summer advanced insufficient rain and general drought conditions prevailed. Unirrigated fields matured before most potatoes reached marketable size and in some cases the vines died without producing any crop. Irrigated fields remained alive through the drought and heat and when sufficient rain fell in August these fields produced a normal or slightly less than normal crop.

As in the past two seasons there was no Government purchase program or price support on white potatoes in New Jersey and no mandatory inspection. Requests for inspections were well below last year and might have been lower but for purchases by the Quartermaster Market Center for supplying military training installations. During August and September 65 per cent of all inspections, representing slightly more than 67 per cent of the volume of potatoes inspected for the two months, was provided by request from QMC. In fact, about 53 per cent of the season's inspections on potatoes were for QMC representing about 55 per cent of the season's volume.

Potatoes purchased by QMC were required to meet the grade specifications of U. S. No. 1 - Size A, 2 inch minimum with a maximum size limitation of  $3\frac{1}{2}$  inches diameter. This fiscal year the inspectors made 632 inspections representing a volume of 181,664 hundredweights as compared with 782 inspections and a volume of 213,998 hundredweights last year.

### CANNERY CROPS

#### *Asparagus*

Grading of asparagus for processing is the largest individual project within the Bureau of Fruit and Vegetable Service. Since receiving stations are located throughout the producing areas more inspectors are needed to handle the grading work each year. Ranking second only to California in the production of asparagus for fresh market and processing, New Jersey growers deliver about 60 per cent of their more than 29 thousand acre production to processing plants.

The grading service of raw products for processing is permissive. The processors sign contracts with their growers which specify such factors as prices for acceptable quality, length of spears, diameter of spears and minimum green color. Most contracts are based on the New Jersey Standards for Green Asparagus for Processing but the flexibility of the standards permits processors to deviate from them if their contracts with growers specify what such deviations shall be. In this way the grading service may be performed in accordance with the standards and these deviations. The inspection service has no part in the agreement except through mutual consent of both parties to see that the terms of the contracts are kept.

In the operation of the grading service on asparagus for processing representative samples are selected from each load delivered to the processing plant or receiving station. The sample is analyzed according to the contract specifications and grading percentages determined, enabling processors to apply the percentages to the entire load as a basis for payment of growers for the weight in the load meeting the contract specifications.

This season there were six different type contracts in operation. Five of these were based on the N. J. Standards and deviated from the standards and each other only in individual contract specifications regarding length of spears, diameter of spears and length of green color. Under two of these contracts growers received payment for spears of N. J. No. 1 and No. 2 quality while the other three restricted payment to N. J. No. 1 quality only. The sixth was a canner-grower contract with no particular reference to the standards.

There were 31 receiving stations operated by processors and brokers throughout the asparagus producing areas this season which required a total of 50 men, including supervisory personnel, to handle the grading work. These men were employed by the New Jersey Agricultural Society and supervised by the New Jersey and United States Departments of Agriculture.

Most of the volume of asparagus for processing was contracted and graded on the basis of New Jersey No. 1, 7 inch maximum spear length,  $\frac{3}{8}$  inch minimum diameter at base of spear,  $4\frac{1}{2}$  inch minimum green. Under these specifications 48,599,510 pounds were graded this year as compared with 48,831,761 pounds last year. Average grades this season were 73 per cent N. J. No. 1 for which growers were paid at contract prices, 6 per cent below grade and size specifications and 21 per cent classified as butts. Last year the average grades were 73 per cent N. J. No. 1, 7 per cent below grade and size and 20 per cent butts.



This season 4,323,542 pounds were graded with averages of 89 per cent pay weight and 11 per cent butts. The culls under this contract were negligible. Last season 4,056,914 pounds were graded with averages of 87 per cent pay weight and 13 per cent butts. Again the fraction of culls was negligible. The total volume of asparagus graded this year under all types of contracts was 57,020,222 pounds while last year it was 53,085,535 pounds.

### *Tomatoes*

Again this season New Jersey ranked third in the nation in the production of tomatoes for processing. This is the largest and most important crop produced for processing in the State. Some 24,900 acres were planted to tomatoes this season. The 1954 season was retarded by general drought conditions in June and July and harvesting did not begin until the last few days in July.

Both volume and quality were below normal as the season progressed. Deliveries were extremely light at all receiving stations and plants. Tomatoes showed the effects of the severe heat and drought and most loads were pale and poorly colored. When the rains finally broke the drought early in August color improved but the fruit cracked severely and black mold followed. The hurricane in August left fields saturated and tomatoes waterlogged, resulting in more cracking followed by molds and decays.

In order to comply with requirements of the Federal Food, Drug and Cosmetic Act processors had to safeguard against the possibility of exceeding the maximum tolerances for mold count, decays and bacteria and other contaminating factors such as sour fly eggs and larvae. The generally poor quality of the tomatoes necessitated trimming of an exceedingly high percentage of the fruit received. The volume of pack-out was low in comparison to the volume of the raw product and processing costs were proportionately higher.

By the end of September tomato volume increased but quality remained low and most processing plants closed by the end of the month.

At the peak of the tomato season 30 Federal-State inspectors were employed by the Agricultural Society to handle the grading at the eight processing plants and six receiving stations. Total volume graded this season was 130,462 tons with average grades of 62 per cent U. S. No. 1, 36 per cent U. S. No. 2 and 2 per cent culls. For the 1953 season the figures were 192,623 tons graded with averages of 66 per cent U. S. No. 1, 32 per cent U. S. No. 2 and 2 per cent culls.

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1954 CANNERY TOMATO SEASON AND COMPARISON WITH  
PREVIOUS 10 YEARS

	Total Tons	U. S. No. 1 (Per Cent)	U. S. No. 2 (Per Cent)	Culls (Per Cent)
1954	130,462	62	36	2
1953	192,623	66	32	2
1952	127,418	57	39	4
1951	215,875	70	28	2
1950	195,697	69	29	2
1949	147,076	63	34	3
1948	132,561	60	36	4
1947	204,395	62	35	3
1946	107,737	65	33	2
1945	73,549	64	33	3
1944	112,801	68	31	1

*Other Cannery Crops*

There are several other commodities upon which the grading service is requested. In July the Hammonton Fruit Auction requested an inspector to be assigned for the inspection of blueberries for processing. This program was originated by several of the larger growers affiliated with the market to remove the excess volume of blueberries from fresh market channels in order to prevent low prices. The market planned to set up machinery for "dry cleaning" the berries and packing them in 20 pound cans. These were to be frozen and held in storage until sold by the market.

Delivery of the machinery was delayed and before it could be put into operation the blueberry season had reached its peak. A processor was found who was interested in buying the excess berries for freezing and he requested that the berries be inspected and certified as meeting the requirements of U. S. No. 1 Grade for Blueberries for Processing and free from worms. The blueberries were inspected and certified before delivery to the freezing plant. A large part of the season's volume was handled in this manner before the cleaning machinery was installed at the market.

During the season 21 certificates were issued covering 18,330 - 20-pound cans; 16 were issued covering 8,415 - 30-pound cans and one certificate covered 890 cranberry boxes containing about 20 pounds of blueberries each. Total volume inspected and certified was 636,850 pounds.

The volume of other commodities graded this fiscal year was 38,931,490 pounds. Each of these commodities was graded on the basis of the U. S. Standards for Processing for the particular product. A list of the products and the volume graded is as follows:

Product	Pounds
Carrots	30,367,734
Red Sweet Peppers	5,900,206
Green Tomatoes	2,499,550
Sweet Potatoes	164,000

*Other Vegetables*

Shipments of fresh asparagus to Canadian processors were continued this season. Canadian laws governing importation of fresh produce require shipments of asparagus to be inspected and certified as meeting "Canadian Import Requirements." The lots of asparagus must at least meet the minimum specifications of U. S. No. 2 Grade for Asparagus for Fresh Market with not less than two-thirds of the stalk length green. The law also has certain other stipulations relative to proper marking of containers incident to conformity.

Again this year, one of the brokers purchased asparagus at the auction market in Swedesboro and ran it through machinery designed to trim spears to approximately five inches and at the same time make center-cuts of about  $1\frac{1}{2}$  inches. The spears were packed upright in used tomato lugs with the tips well below the top end-cleats so that they would not be damaged in loading and transit.

Another broker contracted with growers to buy asparagus for Canadian shipment on the basis of the New Jersey Standards for Green Asparagus for Processing; seven inch maximum spear length,  $\frac{3}{8}$  inch diameter at base of spear. He recut the spears to approximately six inches and packed them loose in climax baskets for shipment. Under this arrangement each lot was graded when delivered by the grower to determine the price the broker paid the growers. It was inspected again after trimming on the basis of the U. S. Standards for Fresh Market Asparagus and certified for export.

This season a total of 24 semi-trailer loads containing 435,909 pounds of asparagus was exported to Canada. Last season there were 35 loads containing 649,974 pounds. In addition shipments and storage lots of such products as cabbage, carrots, cucumbers, lettuce, onions, peaches, sweet potatoes and mixed vegetables were inspected and certified. A total of 56 lots were inspected covering 26,953 packages. Federal-State inspectors were also stationed at several of the shipping point fruit and vegetable auction markets for inspection and arbitration purposes.

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

	1954-55	1953-54	1952-53	1951-52	1950-51	1949-50	1948-49	1947-48	1946-47	1945-46
Apples	369	228	157	796	234	789	100	213	349	47
Asparagus	24	36	45	10	46	93	50	3	44	6
Beans	..	2	1	..	1	..	..	..	..	1
Beets	..	1	..	..	1	..	..	..	..	17
Cabbage	1	2	7	4	5	8	3	13	4	14
Carrots	1	1	1	..	..	6	5	5	2	3
Cauliflower	..	..	..	..	..	2	5	1	..	..
Celery	..	..	..	..	..	2	5	11	6	2
Corn	91	135	113	92	67	37	91	100	82	51
Cucumbers	1	49	4	1	..	8	3	2	1	3
Eggplant	..	..	..	..	..	..	..	..	..	3
Lemons	..	..	..	..	..	1	..	1	1	..
Lettuce	5	1	5	..	2	1	4	1	4	2
Onions	28	27	14	42	15	28	36	38	10	26
Onions, Green	..	1	2	..	..	..	10	..	..	..
Parsley	..	..	..	..	..	1	..	..	..	..
Parsnips	..	..	..	..	..	..	..	..	..	7
Peaches	8	3	3	5	1	1	..	..	3	7
Peppers	..	2	5	5	..	48	36	78	12	50
Potatoes	632	782	1,748	9,989	18,429	10,454	12,586	14,066	11,333	5,994
Radishes	..	..	..	..	..	3	7	1	..	..
Rhubarb	..	..	..	..	..	..	..	..	..	2
Rutabagas	..	..	3	..	..	..	..	..	..	2
Spinach	..	..	1	..	..	2	..	1	..	17
Squash	..	..	..	..	6	1	..	..	..	1
Sweet Potatoes	9	24	7	12	26	5	33	5	41	20
Tomatoes	..	4	..	..	1	1	..	6	..	..
Turnips	..	..	1	..	..	1	..	2	15	21
Mixed Fruits and Vegetables	..	..	..	..	..	550	684	357	..	..
Mixed Vegetables	3	1	2	..	3	128	155	210	31	65
Totals	1,172	1,299	2,119	10,956	18,837	12,170	13,813	15,114	11,938	6,361

*Terminal Inspection*

The Bureau also is responsible for making inspections at the request of receivers at various New Jersey terminals on products received in interstate commerce. Most of these requests are on potatoes; however, many inspections are made on various other commodities. Only inspectors who are certified by letter of authorization from USDA are eligible to make terminal inspections. Terminal inspections are certified on straight Federal certificates rather than the Federal-State type used for reporting shipping point inspections. Only four men in New Jersey including the chief of the Bureau were authorized to do this work this fiscal year.

Inspections were made of potatoes, cabbage, lettuce, onions, radishes, oranges, cranberries and lots of mixed vegetables. There were 143 terminal inspections on these commodities covering 63,080 packages and 172,425 pounds of cranberries. The cranberries were received by a South Jersey processor. In addition, the men made 23 inspections on lots of these commodities for replacement of items rejected upon original delivery of supplies to State hospitals and institutions, totaling 200,667 pounds.

### MARKET ACTIVITIES

Since the Department was reorganized in 1916 there have been numerous changes in marketing methods. Many of these changes are the effect of more efficient transportation systems. Progress in efficiency of railroads has been constant but the cost of rail transportation has increased many fold. This has brought about greater economies and more efficiency in delivering high quality products to the East in almost fresh condition. Also, modern highway systems have been constructed and because of them truck transportation has improved tremendously. Trucks and trailers today carry the loads of farm products that a refrigerator car can handle.

With improved roads came the roadside market to cater to a traveling public and more recently the decentralization of consumer distribution stores. The super markets have been established on the outskirts of the cities and towns and have replaced thousands of separate stores in the business sections. The city farmers' market system is declining and to a lesser extent so is the terminal market in large cities. Super markets receive through headquarters' warehouses a large part of their needs by rail or truck direct to the unloading platforms of the supply warehouse.

The quality demanded by the public is dependent on speed in handling, care and efficiency in packaging and progress in methods of display, including refrigeration and attractiveness.

New Jersey producers have opportunities to sell to people in the State and also to surrounding States. But New Jersey shippers face greater competition than ever before. Shippers from all over this country and many foreign countries are competing for the outlets. To draw attention to New Jersey products the farmers must work closely with distributing agencies. They have learned the importance of better packing and grading and that it is wise to leave many of the low quality, low price products on the farm.

New Jersey still has an excellent marketing system. Practically all of the markets are owned and operated by farmer-associations which are constantly trying improvements. During the spring of 1955 greater decisions were made and more money was spent than in any previous year by



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the associations for the purpose of assuring the consumer a higher quality product through the installation of stericooler or hydrocooler units. Four of the produce market associations did install this type of equipment and another is planning to do so shortly.

There is at present a great deal of discussion about developing at these markets centralized packing houses. Two markets have already built such houses for packing sweet potatoes. These packing houses assure uniformity of grade and quality.

As in former years the Division has worked closely with associations and individuals conducting marketing operations. Ten of the markets have continued to supply weekly statistical material which enables the Division to develop sales programs. The weekly price reports obtained from these markets also are of special value to the Federal Crop Reporting Service and to the College of Agriculture.

Representatives of the Division attend many of the monthly directors' meetings of marketing associations and all of the annual association meetings. They also work with special committees when requested.

*Shipping Point Auction Markets*

Following the method of reporting in annual reports of former years information is given on the complete calendar or crop-growing year rather than break it into parts of two years. Therefore, the entire marketing year of 1954 is covered. In order to give indications of conditions during the last half of the fiscal year some information is presented on the first six months of 1955.

Once again New Jersey growers experienced lower returns for commodities offered at the auctions. A few commodities brought higher prices but the average price per package for all fruits and vegetables sold was 1.59 per cent lower than in 1953. The total volume offered for sale was 30,841 packages less than in 1953, a reduction of less than 1 per cent.

The first half of the new production year was slightly different. The volume sold over the auctions was 40,512 packages more than from January through June 1954. The price for the total of 1,324,236 packages sold, however, averaged eight cents less per package than in the corresponding period of 1954. This resulted in a gain of but \$20,115.99 in gross receipts.

## SALES AT FRUIT AND VEGETABLE AUCTION MARKETS

	Season of 1954		Season of 1953	
	Packages Sold	Value of Sales	Packages Sold	Value of Sales
Beverly	285,013	\$406,744.15	256,735	\$310,241.16
Beverly Consigned and Direct	250,528	556,223.21	263,614	603,071.71
Cedarville	632,524	1,363,173.50	659,893	1,431,748.80
Glassboro	308,861	621,462.88	280,331	565,077.15
Hammononton	229,093	828,910.53	245,879	873,990.75
Hammononton to Processors	335,143 lbs.	73,731.46	580,935 lbs.	116,413.02
Hightstown	371,384	410,589.31	346,359	397,912.00
Hightstown Consigned and Direct	31,230	78,262.35	56,631	79,106.89
Landisville	525,389	855,343.15	542,345	1,049,588.91
Landisville Consigned and Direct	82,079	159,149.67	81,759	150,982.67
Pedricktown	154,308	460,027.45	169,333	488,370.53
Swedesboro	622,428	1,773,279.70	718,175	1,899,077.08
Vineland	788,621	1,293,242.07	729,412	1,189,114.95
Totals—by auction	3,917,621	\$8,012,772.74	3,948,462	\$8,205,121.33
Value—all sales	.....	\$8,880,139.43	.....	\$9,154,695.62

Average price per package (by auction), 1954 \$2.045

Average price per package (by auction), 1953 \$2.078

Per cent of decrease in price per package, all commodities (by auction), 1954 under 1953 1.59

(In addition to markets listed other markets may have had special sales, no record of which is available in Division of Markets office.)

Early in the year the Division lost the services of the supervisor of fruit and vegetable standardization through death. He had worked with the boards of directors and management from the days they had organized and been helpful in instituting modern and proven methods of operation. The position of supervisor was filled late in the year. In the intervening months some assistance was given to the market associations by the Division director and the chief of the Bureau of Market Reporting and Cooperatives. The chief of that Bureau was made secretary of the market managers' association at their request, filling the vacancy caused by the death of the supervisor.

*City Farmers' Markets*

A detailed weekly report is obtained from only one city farmers' market operated by a municipality. This is the market operated by Atlantic City and situated on the Absecon Boulevard. The decline in use of city farmers' markets is prevalent in all eastern areas of the nation and was noticeable in Atlantic City this year.

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In the Atlantic City market sales' values dropped from \$762,364.55 in 1953-54 to \$406,897 in 1954-55. The volume of fruits and vegetables dropped from 323,625 bushels in 1953-54 to 209,600 bushels this year. There were 48,715 dozens of eggs and 46,252 pounds of poultry sold compared with 131,340 dozens of eggs and 57,790 pounds of poultry in the 1953-54 year. A great deal of the reduction can be attributed to the labor shortage. Better wholesale marketing facilities have made it more profitable to sell quicker at a country point assembly market and devote to farm operations the time formerly spent at the market.

PRINCIPAL COMMODITIES SOLD AT FRUIT AND VEGETABLE AUCTION MARKETS  
VOLUME IN 1954 WITH 1953 COMPARISONS

	Unit	1954	1953
Apples	Bushels	24,578	11,684
Peaches	Bushels	229,818	149,680
Blackberries	Crates, 24 quarts	2,653	3,086
Blueberries and huckleberries	Crates, 12 pints	155,180	155,062
Raspberries	Crates, 12 pints	6,746	13,480
Strawberries	Crates, 24 quarts	54,131	72,951
Asparagus	Crates, doz. bunches	431,974	440,838
Beans, lima	Bushels	30,057	26,429
Beans, snap	Bushels	165,724	125,514
Beets	Bushels	12,692	15,318
Broccoli-rabe	Bushels	55,730	55,509
Cabbage	Bushels	55,346	75,287
Cantaloupes	Bushels	38,182	34,638
Carrots	Bushels	2,484	2,374
Cauliflower	Crates, 1½ bushel	7,118	5,332
Corn, sweet	Bushels or sacks	108,736	74,316
Cucumbers and pickles	Bushels	193,648	223,625
Dandelion	Bushels	21,749	27,525
Eggplants	Bushels	69,551	79,556
Lettuce	Crates, 2 dozen	311,556	283,808
Okra	Climax baskets, 12 qts.	35,736	32,535
Onions	Sacks, 50 lbs.	95,114	157,490
Parsley	Bushels	29,865	32,583
Peppers	Bushels	519,516	509,622
Potatoes, sweet	Bushels	235,477	212,830
Potatoes, white	Sacks, 100 lbs.	16,910	14,772
Radishes	Bushels	21,497	14,660
Scallions	Crates	15,293	9,042
Squash	Bushels	44,135	39,511
Tomatoes	Climax baskets	542,875	587,877
Watermelons	Each	20,618	17,026
Watermelons—Icebox	Bushels	3,057	.....
Miscellaneous	Packages	359,875	550,706



A somewhat different condition prevails at markets that have been developed as retail markets. In such cases the farmer benefits in the increasing spread between wholesale and retail prices attributed almost entirely to labor costs and to services consumers demand. An example is the Trenton Farmers' Market which is operated by a farmers' cooperative association. It was organized several years ago with assistance from the Division of Markets. The director of the Division has attended meetings of the members and of the directors during the year and acts as an advisor to committees. He also has visited the market on several occasions. The farmer-members of the Market generally have made out better than if they had sold at wholesale in other markets.

### *Miscellaneous*

In the 1953-54 report there was a description of an organization formed by the Division for advisory purposes. This organization later was incorporated under the name of "The Cooperative Marketing Associations in New Jersey, Inc." and is chiefly educational in its own behalf and advisory to the Department. It also is instrumental in promotional work for co-operatives. Again during the year it financed the Department weekly publication "Auction News." These activities together with a cooperative publicity program for the produce auctions was financed through assessments against the produce auction associations based on volume of business and length of time during the year the market operates.

The Division cooperated in providing fruit and vegetable displays at the New Jersey Mid-Atlantic Farm Show. It was instrumental in staging a sweet potato exhibit of packed half-bushels of sweets and judged the exhibits. The Bureau chief and supervisor conducted the apple packing contest at the Show in cooperation with representatives of Rutgers College of Agriculture and the Agricultural Extension Service.

As in former years the Bureau aided individual farmers in handling personal marketing problems and continued the work of improving packing and packages. This year the supervisor was called on to assist in developing certain appliances for mechanical harvesting of asparagus.

### BUREAU OF POULTRY SERVICE

The Bureau of Poultry Service performed its assigned duties at near record levels of accomplishment in spite of the unfavorable poultry economic situation during 1954-55. Although incomes of breeders, hatcherymen and commercial producers of market eggs and poultry were greatly reduced the services rendered by Department personnel and authorized agents were only slightly below those of economically favorable years in the poultry industry.

In poultry standardization 956,233 birds were certified in 510 flocks (62 less than 1953-54) in 18 counties. There were 112 hatcheries (three more than 1953-54) cooperating. The number of birds in participating flocks was 7.6 per cent less than the record high of 1,034,633 birds in 1952-53 and 6 per cent under 1953-54. Production of chicks and poults in the State supervised hatcheries was approximately 29,000,000, which was 12.1 per cent below last year's 33 million. An estimated 88.8 per cent of all chicks and poults hatched in New Jersey were produced under State supervision.

Thirty-four egg-marketing projects (three more than last year) under Department supervision handled 2,367,178 cases (71,015,340 dozens) of which more than 2¼ million cases were inspected by Bureau of Poultry Service personnel and licensed agents. An estimated one-third of New Jersey's total egg production is now marketed under State inspection supervision.

A relatively small State-employed staff administers these projects. The supervisors of poultry standardization and poultry products standardization and clerical personnel are paid from State appropriations. In poultry standardization the State inspector and seasonally employed assistant are supported by fees paid by participants in the N.J.-U.S. Poultry Improvement Plan. In poultry products standardization there are two State egg inspectors supported by fees paid by the supervised cooperatives and dealers plants. Expansion under both projects has been made possible by the Department policy of officially recognizing the work of licensed agents who are qualified by training and integrity to perform the required functions.

There were 125 privately-employed workers certified as flock selectors, 131 as pullorum-typhoid testing agents, 112 hatchery owners and 510 hatching egg flock owners working in various phases of the N.J.-U.S. National Poultry Improvement Plan under departmental supervision last year. Each selecting and testing agent has been qualified by examination and his performance is periodically checked by Department personnel.

In poultry products standardization 30 privately-employed resident inspectors are responsible to the Department for the application of official egg and live poultry grades. Several hundred egg candlers work under direction of these agents, further multiplying the results obtained through the State-employed supervisory personnel. Four inspectors are assigned to enforcement of the State Fresh Egg Law. Through inspections at both wholesale and retail levels they provide a constant and further check upon the work of the licensed agents in addition to obtaining general egg trade compliance with the law.

Many services beyond those specified by regulations were performed by the staff. Producers, distributors and consumers made numerous requests

for information and technical assistance related to the poultry industry. The Bureau cooperated with other branches of New Jersey, Federal and other states' governments as well as with many public and commercial agencies concerned with health, research, education and promotion.

#### POULTRY STANDARDIZATION

The Division of Markets carries on the poultry breed improvement program and cooperates with the Division of Animal Industry in conducting the pullorum-typhoid eradication program. The New Jersey program is coordinated with that of the United States Department of Agriculture and with other states. The National Poultry Improvement Plan has been in operation in New Jersey 20 years, replacing the original State program established in 1923. The National Turkey Improvement Plan has operated for 12 years.

There were 956,233 birds enrolled during 1954-55. A total of 293,981 birds (30.7 per cent) were tested by the State staff and the balance by field agents. The latter are assisted and their work is closely checked by the Bureau of Poultry Service inspector and two Division of Animal Industry men. One temporary poultry service inspector, employed October through March, assisted in handling the work.

There are 467 Pullorum-Typhoid Clean flocks in a total of 510 hatching egg flocks under supervision in New Jersey. The State Board of Agriculture's permission to give official recognition to Pullorum-Typhoid Clean ratings attained through work of testing agents was made a permanent part of the program two years ago. The number of birds in the Pullorum-Typhoid Clean classification decreased from 904,687 in 1953-54 to 855,510 in 1954-55. This decrease was a result of the unfavorable poultry economic situation and not the lowering of flock health standards.

Although the number of supervised hatching egg flocks in New Jersey is decreasing the size of individual breeding flocks is increasing as is hatchery capacity. The average participating flock numbered 1,874 birds last year, three times greater than the average of 10 years ago. The average participating hatchery capacity in New Jersey is 111,218 eggs per setting, about a 25 per cent increase over 10 years ago.

The classifications used this season were:

Breeding Stages	Pullorum-Typhoid Classes
N.J.-U.S. Register of Merit	N.J.-U.S. Pullorum-Typhoid Passed
N.J.-U.S. Record of Performance	N.J.-U.S. Pullorum-Typhoid Clean
N.J.-U.S. Certified	
N.J.-U.S. Approved	

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## SCOPE OF SERVICES UNDER POULTRY STANDARDIZATION PROGRAM

Poultry Table 1

N.J.-U.S. Improvement Plans	Number in 1954-55	Number in 1953-54	Per Cent Changes in 1954
Number of flocks cooperating	510	572	—10.8
Total number of breeders	956,233	998,043	— 4.2
Number of hatcheries cooperating	112	109	+ 2.8
Hatchery capacity cooperating	13,456,510	11,827,220	+13.8
Hatchery capacity in New Jersey	15,150,000	15,900,000	— 4.7
Number of birds in pullorum-typhoid classes only	345	620	—44.3
Number of birds in Approved stages	904,042	819,462	+10.3
Number of birds in Certified stages	51,846	177,961	—70.8
Number of birds in ROP Trapnest	3,203	3,900	—17.8
Number of birds qualified in Register of Merit	327	274	+19.3
Number of birds qualified for Honor Roll	257	180	+42.7
Number of females in ROP breeding pens	1,100	2,040	—46.1
Number of ROP chicks produced	41,442	59,175	—29.9
Number of ROP chicks and cockerels sold	1,569	2,071	—24.2
Number of ROP chicks and cockerels entering New Jersey	3,267	2,290	+42.6
Number of ROP cockerels leg banded	4,381	12,436	—64.7
Percentage of birds reacting to the pullorum- typhoid test	0.0238	0.016	....
Number of flock inspections	759	473	+60.4
Number of hatchery inspections	233	132	+76.5
Number of ROP inspections	31	25	+24.0

Ocean County leads in number of breeding birds, followed by Monmouth, Hunterdon and Cumberland. White Leghorns accounted for 75.6 per cent of all varieties enrolled in the State program. The number of New Hampshires and Rhode Island Reds declined, the former to 28,188 birds compared with 53,412 birds last year. New Hampshires remained the second most popular breed in hatching egg flocks. Plymouth Rocks decreased in number. There were 6,747 of the Barred variety and 18,282 White Rocks. The recently revived popularity of white and buff Cornish stock continues because of the demand for Cornish males to be crossed on other varieties to produce meatier-type broilers and roasters.

Poultry Table 2  
CLASSIFICATION AND DISTRIBUTION OF BIRDS UNDER SUPERVISION IN POULTRY STANDARDIZATION PROGRAM  
NUMBER OF BIRDS

County	Flocks	N.J.-U.S. Certified		N.J.-U.S. Approved		N.J.-U.S.		Totals
		Pullorum-Typhoid Passed	Pullorum-Typhoid Clean	Pullorum-Typhoid Passed	Pullorum-Typhoid Clean	Pullorum-Typhoid Passed	Pullorum-Typhoid Clean	
Atlantic	17	....	....	4,315	23,628	....	....	27,943
Bergen	5	....	....	....	7,058	....	....	7,058
Burlington	20	....	4,328	2,784	21,685	76	....	28,873
Camden	4	....	....	....	835	....	....	835
Cape May	5	....	....	9,711	7,653	....	....	17,364
Cumberland	109	....	6,677	8,009	134,130	....	....	148,816
Gloucester	16	....	16,056	1,856	27,430	....	....	45,342
Hunterdon	92	....	....	1,200	156,424	....	....	157,624
Mercer	18	....	....	....	43,501	....	....	43,501
Middlesex	27	....	3,628	....	49,939	....	....	53,567
Monmouth	57	....	....	48,424	127,874	....	....	176,298
Morris	1	....	....	....	621	....	....	621
Ocean	74	....	21,157	14,358	162,719	....	....	198,234
Passaic	4	....	....	528	1,260	....	....	1,788
Salem	36	....	....	9,462	20,271	....	....	29,733
Somerset	10	....	....	....	11,952	....	....	11,952
Sussex	13	....	....	....	6,251	....	269	6,520
Warren	2	....	....	....	164	....	....	164
Totals	510	....	51,846	100,647	803,395	76	269	956,233

Poultry Table 3

## NUMBER OF BREEDERS, BY COUNTIES, BREEDS OR VARIETIES

County	Single Combed White Leghorns	New Hamp- shires	Rhode Island Reds	Barred Rocks	White Rocks	Crosses	In- cross- bred	Others	Turkeys	Totals
Atlantic	22,172	204	1,730	....	....	3,837	....	....	....	27,943
Bergen	2,083	258	....	....	599	4,042	....	....	76	7,058
Burlington	20,575	....	1,254	693	....	5,527	....	76	748	28,873
Camden	....	....	....	....	....	....	....	....	835	835
Cape May	12,602	....	4,762	....	....	....	....	....	....	17,364
Cumberland	107,942	2,201	6,951	217	8,155	22,084	....	1,266	....	148,816
Gloucester	33,430	....	....	....	1,283	9,690	....	....	939	45,342
Hunterdon	88,330	15,177	5,702	1,366	2,690	43,488	....	....	871	157,624
Mercer	23,937	2,429	....	2,763	....	7,779	6,593	....	....	43,501
Middlesex	48,849	751	....	....	1,640	855	....	....	1,472	53,567
Monmouth	150,890	2,320	....	....	....	20,777	....	755	1,556	176,298
Morris	621	....	....	....	....	....	....	....	....	621
Ocean	178,469	....	246	939	1,397	1,321	14,160	761	941	198,234
Passaic	1,077	....	336	....	....	....	....	....	375	1,788
Salem	18,161	3,813	....	769	2,508	4,482	....	....	....	29,733
Somerset	9,854	470	27	....	10	1,541	....	1	49	11,952
Sussex	4,369	565	....	....	....	....	....	360	1,226	6,520
Warren	....	....	....	....	....	....	....	....	164	164
Totals	723,361	28,188	21,008	6,747	18,282	125,423	20,753	3,219	9,252	956,233



Interior egg quality improvement work through Record of Performance family breeding started four years ago and continued to progress in 1954-55. Three New Jersey ROP breeders are selecting poultry families for the factor of interior egg quality with the technical assistance of the Bureau staff. One ROP breeder won the top award for "Egg IQ" at the Hunterdon Egg Laying Test this year. This quality test is sponsored by a chain store and the National Committee for the Improvement of Market Egg Quality of the Associated Poultry and Egg Industries.

Participation in the Turkey Improvement Program totaled 9,252 birds in 1954-55, a 3.3 per cent increase from 1953-54.

The 14th annual qualification and examination day for flock selectors and pullorum-typhoid testers was held in Trenton. Instructors from the poultry department of the College of Agriculture cooperated with the Division of Markets and the Division of Animal Industry. Twelve persons were qualified by examination and field tests. Selecting agents operated only in the Approved and Certified breeding stages while testing agents operated in all pullorum-typhoid stages.

One Federal supervisor was in the State once this year. Two staff members attended a regional Poultry and Turkey Improvement Conference in Boston, Massachusetts.

Fowl typhoid testing, which was added to the program in 1954-55, revealed five flocks were infected. Two flocks with very low infection re-qualified for clean ratings. Three farms whose flocks had high infection were depopulated.

Staff members continued to cooperate in the educational program of the New Jersey Poultry Breeders' Association.

Several lots of N.J.-U.S. ROP hatching eggs and chicks were air-shipped to Greece, Israel, Argentina and other countries through the U. S. Point IV Program (Technical Assistance Mission) during the past season, the Division cooperating with breeders in the necessary certification and also in expediting transportation.

## MARKET ACTIVITIES

### *Cooperative Marketing*

The cooperative egg marketing associations with which the Bureau of Poultry Service worked in various programs last year handled 1,695,750 cases of eggs, all wholesale graded, approximately one-fourth of the State's total production. These statistics include only the six "egg auctions" and one "bargaining cooperative," FARMCO. Retail grading figures also are

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not included. Statistical information on the seven other bargaining co-operatives cannot be included because no official inspection is performed and no volume and price reporting program is yet feasible.

Through an established reporting system the six egg auction markets provide a dependable source of information for measuring changes in poultry production and evaluating the producers' economic condition. Actual volume and dollar value of eggs handled by cooperatives is reported for the auction markets located in Vineland, Mount Holly, Hightstown and Flemington, all of which are under State inspection supervision, and in Hackettstown and Paterson which operate on market grades. A new record total of 1,348,732 cases of eggs was marketed by these auctions, 1.06 per cent more than last year. The total value of eggs sold was \$16,990,820.39 a 17.72 per cent drop from last year. The average price per case of eggs, regardless of size or quality, was \$12.60 or 42.0 cents per dozen, 18.6 per cent less than the 1953-54 average of 51.60 cents per dozen.

The average prices for all eggs of all sizes and qualities at the auction markets are annually reported. Vineland again commanded the highest annual average price of \$12.78 per case. Flemington's annual average price was \$12.55, Hightstown averaged \$12.46, Paterson \$12.33, Mount Holly \$12.18 and Hackettstown \$11.71. The volume of egg sales increased slightly over 1953-54 on all six markets.

Live poultry prices were lower for the second consecutive year. At the cooperative auctions conducting live-poultry sales 5,718,722 pounds were sold, 151,272 pounds or 2.58 per cent less than the previous year. The total value of live poultry was \$1,157,727.96 which was 17.7 per cent less than last year. The 1954-55 average-per-pound price of 20.2 cents at the five auctions was 15.5 per cent less than the previous year's 23.9 cents. On the basis of individual markets Mount Holly had the highest average price per pound of 22.0 cents. Flemington averaged 21.3 cents per pound, Hackettstown 19.6 cents, Hightstown 17.7 cents and Paterson 16.4 cents per pound for all varieties and qualities of live poultry items.

Assistance was given Northeastern Poultry Cooperative, Inc., the regional agency formed two years ago which has engaged in trading on the New York Mercantile Exchange, and in marketing projects to divert surplus eggs from the eastern markets.

### *Auction Markets Egg-Feed Ratio*

Seriously depressed financial conditions for New Jersey market egg producers persisted during the entire 12 months. The appended ratios of egg prices compared with feed costs were economically unfavorable virtually every month from July 1954 through June 1955. The first half of 1954 also



was unfavorable for market egg production. An unusually heavy carryover of yearling layers from 1954 into 1955 is believed to have occurred as poultrymen sought to avoid the costs of raising replacement flocks. Egg production of these yearlings continued at a high rate throughout the winter and spring months, surfeiting the markets and depressing prices.

Poultry Table 4

## SUMMARY OF EGG AND POULTRY AUCTION MARKETS

July 1, 1954 to June 30, 1955

Market	Cases of Eggs	Value of Eggs	Crates of Poultry	Pounds of Poultry	Value of Poultry	Total Value
Flemington	448,503	\$5,627,613.91	56,344	2,742,255	\$584,903.87	\$6,212,517.78
Hackettstown	26,692	312,663.31	9,133	544,861	107,313.00	419,976.31
Hightstown	160,808	2,003,376.51	20,881	1,005,677	178,035.19	2,181,411.70
Mount Holly	61,600	750,118.64	17,838	954,969	210,128.81	960,247.45
Paterson	52,519	647,561.39	8,433	470,960	77,347.09	724,908.48
Vineland	598,610	7,649,486.63	.....	.....	.....	7,649,486.63
Totals	1,348,732	\$16,990,820.39	112,629	5,718,722	\$1,157,727.96	\$18,148,548.35

Average price per case, 1954-55 \$12.60

Average price per pound of live poultry, 1954-55 \$0.202

Average price per case, 1953-54 \$15.48

Average price per pound of live poultry, 1953-54 \$0.239

Poultry Table 5

## AVERAGE PRICE PER DOZEN EGGS ON SIX NEW JERSEY AUCTION MARKETS

Month	1954	1953	1939
July	\$0.4510	\$0.6050	\$0.2647
August	.4355	.5996	.2678
September	.4038	.6083	.2948
October	.3643	.5700	.3029
November	.4180	.5547	.3318
December	.3857	.5142	.2453
Month	1955	1954	1939
January	.3852	.5347	.2372
February	.4700	.4933	.2260
March	.4738	.4588	.2305
April	.4342	.4608	.2218
May	.3870	.4094	.2146
June	.4450	.4062	.2384

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Poultry Table 6

## 10 YEARS OF PROGRESS IN NEW JERSEY POULTRY AND EGG AUCTION SALES

	Cases of Eggs	Crates of Poultry	Pounds of Poultry	Total Combined Value Eggs and Poultry
1954-55	1,348,732	112,629	5,718,722	\$18,148,548.35
1953-54	1,334,554	116,074	5,869,994	22,068,208.60
1952-53	1,291,951	114,313	5,869,308	23,083,519.57
1951-52	1,180,320	130,754	6,882,213	20,302,196.16
1950-51	1,067,278	122,147	6,548,720	19,353,488.51
1949-50	1,007,268	123,392	7,170,230	16,035,952.60
1948-49	807,739	102,301	5,194,487	16,331,155.63
1947-48	724,749	91,445	4,709,002	14,550,468.95
1946-47	561,673	78,441	4,106,573	10,498,824.87
1945-46	417,851	49,066	2,571,721	6,092,989.74
Totals	9,742,115	1,040,562	54,640,970	\$166,465,352.98

Despite unfavorable egg prices the New Jersey market egg flock was further expanded, although slightly, in 1954. The hens and pullets population has been growing for 20 years, reaching the five million mark in 1939, 10 million in 1949, 18,662,000 in 1954 and 18,864,000 on January 1, 1955 (preliminary). At the present rate of egg consumption (about one 30-dozen case per capita annually) New Jersey provides an outlet for the production of about 11 million birds. Further poultry expansion can be justified only as population grows, as new outlets can be developed and as services are improved by marketing organizations such as have been established in co-operation with the Department.

The accompanying egg-feed ratios (Poultry Table 7) show that from July 1954 through June 1955 cost-price relationships were such that poultry keeping was unprofitable during all months. More than nine dozen eggs were required to pay for 100 pounds of average laying ration during even the most favorable months. A ratio of eight dozen=100 pounds is an indication of poultry prosperity. No wide variation in egg prices occurred, the annual range of 10.95 cents occurring between the March 1955 price of 47.38 cents and October 1954's 36.43 cents per dozen. All eggs for all months were 10 cents per dozen less than a year earlier. Only February, March and June eggs in 1955 brought higher prices than in the corresponding 1954 months.

Although not enough to offset the 18 per cent drop in egg prices feed was cheaper by about 2 per cent than a year earlier. The saving was actually less than five cents a bag (100 pounds) if the monthly prices are averaged. However, feed prices which started to decline in January were lower as the new year progressed and prospects are for still lower prices.

Poultry Table 7

## NEW JERSEY EGG AUCTIONS—EGG-FEED RATIO

		July			August			September		
		1954	1953	1939	1954	1953	1939	1954	1953	1939
EGGS										
Total dozens sold		3,131,760	2,965,320	891,300	3,363,840	2,952,120	900,540	3,726,960	3,229,020	855,660
Total price paid	dollars	1,412,458	1,793,877	235,920	1,464,841	1,770,374	241,138	1,504,788	1,964,152	252,290
Av. price per doz.	dollars	.4510	.6050	.2647	.4355	.5996	.2678	.4038	.6083	.2948
FEED										
Av. 100 lb. scratch	dollars	4.10	4.05	1.60	4.15	4.05	1.50	4.10	4.10	1.86
Av. 100 lb. mash	dollars	5.00	4.80	2.18	5.00	4.85	2.16	4.95	4.85	2.02
Av. laying ration	dollars	4.55	4.43	1.89	4.58	4.45	1.83	4.53	4.48	1.94
RATIOS										
Doz. eggs required to buy 100 lb. feed		10.1	7.3	7.1	10.5	7.4	6.8	11.2	7.36	6.6
No. lb. feed one doz. eggs will buy		9.9	13.7	14.0	9.5	13.5	14.6	8.9	13.57	15.2
		October			November			December		
		1954	1953	1939	1954	1953	1939	1954	1953	1939
EGGS										
Total dozens sold		3,702,060	3,734,340	995,430	3,568,500	3,427,080	969,330	3,362,880	3,717,960	1,135,350
Total price paid	dollars	1,348,560	2,128,814	301,571	1,491,507	1,901,008	302,285	1,296,899	1,911,810	278,465
Av. price per doz.	dollars	.3643	.5700	.30296	.4180	.5547	.3118	.3857	.5142	.2453
FEED										
Av. 100 lb. scratch	dollars	4.10	4.05	1.78	4.10	3.95	1.77	4.10	4.05	1.83
Av. 100 lb. mash	dollars	4.80	4.80	2.54	4.80	4.75	2.25	4.85	4.80	2.58
Av. laying ration	dollars	4.45	4.43	2.16	4.45	4.35	2.14	4.48	4.43	2.20
RATIOS										
Doz. eggs required to buy 100 lbs. feed		12.2	7.77	7.1	10.6	7.8	6.9	11.6	8.6	9.0
No. lb. feed one doz. eggs will buy		8.2	12.87	14.0	9.4	12.7	14.6	8.6	11.6	11.2

Poultry Table 7—Continued  
NEW JERSEY EGG AUCTIONS—EGG-FEED RATIO

		January 1954			February 1954			March 1954		
		1955	1954	1939	1955	1954	1939	1955	1954	1939
EGGS										
Total dozens sold		3,219,690	3,022,320	1,099,080	2,875,470	3,114,570	1,085,550	3,650,700	3,777,720	1,372,230
Total price paid	dollars	1,240,248	1,615,898	260,807	1,351,554	1,536,440	245,377	1,729,583	1,733,262	316,304
Av. price per doz.	dollars	.3852	.5347	.2373	.4700	.4933	.2260	.4738	.4588	.2395
FEED										
Av. 100 lb. scratch	dollars	4.10	4.10	1.54	4.10	4.10	1.54	4.10	4.15	1.56
Av. 100 lb. mash	dollars	4.85	4.90	2.04	4.80	4.95	2.04	4.75	4.95	2.06
Av. laying ration	dollars	4.48	4.50	1.79	4.45	4.53	1.79	4.42	4.55	1.81
RATIOS										
Doz. eggs required to buy 100 lb. feed		11.6	8.4	7.5	9.46	9.2	7.9	9.3	9.9	7.9
No. lb. feed one doz. eggs will buy		8.6	11.9	13.3	10.56	10.9	12.6	10.7	10.1	12.7
		April 1954			May 1954			June 1954		
		1955	1954	1939	1955	1954	1939	1955	1954	1939
EGGS										
Total dozens sold		3,301,650	3,577,710	1,213,620	3,488,640	3,224,490	1,388,070	3,069,780	3,293,970	1,117,170
Total price paid	dollars	1,433,861	1,648,614	269,177	1,350,199	1,320,247	297,863	1,366,321	1,337,896	266,289
Av. price per doz.	dollars	.4342	.4608	.2218	.3870	.4094	.2146	.4450	.4062	.2384
FEED										
Av. 100 lb. scratch	dollars	4.00	4.10	1.58	4.05	4.15	1.64	4.00	4.10	1.69
Av. 100 lb. mash	dollars	4.65	5.00	2.11	4.65	5.10	2.18	4.55	5.00	2.18
Av. laying ration	dollars	4.32	4.55	1.84	4.35	4.63	1.91	4.28	4.55	1.94
RATIOS										
Doz. eggs required to buy 100 lb. feed		9.95	9.87	8.3	11.2	11.3	8.9	9.6	11.2	8.1
No. lb. feed one doz. eggs will buy		10.1	10.1	12.1	8.89	8.8	11.2	10.39	8.9	12.3

*State Certified Fresh Eggs*

During its 16th year of operation the New Jersey State Certified Fresh Egg project attained a new sales record of 2,445,797 dozen. Under State supervision the project individually inspects and cartons the eggs for delivery to dairies and retail stores. The project purchased a total of 99,879 cases (2,996,381 dozens) of wholesale graded eggs from four cooperative auction associations. Flemington supplied 36,325 cases (36.36 per cent of the total purchased) ; Vineland 48,718 cases (48.77 per cent) ; Hightstown 11,712 cases (11.72 per cent), and Mount Holly 3,124 cases (3.12 per cent).

The yearly average price paid by the project was 46.13 cents per dozen whereas the average price for all eggs commanded by all New Jersey auctions was 42.0 cents. The average resale price for candled-cartoned eggs was 58.21 cents per dozen, the lowest resale price in nine years. The total "yield," Consumer Grade A for cartoning purposes, was 81.62 per cent of the eggs purchased. The 18.38 per cent loss on "reject and loss" eggs was 1 per cent higher than the previous year. The cash loss, above salvage, because of reject eggs was over \$64,475. The project has undertaken a producer education campaign seeking to lower the reject loss by encouraging quality conservation practices.

*Fresh Egg Law Enforcement*

The Fresh Egg Law inspectors also attempted to acquaint the egg trade with the provisions of the new egg sources identification law, Chapter 143, P. L. 1953. Assigned to the Department for enforcement the law has never been implemented by appropriation for personnel. With the industry urging enforcement activities the Poultry Bureau volunteered the interim use of these inspectors to distribute copies of the law to interested members of the trade and to make observations to determine the extent of noncompliance. No highly irregular practices were observed although reports persist among some marketing groups that large volumes of out-of-state eggs are being improperly labeled as being of New Jersey production. A general willingness has been indicated on the part of distributors to comply with the new law.

The State Fresh Egg Law enforcement policy in New Jersey continues to be based upon use of the law as code of ethics and as the rules for marketing eggs. Wholesalers and retailers are highly cooperative with enforcement personnel and frequently make requests for assistance in improving their methods of merchandising eggs. The senior egg law inspector made 304 visits to distributing firms to discuss marketing procedures con-

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cerned with conformity with the law. Inspections by all inspectors were made in 7,725 stores during the year. Violations among all stores totaled 1,686, or 21.83 per cent. Of all violations found 12 resulted in hearings and 474 were issued warnings. A total of 55 dollars in penalties was assessed.

*Grading and Inspection Service*

Of the total volume of eggs graded under the supervision of Bureau personnel approximately 19.5 million dozen, 652,654 cases, were graded and packaged under official supervision in consumer packages.

Poultry Table 8  
STORES INSPECTED AND PER CENT VIOLATION, BY COUNTIES

	Independent Stores			Chain Stores			All Stores		
	Stores Inspected	Violations	Per Cent Violations	Stores Inspected	Violations	Per Cent Violations	Stores Inspected	Violations	Per Cent Violations
Atlantic	118	16	13.56	11	3	27.27	129	19	14.73
Bergen	985	226	22.94	123	33	26.83	1,108	259	23.38
Burlington	121	7	5.79	14	2	14.29	135	9	6.67
Camden	139	9	6.47	18	4	22.22	157	13	8.28
Cape May	20	2	10.00	1	....	....	21	2	9.52
Cumberland	50	1	2.00	4	1	25.00	54	2	3.70
Essex	2,111	364	17.24	184	49	26.63	2,295	413	18.00
Gloucester	24	3	12.50	1	....	....	25	3	12.00
Hudson	498	291	58.43	104	40	38.46	602	331	54.98
Hunterdon	21	3	14.29	3	....	....	24	3	12.50
Mercer	181	17	9.39	16	1	6.25	197	18	9.14
Middlesex	243	37	15.23	24	3	12.50	267	40	14.98
Monmouth	174	34	19.54	20	3	15.00	194	37	19.07
Morris	376	96	25.53	47	10	21.28	423	106	25.06
Ocean	67	13	19.40	7	2	28.57	74	15	20.27
Passaic	856	115	13.43	51	17	33.33	907	132	14.55
Salem	....	....	....	....	....	....	....	....	....
Somerset	99	23	23.23	17	4	23.53	116	27	23.28
Sussex	28	8	28.57	2	1	50.00	30	9	30.00
Union	799	203	25.41	102	32	31.37	901	235	26.08
Warren	53	11	20.75	13	2	15.38	66	13	19.70
Totals	6,963	1,479		762	207		7,725	1,686	

1954-55

1953-54

Total stores inspected  
Total violations  
Average per cent violations

7,725  
1,686  
21.83

9,469  
1,458  
15.40



Thirty firms are using official grading service under contract with the Department. All but two function under State supervision while two perform in like manner under Federal-State supervision as provided through a Federal-State agreement. In each case there is a qualified plant employee designated as the principal grader in the plant. Where State supervision is the sole authority in a plant the qualified plant grader is licensed by this Department; where supervision is rendered under Federal-State agreement the plant grader is licensed by the USDA.

Periodic supervisory visits by personnel of the Bureau of Poultry Service are made to plants under contract to determine compliance with grade requirements. The same personnel conducts official gradings of eggs for delivery to institutions as requested by the vendor. They have authority to issue official egg grading certificates in behalf of this Department and are licensed by the USDA to make such egg gradings as necessary in behalf of the Federal agency.

Administrative costs are recovered through the application of a graduated scale of fees stipulated in the contract. Charges for grading service on other than a contract basis are computed by using an hourly charge. When similar services are performed in the interest of the USDA administrative charges are made in accordance with those established by the Federal agency. A major portion of these fees is returned to this Department.

### *Special Poultry Activities*

Members of the staff of the Bureau of Poultry Service have participated in many additional poultry industry activities. Assistance was given a number of publications and radio programs in the preparation of information featuring the services of the Bureau and promoting poultry products. In cooperation with the Division of Information the Bureau supplied articles, scripts, statistical data and photographs to fill requests of Newark News, Vineland Times Journal, Bridgeton Evening News, Asbury Park Press, Elizabeth Daily Journal, Jersey Journal, Hunderdon County Democrat, Farm Journal, Country Gentleman, New Jersey Farm and Garden, The Poultryman, Poultry Tribune, Everybody's Poultry Magazine, American Egg and Poultry Review, Esso Farm News and radio stations WTTM, WCAU, WOR and WRCA.

In cooperation with New Jersey Poultry and Egg Cooperative Marketing Association and the State Promotion Section of the New Jersey Department of Conservation and Economic Development an advertising campaign promoting New Jersey State Certified Fresh Eggs was conducted, using New Jersey and New York City radio stations and one-fourth of a million pieces of printed literature. Five dairy companies and four



chain store companies and a number of independent retailers cooperated in this campaign.

Staff members participating in special programs of the Poultry and Egg National Board and Northeastern Poultry Producers Council. These activities included a poultry barbecuers school held in Woodbridge and attended by residents of nearby states, a poultry products promotional dinner for editors and radio broadcasters; the NEPPCO Egg Quality and Marketing School held in Maine, The Poultry Businessmen's Industry Conference, the regional meetings of the egg and poultry marketing associations identified with NEPPCO and the annual Poultry Industry Exposition in Harrisburg. The staff also took an active part in the exposition and convention of the National Turkey Federation in Atlantic City. The State 4-H Chicken-of-Tomorrow Contest was judged by two staff members.

At the request of the Birds Eye Division of General Foods Corporation a study was made of the volumes, market values and seasonality of Leghorn fowl in Flemington and Hightstown. The company is considering large-scale purchases of fowl for production of frozen chicken pies at its Maryland plant.

Two staff members worked with the Penn Fruit Company of Philadelphia on the development of sources of New Jersey eggs graded to official Grade AA specifications to be supplied to the company's new super markets to be opened in New Jersey in the near future.

The committee sponsoring the Jersey Egg Festival held in Freehold requested technical assistance on competitive events. A program was developed and supervised by a staff member. Assistance was also given the Vineland Poultry Festival which seems to be established as an annual event.

Personnel of the poultry projects participated in the Second Mid-Atlantic Farm Show, conducting a competitive exhibit of eggs in consumer and wholesale packages in which there was 100 per cent participation by all marketing groups under grades supervision. Noncompetitive poultry shows of rare breeds and commercial varieties and of baby chicks also were held.

Poultry Bureau personnel took active parts in developing the educational programs of Farmers Week and in their presentation.

Because there have been perennial demands from poultry industry representatives for some investigatory action relative to the New York City egg market and its widespread influence on prices Bureau personnel participated with officials of nearby states in discussions of this question with the USDA. In cooperation with the state departments and experiment stations the Poultry Section of the USDA Marketing Organization and

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Costs Branch undertook a comprehensive study of the systems for formulating and reporting egg prices in New York as well as in the central markets of Chicago and Los Angeles. The study will attempt to determine whether trading at wholesale is of such nature, including sufficient volume, that it can provide price quotations which accurately reflect market conditions. Reasons for egg price fluctuations also will be sought. The first set of interviews in the New York market was completed and the work at country points is scheduled for the summer of 1955. A preliminary report is expected in autumn.

The Bureau cooperated in the efforts of egg marketing groups to encourage producers to employ new mechanical aids for quality conservation. Staff members participated in numerous meetings and tours and gave demonstrations to promote improved egg-holding rooms equipped for refrigeration and humidification. Five thousand copies of an illustrated article, "How to Build Your Own Refrigerated Egg Room," were printed by the Department and distributed to egg producers.

# *Report of the Division of Plant Industry*

HARRY B. WEISS, D.Sc., *Director*

## BUREAU OF ENTOMOLOGY

### NURSERY INSPECTION

During the year 616 nurseries were inspected and certificates were issued to those free of injurious insects and plant diseases. A total of 329 infestations was found and controlled in 167 nurseries. These figures represent an increase of 14 nurseries certified over the previous year. There were 22 fewer infestations but five more nurseries infested than in the same period last year.

#### INSECT INFESTATIONS

Insect Pests	Infestations
Juniper Scale	59
Holly Leaf Miner	43
Rhododendron Lace Bug	43
Oyster Shell Scale	25
Euonymus Scale	18
Juniper Webworm	15
Azalea Lace Bug	10
Boxwood Leaf Miner	10
European Pine Shoot Moth	10
Pine Bark Aphid	10
Willow Canker	8
Taxus Mealybug	7
Willow Galls	6
Mealybug (unidentified)	6
Bagworm	5
Pine Leaf Scale	5
Spruce Gall Aphid	5
Lecanium Soft Scale	4
Thrips (unidentified)	4
Rose Aphids	4
Leaf Roller	3
Rose Leaf Roller	3
Tulip Tree Scale	3
Rose Scale	3
White Pine Weevil	2
Birch Borer	1
Birch Leaf Miner	1
Borers in Willow	1
Cankers (poplar)	1
Elm Scale	1
Galls (poplar)	1
Lecanium Holly Scale	1
Lilac Borer	1
Magnolia Scale	1
Mite (privet)	1
Oriental Fruit Moth	1
Peach Tree Borer	1
Lesser Peach Tree Borer	1
Pine Sawflies	1
San Jose Scale	1
Thrips on Privet	1
White Fly	1
Willow Leaf Beetle	1

*Dealers' Certificates*

Certification was issued to 111 dealers in nursery stock after agreements had been signed stating that nursery stock would be purchased only from sources approved by the Department. The figure represents an increase of 19 dealers certified in 1954-55 over last year.

*Special (Request) Inspections*

Ninety-two inspections were made at the request of residents of New Jersey desiring information about and controls for insects and plants pathogens affecting their premises.

*Special Certificates*

Special certificates were issued during the year to 220 residents, usually other than nurserymen, for the movement of plant material out of New Jersey in accordance with the requirements of other states or of foreign governments. Certification is given after inspection just prior to shipment.

*Canadian Certificates*

One hundred one special certificates were issued during the year for movement of plant material to Canada in accordance with the regulations of that Dominion.

*Dealer Visits*

The premises of 26 certified dealers were inspected during the winter months to check the cleanliness of held-over nursery stock and to check sources of supply. Conditions were found to be satisfactory.

*Special Corn Borer Certificates*

During the year 89 special corn borer certificates were issued for the shipment of herbaceous plants into states having such requirements.

*Foreign Inspections*

Three special inspections were made of unquarantined plant material entering New Jersey from Canada. No infested material was found.

*Domestic Inspections*

Ninety-six inspections were made of plant material coming into New Jersey from other states. Two lots of infested material were intercepted and returned. These consisted of a shipment of 3,000 strawberry plants from Delaware infested with root-knot nematode and two peach trees from New York infected with root galls.

*Nursery Environs*

During July, August and September the environs of a representative group of nurseries were checked to obtain information as to the insect life found in the surrounding areas. This project also provided information as to possible migration of insect pests into the nurseries. A total of 44 inspections was made and few insects of importance were observed. It is believed that there is little danger of spread of common injurious insects from nursery environs into the nurseries.

*Red Stele Disease of Strawberries*

During March and April 172.35 acres of strawberry plants were inspected for 60 growers under the red stele certification program. Because the disease was present it was necessary to reject 26.75 acres of plants entered by nine growers, leaving a total of 145.6 acres of strawberry plants certified.

## RED STELE INSPECTIONS

County	Growers	Acreage	
		Inspected	Rejected
Atlantic	32	83.00	22.00
Burlington	3	12.00	....
Camden	5	24.00	2.00
Cumberland	5	21.75	....
Gloucester	2	4.75	2.75
Hunterdon	1	1.00	....
Mercer	7	10.75	....
Monmouth	4	15.00	....
Salem	1	.10	....
Totals	60	172.35	26.75

Tracing the history of the diseased fields presents many conflicting factors. In some cases it was possible to trace red stele from grower to grower; in other cases diseased plants were claimed to have come from certified stock. A considerable movement of uncertified plants takes place so that listed sources are often incomplete and therefore incorrect. Also certain growers enter the program only when they anticipate a good market for their plants or when they have plantings of exceptional vigor. Such a high turn-over is not conducive to the best results in a certification program. It has been suggested that this is the time for a review of the red stele program along with consideration of the virus complex and nematode threat.

## BLUEBERRY PLANT CERTIFICATION

This report includes the tenth year of blueberry stunt certification and covers the calendar year of 1954.

Inspections are made each year, in the spring and in the fall, when symptoms are most prevalent and easily seen. Diseased bushes are tagged by the inspectors and must be removed by the grower and destroyed within

10 days. Fields showing more than three-fourths of 1 per cent at either inspection or in excess of a total of 1 per cent for the two inspections are not certified.

*Summary of Spring Inspection—1954*

Twenty-two growers entered a total of 298.75 acres for inspection but 7.5 acres were withdrawn voluntarily by two growers prior to inspection. Thirteen acres were rejected because stunt disease was present in excess of three-fourths of 1 per cent at this inspection. A total of 540 bushes had to be removed from the unrejected 278.25 acres, giving an average of 1.9 stunt bushes per certifiable acre at the spring inspection.

*Summary of Fall Inspection—1954*

Of the 278.25 acres of plants eligible for the fall inspection 2.5 acres were voluntarily withdrawn before the fall inspection, 0.5 acre being injured in a summer forest fire and two acres on which older varieties had been replaced. It was necessary to reject 17.5 acres, 2.5 acres because the number of diseased bushes exceeded the tolerance of 1 per cent for both inspections and 15 acres because the tagged bushes were not removed within the time limit. It was necessary to remove 75 diseased bushes at this inspection, giving an average of 0.29 bushes per acre for the fall inspection.

1954 BLUEBERRY INSPECTIONS

Grower	Acres Entered	Voluntarily Withdrawn		Acres Rejected		Acres Inspected		Stunt Bushes Tagged	
		Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Ammon, A. G.	6.50	...	.50*	...	...	6.50	6.00	4	...
Arpin, D. J.	15.00	...	...	...	15.00§	15.00	15.00	79	...
Beebe, Mrs. H.	11.50	...	...	...	...	11.50	11.50	...	...
Budd, T. H.	19.00	...	...	...	...	19.00	19.00	22	2
Claffin Nursery	5.00	...	...	...	...	5.00	5.00	119	11
Clevenger, H.	13.50	...	...	...	...	13.50	13.50	49	15
Cohen, E.	11.00	...	...	...	...	11.00	11.00	66	26
Cutts Brothers	11.50	...	...	...	...	11.50	11.50	...	...
Downing, J. H.	7.00	...	...	...	...	7.00	7.00	1	...
Galletta Bros.	33.00	...	...	...	...	33.00	33.00	15	1
Haines, H. & E.	29.00	...	...	...	...	29.00	29.00	21	6
Haines, W.	21.75	...	...	...	...	21.75	21.75	...	...
Hamilton, T. E.	12.00	...	...	...	...	12.00	12.00	4	...
Leach, J. B.	19.00	2.50	...	10.50	...	16.50	6.00	4	2
Manning, C. F., Jr.	11.00	...	...	2.50	2.50	11.00	8.50	49	3
Mood, J. R.	11.00	...	...	...	...	11.00	11.00	1	...
O'Neill, J. G.	11.50	...	...	...	...	11.50	11.50	3	1
Rogers, J. H.	21.00	...	...	...	...	21.00	21.00	54	...
Scammell & Son	6.00	...	2.00	...	...	6.00	4.00	...	...
Scarano, S.	6.50	...	...	...	...	6.50	6.50	41	8
Stevenson, A. L.	16.00	5.00	...	...	...	11.00	11.00	8	...
Volk, W. F.	1.00	...	...	...	...	1.00	1.00	...	...
22 Growers	298.75	7.50	2.50	13.00	17.50	291.25	275.75	540	75

\* 0.5 acres withdrawn because of forest fire injury (fall).

§ Fifteen acres rejected for non-removal of stunt bushes (fall).



At the spring inspection 540 bushes were tagged for an average of 1.9 "stunted" bushes per acre. In the fall 75 bushes were tagged giving an average of 0.29 "stunted" bushes per acre.

Symptoms appeared early and were especially brilliant during both inspections, enabling the inspectors to tag many plants deemed questionable because of poor symptoms in past years. The favorable appearance of symptoms made it unnecessary to reinspect any of the plantings. Previously, reinspections were made where the plants produced symptoms between the time of inspection and check-back for removal of tagged bushes.

### *Pacific Damp Wood Termite*

During September information was received that specimens of a large termite identified as *Zootermopsis nevadensis*, one of the "damp wood termites," had been obtained from the floor of a freight car loaded with Douglas fir from Oregon and consigned to a lumberyard in South Jersey. The shipment had been unloaded and stacked off the ground in the lumberyard. One crushed termite was found on the inspection and no live specimens were apparent. Several 2 x 6 timbers showed signs of termite entry but when they were split the galleries were found to be empty. There was little sign of damage.

The Bureau was informed that approximately 100 live termites had been found in the center of the load but that no additional termites were found at the ends of the car or at the bottom. Because of the absence of termites on inspection and because little or no damaged timber was found no remedial action was taken.

### POST-ENTRY QUARANTINE

Under Quarantine 37, revised September 1, 1948, certain plant material imported under permit from foreign countries and capable of carrying and spreading virus and other plant pathogens must be grown under quarantine and under the supervision of this Department until released by the USDA as free from disease. Most material of this nature is released after two growing seasons, if found uninfected, but the holding period may be lengthened or shortened in accordance with the habits of the plants and their diseases.



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## MATERIAL IMPORTED UNDER POST-ENTRY QUARANTINE

July 1, 1954 to June 30, 1955

Date of Entry	Country of Origin	Quantity and Material	Destination by Counties
1954			
August	Colombia	35 Anthurium (including 2 refused entry and destroyed)	Bergen
	Canada	3 Anthurium	
	Germany	3 Anthurium	
October	Cuba	5 Hibiscus 2 Jasminum	Union
December	Holland	850 Rosa rugosa 250 Malus 250 Acer palm. atrop. 1,500 Malus 500 Euonymus nana 500 Juniperus Virginiana glauca 500 Juniperus Virginiana canaerti	Bergen Middlesex  Passaic Somerset
1955			
January	England	19 Rose bushes	Mercer
February	Holland	2,000 Berberis thunbergi atropurpurea nana 94 Laburnum Watereri 100 Acer palm. atrop. 150 Acer platanoides Schwedleri nigra 25 Acer palm. dissectum atrop. 50 Jasminum nudiflorum 25 Rosa centifolia Muscosa 10 Acer platanoides Schwedleri nigra 50 Acer palm. atrop.	Monmouth        Somerset
March	Colombia	43 Anthurium sp. and hybrids	Bergen
	Holland	100 Acer palm. atrop. 100 Acer palm. atrop. 100 Acer dissectum atrop. 5 Aesculuscarnea* 100 Laburnum vossi 350 Ilex aquifolium pyramidalis 350 Ilex J. C. Van Tol 1,000 Acer palm. atrop. 500 Berberis Julianae 200 Ilex polycarpa 100 Cytisus praecox	Mercer    Passaic  Union

\* This material no longer in New Jersey—transferred to a Pennsylvania nursery.

## STATE DEPARTMENT OF AGRICULTURE

Date of Entry	Country of Origin	Quantity and Material	Destination by Counties
April	Brazil	1 Anthurium coseaceum	Bergen
	Holland	200 Acer palm. atrop.	Middlesex
		250 Juniperus sinensis	Monmouth
		10 Juniperus sab.	
		1,000 Ilex J. C. Van Tol	Morris
		600 Ilex pyramidalis	
		500 Acer Schwedleri	
		100 Acer palm. atrop.	
		100 Acer Crimson Splendour	
		50 Acer palm. atrop.	Passaic
		200 Acer palm. atrop.	Union
		300 Ilex aquif. V. pyramidalis	
		500 Acer palm. dissectum atrop.	
		1,000 Ilex	
		100 Acer palm. atrop.	
May	Belgium	430 Acer palm. Drummondii	
		100 Acer plat. globosum atrop.	Burlington
		100 Acer plat. globosum atrop.	Monmouth
	Germany	1 Anthurium robustum	Bergen
June	Holland	500 Hydrangea rooted cuttings	Essex
	Japan	2 Juniperus chinensis	Monmouth
		2 Juniperus rigida	
		2 Wisteria floribunda	

## MATERIAL RELEASED UNDER POST-ENTRY QUARANTINE

Shipment Released From Hoboken (Original Date)	Country of Origin	Quantity and Kind of Material	Number of Plants Released	Destination by Counties
1952				
March 6	Holland	1,500 Laburnum (including 325 destroyed)	1,130	Somerset
April 2		100 Laburnum (including 21 destroyed)	...	Passaic
April 16		49 Laburnum	22	Burlington
April 24		150 Acer	130	Monmouth
September 5	Australia	2 Malus	2	Passaic
December 2	Holland	50 Acer	40	Hunterdon
		75 Ilex	47	
December 3	England	6 Crataegus	6	Passaic
December 10	Holland	500 Berberis	498	
December 10		900 Acer	122	Morris
		1,750 Berberis	1,700	
December 10		500 Berberis	485	
		500 Acer	144	
December 10		40 Rosa	40	Somerset
December 19		100 Berberis	100	Mercer
December 22	England	72 Malus	60	Middlesex

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1953					
January 20	Holland	103 Rhododendron	3	Somerset	
March 3		200 Aesculus	200		
		1,000 Rosa	1,000		
		1,000 Acer	330		
March 11		100 Acer	60	Union	
March 11		50 Acer	50	Somerset	
March 18		1,000 Acer	903	Morris	
March 19		220 Acer	153	Bergen	
March 23	Trinidad	18 Anthurium	...	Somerset	
March 24	Holland	15 Rosa	15	Morris	
March 27		500 Ilex crenata	338	Somerset	
		500 Ilex pyramidalis	32		
		1,000 Hydrangea	...		
March 27		100 Acer	62	Mercer	
April 1		1,000 Acer	210	Passaic	
April 1		1,100 Ilex	740	Monmouth	
April 8		200 Acer	135	Bergen	
April 16		205 Acer	193		
April 16		25 Wisteria	...		
April 17		200 Acer	36	Monmouth	
April 24		100 Anthurium	100	Bergen	
April 24	Belgium	10 Acer	5	Middlesex	
July 30	Brazil	15 Vitis	...	Somerset	
September 21	England	3 Hibiscus	...	Bergen	
December 29	Holland	500 Jasminum	...	Monmouth	
1954					
April 28		1,750 Berberis	...	Morris	

## WESTERN TENT CATERPILLAR

During the past year 60 inspections were made of the premises and environs of those nurseries and dealers known to have received nursery stock originating in Oregon and subsequently found to have been infested, in part, with western tent caterpillar egg masses. These inspections were made to pickup fresh egg masses and to ascertain whether any moths had developed despite reported controls by the nurserymen. Information had been received that nursery stock bearing egg masses of the western tent caterpillar, *Malacosoma pluvialis* was shipped from Oregon. By the time this information was received the caterpillars would have completed their development and pupated.

Thirty-seven inspections were made during July, January and February and tent caterpillar egg masses were found in about 13 of the 37 places inspected. These egg masses appeared to be those of the eastern tent caterpillar.

The eggs were kept and during May they were allowed to hatch and the larvae were reared on the foliage of wild cherry trees. Of the 13 lots one proved non-viable and was discarded. The remaining larvae were reared to their last instar. In all cases these proved to be those of the eastern tent caterpillar.

During June word was received that nursery stock of Oregon origin had been shipped into New Jersey during the spring from nurseries in Connecticut and Virginia. These nurseries had been found to have incipient infestations of western tent caterpillar. This stock was inspected and small tents were found in 11 out of 23 inspections. These contained the dead, dried-up remains of small larvae that had been killed when insecticidal applications had been made to control heavy cankerworm infestations.

#### KHAPRA BEETLE

The khapra beetle, *Trogoderma granarium* Everts, has been called the worst pest of stored grains and cereals in those portions of the world where it is found. It is spread from place to place in grain, seed, feed or used bags. Because of its resistance to ordinary doses of insecticides and fumigants and because of its short life history this insect is capable of a very rapid build-up and is able to do extensive damage in a very short time.

During December word was received from the USDA that during 1952, 1953 and 1954 four shipments of seed had been made to New Jersey by a firm in Arizona whose warehouses had subsequently been found to be heavily infested with khapra beetle. The shipments had been made prior to investigation and recognition of the infestation.

The New Jersey receivers were investigated. Two shipments had been purchased for planting and were sown the same season, presenting no serious threat. However, a small building on this farm, used to store grains, and the feed bins of the dairy barn were carefully inspected and samples of insects were taken for identification. No Khapra Beetles were found. It was learned that one of the larger feed and seed dealers in that neighborhood handled California seed. Inspection of this warehouse disclosed several dead granary weevils and saw-toothed grain beetle adults along with several meal worms but no khapra beetles.

One of the firms had gone into bankruptcy and the premises abandoned. This warehouse was carefully inspected. Conditions were found to be ideal for the build-up of various seed infesting insects. Samples were taken. No

khapra beetles were found but specimens of a closely related species, *Trogoderma parables*, were discovered. This warehouse will again be inspected during the warm summer months. An inspection of the fourth "lead" revealed neither khapra beetle nor any other grain insects.

As a result of the Federal quarantine against the khapra beetle a man was assigned to survey the commercial feed and seed storage warehouses and outlets in New Jersey. A total of 204 establishments was inspected by the end of June and specimens were taken of 151 of the infestations noted. None of these specimens are believed to be khapra beetle but they are being identified to find the insects prevalent in commercial storages of grain, seed and feed throughout New Jersey. It is planned to continue this survey during the next fiscal year.

#### MISCELLANEOUS INSPECTIONS AND ACTIVITIES

The Division provided a display for the Mid-Atlantic Farm Show held in Atlantic City December 4 through 8. The exhibit was designed to be educational, attractive and to promote some phase of ornamental horticulture in the State of New Jersey. The theme was "Holly Growing."

During the year one inspector spent two days with the Federal inspectors from the Barberry Eradication Project inspecting barberry plantings of New Jersey for trueness-to-type. One inspector set up and removed exhibits at the Trenton Fair. Three inspectors devoted 224 days to the white-fringed beetle survey and eradication project. One inspector surveyed New Jersey retail outlets to ascertain if cull grade Long Island potatoes were being sold and four inspectors worked on the Economic Insect Survey.

#### COOPERATIVE ECONOMIC INSECT SURVEY

As a result of information gathered last year some surveys have been continued on approximately the same basis, others have been redesigned to best fill the needs of the work while others have been replaced by surveys which appeared to be more fruitful. Approximately two months were spent in connection with the discovery of white-fringed beetles in the Vineland area. Information from the surveys was made available to the Agricultural Experiment Station and distributed by Extension personnel.

#### *Survey of Nematodes Attacking Strawberry Plants*

The survey for pests attacking strawberry plants was continued and intensified. The field work was accomplished during the regular strawberry certification inspections. Ten plants were chosen at random per field and research specialists of the Agricultural Experiment Station identified the nematodes and estimated their abundance.

Plants were gathered from 53 locations and only three were found to be free of nematodes. It is estimated that the infestations within the roots of the plants ranged from 14 to 1,244 nematodes per plant, the average for all fields being over 200 nematodes per plant. The question of how many nematodes must be present within roots to cause significant reduction in yield is being investigated. The soil around the roots was also examined and nematodes were found to be feeding there and on the roots themselves.

Although the laboratory identification of the nematodes gathered has not been completed preliminary information shows that the meadow or root lesion nematodes of the genus *Pratylenchus* were the most common within the roots. Young root-knot nematodes of the genus *Meloidogyne* occasionally were found. Foliar nematodes of the genus *Aphelencooides* that feed either on the roots or in the leaves were commonly found in the soil. Other parasitic nematodes were discovered feeding on the roots, in one or two instances including members of the genus *Longidorus*.

The general absence of the strawberry root-knot nematode, *Meloidogyne hapla*, in New Jersey in spite of its having been imported on southern plants indicates that it may not be able to withstand the more severe winters.

### *European Corn Borer Survey*

A survey to determine the fall population and distribution of the European corn borer was begun on October 25 and completed on November 18. One hundred ten fields in the 12 major corn producing counties of the State were surveyed. Ten fields were examined in each of the counties with the exception of Camden and Cumberland in which only five fields were inspected.

#### EUROPEAN CORN BORER SURVEY

County	Average Number of Borers per 100 Plants	
	1954	1953
Burlington	46	97
Camden	63	128
Cumberland	31	79
Gloucester	56	74
Hunterdon	12	28
Mercer	36	39
Middlesex	25	105
Monmouth	29	83
Salem	16	35
Somerset	3	11
Sussex	3	12
Warren	16	14
State average	28	59



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A comparison between 1953 and 1954 indicates a sharp reduction in the over-all population. Only in Warren County was there an increase in the number of larvae present and that increase is not significant. On the basis of the infestation determined through the survey the Economic Insect Survey Unit of the USDA prepared estimates of the yield and monetary losses caused by the insect in New Jersey in 1954.

## LOSSES CAUSED BY EUROPEAN CORN BORER

County	Estimated Production* (Bushels)	Borers per 100 Plants	(Per Cent)	Loss (Bushels)
Burlington	1,089,316	46	1.38	15,242
Camden	190,819	63	1.89	3,675
Cumberland	171,600	31	.93	1,610
Gloucester	492,835	56	1.68	8,421
Hunterdon	565,593	12	.36	2,043
Mercer	439,296	36	1.08	4,796
Middlesex	201,801	25	.75	1,524
Monmouth	661,689	29	.87	5,807
Salem	1,030,972	16	.48	4,972
Somerset	281,424	3	.09	253
Sussex	85,113	3	.09	76
Warren	577,948	16	.48	2,787
Total				51,206
Dollar value at \$1.58 per bushel				\$80,905

\* Based on Agricultural Marketing Service estimate of 6,864,000 bushels.

From May 6 to 31 a survey was made to determine increases or decreases from the fall estimates in the European corn borer population as a result of environmental factors including weather, parasites, birds and diseases. Sixty fields in ten counties were examined and estimates were based on counts from two infested plants in each field.

In each county there was a reduction of borers per plant, ranging from 7.2 per cent in Middlesex County to 64 per cent in Mercer County. Average reduction per field on a statewide basis was 43.7 per cent. Populations of borers were heaviest in central and southern New Jersey where the problem is most severe. Cause of death was apparent in 64 specimens. These are given as follows.

Bird Feeding	Parasitization	Mechanical
62.5 per cent	32.5 per cent	5 per cent

It might be concluded that populations of European corn borer larvae entering hibernation in the fall of 1954 were light, averaging only 1.6 borers per infested stalk. This population was less than in the fall of 1953. The mortality of overwintering larvae was 43.2 per cent during the 1954-55 winter and only 20.2 per cent in 1953-54. The outlook for borer infestation therefore was even lower in 1955.



COMPARISON OF EUROPEAN CORN BORER LARVAL POPULATION  
FALL 1954 AND SPRING 1955

County	Borers Per Infested Plant		Per Cent Decrease
	Fall	Spring	
Sussex	1.0 (10)*	0.5 (2)*	50.0
Warren	1.9 (10)	0.0 (1)	100.0
Hunterdon	1.4 (10)	0.6 (5)	57.2
Somerset	1.0 (10)	0.0 (2)	100.0
Middlesex	1.4 (10)	1.3 (6)	7.2
Monmouth	1.3 (10)	0.8 (10)	38.5
Mercer	2.5 (10)	0.9 (7)	64.0
Burlington	1.3 (10)	0.8 (8)	38.5
Camden	2.0 (5)	0.9 (4)	55.0
Gloucester	2.0 (10)	1.0 (9)	50.0
Salem	1.3 (10)	0.9 (6)	31.5
State Average per Infested Stalk	1.6 (105)	0.9 (60)	43.7

\* Number of fields inspected in fall and spring.

*Survey of Insects on Alfalfa and Clover (Fall 1954)*

This survey was limited to a check of the abundance of spittlebug, *Philaenus leucophthalmus*, egg masses. Fifteen red clover plants were collected in each alfalfa field surveyed and these were examined for the presence of spittlebug egg masses behind the leaf sheaths.

## SPITTLEBUG SURVEYS—1953-55

County	Average Number Egg Masses per 15 Red Clover Plants Fall 1953	Average Number Nymphs per 5 Dandelion Plants Spring 1954	Average Number Egg Masses per 15 Red Clover Plants Fall 1954 Winter 1955	Average Number Nymphs per 5 Dandelion Plants Spring 1955
Sussex	1.8 (5)*	11.8 (5)*	2.0 (5)*	13.2 (5)*
Warren	7.0 (5)	55.4 (5)	0.8 (5)	82.4 (5)
Hunterdon	14.0 (5)	61.0 (5)	2.5 (3)	20.0 (5)
Morris	7.7 (3)	34.7 (3)	2.7 (3)	5.6 (3)
Somerset	7.7 (3)	109.3 (3)	1.6 (3)	43.6 (3)
Middlesex	0.3 (5)	20.3 (3)	0.0 (3)	0.3 (3)
Mercer	2.0 (3)	78.3 (3)	5.0 (5)	9.3 (3)
Monmouth	0.0 (3)	15.3 (3)	0.7 (3)	6.7 (5)
Burlington	1.4 (5)	6.0 (5)	0.2 (5)	1.2 (5)
Camden	0.7 (3)	14.0 (3)	2.0 (3)	7.3 (3)
Gloucester	4.0 (3)	9.0 (3)	2.7 (3)	37.6 (3)
Salem	1.6 (5)	11.5 (5)	2.6 (5)	8.2 (5)
Cumberland	0.7 (3)	22.0 (3)	0.0 (3)	13.0 (3)
Cape May	1.0 (3)	2.3 (3)	0.0 (3)	1.7 (3)
	52	52	52	54
State Average per Field	5.4	30.5	3.1	18.8

\*Number of fields surveyed.

Hunterdon, Morris, Somerset and Mercer counties continue to have the highest populations of all forms. Salem and Gloucester counties were consistently higher than other counties in southern New Jersey except for a high count in one field in Cumberland County.

There was a striking difference between egg mass populations in the 1953-54 and 1954-55 dormant seasons. Whether this was because the survey was carried out at a later time in 1954-55 and accompanied a loss of egg masses due to shattering of plant parts by freezing and weathering or to a difference in eggs deposited could not be determined. A survey in the spring is needed to determine the nymph populations. From these surveys it is hoped that it will be possible to predict population build-ups as well as the areas of heaviest egg deposition.

### *Survey of Insects on Alfalfa and Clover (Spring 1955)*

The spring survey consisted of three parts, the first of which was a study of the distribution and fluctuation of the pea aphid population during April and May. One day per week from April 19 until May 24, when fields were cut in South Jersey, one field in each of 15 counties was surveyed for pea aphids. Five 90 degree sweeps per field were taken with a standard insect net.

#### PEA APHID SURVEY

April 19 to May 24, 1955

County	Average Number of Pea Aphid Adults and Nymphs Per 5 Sweeps					
	April 19	April 27	May 3	May 10	May 17	May 24
Sussex	0	1	16	26	73	...
Warren	0	2	2	4	36	98
Morris	2	0	0	5	24	197
Hunterdon	1	2	2	4	35	261
Somerset	0	1	32	20	46	77
Monmouth	3	...	3	11	95	mowed
Middlesex	2	...	7	26	95	
Mercer	0	...	12	43	177	490
Burlington	9	...	127	617	510	580
Camden	3	...	removed	485	850	1,350
Gloucester	185	172	...	820	600	mowed
Salem	826	36	...	195	117	565
Cumberland	595	695	...	1,350	1,125	2,300

0 = Sweeps made, no recoveries.

... = No sweeps made.

Populations of aphids in the northern and central part of New Jersey started at lower levels than in southern New Jersey and built up slowly during the period of survey. The peak populations of aphids recorded on the last day of survey in northern counties was lower than the populations of aphids in the southern counties on the first day of survey.

In southern New Jersey populations dropped off during the second and third weeks of survey as a result of insecticidal spraying. On May 10 heavy population build-up was noted. A slight decrease found May 17 was attributed to parasitic disease increase. However, the drought conditions which prevailed from then on were not favorable to the disease and on May 24 aphid populations had increased four times over the previous week.

Winged forms were found on first inspection in southern New Jersey and in April, May and thereafter a considerable number of winged forms were found. Very few winged forms were found until May 10 in northern and central New Jersey.

The second part of the spring survey consisted of a check on the spittlebug population. While 15 red clover plants in an alfalfa field were examined for egg masses in the fall in early spring five dandelion plants in alfalfa fields were examined for spittlebug nymphs when egg hatch was completed. Egg masses can be found on red clover plants while dandelions attract young nymphs early in the spring before they move to alfalfa and before spraying operations begin.

In most counties high egg mass counts were followed by high nymph counts both in 1953 and 1954-55. Egg counts in the fall of 1954 were lower than in the fall of 1953. Correspondingly the number of spittlebug nymphs found in the spring of 1955 was lower than that found in the spring of 1954. Spittlebug feeding and damage were less in 1955 than in 1954 on a statewide basis although local variations were present. It had been thought that spittlebug was a pest only in the western part of the central and northern regions of New Jersey, but the survey and field observations indicate that some areas of southern New Jersey now have a heavy population.

The third part of the survey consisted of a study of the alfalfa weevil, *Hypera postica*, populations in the State. In general it was determined that the insect had spread into all counties which were surveyed and that the population had increased considerably in the known infested areas. Light scattered infestations were found in the northern counties while a generally low, widespread population was evident in the central counties. South of Camden where there were spotty infestations in the spring of 1954 the population level was high this spring and there was an economic loss from alfalfa weevil feeding on many farms. The alfalfa weevil population is increasing rapidly in New Jersey. This should be expected because of its recent establishment here. It is considered important that additional spring surveys be conducted for several years in order that a full understanding might be had of the development of the infestation.

*Survey for Little Peach Disease*

During July a survey was made of peach orchards in 13 counties to determine the occurrence and distribution of the virus disease "little peach." The only method of control for this disease is the removal of infected trees from the orchard to prevent spread to healthy trees.

In making the inspections it was necessary for each man in a two-man team to observe trees on both sides of each row. It was possible to utilize the survey crew for a period of two weeks in Mercer, Middlesex and Monmouth counties. Orchards were selected at various locations so that a representative sample of the entire county might be obtained. A third week was spent in Burlington, Atlantic, Camden, Gloucester, Cumberland, Warren, Morris, Hunterdon, Somerset and Bergen counties.

## SURVEY OF PEACH ORCHARDS FOR LITTLE PEACH

County	Orchards Surveyed	Trees Inspected	Trees With Little Peach		Suspect Trees*		Clean Trees
			Number	Per Cent	Number	Per Cent	
Atlantic	3	1,252	2	0.2	4	0.3	1,246
Bergen	3	1,187	23	1.9	7	0.6	1,157
Burlington	3	1,157	20	1.7	22	1.9	1,115
Camden	2	958	15	1.6	9	0.9	934
Cumberland	3	1,491	10	0.7	12	0.8	1,469
Gloucester	2	1,021	8	0.8	1	0.1	1,012
Hunterdon	4	1,050	40	3.8	37	3.5	973
Mercer	7	2,463	103	4.2	44	1.8	2,316
Middlesex	23	6,738	286	4.2	700	10.4	5,752
Monmouth	22	10,182	119	1.2	80	0.8	9,983
Morris	4	1,385	22	1.6	15	1.1	1,348
Somerset	3	1,070	10	0.9	6	0.6	1,054
Warren	3	1,596	7	0.4	18	1.1	1,571
Totals	82	31,550	665	2.1	955	3.0	29,930

\* Suspect trees were those trees with suspicious but indefinite symptoms of little peach.

It should be noted that the area comprising Hunterdon, Mercer and Middlesex counties exhibited the highest incidence of the disease.

*1954 Late Summer Survey of Insects on Cabbage and Other Crucifers*

This survey was a continuation of the one made during the spring of 1954 which was to determine the time of appearance, number of generations, relative abundance of various insect species, effectiveness of insecticides used by the farmers and other biological facts. Fields were selected at random within the main crucifer producing counties. Twenty-five plants

per field were examined for insect presence and abundance. The survey was made by four men working in two-man crews.

## SURVEY OF INSECTS ON CABBAGE

(Figures represent the average number of insects found on 25 plants.)

County	Locations	Maggot Eggs	Maggot Larvae	Aphids	Springtails	Flea Beetles	Cutworms	Diamondback Larvae	Cabbage Looper	Thrips	Imported Cabbage Worm
Atlantic	6	0	0	M*	0	0	0	0.0	8.1	0	7.7
Bergen	5	0	0	L**	0	L	0	0.0	1.2	0	2.0
Burlington	8	0	0	M	0	L	0	0.2	2.0	L	2.5
Camden	2	0	0	M	0	L	0	0.0	4.5	0	5.5
Cumberland	1	0	0	L	0	L	0	5.0	105.0	0	0.0
Gloucester	1	0	0	L	0	L	0	0.0	0.0	0	1.0
Mercer	6	0	0	L	0	L	0	0.2	12.5	0	4.2
Middlesex	8	0	0	M	0	L	0	0.1	7.5	L	20.6
Monmouth	8	0	0	L	0	L	0	0.3	9.1	L	5.9
Morris	3	0	0	L	0	L	0	0.0	2.0	0	0.0
Somerset	3	0	0	L	0	0	0	0.0	0.3	L	12.0

\* M — Moderate (10 to 19 per plant).

\*\* L — Light (1 to 9 per plant).

The cabbage aphid was active in all surveyed areas. Of the 51 fields surveyed in 11 counties 49 were found to have aphids present. Three fields had heavy injury, 11 moderate injury and 11 light injury from aphids. Twenty-four fields were not considered to have been injured at the time of the survey.

There was considerable flea beetle injury, apparently from the second brood of flea beetles which occurred about the time the plants were set out. Examination showed that a great number of these fields were damaged by the European crucifer flea beetle, *Phyllotreta cruciferae*. Of the 51 fields examined 25 were found to be infested with flea beetles and among these two fields showed heavy damage from flea beetles, five showed moderate damage and one light damage. In general flea beetle activity was more severe in the central and northern counties than in the southern counties.

Diamondback moth larvae where present were found to be causing no injury.

The cabbage looper was found throughout the State except in Gloucester County. The heaviest infestations were found during the latter part of the survey period when 40 of the 51 fields examined were infested. Only one field was rated as having heavy injury from looper but it should be noted that the looper larvae were quite small during the month of August so that damage would not occur until later.



Of the 51 fields examined for imported cabbage worm 39 were found to be infested. Two of these were rated as having moderate injury.

Thrips were present chiefly in Burlington, Monmouth and Middlesex counties. Probably the hot dry year and the drying up of pastures in late July produced migration of thrips from the pastures into the more succulent cultivated vegetable crops.

Records were available in 47 fields on the use of insecticides. Of these one was sprayed and 46 were dusted. The most used insecticide was DDT which was employed in 31 fields. Some growers did not use an aphicide with DDT and aphid populations were high with several DDT applications. Parathion was used in 15 of the fields usually in combination with DDT or rotenone. Rotenone was used in eight of the fields. Lindane was used in four plantings and technical grade benzene hexachloride in one. Malathion was used in three fields, lead arsenate in two fields, calcium arsenate in one and TEPP in one. Of 28 growers who responded as to whether they were satisfied with the material 19 replied in the affirmative and nine in the negative.

The survey was carried out during the growing season and therefore it is impossible to estimate the total number of insecticide applications made before harvest. At the time of the survey eight fields had one application, 13 had two, 13 three, two had five, two fields six, one eight, one 10, one field 12 and one 16.

A different set of insect conditions prevailed in the spring survey. A major pest throughout the northern part of the State was the cabbage root maggot although the survey was made too late to detect this. The flea beetle also was a serious pest throughout the State. Aphid populations were lower, not rated as heavy in any location. The imported cabbage maggot worm was the most abundant cabbage worm.

Whereas in the spring of the year insecticidal applications were more prevalent in the southern part of New Jersey there is no apparent difference on an annual basis in the number of applications in any part of the State.

### *Blueberry Ringspot Survey*

The inspectors engaged in the regular blueberry certification work during September also recorded the incidence of the virus disease "ringspot" on these plants. Symptoms were noted on Burlington, Cabot, Rancocas and Pioneer varieties. Approximately 10 per cent of the Burlington plants and 5 per cent of the Cabot plants were infected with the disease. Little or no infection could be found on plants of the Rancocas and Pioneer varieties.

*Cotton Stem Moth, Platyedra vilella*

Observations were made to determine the distribution of the cotton stem moth on hollyhocks. In addition to those found in Plainfield on June 29, 1954 the insect was noted in Westfield, Scotch Plains, Lakewood, Lakehurst, Point Pleasant, Lavallette, Seaside Heights, Toms River, Manasquan, Long Branch, Asbury Park, Brant Beach and Beach Haven Terrace.

*Asparagus Miner Survey*

Although the asparagus miner, *Agromyza simplex*, has been present in the asparagus fields of New Jersey for many years, it has never been recognized by the growers as a pest and little has been done to determine its economic importance. As part of a coordinated survey of asparagus production problems made by the College of Agriculture of Rutgers University the asparagus miner was studied. From September 30 to October 22 four inspectors surveyed 40 asparagus fields in Burlington, Cumberland, Gloucester and Salem counties. Ten fields in each county were visited and 100 stalks of varying sizes were examined in each field.

The asparagus miner was found in every field with from 3 to 82 per cent of the stalks examined being infested. Of the 4,000 stalks checked 1,316 or 32.9 per cent were infested, the number of pupae per infested stalk ranging from 1 to 3.9. The 1,316 infested stalks contained 3,015 pupae, an average of 2.29. The average number of miners per 100 stalks examined was 75.34.

There appeared to be no correlation between the age of the field and the number of pupae found nor between the last date of cutting and the population intensity. Most of the fields examined were infected with asparagus rust which made it difficult to determine the amount of plant injury caused by the asparagus miner. Since this pest was found in every field examined over four counties comprising most of the asparagus acreage of the State indicates that it may play an important part in the asparagus production picture and that its position should be more critically examined.

*1955 Stored Grains Pest Survey*

Most of the corn, wheat, oats, barley and rye harvested in New Jersey in the fall of 1954 was stored in farm storages where it is attacked by pests, especially insects. A survey was designed to obtain information on the insect species present, their relative abundance and damage to grain caused by them. The types of grain storages and their relation to insect infestation and damage was studied and insect infestation and damage correlated with storage preparation, sanitation and insecticidal treatment of storages was also of interest. The survey was conducted in Sussex, Warren, Hunterdon, Mercer, Middlesex, Monmouth, Burlington, Gloucester and Salem counties.



Five farms having grains in storage were examined in each county. Samples of insects found were collected and special attention was paid to cracks and crevices in flooring, siding, ceilings, between grain bags and other likely spots. The samples were brought to the laboratory, screened and examined for insects. One hundred grains from each sample were subjected to the acid fuchsin test which revealed hidden infestation and insect damage. Field work was begun on February 10 and completed March 22. Laboratory studies were made on April 7.

LOCATION OF NEW JERSEY GRAIN STORAGES AND INSECT  
INFESTATIONS FOUND IN STORAGE AREAS OR IN GRAIN

County	Total Farms	Individual Storage	Wheat	Oats	Ear Corn	Shelled Corn	Barley	Soybeans	Rye
Sussex	5	10	2(2)	5(4)	1(0)	1(1)	1(1)	...	...
Warren	5	10	3(3)	3(2)	4(2)	...	...	...	...
Hunterdon	5	15	5(5)	2(2)	5(3)	1(1)	...	2(0)	...
Mercer	5	9	1(1)	3(2)	3(1)	...	1(1)	1(0)	...
Middlesex	5	5	1(1)	...	4(2)	...	...	...	...
Monmouth	5	7	4(4)	...	1(1)	...	...	1(0)	1(1)
Burlington	7	10	2(2)	2(2)	4(4)	1(1)	1(1)	...	...
Gloucester	5	7	...	...	5(2)	...	1(1)	...	1(1)
Salem	5	5	3(3)	...	2(2)	...	...	...	...
Totals	47(44)	78(59)	21(21)	15(12)	29(17)	3(3)	4(4)	4(0)	2(2)

Parentheses indicate number of storages showing insect activity.

Most of the known insect pests of grains were found in and about farm-stored grains in New Jersey. Although the number of insect pests was not always large the infestation potential frequently was present. As was expected hold-over grains were more seriously infested with insects than new harvest.

The insects found were:

angoumois grain moth  
granary weevil  
cadelle  
saw-toothed grain beetle  
red flour beetle  
yellow mealworm  
foreign grain beetle  
flat grain beetle  
Indian-meal moth  
flour moths  
Psocids  
grain mites  
dermestids  
lesser grain borer

*Sitotroga cerealella*  
*Sitophilus granarius*  
*Tenebroides mauritanicus*  
*Oryzaephilus surinamensis*  
*Tribolium castaneum*  
*Tenebrio molitor*  
*Ahasversus advena*  
*Laemophloeus minutus*  
*Plodia interpunctella*  
*Ephestia* sp.  
*Troctes* sp.  
*Acarus siro*  
*Attagenus piceus* and others  
*Rhizopertha dominica*

Angoumois grain moth activity was heaviest in southern New Jersey. Insect infestation in grain held on dairy farms was greater than on general farms. Bin-stored wheat showed somewhat less damage than bag-stored wheat. Angoumois grain moth damage was not controlled by DDT sprays as used by farmers. Damage to oats, barley and rye was less than to wheat, while no damage to soybeans was detected. Rodent excreta were generally prevalent in small grains.

It can be concluded that most of the major pests of stored grains are present in New Jersey. Rice weevil, *Sitophilus oryza* and other insects also are known to occur. Farmers are losing much valuable animal food and in some cases seed due to insect activity. With modern materials and methods for insect control this damage can be reduced. Further study and educational effort in this field would be beneficial to New Jersey farmers.

#### GOLDEN NEMATODE OF POTATOES

As potatoes were dug and graded during July and August samples of debris were collected and studied for presence of nematodes. The diagnostic work was accomplished at the USDA laboratory in Moorestown. One thousand soil samples were taken in Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth and Salem counties. These samples represented 6,822 acres of potato land and no golden nematode was found.

In spite of warnings regarding protective measures that must be observed if this pest is not to be transported from Long Island New Jersey potato growers continue to purchase used burlap bags from sources within the infested area. Such used burlap was found on two farms, one in the Jamesburg area and another near Moorestown. The Department warned the growers of the danger and with the cooperation of the Japanese Beetle authorities was able to arrange for fumigation of the material with adequate dosage of methyl bromide.

Representatives of the New Jersey potato industry requested the establishment of a New Jersey quarantine against Long Island potatoes. Full consideration was given the subject but it could not be determined that additional safeguards would be afforded through a quarantine measure over and above that enforced by the State of New York.

In response to a number of suggestions that Long Island "cull" potatoes were being moved illegally from the quarantined area to New Jersey roadside stands a rough survey was undertaken. It showed that stands in the northern New Jersey metropolitan area of Bergen, Essex, Hudson, Morris and Passaic counties were handling U. S. No. 1 potatoes almost exclusively and that no potatoes were moved in violation of quarantine orders. Actually, only two lots of culls were found.

In June the golden nematode quarantine of the State of New York was amended to provide that all potatoes grown within the quarantined area must be packaged in approved paper bags or other approved containers for movement within the United States and Canada. Another section of the amendment prohibits the sale or distribution of these potatoes as seed potatoes while a third section prohibits the movement of tomato plants from infested land or from land directly exposed to infestation.

In March information was received of a shipment of 1,500 rhubarb roots from the golden nematode quarantined area in Nassau County, Long Island to a farm in Harrington Park. The New Jersey receiver had all soil washed from the roots and the washings safely controlled in accordance with recommendations from this Department.

#### WHITE-FRINGED BEETLE SURVEY

The Department has conducted surveys to determine whether the white-fringed beetle, *Graphognathus* sp., is present in New Jersey. In 1951, 1952 and 1954 a cooperative scouting program with the Federal government was conducted.

During 1954 one Federal and three State inspectors made observations in 11 counties, from August 9 to 19. Thorough inspections were made of the grounds of the military installations at Fort Dix, Camp Kilmer and Fort Monmouth. Railroad yards, truck centers, city dumps, airports, cemeteries, parks and trailer courts were scouted in Newark, Jersey City, Hoboken, New Brunswick, Trenton and Camden. Inspections were made along U. S. Highway 130, north from Penns Grove to Hightstown with special attention paid to motels, trailer courts, truck stops, grain elevators and around farm markets located along the highway. The survey was considered "adequate and reliable" by the Federal authorities and no trace of the insect was found.

During the summer of 1954 a sweet potato grower near Vineland noted injury in his developing crop. There was an apparent scuffing of the potatoes early in the season but as the season progressed he noticed that the tubers were being tunneled. By October 1 the injury was so severe that it was not considered worthwhile to harvest the crop. The farmer asked assistance from the Cumberland County agricultural agent who collected specimens. The Agricultural Extension Service could not identify them so they were submitted to the Insect Identification Service of the USDA. The specimens were identified as mature larvae of the white-fringed beetle.

This insect is one of the most important pests of agriculture in the United States. It has a range of more than 350 known host plants and that range can be expected to be extended in this area. Since its appearance in the United States infestations have been located on more than 400,000

acres in Louisiana, Mississippi, Alabama, Florida, Tennessee, Georgia, South Carolina and North Carolina and the states involved and the Federal government have been engaged in a control project which has already cost several millions of dollars. In fiscal 1953 \$1,337,265 was appropriated by these agencies for this project. This does not include costs of control practiced by growers themselves nor the value of crops destroyed. Also it should be noted that earlier expenditures for control of the insect were even heavier.

The insect is particularly difficult to control because all the beetles are females, capable of starting an infestation, and also because the insect has such a wide variety of host plants that it is able to sustain itself on almost any cultivated ground or edge of cultivated field. However, with the development of DDT and other newer insecticides there is good evidence that outlying infestations at least are being eradicated and the present infestation in New Jersey can be expected to yield to such treatment.

With the cooperation of the Federal government the State Agricultural Experiment Station and Extension Service a program was planned and initiated to determine by soil digging and sampling methods the limits of the known infestation. Within a month it had been determined that an area of approximately 35 acres on four farm properties was infested. The infestation was continuous and could be treated as one unit, lying within a block of about 350 acres. A quarantine order was placed on the property owners and inspectors were assigned to assist in maintaining control until the area could be treated.

In March and April 1955 the uncultivated land was treated with dieldrin (granular) at five pounds of actual dieldrin to the acre. The insecticide was furnished by the Department and applied by aircraft supplied by the Agricultural Research Service of the USDA. The cultivated land within the pocket was treated with dieldrin emulsion at the rate of two pounds of actual dieldrin per acre. The last of the emulsion was applied on June 3. There was apparently little damage to wildlife through the heavy poisoning of the land.

As crops were planted on the treated land they were to be studied by the Agricultural Experiment Station to determine side effects of insecticide on other soil pests, yield and taste. On the basis of experience to date it is unlikely that detrimental effects on crops will be found. Early observations were that an outstanding yield of lettuce had been produced and that some relief from cutworms and other soil pests of tomatoes and peppers had been achieved. After applications of insecticide to the soil had been completed treatment of low growing foliage with DDT was begun. It was expected that some of the more mature larvae, pre-pupae and pupae of the beetle would withstand the soil treatment and beetles develop to emerge from the ground by mid-July. The applications of insecticide to low foliage would be made to kill such emerging adults.

The control measures appear to be effective and no additional infestations have been discovered. The question as to whether or not white-fringed beetle can live in New Jersey has been answered. The New Jersey climate and feeding grounds and other important ecological factors are favorable to the development of the pest.

#### EUROPEAN CHAFER QUARANTINE

The European chafer, *Amphimallon majalis*, discovered in Newark, New York in May 1940, is a pest of forage crops, winter grains and turf. After its discovery in northern New York State a control program was initiated there by agreement with nurserymen and others who might be involved in the movement of soil.

In spite of the control program spread occurred. It was felt by other states that more protection was needed. Accordingly, a hearing was held by the Agricultural Research Service of the USDA on March 10 in Pittsburgh, Pennsylvania. Frank A. Soraci, entomology chief of the Department, represented the State and the National Plant Board and stated the need for adequate quarantine legislation. On September 1 Federal Quarantine 77 on account of this insect will become effective. The provisions of that quarantine are quite similar to those imposed for Japanese beetle.

#### *Insects of New Jersey*

Reports on the tick fauna of New Jersey and the *Anoplura* (sucking lice) of this State were received from the Entomology Department of Rutgers University. The rodent ectoparasite survey conducted cooperatively by this Department and the Agricultural Experiment Station furnished much of the material on which these papers are based.

#### EXTENSION OF QUARANTINE SERVICE

The need for the strengthening of the plant inspection services of the Department; especially as they apply to plant material entering New Jersey from domestic and foreign sources, has been felt for some time. There is ample evidence that such a development could be very beneficial to the agriculture of the State and if it could be accomplished without expenditure of additional large sums of money then the proposal should merit serious consideration.

Plant materials enter New Jersey by means of motor vehicles, railroads, airplanes and the United States mails. The law provides for notification of the Department by carriers of the arrival of such materials in New Jersey. Truck movement is most difficult to regulate and there should be an attempt to make arrangements similar to those now in effect in other states whereby the Motor Vehicle director from time to time would allow inspectors of this



Department to accompany his inspectors as they travel the highways, stopping motor vehicles bearing plant material and inspecting the load for violations of the law.

Railroads and air lines have shown willingness to comply with the requirements and continued cooperation could be expected from these carriers. The United States Post Office Department has legislation which would permit an arrangement with this Department whereby inspections would be made at various post offices in the State of packages bearing plants. Sample inspections would be proposed for this kind of shipment.

In addition there is a Plant Inspection House of the USDA in Hoboken and it would be most desirable to locate an inspector of this Department there so that he might be available to protect the interests of the State as they are involved at that station.

This inspector would be expected to assist in the routine work of examination and treatment of plant materials entering Hoboken from foreign lands. Such processing is understood to be a function of the Federal government but experience of recent years indicates that the trend is toward more and more leniency toward the plant materials and less and less Federal money with which to do adequate work. The USDA has not agreed to the need for a New Jersey representative at the inspection house but there should be no objection once his function is understood.

The reasonable measures outlined would not be expensive to apply and the benefits should warrant their imposition. But all the measures would be needed if the program were to be a fair one. The movement of plant materials by railroad, for instance, should not be severely regulated unless similar regulation is applied to the same material moving by United States mail or private trucks or airplanes. Severe regulation of domestic shipments cannot be justified unless foreign material offered for entry into the State were also properly regulated.

The measures could be put into effect with the addition of two men to the nursery inspection staff, one of whom would be permanently stationed at the Hoboken inspection house while the second man would spend full time on post office inspections and servicing of incoming rail and air shipments.

#### GYPSY MOTH PROJECT

The gypsy moth program was continued on the same basis as in previous years. The USDA Plant Pest Control Branch allotted the State a total of 600 traps. Three permanent scouts were available for the project and a fourth man was employed for July and August. By mid-July all traps were in place except two which were defective and therefore discarded. The traps were placed in favorable, selected sites in the four northernmost counties and serviced regularly throughout the trapping period.

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## GYPSY MOTH TRAPS

## Bergen County

Locations	Number
Alpine	35
Closter	14
Cresskill	7
Demarest	6
Fort Lee	4
Englewood	16
Englewood Cliffs	14
Leonia	2
Northvale	4
Norwood	4
Old Tappan	10
Rockleigh	5
Tenafly	13
Interstate Park	16
	<hr/>
	150

## Passaic County

Locations	Number
Ringwood	40
West Milford	60
	<hr/>
	100

## Sussex County

Locations	Number
Vernon	25
Wantage	25
Montague	63
Sandyston	60
Wallpack	27
	<hr/>
	200

## Warren County

Locations	Number
Harmony	31
Knowlton	28
Lopatcong	10
Pahaquarry	22
Pohatcong	27
White	30
	<hr/>
	148

Total Traps	598
-------------	-----



Because of late season finds in nearby areas of Pennsylvania and New York traps were left in the field until September 10. No gypsy moths were taken in any of the traps. The program continued with the fall scouting of woodland in the northern tip of the State and open areas in Bergen County. On November 22 a gypsy moth egg mass was found about 50 yards south of the New York State line and less than one-fourth mile east of the point where State Highway route 23 intersects the New York State line. This was the first egg mass taken in New Jersey since 1936. It then developed that there was an infestation near Forestburg, about 12 miles north of Port Jervis, New York, and it was suspected that the New Jersey egg mass originated from there. The inspectors continued an intensive scouting of the immediate vicinity of the mass, combing an area of more than 400 acres and carefully examining the roadsides in the area, but no additional infestation could be found. Scouting was continued through June 1, 1955.

NEW JERSEY GYPSY MOTH SCOUTING PROGRAM  
1954-55

County	Municipality	Woodland	Acres Scouted Open	Roadside (miles)
Bergen	Alpine	136	150	...
	Cliffside Park	25	200	...
	Cresskill	88	...	...
	Englewood	122	320	...
	Englewood Cliffs	1,186	330	...
	Fort Lee	...	110	...
	Leonia	33	293	...
	Palisades Interstate Park	238	...	...
	Ridgefield	30	200	...
	Ridgefield Park	...	300	...
	Teaneck	320	625	...
	Tenafly	594	808	...
		<hr/> 2,772	<hr/> 3,336	<hr/> ...
Burlington	Fort Dix	50	...	...
		<hr/> 50	<hr/> ...	<hr/> ...
Mercer	Hopewell	106	...	...
		<hr/> 106	<hr/> ...	<hr/> ...
Sussex	High Point Park	160	...	3
		967	75	1
	Montague	<hr/> 1,127	<hr/> 75	<hr/> 4
Union	Plainfield	90	...	...
		<hr/> 90	<hr/> ...	<hr/> ...
	Totals	4,145	3,411	4
Total Acreage Scouted			7,556	

FEDERAL APPROPRIATIONS FOR COOPERATIVE  
REGULATORY PROJECTS

The Federal budget for 1955-56 calls for a reduction in funds for Plant Pest Control and Quarantine projects. Representations were made for the Department by Mr. Soraci, as chairman of the National Plant Board as well as the representative of the Department, to show that continued support by the Federal government was essential if the national interest is to be served. As chairman of the National Plant Board he was also able to enlist the support of the regional plant boards, various agricultural industries, national farm organizations and transportation and business organizations in the matter. Through these and other efforts the Congress did see fit to appropriate funds in addition to the budget requests that would provide more adequate support of the regulatory programs.

## JAPANESE BEETLE QUARANTINE PROJECT

The volume of nursery stock moved this year exceeded last year's by 265,407 plants while the value increased by \$342,190. Most of the nursery stock was disposed of locally, within the regulated area, which lessened the demand for certification services.

The injection treatment of dug, balled nursery stock with miscible ethylene dibromide was authorized as a Japanese Beetle Quarantine certification treatment April 9, 1954 and came into wide use during the year. It has proved a useful treatment for small shipments and for the less abundant varieties.

The farm products inspection activity in New Jersey was lessened during the year by three factors: the long dry spell through the summer which reduced the volume of marketable sweet corn, staggered plantings were harvested at the same time and southern peach growers who lost their crop turned to the production of truck crops and thereby flooded the market for sweet corn.

Usual activities at airfields continued, consisting of residual and aerosol treatment of planes, DDT mist blower foliage treatment near plane loading areas, inspection of baggage of hitchhiking adult Japanese beetles, trapping and distribution of quarantine information. Manual and trap-scouting of nurseries in the State were undertaken to determine the present condition of infestation. Traps were placed on non-nursery properties bordering the nurseries and the nursery properties were manually scouted. All areas scouted were generally infested.

Assistance was given to the European Chafer Quarantine staff of Newark, New York, in the operation of batteries of chafer traps at seven scattered locations in New Jersey, most of which were near establishments

that had received nursery stock from Newark, New York from 1946 to 1948. None of the specimens submitted for identification proved to be *Amphimallon majalis*.

Traps were set in batteries of 10, about 30 feet apart, and were operated from June 14 to August 10. Placement sites were:

June 14—Cedarbrook Park, Plainfield.  
 June 15—Forrestal Research Laboratory, Princeton.  
 June 16—Lester L. Lovett Nursery, Lincroft.  
 June 26—Raymond C. McDermott, Shiloh.  
 June 27—Wallington.  
 June 28—John Stock, Wayne.  
 July 6—Paramus.

#### NURSERY STOCK SHIPPED UNDER CERTIFICATION

Month	Outside Area	Inside Area	Totals
1954			
July	231,946	29,400	261,346
August	27,020	14,000	41,020
September	198,703	66,756	265,459
October	350,810	44,371	395,181
November	273,227	16,400	289,627
December	148,727	10,570	159,297
1955			
January	283,152	26,427	309,579
February	308,730	84,216	392,946
March	308,217	111,487	419,704
April	696,931	693,888	1,390,819
May	261,736	70,194	331,930
June	299,317	27,280	326,597
Totals	3,388,516	1,194,989	4,583,505

Valued by shippers at \$1,887,128.

#### METHODS USED FOR CERTIFICATION AND NUMBER OF PLANTS CERTIFIED

(a) Plants treated "after digging" with methyl bromide, ethylene dichloride, ethylene dichloride-dibromide, miscible ethylene-dibromide injection and ethylene dibromide-chlordane	791,721
(b) Plants treated in the field "before digging" with DDT and chlordane	3,663,463
(c) Plants manually and visually inspected	1,039,586

#### SUMMARY OF PLANT TREATMENTS

"Plants Before Digging" Insecticide or Fumigant	Plants	Square Feet
DDT (includes initial treatment, retreatment and areas previously treated that did not require additional DDT)	3,296,470	2,593,808
Chlordane	366,993	1,004,709
Totals	3,663,463	3,598,517

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"Plants After Digging"	Plants
Ethylene dichloride	35,291
Ethylene dichloride-dibromide	539,513
Ethylene dibromide-chlordane	188,894
Methyl bromide	21,067
Miscible ethylene-dibromide	6,956
Total	791,721

SURFACE SOIL TREATED IN GREENHOUSES, FRAMES, SHEDS,  
HEELING-IN-AREAS, ETC.

	Square Feet
DDT (includes initial treatment, retreatment and areas previously treated that did not require additional DDT)	274,875
Chlordane, ethylene dichloride-dibromide (initial only)	65,225
Lead arsenate (includes initial treatment, retreatment and areas previously treated that did not require additional lead arsenate)	20,746
Total	360,846

## POTTING SOIL TREATED

Agent	Cubic Yards
Carbon Disulphide	25.18
Chlordane	247.20
DDT	224.33
Heat	214.90
Total	711.61

## PERSONAL CALLS MADE

Plant material and soil	3,730
Farm produce	142
Total	3,872

## MEN EMPLOYED

Month 1954	Airport Survey and Farm Produce		Nursery and Greenhouse		Totals	
	Federal	State	Federal	State	Federal	State
July	4	6	2	2	6	8
August	4	6	2	2	6	8
September*	..	..	6	4	6	4
October	..	..	6	4	6	4
November	..	..	6	4	6	4
December	..	..	6	4	6	4
1955						
January	..	..	6	4	6	4
February	..	..	6	4	6	4
March	..	..	6	4	6	4
April	..	..	6	4	6	4
May	..	..	6	4	6	4
June	..	..	6	4	6	4

\* One State-man performed services for other Division projects intermittently during the 12-month period.

## AUTOMOBILES OPERATED EACH MONTH DURING YEAR

Month 1954	State
July	13
August	13
September	9
October	9
November	9
December	9
1955	
January	9
February	9
March	9
April	9
May	9
June	9

COMPARISON OF 1953-54 AND 1954-55 OF PLANTS CERTIFIED, SURFACE AREAS  
AND BULK SOIL TREATED

- (a) Plants treated "after digging" with methyl bromide, ethylene dichloride, ethylene dichloride-dibromide, miscible ethylene-dibromide injection and ethylene dibromide-chlordane

1953-54	1954-55
550,429	791,721

- (b) Plants treated in the field "before digging" with DDT and chlordane

1953-54	1954-55
3,874,575	3,663,463

- (c) Plants manually and visually inspected

1953-54	1954-55
1,200,191	1,039,586

- (d) Square feet of surface soil treated with:

	1953-54	1954-55
DDT	299,780	274,875
Chlordane	....	63,713
Ethylene dichloride-dibromide	1,912	1,512
Lead Arsenate	30,579	20,746
Totals	332,271	360,846

- (e) Nursery stock shipped under certification

1953-54	1954-55
4,318,098	4,583,505

- (f) Potting soil treated in cubic yards

1953-54	1954-55
736.19	711.61

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## FARM PRODUCTS

Month	Trucks	Apples (bushel)	Beans (bushel)	Commodity Corn (crate)	Peaches (bushel)	Cabbage (crate)
July 1954	40	13,584	1,913	500	4,075	...
August 1954	23	475	400	...	11,101	...
June 1955	24	4,200	8,505	...	...	1,650
Totals	87	18,259	10,818	500*	15,176	1,650

Valued by shippers at \$222,052.

\* The 500 crates of corn were certified after fumigation with methyl bromide. All other shipments were certified after visual inspection.

## BEE CULTURE

Inspection of apiaries for the detection and control of bee diseases was continued during the year. All counties except Hudson and Ocean received some attention. Efforts are being made to inspect each apiary every three years. When regular inspections could not be made survey work was performed to locate abandoned or unserviced colonies.

Five hundred ninety-nine apiaries were visited and 6,316 colonies and 231 nuclei were examined for bee diseases. American foul brood was found in 115 apiaries, 369 or 5.8 per cent of the colonies inspected being infected with the disease. European foul brood was found in 104 colonies located in 26 apiaries. This disease has been particularly prevalent when bees are used for the pollination of blueberries and cranberries. While some colonies lose their entire hatching brood, thus depleting the hives of field bees, others seem to remain free of the malady. The combining of two or more infected colonies to increase the working force of field bees and requeening colonies with queens known to have resistant qualities to the disease have proved most beneficial in the control of European foul brood.

Each season a number of crossed comb colonies are found while making inspections. This condition is generally the result of a lack of knowledge of beekeeping. When the disadvantages of crossed colonies are made known, corrective measures are invariably adopted by the beekeeper.

The report shows that 133 colonies infected with American foul brood were destroyed by the inspection service. This was necessary in order to eliminate neglected diseased colonies and hive materials, thereby eliminating reservoirs which would be responsible for further outbreaks of disease and attendant economic losses. There were five queen-rearing certificates and 24 transfer certificates issued during the year.

## APIARY INSPECTIONS

July 1, 1954 to June 30, 1955

Counties	Apiaries	Colonies	Nuclei	Crossed Comb	Apiaries A.F.B.*	Colonies A.F.B.*	Apiaries E.F.B.†	Colonies E.F.B.†	Colonies Burned	Microscopic Determination		
										A.F.B.*	E.F.B.†	Neg.
Atlantic	11	157	..	8	6	79	..	..	76	..	..	..
Bergen	29	133	..	..	9	14	..	..	..	1	..	2
Burlington	44	633	..	11	4	6	17	80	..	4	34	6
Camden	16	286	..	..	7	20	..	..	2	..	..	..
Cape May	1	196	..	..	..	..	..	..	..	..	..	..
Cumberland	3	320	..	..	3	6	3	10	..	..	4	1
Essex	17	56	..	..	7	17	..	..	2	1	..	3
Gloucester	3	15	..	..	..	..	2	7	..	..	..	1
Hunterdon	72	1,052	227	12	10	27	2	5	2	1	1	..
Mercer	18	85	..	5	1	2	1	1	..	..	..	..
Middlesex	25	200	..	..	6	12	..	..	2	..	..	2
Monmouth	15	164	..	..	3	12	1	1	5	..	1	1
Morris	79	758	..	2	19	36	..	..	10	7	..	3
Passaic	7	122	4	..	3	5	..	..	..	..	..	..
Salem	2	12	..	..	..	..	..	..	..	..	..	..
Somerset	56	555	..	6	8	27	..	..	14	..	..	..
Sussex	16	190	..	..	1	1	..	..	..	..	..	..
Union	99	551	..	2	17	72	..	..	20	..	..	..
Warren	86	831	..	56	11	33	..	..	..	..	..	..
Totals	599	6,316	231	102	115	369	26	104	133	14	40	19

\* American Fowl Brood

† European Fowl Brood



Of the 599 apiaries inspected 131 were initial inspections involving 757 colonies. American foul brood was found in 15 or 11.4 per cent of the apiaries, 34 colonies being infected. The incidence of this disease was actually higher in the established apiaries, where 100 of the 468 apiaries inspected, or 21 per cent, were found to have American foul brood. The incidence of American foul brood by colonies was 4.5 per cent for initially inspected colonies compared with 6 per cent among colonies within established bee yards.

NEW APIARIES FOUND AND RESULTS OF INITIAL INSPECTION  
July 1, 1954 to June 30, 1955

County	Apiaries Found Initially	Colonies Inspected Initially	American Apiaries	Diseases Found Foul Brood Colonies	European Apiaries	Foul Brood Colonies
Atlantic	2	10	..	..	..	..
Bergen	5	18	2	5	..	..
Burlington	10	69	2	2	1	1
Camden	2	50	..	..	..	..
Essex	3	8	1	2	..	..
Gloucester	1	1	..	..	..	..
Hunterdon	13	73	1	1	..	..
Mercer	5	22	..	..	..	..
Middlesex	9	41	1	4	..	..
Monmouth	8	53	1	5	..	..
Morris	12	47	1	1	..	..
Salem	2	12	..	..	..	..
Somerset	24	171	1	1	..	..
Sussex	3	6	..	..	..	..
Union	15	58	2	10	..	..
Warren	17	118	3	3	..	..
Totals	131	757	15	34	1	1

*Microscopic Diagnosis*

The microscopic analysis of brood and comb samples provides the beekeeper with early assistance in determining and correcting possible outbreaks of disease. Of the 73 smears submitted for microscopic examination 14 were positive for American foul brood, *Bacillus larvae*; 40 for European foul brood, *Bacillus pluton*, and 19 were apparently negative.

*Observations*

During the summer of 1954 normal strength colonies had gathered a reasonable amount of honey, although somewhat less than the previous year. Brood rearing was reduced in August, September and October so that the colonies generally went into the winter with insufficient bees to form normal winter clusters. The crop of fall plants of importance from the standpoint of nectar secretion was below normal. Therefore, very little nectar was available for winter stores. The feeding of dry sugar placed

on the inner cover to supplement natural stores was widely practiced throughout the State.

As a result of a sudden drop in temperature starting March 19, many colonies were unable to cover the expanded broad nest and all food supply was to the sides. The loss of colonies through starvation in New Jersey was estimated at 25 per cent of the colonies. Swarms, division of colonies and use of package bees from the South replaced much of this loss. During May and June the colonies stored surplus honey.

## BUREAU OF PLANT PATHOLOGY

### CANKER STAIN DISEASE CONTROL

(Calendar Year 1954)

During the calendar year 1954 one man devoted nearly full time and three others part of their time to canker stain disease control work. One man worked in the heavily infested area and adjacent counties in southern New Jersey while three men scouted municipalities in the northern and central parts of the State to determine the location of the London planes and to find infected trees.

There were 157,188 trees in 147 municipalities of 18 counties examined. Four hundred eighty new cases of the disease were found, with 143 infected trees previously tagged for removal left standing. At the conclusion of the 1954 scouting 623 trees had been tagged but had not been removed. Between the regular scouting and the end of the year 10 tagged trees are known to have been removed in the outlying areas. It is assumed that others also were removed so the number of infected trees actually standing is less than the 613 shown in the table.

A very large proportion of the trees were in the heavily infected area of Camden, Burlington and Gloucester counties (568 cases). Thirty new cases were found in Salem County where infected trees were discovered as early as 1947. The disease has been confined to two areas of relatively small size except for one tree found this year in Penns Grove.

In central and northern New Jersey thorough scouting of the towns listed revealed 10 cases of the disease. Six were in Pohatcong Township, two in Trenton and two in Newark. The trees have been removed and at the end of the year there were no known infected trees standing outside Camden, Burlington, Gloucester and Salem counties. Efforts to induce municipal officials to have infected trees removed promptly were continued but compliance with the recommendations has been spotty.

Uncertainty still exists concerning the relation among rosy canker, canker stain disease and infestation by the American plum borer, *Euzophora*

*semifuneralis*. Until recently rosy canker was attributed to the presence of illuminating gas but during the past few years the condition has been found in trees as far as a mile from the nearest gas mains and in trees located where no gas can be detected in the soil. Trees which have been diagnosed as having rosy canker sometimes develop canker stain symptoms the following year, making it seem that "rosy canker" may in some cases be early stages of canker stain or that trees suffering from rosy canker are especially susceptible to canker stain disease.

The American plum borer has been found in many trees having rosy canker or canker stain disease and in some plane trees which have neither. It is possible that this insect may be a vector for the transmission of either or both of these conditions.

Another factor which has made diagnosis of canker stain more difficult is the development of the disease in an atypical form. Until the past few years the cankers were sharply defined. The dark color characteristic of the canker went deep into the tree which led to the generally accepted notion that the disease followed the medullary rays of the wood often breaking out on the opposite side of the trunk. Since 1952 increasing numbers of infected trees have been found which do not have this appearance. This has made it necessary to sample larger numbers of trees.

## CANKER STAIN DISEASE CONTROL

County	Total Number of Trees	Tagged Trees to January 1, 1954		Trees Tagged in 1954	Tagged Trees Standing Last Full Survey	Trees Removed Since Last Full Survey	Trees Tagged and Standing January 1, 1955
		Total*	Total Removed				
Atlantic	7,500	...	...	...	...	...	...
Burlington	17,750	142	140	2	23	25	25
Camden	55,200	3,153	3,029	124	412	536	536
Essex	24,000	...	...	...	2	2	...
Gloucester	7,100	36	34	2	5	7	7
Hudson	2,409	...	...	...	...	...	...
Hunterdon	39	...	...	...	...	...	...
Mercer	6,018	1	1	...	2	2	...
Middlesex	6,515	...	...	...	...	...	...
Monmouth	13,300	1	1	...	...	...	...
Morris	323	...	...	...	...	...	...
Ocean	1,500	...	...	...	...	...	...
Passaic	340	...	...	...	...	...	...
Salem	6,400	69	54	15	30	45	45
Somerset	136	...	...	...	...	...	...
Sussex	6	...	...	...	...	...	...
Union	7,647	...	...	...	...	...	...
Warren	1,005	11	11	...	6	6	...
Totals	157,188	3,413	3,270	143	480	623	613

\* Accumulative, since program was begun.

## DUTCH ELM DISEASE CONTROL

(Calendar Year 1954)

Dutch elm disease control recommendations used during the past five years remain practically unchanged. The recommendations include a heavy DDT prefoliar spray and a later foliar spray. Although limited appropriations have made the cost of the prefoliar spray in many municipalities prohibitive, the foliar sprays for the control of cankerworms and elm leaf beetles have been applied with more regularity.

Dutch elm disease symptomatic trees and other devitalized elms on private property represent a great menace to nearby healthy trees. Because of legal barriers or financial inability, however, such trees on private property are not being sprayed by municipal officials. Consultation with the municipal attorney and an examination of the provisions of the insurance policies covering the activities of municipal workers might be helpful in arriving at a practical, economical procedure.

Representatives of this Department again conducted observations on Dutch elm incidence in each county. Probably because of the elm population the greater incidence occurs in counties north of and including Mercer, Middlesex and Monmouth. The results of these observations point to the benefits derived by municipalities which have attempted to employ the Dutch elm disease control recommendations prescribed by the Department.

Dead elm wood with tight bark remains a breeding place for the bark beetles and it should be eliminated. Burning is undoubtedly the more practicable and the usually employed procedure.

The tree spraying recommendations have been modified in two minor details. First, the Federal recommendations have been amended to suggest that prefoliar spraying may be started in February. They have previously specified around April 15. Secondly, because of the red mite complication which usually follows the DDT spray on elm trees the recommendations now include the use of a miticide.

After 15 years of county surveys for the disease no particular benefit can be seen in the continuation of this type of program. Presumably most individuals in New Jersey concerned with elm tree protection are fully and adequately informed as to the current recommendations for the control of this disease. The policy of the Department, therefore, is one of continuation of a general but not intensive survey of the incidence of this disease and a preparedness to give personal attention to requests for assistance.

## LOCALITIES OF NOTEWORTHY DUTCH ELM DISEASE INCIDENCE—1954

Passaic County—	Wayne Township
Bergen County—	Oakland area
Hudson County—	Kearny
Warren County—	Waterloo and along New Jersey Highway Route 24 immediately west of Hackettstown
Sussex County—	Andover and environs
Morris County—	Western and northern areas. Morristown, Morris Plains and Dover
Union County—	Rahway, Linden and Summit
Essex County—	Roseville section of Newark and Millburn
Somerset County—	Washington Valley Road near Pluckemin and Somerville
Hunterdon County—	Generally distributed—not serious
Middlesex County—	Generally distributed—not serious
Mercer County—	Generally distributed—not serious
Monmouth County—	Rumson, Little Silver, Red Bank area
Burlington County—	Increase in entire county, particularly in river-front towns of Bordentown, Burlington and Palmyra. Isolated large trees around some farm houses
Camden County—	Pennsauken Township, the City of Camden and Brooklawn
Gloucester County—	Deptford Township and Swedesboro (first report)
Salem County—	No symptomatic trees reported to date
Cumberland County—	No symptomatic trees reported to date
Ocean County—	No symptomatic trees reported to date
Atlantic County—	No symptomatic trees reported to date
Cape May County—	No symptomatic trees reported to date

## OAK WILT SURVEY

(Calendar Year 1954)

Scouting for oak wilt was conducted during 1952 and 1953 principally through a cooperative agreement with the USDA. Although suspicious trees were located and sampled laboratory culturing for the oak wilt fungus was negative. As a result the USDA suggested that aerial scouting be suspended for 1954 enabling them to devote additional effort to areas where oak wilt is definitely established. Consequently the scouting for this disease in 1954 was entirely from the ground.

Two locations declared suspicious through aerial scouting in 1953, near Berlin and on the south slope of the Watchung Range, northeast of Somerville, were again examined. No wilted trees were found at the Berlin location. Samples of several trees at the Watchung Mountain location were submitted to the laboratories of the Rutgers University Department of Plant Pathology. The reports were negative.

Sixteen suspect locations with trees with indefinite symptoms have been carefully charted on maps so that the scouting in 1955 can definitely include these tree locations for a second examination. On the basis of the oak tree examinations made during 1954 and the resultant laboratory culturing results, which were all negative, it may be assumed that oak wilt does not exist in the State.



## TOMATO SEED CERTIFICATION—1954

The 1954 field inspections for tomato seed certification were conducted from July 27 to August 24. The 1954 inspection season was unusual. Throughout the entire area in which this service was performed rainfall was considerably below average and most of the fields showed retarded growth. The high temperatures of the latter part of July and early August not only stunted the plants but caused the ripening fruits to fail in the development of a full red color.

The high temperatures, low humidity and subnormal rainfall contributed materially to the very low incidence of disease, except fusarium wilt. This disease usually encountered in many fields was again generally present and in numerous instances destructive to the crop. Fields which had a tomato crop the year previous suffered a considerable loss. Tomato fields which followed a corn crop (stover plowed under) continued throughout the season with little evidence of this disease. Evidently decomposing corn stalk refuse is a favorable source of humus for tomato plants. Southern blight, *Sclerotium rolfsii*, appeared in a few fields but only a small percentage of the plants was involved. This disease is seldom present in New Jersey fields. The leaf spotting diseases were almost entirely absent. No late blight was detected. Early blight stem cankers were found in an insignificant degree and in only one field. The virus diseases likewise were rare. Two years ago a double virus streak on the stems of the tomato plants was quite generally present. During the 1954 season no more than a dozen plants were observed with this affliction. In one of the inspected fields approximately 25 plants, closely grouped, displayed fruits with the mottling of color typical of virus symptoms. However, this mottling did not fit into a definite pattern for the described virus diseases. These plants were immediately rogued from the field and destroyed.

During the 1954 season the incidence of anthracnose, a fruit spotting disease, was the lowest ever experienced. Internal browning which causes silvery sunken areas on the fruit epidermis and brown discolored areas underneath was not seen in any field. This disease is believed to be of a virus nature which overwinters in a species of the broad leaved plantain *Plantago* sp.

Green horn-tomato worms, usually in abundance, were seldom seen. Aphids were absent. The russet mite, believed to have been transported from plant fields of the South to New Jersey areas on transplants, was detected in four fields. The damage inflicted was not severe and control was readily attained by the application of sulphur. The fields being inspected were generally free of the usual weeds and wet and miry underfooting.

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One new seedman, J. T. O'Brian and Son of Marlton, joined the list of certified tomato seed growers in New Jersey.

The total acreage approved for certification was 2,739, three acres less than in 1953. A new tomato variety, Brookston, developed at the Ohio Experiment Station in Wooster, has displayed a high degree of resistance to fusarium wilt. Plants grown experimentally in New Jersey have performed so acceptably that application has been made for its inclusion in the list eligible for certification. Plants were grown on the Horticultural Farms and the variety will be added to the eligible list beginning in 1955.



## 1954 TOMATO SEED CERTIFICATION

## ACREAGE CERTIFIED

Seedsman	Rutgers	Marglobe	Pritchard	Improved Garden State	Stokesdale	Valiant	Queens	Century	Baltimore	Total
California Packing Corp.	29	...	...	...	...	...	26	...	1	56
Campbell Soup Company	806	...	...	348	...	...	...	...	...	1,154
J. T. O'Brien and Son	55	10	25	...	...	...	...	...	...	90
Ritter Seed Company	939	32	...	...	...	...	13	26	...	1,010
Francis C. Stokes Company	33	146	...	...	28	80	23	...	...	310
Swedesboro Seed Company	67	44	8	...	...	...	...	...	...	119
Totals	1,929	232	33	348	28	80	62	26	1	2,739

## 1954 TOMATO SEED CERTIFICATION

## POUNDS OF SEED CERTIFIED

Seedsman	Rutgers	Marglobe	Pritchard	Improved Garden State	Stokesdale	Valiant	Queens	Century	Baltimore	Total
California Packing Corp.	239	...	...	...	...	...	178	...	10	427
Campbell Soup Company	26,560	...	...	11,945	...	...	...	...	...	38,505
James T. O'Brien and Son	312	750	1,686	...	...	...	...	...	...	2,748
Ritter Seed Company	25,460	1,086	...	...	...	...	462	1,059	...	28,067
Francis C. Stokes Company	1,850	7,350	...	...	1,500	1,250	1,200	...	...	13,150
Swedesboro Seed Company	1,860	1,650	355	...	...	...	...	...	...	3,865
Totals	56,281	10,836	2,041	11,945	1,500	1,250	1,840	1,059	10	86,762

TOMATO SEED CERTIFICATION 1921-54  
 VARIETAL DISTRIBUTION CERTIFIED TOMATO SEED ACREAGES

	Bonny Best	J. T. Dorrance	Balti- more	Mar- globe	Valiant	Stokes- dale	Rutgers	Pritchard	Garden State	Improved Garden State	Queens	Century	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	...	...	...	...	...	...	...	...	1,395
1931	219	292	106	689	...	...	...	...	...	...	...	...	1,306
1932	34	61	18	562	...	...	...	...	...	...	...	...	675
1933	12	...	15	543	...	...	...	99	...	...	...	...	669
1934	28	155	91	2,046	...	...	...	182	...	...	...	...	2,502
1935	5	247	61	1,520	...	...	730	192	...	...	...	...	2,755
1936	5	109	40	1,576	1	...	1,001	208	...	...	...	...	2,939
1937	94	100	...	1,365	17	67	936	136	...	...	...	...	2,715
1938	10	48	...	1,113	2	2	755	146	...	...	...	...	2,076
1939	18	...	...	1,658	...	...	1,331	84	...	...	...	...	3,091
1940	13	...	...	1,182	1	493	1,847	39	...	...	...	...	3,575
1941	33	...	...	1,246	33	380	2,547	48	...	...	...	...	4,287
1942	10	...	...	1,006	1	363	3,355	116	...	...	...	...	4,851
1943	35	...	...	1,143	1	188	3,865	155	116	...	...	...	5,503
1944	...	...	75	1,163	...	164	5,095	105	155	...	...	...	6,757
1945	...	...	...	647	...	375	3,294	84	199	...	...	...	4,599
1946	...	...	25	923	121	718	4,595	131	150	...	...	...	6,663
1947	...	...	28	899	...	67	6,279	155	746	...	...	...	8,174
1948	...	...	25	481	25	36	4,041	6	316	...	...	...	4,930
1949	...	...	24	306	88	73	4,445	81	...	...	...	...	5,017
1950	...	...	15	607	80	75	3,860	12	68	27	...	...	4,744
1951	...	...	3	190	10	30	3,058	10	...	173	...	...	3,474
1952	...	...	...	258	31	79	2,658	13	...	252	6	...	2,297
1953	...	...	...	243	52	30	2,035	15	...	320	38	9	2,742
1954	...	...	1	232	80	28	1,929	33	...	348	62	26	2,739

## STATE DEPARTMENT OF AGRICULTURE

POUNDS OF NEW JERSEY CERTIFIED TOMATO SEED VALIDATED FOR EXPORT SHIPMENT  
July 1, 1954 to June 30, 1955

1954	Cuba	Ceylon	South Africa	East Africa	Mexico	Jordan	Por- tugal	Totals
July	2	70	...	...	...	...	...	72
August	...	122-9oz.	...	...	...	...	...	122-9oz.
September	...	200	...	...	...	...	...	200
October	50	50	50	1-8oz.	25	...	...	176-8oz.
November	2	23-2oz.	310	...	25	2	...	362-2oz.
December	...	25	...	...	...	...	...	25
1955								
January	...	20	...	...	50	...	57	127
February	...	45	110	...	...	...	...	155
March	150	5	200	...	...	...	...	355
April	2	78	...	...	...	...	...	80
May	1	25	...	...	...	...	...	26
June	63	12	-2oz.	...	...	...	...	75-2oz.
Totals	270	675-11oz.	670-2oz.	1-8oz.	100	2	57	1,776-5oz.

POUNDS OF NEW JERSEY VEGETABLE SEEDS EXPORTED FOR WHICH  
PHYTOSANITARY CERTIFICATES WERE ISSUED  
July 1, 1954 to June 30, 1955

1954	Cuba	Mexico	Totals
July	1	...	1
August	3	...	3
September	46	...	46
November	1	...	1
1955			
January	...	110	110
April	-8oz.	...	-8oz.
June	40	...	40
Totals	91-8oz.	110	201-8oz.

## MAINTENANCE OF THE WHITE HORSE FIELD HEADQUARTERS

Maintenance and progressive improvement work was continued with the plant at White Horse. The greenhouse which had needed repair for the past three years and which is in frequent use during the winter was completely rebuilt. Secondly, the supporting timbers of the ground level of the two-story car storage garage were rearranged. The new arrangement provided for one-half the garage area with adequate accommodations for six cars instead of the crowded condition for the previous eight.

Also constructed was a storage platform in the far end of each stall to be used by the Federal Japanese Beetle Quarantine unit for storage purposes. Other items of improvement to the White Horse office included the completion of the installation of asbestos siding on all the frame buildings, the installation of linoleum floor covering in the main office building and the replacement of roofing paper on two of the structures.

## WHITE HORSE ARBORETUM

To acquaint the field men with various tree species an arboretum on the White Horse property was planned. A two-acre area has been cultivated with cover crops for the past two years in preparation for planting. During the late winter of 1954 this area was surveyed and staked so that tree spacing at approximately 20 foot intervals will constitute the planting scheme.

## TREES PLANTED, SPRING 1955

Botanical Name	Common Name
<i>Betula lenta</i>	Sweet Birch
<i>Betula papyrifera</i>	Paper Birch
<i>Carpinus caroliniana</i>	American Hornbeam
<i>Castanea mollissima</i>	Chinese Chestnut
<i>Celtis occidentalis</i>	Hackberry
<i>Cercidiphyllum japonicum</i>	Katsura-Tree
<i>Cladrastis lutea</i>	Yellow-Wood
<i>Gleditsia moraine</i>	Thornless Honey Locust
<i>Gleditsia triacanthos</i>	Common Honey Locust
<i>Gymnocladus dioica</i>	Kentucky Coffee-Tree
<i>Koeleruteria paniculata</i>	Varnish-Tree
<i>Larix europaea</i> (decidua)	European Larch
<i>Oxydendrum arboreum</i>	Sour-Wood
<i>Phellodendron chinensis</i>	Chinese Cork-Tree
<i>Picea alba</i>	White Spruce
<i>Picea omorika</i>	Serbian Spruce
<i>Populus maximowiczii</i>	Japanese Poplar
<i>Sophora japonica</i>	Chinese Scholar-Tree
<i>Sorbus aucuparia</i>	European Mountain-Ash
<i>Franklinia (gordonia) alatamaha</i>	Franklin-Tree
<i>Sequoia gigantea</i>	Redwood

## AIRPLANE SPRAYING FOR FOREST PEST CONTROL IN NEW JERSEY

This method of controlling forest pests was used on a reduced scale in New Jersey this year. There were 573 acres sprayed by plane for the control of the European pine sawfly *Neodiprion sertifer*. Many plantings previously sprayed were not treated because the infestation has not become sufficiently heavy to justify the expense. Most owners have decided on a schedule by which their pines are sprayed every three, four or five years depending on local conditions.

## ACREAGE SPRAYED SINCE START OF PROGRAM

Year	Acreages
1947	2,542
1948	1,065
1949	1,131
1950	913
1951	761
1952	1,667
1953	1,367
1954	765
1955	573

Several inquiries were received concerning airplane application of insecticides for cankerworm control but no spraying for this pest was done under State supervision this year. Of the acreage sprayed for pine sawfly control 415 acres were on the property of the North Jersey District Water Supply Commission, Wanaque Reservoir, Passaic County. The remaining 158 acres were located on eight properties in five northern counties.

Plantings sprayed this year for the control of the pine sawfly *Neodiprion sertifer* were:

Property	County	Acreage
Bliss, Mrs. Walter	Somerset	6
Bradley, Charles B.	Morris	40
Hackettstown Nursery	Warren	10
Harman, Dr. J. R.	Mercer	18
Kimball, R. G.	Warren	35
Plainfield Scout Camp	Hunterdon	26
Serles, Frank	Somerset	18
Tillison, R. G.	Warren	5
Wanaque Watershed	Passaic	415
Total		573

The insecticide, a solution containing one pound of actual DDT per gallon, was applied at the rate of one gallon per acre from a Piper Cub plane equipped for spraying by the personnel of Lehava Air Services of Philadelphia. The rates charged for the spraying were the same as last year and were based on a sliding scale. State personnel supplied maps, charts and other aids in locating the plots from the air. The material to be used and the time of application also are determined by the State staff and the results of the spraying are checked by Department employees. Practically 100 per cent control was obtained as a result of the spraying. There were small areas on two properties which were resprayed but this was done in time to avert serious defoliation.

*Examination of Pine Plantings for Defoliation by European Pine Sawfly  
Neodiprion sertifer*

Since the program of airplane spraying for sawfly control was begun the areas sprayed have been examined to determine their condition at various periods after spraying. During June all the plantings in Hunterdon County which have ever been sprayed by plane were visited and the percentage of total foliage removed was estimated.

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AIRPLANE SPRAYING FOR SAWFLY CONTROL  
Hunterdon County

Property Owner	Year Last Sprayed	Per Cent Needles Removed
Allen, Mrs. D. W.	1952	1
Beyer, Dr. Othmar	1947	20
Buckwalter, G. R.	1948	5-20
Foran, Col. Arthur	1952	15-20
Glen Gardner Sanitorium	1949	5-25
Goldwater, Dr. Leonard	1951	5-30
Hawley, Mrs. Adelaide	1947	25-30
Kraft, Alfons	1952	10-15
Lachenmayr, Andrew	1952	5-10
Lechner, Robert	1954	1
Levy, Dr. Harry	1953	1
Pearson, Walter G.	1947	40-50
Pictet, Hubert	1952	1
Plainfield Scout Camp	1955	0
Riehle, Fred	1953	5
Schenck, John	1952	10-60
Schley, Reeve	1954	1
Tiffanh, Earl	1949	30
Voorhees State Park	1952	1
Wolfe, Benedict	1951	10-70

These figures seem to confirm the idea that under New Jersey conditions serious damage to pines from feeding by *Neodiprion sertifer* can be avoided by spraying every third year. In some cases (See Voorhees State Park) spraying is still not necessary after three years but in most plantings not sprayed since 1951 or earlier defoliation was heavy enough this year to cause damage to the trees.

*Attempts to Recover Nematode Parasite of Japanese Beetle  
From Old Plots*

Previous annual reports have mentioned the recovery of the parasitic nematode *Neoaplectana glaseri* in June and October 1952, June 1953 and June 1954 from the vicinity of a plot treated with this parasite on May 28, 1950. The location of the recovery was Harker's Hollow Golf Club in Harmony and the point of recovery was about one-fourth mile from the originally treated plot.

In June an attempt was again made to collect Japanese beetle larvae at this location but numerous samples indicated there is practically no Japanese beetle infestation in the turf on this course this year. A second attempt was made at Baltusrol Golf Club in Springfield where many of the earlier nematode plots were established. One hundred fifty healthy beetle larvae were collected but no cases of parasitism by *Neoaplectana glaseri* were found.

The collected larvae were placed in soil at the White Horse laboratory to which nematodes had been applied in 1931. Two weeks later the Japanese beetle larvae were removed and found to be heavily infected with nematode larvae. Hence, this soil treated 24 years ago and subjected to a fluctuating beetle population (healthy larvae have been added nearly every year) still contains nematode parasites able to kill Japanese beetle larvae in two weeks. This soil has been under natural field conditions since the plot was established and has been subject to the extreme fluctuations of soil moisture experienced since its establishment. The survival of the parasitic nematodes under such conditions for a period of 24 years is encouraging.

*Observations in Plots Treated With Virus Disease of Pine Sawfly,  
Neodiprion sertifer Since 1951*

During May and June the pine plantings into which virus disease organism had been introduced for the control of *Neodiprion sertifer* were examined for evidence of the disease. Plots at Stephens State Park near Hackettstown were treated by knapsack sprayer application in 1951. A few infected larvae have been found each year in the treated area and across the road in a control area. Meanwhile the sawfly population remained at a low level throughout the treated and untreated areas. This year there is a definite increase in the sawfly population at this location and only a few larvae were found which appeared typical of those infected with the disease.

The second plot treated, near Delaware, was sprayed by airplane in 1952 and no unsprayed control area was left. Heavy sawfly mortality followed over the whole plot and in succeeding years the sawfly population has continued at a low level while typical wilted colonies of disease infected larvae were found occasionally. The same condition prevailed this year. Infected colonies of sawfly larvae were collected on May 26.

Additional introductions were made in 1953 when 10-acre portions of several large plantings were sprayed to obtain a more general distribution of the disease over the northern half of the State. Typical virus-infected larvae were found in each of the five areas sprayed that year, located as follows:

1. Dean Mathey, Princeton
  2. John Hardin, Chester
  3. Andrew MacLaren, Little York
  4. Dairy Research Farm Beemerville
  5. Newark Watershed, Newfoundland
-



This year the trees in these five areas were examined and larvae appearing typical of the disease were found in all five. The greatest abundance of infected material was found in the plots examined when the larvae were in the last stages of development prior to pupation. Many wilted colonies occurred in the sprayed areas at the Dairy Research Farm and the Newark Watershed. The disease seems to be still active in all the areas where it was introduced. In some of the areas it appears questionable whether the disease is sufficiently effective to suppress the sawfly population.

### *European Corn Borer Collection for Parasite Status Studies*

During the fall each year since 1947 members of the staff have collected larvae of the European Corn Borer from corn fields at 94 selected locations each representing a 100 square mile section of the State. Because of the time required for other work it was decided this year to reduce the number of samples to one-fourth of that previously employed, one sample collected from each of 21 areas of 400 square miles each. These sampling spots were spaced uniformly over the State.

As in previous years the survey was conducted cooperatively with the USDA. The collected borers were mailed to the USDA Corn Borer Laboratory in Ankeny, Iowa where they were reared to determine the abundance and distribution of the various parasites of the corn borer, several of which had been previously liberated in the State.

#### COMPARATIVE RESULTS EUROPEAN CORN BORER PARASITE SURVEY 1947-54

<i>Lydella grisescens</i>	1947	1948	1949	1950	1951	1952	1953	1954
Per cent of areas from which recovered .....	86.8	93.6	79.8	95.7	91.5	94.7	77.8	42.9
Per cent of total borers infested	14.8	26.4	15.4	19.8	18.5	17.5	6.4	2.8
<i>Macrocentrus gifuensis</i>								
Per cent of areas from which recovered .....	24.5	51.1	25.5	25.5	40.4	51.1	46.8	23.8
Per cent of total borers infested	2.3	6.1	1.8	2.8	3.7	5.6	3.4	1.6
<i>Horogenes punctorius</i>								
Per cent of areas from which recovered .....	12.8	22.3	14.9	14.9	20.2	19.2	16.0	9.5
Per cent of total borers infested	0.5	1.4	0.8	1.1	1.3	0.6	1.0	0.2

These figures indicated a decline in parasite recoveries during the past two years. Similar declines have been reported in adjacent States. It is possible that the hot, dry weather in the late summer months has had an adverse effect.

### *Observations Concerning Cankerworm Abundance*

At the conclusion of the cankerworm feeding season observations were made at the same stations used in 1953 and 1954 in an attempt to determine the relative abundance of cankerworms at the different locations and the nature of the variations at a given location from year to year. This year the heaviest damage was concentrated in the central part of the State. Of the 10 locations exhibiting heaviest defoliation, three were in Mercer County, three in Somerset, two in Hunterdon, one in Middlesex and one in southern Morris. Most of the locations where serious defoliation occurred last year were severely defoliated again this year except for those in the north-western part of the State where there was general decrease in severity.

#### DEFOLIATION FROM CANKERWORMS

Station	County	Leaves With One or More Holes (per cent)	Total Leaf Surface Removed (per cent)
Titusville	Mercer	100	40.0
Lamington	Somerset	100	30.0
Highland Park	Middlesex	95	30.0
Flagtown	Somerset	85	25.0
Baptistown	Hunterdon	70	20.0
Mount Rose	Mercer	98	15.0
Princeton Junction	Mercer	98	15.0
Reaville	Hunterdon	95	15.0
Neshanic Station	Somerset	75	15.0
Myersville	Morris	98	10.0

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VARIATIONS IN CANKERWORM DEFOLIATION OVER THREE-YEAR PERIOD  
(1953-55)

Station	County	1953		1954		1955	
		Per Cent Total Leaf Surface Removed	Standing in Section	Per Cent Total Leaf Surface Removed	Standing in Section	Per Cent Total Leaf Surface Removed	Standing in Section
<i>Northwestern Section</i>							
Annandale	Hunterdon	30.0	1	40.0	1	4.0	5
Milford	Hunterdon	20.0	2	5.0	5	8.0	1
Brainards	Warren	5.0	3	5.0	4	6.0	2
Port Murray	Warren	2.0	4	30.0	2	0.5	12
Newfoundland	Passaic	1.0	5	0.5	9	0.5	15
Colesville	Sussex	1.0	6	5.0	6	1.0	8
Vernon	Sussex	0.5	7	0.4	10	0.5	13
Hackettstown	Warren	0.5	8	0.2	15	1.0	7
Blairstown	Warren	0.5	9	1.0	7	5.0	3
Great Meadows	Warren	0.5	10	0.3	14	0.5	16
Columbia	Warren	0.5	11	10.0	3	3.0	6
Flatbrookville	Sussex	0.4	12	0.4	11	4.0	4
Branchville	Sussex	0.4	13	0.4	12	0.5	11
West Milford	Passaic	0.3	14	0.5	8	0.5	10
Ringwood	Passaic	0.3	15	0.5	7	1.0	9
Andover	Sussex	0.2	16	0.3	13	0.5	14
<i>Northeastern Section</i>							
Highland Park	Middlesex	35.0	1	10.0	1	30.0	1
Ridgewood	Bergen	25.0	2	10.0	2	2.0	3
Englewood	Bergen	20.0	3	5.0	4	0.4	12
Kenilworth	Union	3.0	4	0.5	9	1.0	8
Caldwell	Essex	1.0	5	0.4	13	2.0	4
Preakness	Passaic	1.0	6	1.0	8	0.5	10
Westfield	Union	0.5	7	1.0	7	3.0	2
Mahwah	Bergen	0.5	8	0.5	11	0.3	13
Livingston	Essex	0.5	9	0.2	14	0.4	11
Little Falls	Passaic	0.4	10	0.4	12	1.0	7
Hackensack	Bergen	0.4	11	5.0	5	0.1	15
Nutley	Essex	0.3	12	3.0	6	0.5	9
Iselin	Middlesex	0.3	13	5.0	3	2.0	6
Murray Hill	Union	0.2	14	0.5	10	2.0	5
Northfield	Essex	0.1	15	0.1	15	0.2	14
<i>Central Section</i>							
Mount Rose	Mercer	80.0	1	75.0	1	15.0	5
Reaville	Hunterdon	75.0	2	50.0	2	15.0	7
Titusville	Mercer	20.0	3	20.0	10	40.0	1
Yardville	Mercer	20.0	4	30.0	3	10.0	11
Flagtown	Somerset	15.0	5	23.0	9	25.0	3
Princeton Junction	Mercer	15.0	6	10.0	12	15.0	6
Baptistown	Hunterdon	15.0	7	25.0	7	20.0	4
Neshanic Station	Somerset	10.0	8	23.0	8	15.0	8
Griggstown	Somerset	3.0	9	25.0	6	5.0	12
Lamington	Somerset	0.5	10	30.0	5	30.0	2
Long Valley	Morris	0.5	11	1.0	14	1.0	15
Stockton	Hunterdon	0.5	12	15.0	11	5.0	13
Myersville	Morris	0.4	13	0.5	15	10.0	9
Watchung	Somerset	0.4	14	30.0	4	10.0	10
Lake Swannanoa	Morris	0.3	15	0.2	17	0.5	17
Etra	Mercer	0.2	16	0.1	18	5.0	14
Grevstone Park	Morris	0.2	17	0.4	16	0.5	16
Butler	Morris	0.1	18	5.0	13	0.5	18

Over the three-year period during which these observations have been made no definite pattern of variation in infestation has been indicated. In one section the same town will consistently have the heaviest infestation (see Highland Park) whereas in another the standing-in section will vary widely (see Titusville). Three years seems to be too short a period in which to decide whether there is any definite cycle to the occurrence of this pest.

*General Survey of Pests Affecting Evergreens Commonly  
Used for Reforestation in New Jersey*

This survey is conducted to determine the importance of the pests which attack evergreens planted for reforestation in New Jersey and to obtain information concerning the variations in severity of the infestations which occur from year to year. Each year since 1950 observations have been made in 20 plantings selected for geographical distribution over the northern half of the State.

## GENERAL SURVEY OF PESTS AFFECTING EVERGREENS

Observation Point	Red Pine		Scotch Pine		White Pine		Norway Spruce	
	Pine Shoot Moth <i>Rhyacionia</i> <i>buoliana</i> Per Cent Buds Attacked	Sawfly <i>Neodiprion</i> <i>sertifer</i> Per Cent Needles Removed	Pine Shoot Moth <i>Rhyacionia</i> <i>buoliana</i> Per Cent Buds Attacked	Sawfly <i>Neodiprion</i> <i>sertifer</i> Per Cent Needles Removed	Weevil <i>Pissodes</i> <i>strobi</i> Per Cent Trees Attacked	Twig Borer <i>Eucosma</i> <i>gloriola</i> Per Cent Trees Attacked	Weevil <i>Pissodes</i> <i>strobi</i> Per Cent Trees Attacked	Gall Aphid <i>Chermes</i> <i>abietis</i> Per Cent Trees Attacked
No. 1. Stokes State Forest (Sussex Co.)	...	...	0.4	2.0	0.8	2.0	0.8	2.0
No. 2. Dairy Research Farm (Sussex Co.)	3.6	5.0	0.8	1.8	2.0	4.4	...	3.6
No. 3. Green Engineering Camp (Passaic Co.)	0.8	...	0.8	5.0	3.2	3.2	...	...
No. 4. Bloomfield Girl Scout Camp (Warren Co.)	5.6	5.0	1.6	5.0	0.4	...	0.4	20.0
No. 5. Stephens State Park (Warren Co.)	...	...	...	3.0	...	3.2	...	35.0
No. 6. Oak Ridge Reservoir (Morris Co.)	...	...	3.6	...	...	...	...	11.2
No. 7. Newark Watershed (Passaic Co.)	...	22.0	...	9.0	...	4.0	3.6	34.0
No. 8. Hackensack Watershed (Bergen Co.)	1.2	...	1.2	...	...	...	...	19.8
No. 9. Ingersoll Rand Water- shed (Warren Co.)	8.0	...	1.6	5.0	...	0.4	...	0.6
No. 10. Voorhees State Park (Hunterdon Co.)	13.2	...	6.8	...	0.4	3.2	0.4	13.6
No. 11. Robert Cuse (Somerset Co.)	0.4	...	...	...	...	9.6	...	9.6
No. 12. East Orange Watershed (Essex Co.)	5.6	...	0.8	...	...	6.0	...	1.6

## GENERAL SURVEY OF PESTS AFFECTING EVERGREENS—(Continued)

Observation Point	Red Pine		Scotch Pine		White Pine		Norway Spruce	
	Pine Shoot Moth <i>Rhyacionia</i> <i>buoliana</i> Per Cent Buds Attacked	Sawfly <i>Neodiprion</i> <i>sertifer</i> Per Cent Needles Removed	Pine Shoot Moth <i>Rhyacionia</i> <i>buoliana</i> Per Cent Buds Attacked	Sawfly <i>Neodiprion</i> <i>sertifer</i> Per Cent Needles Removed	Weevil <i>Pissodes</i> <i>strobi</i> Per Cent Trees Attacked	Twig Borer <i>Eucosma</i> <i>gloriola</i> Per Cent Trees Attacked	Weevil <i>Pissodes</i> <i>strobi</i> Per Cent Trees Attacked	Gall Aphid <i>Chermes</i> <i>abietis</i> Per Cent Trees Attacked
No. 13. Fred Riehle (Hunterdon Co.)	14.0	...	1.6	...	...	2.8	...	28.0
No. 14. No suitable location available	...	...	...	...	...	...	...	...
No. 15. Lechner's Boy Scout Camp (Hunterdon Co.)	11.2	...	1.6	...	...	19.2	...	2.0
No. 16. Middlesex Sewage Plant	2.4	40.0	4.8	4.0	...	26.7	...	...
No. 17. Duhernal Water Co. (Middlesex Co.)	0.4	...	0.4	2.5	...	...	...	...
No. 18. Washington Crossing Park (Mercer Co.)	12.8	...	6.4	...	...	0.8	...	10.0
No. 19. RCA Laboratories (Mercer Co.)	10.8	4.0	4.8	2.0	...	6.0	...	3.6
No. 20. Jamesburg State Home for Boys (Middlesex County)	1.2	...	...	...	...	0.4	...	...
No. 21. J. M. Ellis (Monmouth Co.)	3.2	...	2.0	...	...	10.0	...	6.0

## Conclusions

(1) This season the infestations of the observed pests were unusually light.

(2) The White Pine Weevil infestations were very light and for all practical purposes could be considered negligible.

(3) European Pine Shoot Moth incidence was considerably lighter than last year although this insect still is important enough to make the planting of red and Scotch pine in New Jersey a risky procedure.

(4) The infestation of the pine sawfly, *Neodiprion sertifer* remained at a low level in plantings sprayed by airplane in the past. Even in plantings which have never been sprayed heavy defoliation, which was typical of unsprayed plantings five years ago, is not occurring.

*Study Plots on European Pine Shoot Moth, Rhyacionia buoliana*

These plots were established in 1951 to determine the importance of the European Pine Shoot Moth in various parts of the State and the variations in the damage it causes from year to year. Each year 50 buds are examined on 25 marked trees in each plot.

INCIDENCE OF EUROPEAN PINE SHOOT MOTH INJURY IN STUDY PLOTS  
1951-54

Property and Location	1954	Infested Buds 1953	Buds Found in 1952	1951
1. Fish and Game Commission, Wallpack Center, Sussex County	2	5	5	6
2. Newark Watershed, Newfoundland, Passaic County	1	2	5	16
3. East Orange Watershed, Millburn Township, Essex County	57	162	231	222
4. Ingersoll Rand Watershed, Harmony Township, Warren County	148	430	398	565
5. Charles Bradley, Chester Township, Morris County	1	3	22	194
6. Samuel D. Kerr, Hopewell Township, Mercer County	34	148	118	...
7. Dr. Leslie E. Myatt, Fairfield Township, Cumberland County	0	5	8	...

This year's examination indicates a general decrease in damage caused by the European Pine Shoot Moth in all plots. This may have been caused by a period of extremely cold weather during the winter since low temperatures are the principal known control. The pines at the Charles Bradley property were severely damaged at the time of the first survey. This planting has been sprayed each year by airplane for control of the European Pine sawfly and it may be that this spraying, although not properly timed for shoot moth control, may be causing some shoot moth mortality.



*Study Plots on White Pine Weevil, *Pissodes strobi**

This series of plots was established in 1951 to provide information concerning the relative importance of the White Pine weevil in the different parts of the State and also the variations in abundance of the pest from year to year. At each location a plot of approximately one-fourth acre was established containing from 185 to 400 trees. The trees are examined each year to determine whether it was weeviled during the current year, past years, both current and past years or not attacked. The data presented indicate only those trees weeviled in the year in which the trees have been examined.

INCIDENCE OF WHITE PINE WEEVIL INJURY IN STUDY PLOTS  
1951-54

Plot and Locality		Trees in Plot	Newly Weeviled 1954	1953	Trees Found 1952	1951
1.	Stokes State Forest, Sandyston Township, Sussex County	185	8	15	27	30
2.	Newark Watershed, Oak Ridge, Passaic County	253	2	0*	5	5
3.	Stephens State Park, Allamuchy Township, Warren County	93	1	5	8	19
4.	Hackettstown Watershed, Mount Olive Township, Morris County	151	0	5	5	10
5A.	Ingersoll Rand Watershed, Harmony Township, Warren County	327	0	0	0	0
5B.	Ingersoll Rand Watershed, Harmony Township, Warren County	399	0	1	1	0
6.	Samuel D. Kerr, Hopewell Township, Mercer County	195	0	0	17	..
7.	Dr. Leslie Myatt, Fairfield Township, Cumberland County	261	0	0	3	..
8.	R. C. A. Laboratories, Princeton, Mercer County	162	0	8	2	3

\* Corrective pruning done before count was made.

The data indicate that there was less white pine weevil damage in these plots this year than in any year since the study was begun. In several plots the trees are becoming so large and grown together that it is almost impossible to make a reliable examination of the leader of each tree and at the same time be certain which trees have been examined. Where it is possible it may be advisable to substitute similar plots of smaller trees in which observations could be more easily made.

*Attempt to Control Cankerworms by Applying Insecticides  
to Trunks of Susceptible Trees*

The control of cankerworms by private owners of shade trees is a perennial problem since the available methods of spraying are costly and inaccessible. It had been thought possible to prevent the ascent of the wingless female cankerworm moths over the trunks by applying to the trees some insecticidal material which would kill the female moths before they could traverse the sprayed area. In this way oviposition and subsequent defoliation would be prevented.

During the fall and winter of 1954 an experiment was conducted to determine whether this could be successfully done with available materials.

Seventy-one elm trees in Princeton were selected and a series arranged which included six insecticides, each in two concentrations, with 11 control trees interspersed. Five trees were sprayed with each of the 12 preparations. The material was applied to the tree trunks on October 27 and 28 as a hydraulic spray. Tanglefoot bands were placed around the trees to trap female moths which crossed the sprayed area and periodic counts of these were made. The first female cankerworm moth was found on November 10. By November 25 the moths were ascending the trees in large numbers. By the end of that month the peak of emergence seemed to have passed but many adults were still ascending.

FEMALE CANKERWORM MOTHS COUNTED ON TANGLEFOOT BANDS  
ABOVE 10 FEET OF SPRAYED TRUNK  
December 20, 1954

Material and Concentration	Trees in Group					Average per Tree
	1st	2nd	3rd	4th	5th	
1. 2.5 per cent DDT wettable powder	17	175	342	125	1	132
2. 5 per cent DDT wettable powder	64	344	305	101	3	163
3. 2 per cent Diazinon wettable powder	221	133	7	20	7	78
4. 4 per cent Diazinon wettable powder	282	35	300	117	160	178
5. 2 per cent Chlordane emulsion	302	18	310	3	78	142
6. 4 per cent Chlordane emulsion	52	45	7	44	71	44
7. 1 per cent Endrin emulsion	130	55	37	9	68	60
8. 2 per cent Endrin emulsion	74	92	2	53	6	45
9. 1 per cent Dieldrin emulsion	22	86	77	81	2	54
10. 2 per cent Dieldrin emulsion	32	0	2	39	23	19
11. 2.5 per cent DDT emulsion	15	26	10	40	7	20
12. 5 per cent DDT emulsion	135	79	12	16	104	69
13. Checks (11 trees)	119, 21, 70, 42, 198, 241, 214, 67, 19, 57, 305					123

None of the materials applied were completely effective in preventing the female moths from traversing the 10 foot length of sprayed trunk. The results obtained from the dieldrin applications were the most consistent and it is possible that a higher concentration of this material may give the desired results.

One possible weakness of banding for cankerworm control was observed. At about 32°F. the tanglefoot used becomes quite solid and loses its stickiness. At this temperature the females are still able to move so that it is conceivable they could cross the bands on days when such temperatures prevailed.

During January and February no cankerworm activity was observed. However, during the first warm days in March adult cankerworm moths were seen ascending the trees. Fresh tanglefoot bands were applied to about half the trees to determine whether two bands a season would be sufficient to prevent the adults from getting up the trees. Nearly all the adults trapped during the spring were those of the spring cankerworm, *Paleacrita vernata*.

Further observations were made when the larval damage to foliage had been completed in the spring. Even the banded trees showed an appreciable degree of damage indicating that female moths had crossed the tanglefoot bands probably when it was cold enough to solidify the tanglefoot but not cold enough to inhibit cankerworm activity. Despite efforts to maintain it in good condition there were times when a "crust" formed on the tanglefoot which was sufficiently firm to allow the passage of the adults. The results indicate that it is not possible to prevent the ascent of cankerworms for egg laying by one application of any of the materials tested or by the application of one or two tanglefoot bands.

#### *Predicting Cankerworm Populations by Egg Mass Counts*

At a meeting in February attended by cooperating agents of the States working with the USDA Northeastern Forest Pest Laboratory a method of predicting forest tent caterpillar populations was described. It involved the collection and examination for egg masses of twig samples.

Since requests are received each year for predictions of cankerworm severity as an aid in planning spraying programs an attempt was made to adapt this method to the cankerworm problem. The field men visited the stations where they have been observing foliage damage caused by cankerworm larvae. On the first visit they collected five elm twigs from parts of trees exposed to good sunlight. These twigs were examined carefully for cankerworm eggs and, almost without exception, no eggs were found. However, it was noted that on oak twigs in the same areas some egg masses could be found. Using this sample a few fall cankerworm egg masses were counted but it now appears that these insects lay the bulk of their eggs on the rougher bark on the heavier parts of the tree so that twig sampling is not a reliable method of estimating the larval populations which will develop later.

*Scouting for Incidental or Potential Pests*

Pin Oak sawfly, *Caliroa* sp.—The infestation of this sawfly continued to decrease. During the August survey no evidence of the pest could be found in northeastern New Jersey where it was quite abundant in 1947 and 1948. Defoliation typical of the insect was observed on one tree in Vincentown, an annual recurrence since 1947.

Hemlock Looper, *Lambdina fiscellaria* (Guen).—Known to occur in New York, Pennsylvania, Massachusetts and Maine this pest has not been found in New Jersey. During August and September 25 of the largest hemlock stands of the State, located mostly in recreational areas, were visited but no defoliation, characteristic of the looper, was found. Small patches of yellow needles were observed at many of the locations. Samples were collected and submitted to the Northeastern Forest Pest Laboratory in New Haven, Connecticut but no evidence of insects or diseases could be found. The condition is presumed to be caused by drought.

*Pitch Pine Defoliation in Southern New Jersey*

Early in June it was observed that pitch pines in the vicinity of Cassville had suffered defoliation. This type of feeding is typical of sawflies and the extent of damage varies from a few twigs to almost total defoliation. Further observation showed that damage was occurring over a wide area. The feeding had been completed and no insects were found. A hurried examination of the surface soil beneath the defoliated parts yielded no cocoons.

Since the production of pulp wood from pitch pine has become an important source of revenue in southern New Jersey this infestation should be studied more carefully next year. This year's observations indicate feeding might begin about May 1 for this generation and it is possible there may be another generation in late summer or early fall.

*Sweet Gum Blight*

This is a declining condition of sweet gums causing heavy mortality in sections of Maryland and Virginia. No organism has been isolated so it is always difficult to be sure whether any particular tree in New Jersey is suffering from the same condition as those in Maryland and Virginia. However, one tree had been observed near Penns Grove which exhibited characteristics very similar to those diagnosed elsewhere as sweet gum blight.

During June a group of sweet gums were examined in Merchantville which had been in good condition last year and several of which are in poor condition this year, exhibiting dead branches, small foliage and wilting and browning of leaves. A plant pathologist of the Agricultural Extension Service examined the trees. He said the trees looked very similar to those elsewhere having sweet gum blight.

## LABORATORY ACTIVITIES

The major lines of investigation pursued during the year were: (1) a study of the distribution of fertilizer materials when injected into the soil and when placed on the soil surface; (2) the placement of tree roots; (3) the absorption of micronutrients by plants when applied in varying amounts and (4) investigations on and possible remedies for iron chlorosis in pin oaks.

*Soil Application of Fertilizers*

Three methods of applying fertilizing materials to the soil around growing trees are possible. The older and still commonly used method is the punch-bar or auger-hole feeding. The materials also may be broadcast (in solid form) or sprinkled (in solution or suspension) under the canopy of the tree. This is a common practice in orchard work. Also, the nutrients in solution or suspension may be injected into the soil under pressure at any desired depth and within reason in any desired volume. This so-called "needle feeding" has many appealing features and last year a more thorough study was proposed.

On May 20, 1953 five large elms located in Branch Brook Park, Newark were fertilized using the accepted and commonly recommended methods for for hydraulic feeding. The trees were treated with a dosage of three pounds per DBH equivalent 10-10-10 special formula soluble fertilizer containing soluble manganese or zinc salts as prior analysis of the leaves indicated. A control group of eight trees was established, sampled and analyzed in the usual manner. The trees were sampled for analysis throughout the 1953 growing season and again in mid-September 1954.

The fertilizer contained nitrogen, phosphorus, potassium, calcium, and/or manganese and zinc. In no trees at any time with any of these elements could detectable response be determined through observation or chemical analysis of the leaves, either when comparisons were made with the known previous history or with the control group. Since elms absorb all of these materials in very significant quantities it is apparent that placement of the material was wrong. The injection holes were approximately three feet apart and injection was at a depth of 18 inches with a pressure of 100 pounds per square inch. One pound-equivalent of the nutrients in two gallons of water went into each injection hole. Puzzling over these results, it was concluded that the injection was too deep to contact a significant portion of the root system of any of the trees. It was decided to investigate the distribution of fertilizer materials injected into the soil.



*Soil Permeation of Liquid Fertilizers*

On July 13, 1954 exploratory tests were started to determine the degree or extent of diffusion and soil permeation which result from the introduction of the nutrients dissolved in known volumes of water. They also were to determine if a further diffusion occurs later through the agency of rainfall and added soil moisture. When all of these factors are known, even approximately, it will be possible to formulate a reasonable procedure for liquid injection.

The plan was to introduce a known volume of an aqueous solution of a nutrient at a known point in a soil having a known content of the material in question. Later systematic samples would be taken to determine the initial permeation and any further diffusion resulting through time and rainfall. Manganese sulfate was chosen as the "tracer" chemical because of relative ease in determining this material in the soil and because of the special interest in it as a frequently-deficient heavy metal. To have a reasonable chance of making a complete series of explorations it was necessary to work in a soil structure free of rock and rocky structures. It also appeared desirable to avoid "plow sole" structures, hard pan and clay or shale foliation. For these reasons the experiments were made on the Van Nest Game Sanctuary in Mercerville. The soil here is a typical sandy type with no known gravel in the explored sub-strata and is quite porous and permeable. At the time of this experiment the soil was extremely dry.

Experiment "A": Fifty grams of technical manganese sulfate were dissolved in five gallons of water and was introduced through glass tubing in a carefully bored hole at a depth of 18 inches using a slight hydrostatic head.

Experiments "B" and "C": Fifty grams of manganese sulfate dissolved in two gallons of water for each experiment and conditions as outlined in "A".

In each case a LaMotte soil sampling tube was used to remove the cores of soil sample, in increments of 6 inches in depth. This was done at each introduction site to the introduction depth of eighteen inches after which the solutions were introduced. Following introduction, the initial sampling was continued to a total depth of 30 inches in all exploratory holes.

In Table 1 "A18 3 6-12" is coded to signify Experiment A, 18 inches away from the introduction hole, the western (3) compass point, the core being the 6 to 12 inch soil horizon (i.e.—the 6 inch increment from 6 to 12 inches in depth). AO (A-zero) is the introduction hole itself. Samples 1 to 14 were before the introduction and 10 to 14 are composites of a number of holes in the immediate area of the experiments to establish the natural prevailing manganese content of the soil. After sampling the cores were air-dried, mixed and analyzed for replaceable manganese. Twenty grams of air-

dried soil was extracted with 50 milliliters of a standard soil extractant for one hour then filtered. To 10 milliliters of extract 1 milliliter of 85 per cent phosphoric acid was added, mixed, 0.10 grams potassium periodate powder added and dissolved and the determination heated in boiling water 30 minutes to oxidize the manganese to the permanganate ion, cooled and the content of manganese determined through the use of the electrophotometer.

In Table 1 the results are given in micrograms (millionths of a gram) of manganese per milliliter of extract, as micrograms manganese per gram of soil and as the equivalent pounds of manganese (as metallic) per 6 inch acre. A six-inch acre is taken to represent two million pounds of soil in agricultural soil chemistry or the volume of soil in one acre to a depth of six inches (plow depth).

TABLE I  
SOIL PERMEATION BY AQUEOUS MANGANESE SULFATE SOLUTION  
VAN NEST PLOT EXPLORATORY EXPERIMENTS

Sample Number	Location	Key	Micrograms Mn per Milliliter	Micrograms Mn per Gram Soil	Pounds Manganese per 6-inch Acre
1	AO	0-6	0.30	0.75	1.50
2	AO	6-12	0.60	1.50	3.
3	AO	12-18	0.86	2.15	4.30
4	BO	0-6	0.80	2.	4.
5	BO	6-12	0.86	2.15	4.30
6	BO	12-18	0.46	1.15	2.30
7	CO	0-6	0.52	1.30	2.60
8	CO	6-12	1.37	3.42	6.84
9	CO	12-18	1.20	3.	6.
10	General	0-6	0.55	1.38	2.76
11	General	6-12	0.46	1.15	2.30
12	General	12-18	0.76	1.90	3.80
13	General	18-24	0.61	1.53	3.06
14	General	24-30	0.16	0.40	0.80
Below—after Introduction of Mn Solution					
15	AO	18-24	77.	192.5	385.
16	AO	24-30	88.	220.	440.
17	A6	1 0-6	0.55	1.37	2.74
18	A6	1 6-12	0.80	2.	4.
19	A6	1 12-18	30.	75.	150.
20	A6	1 18-24	87.50	219.	438.
21	A6	1 24-30	83.50	208.5	413.
22	A6	2 0-6	0.34	0.85	1.70
23	A6	2 6-12	0.74	1.85	3.70
24	A6	2 12-18	0.43	1.07	2.14
25	A6	2 18-24	0.68	1.70	3.40
26	A6	2 24-30	0.16	0.40	0.80
27	A6	3 0-6	1.19	2.98	5.96
28	A6	3 6-12	0.76	1.19	2.38
29	A6	3 12-18	0.89	2.22	4.44
30	A6	3 18-24	0.31	0.77	1.54
31	A6	3 24-30	0.22	0.55	1.10
32	A6	4 0-6	0.31	0.77	1.54
33	A6	4 6-12	0.79	1.97	3.94
34	A6	4 12-18	1.10	2.75	5.50
35	A6	4 18-24	0.37	0.92	1.84



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Sample Number	Location	Key	Micrograms Mn per Milliliter	Micrograms Mn per Gram Soil	Pounds Manganese per 6-inch Acre
36	A6	4	24-30	0.16	0.40
37	A12	1	0-6	0.76	1.90
38	A12	1	6-12	0.59	1.47
39	A12	1	12-18	0.19	0.48
40	A12	1	18-24	0.31	0.77
41	A12	1	24-30	0.31	0.77
42	A12	2	0-6	0.59	1.47
43	A12	2	6-12	0.59	1.47
44	A12	2	12-18	0.37	0.93
45	A12	2	18-24	0.46	1.15
46	A12	2	24-30	0.28	0.70
47	A12	3	0-6	0.59	1.47
48	A12	3	6-12	0.70	1.70
49	A12	3	12-18	0.46	1.15
50	A12	3	18-24	0.28	0.70
51	A12	3	24-30	0.31	0.78
52	A12	4	0-6	0.46	1.15
53	A12	4	6-12	0.82	2.05
54	A12	4	12-18	0.37	0.92
55	A12	4	18-24	0.55	1.38
56	A12	4	24-30	0.22	0.55
57	A18	1	0-6	0.64	1.60
58	A18	1	6-12	0.46	1.15
59	A18	1	12-18	0.37	0.93
60	A18	1	18-24	0.25	0.62
61	A18	1	24-30	0.25	0.62
62	A18	2	0-6	0.46	1.15
63	A18	2	6-12	0.91	2.28
64	A18	2	12-18	0.46	1.15
65	A18	2	18-24	0.46	1.15
66	A18	2	24-30	0.16	0.40
67	A18	3	0-6	1.07	2.68
68	A18	3	6-12	0.91	2.28
69	A18	3	12-18	0.70	1.75
70	A18	3	18-24	0.49	1.22
71	A18	3	24-30	0.28	0.70
72	A18	4	0-6	0.80	2.
73	A18	4	6-12	0.80	2.
74	A18	4	12-18	0.46	1.15
75	A18	4	18-24	0.46	1.15
76	A18	4	24-30	0.38	0.95
77	A24	1	0-12	0.46	1.15
78	A24	1	12-18	0.55	1.37
79	A24	1	18-24	0.44	1.10
80	A24	1	24-30	0.19	0.48
81	A24	3	0-12	0.76	1.90
82	A24	3	12-18	0.76	1.90
83	A24	3	18-24	0.61	1.52
84	A24	3	24-30	0.55	1.37

The manganese content of the soil did not naturally exceed 6.84 pounds per 6 inch acre in any core sample. After introduction the two increments directly below the introduction point showed 385 and 440 pounds manganese per 6 inch acre; the smaller figure probably resulted from some crumbling of the introduction hole following the operations of removing the introduction

tube and reinsertion of the sampling tube. Noting the 0 inch to 6 inch horizon it is evident that none of the manganese was forced to the surface even six inches away from the introduction site. The same is true for the 6 inch to 12 inch horizon. Samples 19, 20 and 21 show that the manganese solution did permeate the 12 inch to 18 inch, 18 inch to 24 inch and 24 inch to 30 inch soil horizons at a distance of six inches from the introduction site in a northerly direction but the remaining samples at this distance show no evidence of permeation by the solution. If it is desirable to keep the nutrient in the upper 30 inch strata of the soil this experiment did not do so and the nutrient volume permeation in this region was poor.

The following data refer to Experiment "C." On July 13, 1954 two gallons of water containing 50 grams of manganese sulfate was introduced into the soil on the Van Nest plot at a depth of 18 inches, and using a slight hydrostatic head. The soil was exceedingly dry. On August 16 the second sampling of the experiment was made. At this time the soil was very moist, approaching full saturation in the 24 inch to 30 inch level. Between the two sampling periods rain fell on seven different occasions. The results of the analyses on the samples are given in Table 2. The purpose is to determine the initial permeation of the soil by the solution and the degree of diffusion occurring in the elapsed month. The results for the two respective dates are given in terms of pounds of manganese per six-inch acre. The sampling pattern for the second sampling was rotated 45 degrees from the initial pattern.

TABLE 2  
SOIL PERMEATION AND SUBSEQUENT DIFFUSION BY AQUEOUS  
MANGANESE SULFATE SOLUTION  
VAN NEST PLOT, EXPERIMENT "C"

Location Key		Pounds Mn per 6-inch July 16, 1954	Acre Found August 16, 1954
C-0	0-6	2.60	...
	6-12	6.85	...
	12-18	6.00	...
	18-24	810	...
	24-30	210	...
C-6-1	0-6	2.60	3.04
	6-12	2.30	1.46
	12-18	80.60	1.90
	18-24	494	20.50
	24-30	185	3.50
C-6-2	0-6	2.80	3.26
	6-12	2.30	3.04
	12-18	18	75.6
	18-24	232	375
	24-30	235	185
C-6-3	0-6	13.40	0.64
	6-12	8.50	1.56
	12-18	9.50	4.76
	18-24	155	220
	24-30	160	225

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Location Key		Pounds Mn per 6-inch July 16, 1954	Acre Found August 16, 1954
C-6-4	0-6	1.56	3.80
	6-12	1.24	1.26
	12-18	7.35	3.06
	18-24	340	110
	24-30	130	185
C-12-1	0-6	1.56	2.30
	6-12	1.56	2
	12-18	0.96	1.26
	18-24	1.24	0.80
	24-30	1.10	0.96
C-12-2	0-6	2.90	1.56
	6-12	1.86	1.26
	12-18	1.86	0.80
	18-24	1.56	0.36
	24-30	1.26	0.66
C-12-3	0-6	2.74	1.56
	6-12	3.06	1.46
	12-18	2.30	1.26
	18-24	2.46	0.80
	24-30	1.40	0.36
C-12-4	0-6	1.40	2.50
	6-12	2.30	2
	12-18	2.96	0.36
	18-24	0.80	0.00
	24-30	0.80	0.36
C-18-1	0-6	3.50	2.30
	6-12	1.56	1.90
	12-18	2.30	0.80
	18-24	3.80	0.50
	24-30	0.80	0.00
C-18-2	0-6	3.50	1.26
	6-12	3.06	1.26
	12-18	3.80	1
	18-24	0.00	0.00
	24-30	0.34	0.36
C-18-3	0-6	3.96	1
	6-12	3.80	2.00
	12-18	0.94	1.50
	18-24	1.40	0.50
	24-30	0.66	0.00
C-18-4	0-6	2.50	2.00
	6-12	3.06	2.50
	12-18	1.54	0.50
	18-24	0.80	0.50
	24-30	0.80	0.50
C-24-1	0-12	3.06	0.76
	12-18	2.30	0.50
	18-24	2	0.36
	24-30	3.36	0.36
C-24-3	0-12	3.50	1.70
	12-18	1.70	1.26
	18-24	2.46	0.76
	24-30	1.54	0.76

TABLE 3  
VISUAL PRESENTATION OF PERMEATION AND DIFFUSION DATA  
CONTAINED IN TABLE 2

Distance From Introduction Point	Vertical Soil Layer	First Sampling Quadrant				Second Sampling Quadrant			
		1	2	3	4	1	2	3	4
6"	0-6	—	—	—	—	—	—	—	—
	6-12	—	—	—	—	—	—	—	—
	12-18	X	X	—	—	—	X	—	—
	18-24	X	X	X	X	X	X	X	X
	24-30	X	X	X	X	—	X	X	X
12"	0-6	—	—	—	—	—	—	—	—
	12-18	—	—	—	—	—	—	—	—
	18-24	—	—	—	—	—	—	—	—
	24-30	—	—	—	—	—	—	—	—
18"	0-6	—	—	—	—	—	—	—	—
	6-12	—	—	—	—	—	—	—	—
	12-18	—	—	—	—	—	—	—	—
	18-24	—	—	—	—	—	—	—	—
	24-30	—	—	—	—	—	—	—	—
24"	0-12	—	—	—	—	—	—	—	—
	12-18	—	—	—	—	—	—	—	—
	18-24	—	—	—	—	—	—	—	—
	24-30	—	—	—	—	—	—	—	—

— Indicates none.

X Indicates positive.

The data in Tables 1, 2 and 3 indicates no very significant lateral diffusion of the soluble manganese compound during the month even with frequent rains. The introduction of two gallons of solution can be expected to permeate a horizontal cross-section more than one foot but less than two feet in diameter. If it is physically possible when using pressure less than an 18 inch depth seems to be indicated.

In the second phase of this work two compounds of manganese were used and with each a known solution of ammonium sulfate. This was done to indicate the degree of preferential migration exhibited by the several ions involved. In each case the liquid was sprinkled as uniformly as possible over a staked area of one square yard on the Van Nest plot. The applications were made on August 10. The soil was moist. The areas were sampled on August 30 to determine the depth to which the nutrients had permeated. In each area (the control and experiments "D" and "E") samples were taken at increments of 6 inches in depth to a total depth of 30 inches.

Analyses for manganese were made on the soil samples by the usual method of extraction in sodium acetate solution and analyzing for the extractable manganese.

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The analysis for the nitrogen fraction poses a dilemma. When ammonium salts are placed in the soil a complex series of changes begins, the ammonium form of the nitrogen being successively reduced to nitrites and finally to nitrates. Therefore, in addition to the several fractions of nitrogen initially in the soil, the added ammonium may be present as ammonium, nitrites or nitrates. Furthermore, if the conditions are favorable, a great increase in the soil micro-organisms can be expected so that an indeterminate amount may be converted to organic forms. It was decided to analyze for total nitrogen.

Experiment D: Manganese sulfate (Techmangan) applied to one square yard of soil at the rate of 50 pounds per acre, or 4.70 grams of the material. In addition, 44.1 grams of ammonium sulfate, equivalent to 100 pounds of nitrogen per acre, were dissolved in one gallon of water. This solution was sprinkled as uniformly as possible over the area on August 10 and sampling for analysis was done on August 30.

Experiment E: In one gallon of water 25.0 grams of "mangano" was suspended together with 44.1 grams of ammonium sulfate. The mangano settled very rapidly but shaking and stirring was continuous during the period of application.

TABLE 4

MANGANESE DETERMINATIONS OF SURFACE APPLICATIONS OF NUTRIENTS  
VAN NEST EXPERIMENTS

Sample Area	Depth of Sample (Inches)	Gamma Mn per Gram Soil	Pounds Mn per 6-Inch Acre
Control	0-6	0.375	0.75
Control	6-12	0.775	1.55
Control	12-18	0.55	1.10
Control	18-24	0.00	0.00
Control	24-30	0.00	0.00
"D" (Techmangan)	0-6	4.35	8.70
"D" (Techmangan)	6-12	2.38	4.75
"D" (Techmangan)	12-18	2.30	4.60
"D" (Techmangan)	18-24	0.775	1.55
"D" (Techmangan)	24-30	0.55	1.10
"E" (Mangano)	0-6	2.98	5.96
"E" (Mangano)	6-12	2.98	5.96
"E" (Mangano)	12-18	1.48	2.96
"E" (Mangano)	18-24	0.375	0.75
"E" (Mangano)	24-30	0.325	0.65

TABLE 5

TOTAL NITROGEN DETERMINATIONS OF SURFACE APPLICATIONS OF NUTRIENTS  
VAN NEST EXPERIMENTS

Sample Area	Depth of Sample (Inches)	Micrograms N per Gram Soil
Control	0-6	645
Control	6-12	565
Control	12-18	300
Control	18-24	240
Control	24-30	243
"D" (Techmangan)	0-6	800
"D" (Techmangan)	6-12	435
"D" (Techmangan)	12-18	290
"D" (Techmangan)	18-24	295
"D" (Techmangan)	24-30	195
"E" (Mangano)	0-6	845
"E" (Mangano)	6-12	725
"E" (Mangano)	12-18	365
"E" (Mangano)	18-24	335
"E" (Mangano)	24-30	295

Table 4, which presents the data on manganese penetration, shows that the maximum content in the control area was equivalent to 1.55 pounds per 6 inch acre. Comparing the data for the "D" and "E" areas to this it seems reasonable to conclude that manganese did percolate to the 12 to 18 inch depth in each case but that there would be considerable question of a deeper penetration. This would seem to be quite reasonable for a 20-day period. It is not positively known that any further penetration would ever occur. The soluble manganese sulfate (Techmangan), which was applied at the rate of 50 pounds per acre, had a differential recovery of only 17.3 pounds per acre. The remainder either washed through or more likely became "fixed" in the soil so that it was not recoverable in the extracting solution.

"Mangano" is totally insoluble in water and in the extracting solution but the soil does slowly solubilize a portion of the material. The quantity applied in Experiment "E" is in manganese content equivalent to about 13 times the manganese used in Experiment "D." Apparently the "Mangano" was solubilized to some extent and penetrated to as great a depth as did the soluble manganese sulfate although the amount reaching the lower levels is less for the insoluble "Mangano."

In Table 5 it does not appear that the ammonium ion used in Experiments "D" and "E" penetrated the soil as effectively as the manganese ion. This probably indicates that the additional nitrogen had not been converted to the nitrate form during the relatively short period of this test. These two areas (experiments "D" and "E") were again sampled on October 11. Samples therefore were taken three weeks and two months after application

of the fertilizer materials. Sampling was again at six inch depth increments to a total depth of 30 inches. The results are given in Table 6.

TABLE 6  
MANGANESE DETERMINATIONS ON SURFACE APPLICATIONS OF NUTRIENTS  
VAN NEST EXPERIMENTS

Applied August 10

Sample Area	Depth of Sample (Inches)	Pounds Mn Found per August 30	per 6-Inch Acre September 11
Control	0-6	0.75	2.08
Control	6-12	1.55	2.74
Control	12-18	1.10	1.54
Control	18-24	0.00	0.00
Control	24-30	0.00	0.00
"D" (Techmangan)	0-6	8.70	4.54
"D" (Techmangan)	6-12	4.75	3.80
"D" (Techmangan)	12-18	4.60	3.34
"D" (Techmangan)	18-24	1.55	1.24
"D" (Techmangan)	24-30	1.10	1.10
"E" (Mangano)	0-6	5.96	4.54
"E" (Mangano)	6-12	5.96	6.20
"E" (Mangano)	12-18	2.96	3.80
"E" (Mangano)	18-24	0.75	2.14
"E" (Mangano)	24-30	0.65	1.54

Table 6 shows that the "native" soil as shown in the controls is deficient in manganese in the two lower levels where it is presumed that tree roots would be mostly located. In view of the consecutive sampling it appears clear that the manganese applied in both experiments has reached these lower levels. In general, less than one pound of extractable manganese per 6 inch acre indicates deficiency while more than five pounds per acre may be toxic. Using this as a criterion the manganese sulfate (Techmangan) was at a toxic level in the upper 6 inches for at least 20 days after application whereas a desirable condition prevailed with the much heavier application of the insoluble "Mangano."

The degree of uniformity of extractable manganese in the September 11 sampling of the two treated plots proves that an equilibrium will be reached through the soil interaction so that initially soluble materials are rendered only partially soluble while the initially insoluble material is being partially solubilized. Thus, the end result is approximately the same for each type. It appears probable that during the course of the two-month period more manganese reached the lowest levels from the "Mangano" treatment than from the manganese sulfate. If the premise of equilibrium is correct this would be expected to follow. The great quantity of manganese in the upper layer in Experiment "E" is being solubilized to replace that carried to the lower layers by percolation. The dynamic potential of this system is superior to that operating in Experiment "D" and so the lower



layers will receive an equilibrium amount sooner and the effect will last longer.

A third phase of the fertilizer distribution problem involves the hydraulic injection of the solution of nutrients under pressure. The solution was injected at a depth of 10 inches and a pressure of 75 pounds per square inch. The concentration of manganese sulfate used was 50 grams/2 gallons and two gallons of solution was injected into each test location. The soil was a moderately compact loam and very dry when the injections were made on May 19.

Several hours later the sampling in the injection area was commenced and finished the following day with no intervening rainfall. Samples were taken in six-inch depth increments to a total depth of 35 inches (the length of the sampling tube) with a few obtained at a greater depth using a special tube. Usually a gravel layer was encountered at about 36 inch depth which prevented further sampling. The sample pattern was oriented to the cardinal compass points to facilitate any possible further sampling. In these four directions samples were taken at distances of 6, 9, 12 and 15 inches respectively from the injection hole. Samples were also secured vertically at the injection hole. The results of this experiment, designated as "A," are given quantitatively in Table 7.

TABLE 7  
RECOVERY OF MANGANESE FROM SOIL INJECTION EXPERIMENT "A"

Sample Number	Location Key		Micrograms Mn per Gram Soil	Pounds Mn per Six-Inch Area
1	Control	0-6	1.25	2.50
2	Control	6-12	2.75	5.50
3	Control	12-18	3.50	7
4	Control	18-24	3.50	7
5	Control	24-30	4	8
6	Control	30-35	5.75	11.50
7	A-0	0-10	66.50	133
8	A-0	10-18	86.50	173
9	A-0	18-24	4.50	9
10	A-0	24-30	3.75	7.50
11	A-0	30-35	4	8
12	A-0	35-40	4.75	9.50
13	A-N6	0-6	16.50	33
14	A-N6	6-12	105	210
15	A-N6	12-18	8	16
16	A-N6	18-24	4.50	9
17	A-N6	24-30	5	10
18	A-N6	30-35	3.50	7
19	A-N6	35-40	4	8
20	A-N9	0-6	21.50	43
21	A-N9	6-12	62.50	125
22	A-N9	12-18	6	12
23	A-N9	18-24	6	12
24	A-N9	24-30	5.75	11.50
25	A-N9	30-35	5.25	10.50
26	A-N9	35-40	5.50	11

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## RECOVERY OF MANGANESE FROM SOIL INJECTION EXPERIMENT "A"

Sample Number	Location Key		Micrograms Mn per Gram Soil	Pounds Mn per Six-Inch Area
27	A-N12	0-6	50	100
28	A-N12	6-12	28.80	57.60
29	A-N12	12-18	6.25	12.50
30	A-N12	18-24	6.50	13
31	A-N12	24-30	7.75	15.50
32	A-N12	30-35	9	18
33	A-N12	35-40	21.50	43
34	A-N15	0-6	41	82
35	A-N15	6-12	4.25	8.50
36	A-N15	12-18	7	14
37	A-N15	18-24	6.75	13.50
38	A-N15	24-30	6.50	13
39	A-N15	30-35	3.25	6.50
40	A-S6	0-6	2	4
41	A-S6	6-12	12	24
42	A-S6	12-18	173	346
43	A-S6	18-24	63	126
44	A-S6	24-30	5.50	11
45	A-S6	30-35	5.25	10.50
46	A-S6	35-40	4.25	8.50
47	A-S6	40-45	2	4
48	A-S6	45-50	0.75	1.50
49	A-S9	0-6	2	4
50	A-S9	6-12	27	54
51	A-S9	12-18	149	298
52	A-S9	18-24	31.70	63.40
53	A-S9	24-30	6.50	13
54	A-S9	30-35	5.36	10.72
55	A-S9	35-40	5.75	11.50
56	A-S12	0-6	2	4
57	A-S12	6-12	9.50	19
58	A-S12	12-18	85	170
59	A-S12	18-24	21.20	42.40
60	A-S12	24-30	4.25	9.50
61	A-S12	30-35	3.50	7
62	A-S12	35-40	5	10
63	A-S15	0-6	2	4
64	A-S15	6-12	3	6
65	A-S15	12-18	11.70	23.40
66	A-S15	18-24	4.75	9.50
67	A-S15	24-30	4.25	8.50
68	A-S15	30-35	3.50	7
69	A-S15	35-40	5.50	11
70	A-E6	0-6	1.75	3.50
71	A-E6	6-12	27	54
72	A-E6	12-18	64	128
73	A-E6	18-24	42.40	85
74	A-E6	24-30	6.38	12.76
75	A-E6	30-35	4	8
76	A-E6	35-40	4.25	8.50
77	A-E6	40-45	3.37	6.74

## STATE DEPARTMENT OF AGRICULTURE

## RECOVERY OF MANGANESE FROM SOIL INJECTION EXPERIMENT "A"

Sample Number	Location Key	Micrograms Mn per Gram Soil	Pounds Mn per Six-Inch Area
78	A-E9 0-6	2.38	4.76
79	A-E9 6-12	4.25	8.50
80	A-E9 12-18	28.70	57.50
81	A-E9 18-24	49.50	99
82	A-E9 24-30	5.37	10.74
83	A-E9 30-35	3.12	6.24
84	A-E9 35-40	3.25	6.50
85	A-E9 40-45	4	8
86	A-E12 0-6	2.25	4.50
87	A-E12 6-12	3.75	7.50
88	A-E12 12-18	8.25	16.50
89	A-E12 18-24	6.50	13
90	A-E12 24-30	5	10
91	A-E12 30-35	3.88	7.76
92	A-E12 35-40	4.75	9.50
93	A-E12 40-45	2.75	5.50
94	A-E15 0-6	1.62	3.24
95	A-E15 6-12	5.25	10.50
96	A-E15 12-18	4.50	9
97	A-E15 18-24	4.37	8.74
98	A-E15 24-30	4.75	9.50
99	A-E15 30-35	5.50	11
100	A-E15 35-40	5.75	11.50
101	A-W6 0-6	3.77	7.54
102	A-W6 6-12	10	20
103	A-W6 12-18	39.20	78.40
104	A-W6 18-24	5.75	11.50
105	A-W6 24-30	4.37	8.70
106	A-W6 30-35	3	6
107	A-W6 35-40	3.25	6.50
108	A-W9 0-6	3.37	6.74
109	A-W9 6-12	4.75	9.50
110	A-W9 12-18	13.75	27.50
111	A-W9 18-24	4.25	8.50
112	A-W9 24-30	2.62	5.24
113	A-W9 30-35	3.50	7
114	A-W9 35-40	4.63	9.26
115	A-W12 0-6	1.87	3.74
116	A-W12 6-12	4.50	9
117	A-W12 12-18	7	14
118	A-W12 18-24	6.25	12.50
119	A-W12 24-30	6.62	13.24
120	A-W12 30-35	7.25	14.50
121	A-W15 0-6	2.25	4.50
122	A-W15 6-12	4.25	8.50
123	A-W15 12-18	7.25	14.50
124	A-W15 18-24	5	10
125	A-W15 24-30	3.25	6.50
126	A-W15 30-35	3.25	6.50

Samples one to six are the control samples for the several vertical increments and represent the native condition of the soil with respect to extractable manganese in the test area of Experiment "A." There is an increase in manganese content with increasing depth of sample. The last column, "Lbs. Mn per six inch acre," means the pounds of the nutrient per acre area to "plow depth" or a depth of six inches. It is also commonly considered as two million pounds of soil. Fertile soils usually contain about five pounds of replaceable manganese per six inch acre. The highest control figure is 11.50 pounds per six inch acre and this is taken arbitrarily as the standard to indicate positive infiltration by the injected solution.

TABLE 8

VISUAL PRESENTATION OF PERMEATION DATA CONTAINED IN TABLE 7  
(11.5 Pounds Replaceable Mn/6 Inch Acre Taken as Standard Indicating Infiltration)

Distance From Introduction Point (Inches)	Vertical Soil Layer (Inches)	FIRST SAMPLING			
		Quadrant I	Quadrant 2	Quadrant 3	Quadrant 4
0	0-10	X			
	10-18	X			
	18-24	—			
	24-30	—			
	30-35	—			
6	0-6	X	—	—	—
	6-12	X	X	X	X
	12-18	X	X	X	X
	18-24	—	X	X	—
	24-30	—	X	—	—
	30-35	—	—	—	—
	35-40	—	—	—	—
9	0-6	X	—	—	—
	6-12	X	—	X	—
	12-18	—	X	X	X
	18-24	—	X	X	—
	24-30	—	—	X	—
	30-35	—	—	—	—
	35-40	—	—	—	—
12	0-6	X	—	—	—
	6-12	X	—	X	—
	12-18	X	X	X	X
	18-24	X	X	X	X
	24-30	X	—	—	X
	30-35	X	—	—	X
	35-40	X	—	—	—
15	0-6	X	—	—	—
	6-12	—	—	—	—
	12-18	X	—	X	X
	18-24	X	—	—	—
	24-30	X	—	—	—
	30-35	—	—	—	—
	35-40	—	—	—	—

— None.  
X Positive.

Table 8 shows that the tendency of the injected solution is to infiltrate downward when the injection depth is 10 inches and the pressure is 75 pounds per square inch. It is suggested that these data be compared with those given in Table 1, where a similar experiment was described using gravity feed for the nutrient solution. A less uniform pattern would be expected but a more diffuse one when using a high pressure because of the opening up of fissures, permeation of earthworm burrows and natural soil cavities which would logically follow pressure injection. Experiment "A" also indicates that a reasonably good pattern of permeation might be expected to result from injections spaced 30 inches apart. These data are fundamental in developing rational fertilization procedures.

### *Studies on Placement of Elm Roots*

The root system of a small elm were washed out to determine the distribution of shade tree roots. The tree selected was a small elm growing in the White Horse nursery on the laboratory grounds which had been planted in April 1949. No fertilization had been applied. The diameter of the tree was five inches, the height 21 feet, one inch and the maximum spread nine feet at the time the washing out started. The contour of the ground around the tree was determined and provision was made for retaining the tree in its exact location as the washing out procedure progressed. Water under pressure was used in all the excavation work. As the washing progressed measurements were made to record all pertinent information on root distribution and depth. A complete photographic record was made of every step in the procedure.

From the observations it appeared that this tree should have been fertilized by placing the fertilizer in an annular zone about two and one-half feet from the trunk and the median depth of placement should approximate one foot below ground level for maximum availability of a given amount of fertilizer. From this information as well as that presented on fertilizer placement a rational procedure will result for fertilization which will yield much more consistent responses than have been obtained in the past.

### *Chlorosis of Pin Oaks*

Pin oak chlorosis is a nutritional disorder which results from an inability of the affected plant to maintain an adequate amount of iron in a state of metabolic activity. The experimental work was undertaken on plantings in Washingtons Crossing State Park and in Phillipsburg. One series of tests involved finding the concentration of materials proposed which could be applied to the foliage without causing objectionable injury.

TABLE 9  
PHYTOTOXICITY TESTS ON MATERIALS PROPOSED FOR FOLIAGE APPLICATION  
ON CHLOROTIC PIN OAKS

Materials	Concentration (Grams per Gallon)	Observation
Ferrous sulfate ( $7H_2O$ )	22.7	No injury
Ferrous sulfate ( $7H_2O$ )	45.4	Slight injury
Ferrous sulfate ( $7H_2O$ )	68.1	Severe injury
Na Fe sequestrene, Geigy	5	Slight injury
Na Fe sequestrene, Geigy	10	Objectionable injury
Na Fe sequestrene, Geigy	20	Severe injury
Chel 330 Fe, Geigy	5	No injury
Chel 330 Fe, Geigy	10	Very slight injury
Chel 330 Fe, Geigy	20	Objectionable injury

Of the two chelate compounds the chel 330 Fe is considerably less damaging than is the Na Fe sequestrene. With respect to the efficacy of the treatments it was found that all three compounds listed in Table 9 cause at least a partial restoration of the chlorophyll in the leaves of chlorotic pin oaks when applied as a foliage spray. The best recovery appears to result when the chel 330 Fe is used. These observations must be continued over a longer period before reaching definite conclusions. Growth irregularities in the leaf tissue seem to result from the use of the ferrous sulfate which have not been noted with the chelate compounds.

Leaf samples have been taken in conjunction with all of this work so that correlation of the chemical content of the leaves with the responses observed can be started. Some of the analytical work has been completed but a report will not be made on this until a later date. A series of Kodachrome slides also has been obtained as the work progressed to show every step in the recovery.

### *Miscellaneous*

The leaf sampling and analyses for the 18 groups of elms under study on the Van Nest Game Preserve planted in 1952 were continued through the current year. The study on the 36 groups planted there in the spring of 1953 also was carried on. This study will continue in the following year when it probably will be completed.

Studies were continued on the elms in Branch Brook Park in Newark to preserve a continuity of data for later studies on hydraulic feeding which will be undertaken on these specimens. Exploratory work was undertaken on the iron content of chlorotic oak leaves. No definite conclusions can be presented.

Several new procedures for the determination of the minute amounts of zinc present in plant tissues were explored and one of these seems to offer considerable promise as a replacement for the present complicated and

tedious method. The dipicrylamine method for potassium was used in all the current year's work instead of the cobaltinitrite procedure and found to be far more reliable and less difficult.

## SEED CERTIFICATION

### GRAIN SEED CERTIFICATION

Members from several organizations have united their efforts to supply New Jersey farmers with the highest quality seed available. Approximately 100 New Jersey farmers each year enter the program under the rules and regulations prescribed by the Department. The Department inspects the fields and enforces the rules of the program.

#### *Field Corn*

There were 558.5 acres of hybrid seed corn grown under the certification program, 41 acres more than the previous year. However, the rate of rejection was higher so that the acreage certified was the same as in 1953. The acreage of New Jersey No. 7 was reduced from 435 acres to 285 acres with New Jersey No. 8 seed production increasing from 53 acres to 168 acres. This year 47.5 acres were entered of Connecticut No. 554, a mid-season hybrid maturing approximately 10 days before New Jersey No. 7.

#### SEED CORN ACREAGE

Hybrid	Acres Entered	Acres Rejected	Acres Passed
N. J. No. 4	55.0	15.0	40.0
N. J. No. 7	285.0	25.0	260.0
N. J. No. 8	168.0	...	168.0
Conn. No. 554	47.5	14.5	33.0
J47 x B42	3.0	...	3.0
Totals	558.5	54.5	504.0

The seed corn growing season was one of the poorest ever experienced in New Jersey. Drought conditions during the pollination period made pollen very weak, in turn causing very poor pollination in many seed fields. Connecticut No. 554 because of its poor pollinator and split planting was affected most severely by dry weather and 14.5 acres were withdrawn from certification. Because of the unevenness in growing the double crosses the detasseling period was extended.

Many conditions beyond the control of the certifying agency and the producers made this one of the poorest years to detassel. New Jersey No. 8



had a tendency to shed pollen before the leaves opened and it was necessary for the seed producers to pull leaves in order to prevent self pollination. This type of growing season indicated the advantages of male sterile seed which performed satisfactorily in both New Jersey No. 7 and New Jersey No. 8 hybrids. The ear parent of New Jersey No. 7, WF-9x38-11, had approximately one-fourth of 1 per cent shedding which is especially good control. The New Jersey No. 8 ear parent, WF-9xHY<sub>2</sub>, shed slightly more pollen but was still more satisfactory than hand tasseled portions.

The harvesting of seed started in September when the moisture content ranged from 23 to 34 per cent. One lot of New Jersey No. 4 of 15 acres was rejected because of the sprouting of seed in the field. Sprouts were observed in approximately 65 per cent of the ears and because of different stages of sprouting it was impossible to separate the ears before shelling.

Because of the transfer of the New Jersey Field Crop Improvement Association's mill from Kingston to Allentown the processing of hybrid seed corn did not start until January 17. The mill then ran on a 24 hour schedule in order to complete its grading process before the planting season. A total of 10,639 bushels of flat grades of the 1954 crop was sealed. A carry-over of 3,911 bushels of flat grades from the 1953 crop had satisfactory germination and seed quality to merit the blue tag. There was also a request for 806 bushels of round grades to be sealed, making a total for the year of 15,356 bushels certified.

## SEALING OF SEED CORN

Hybrid	New Crop (1954)		Carry-over (1953)	Total Sealed (Bushels)
	Flat (Bushels)	Round (Bushels)	Flat (Bushels)	
New Jersey No. 4	456	59	32	547
New Jersey No. 7	4,568	407	3,734	8,709
New Jersey No. 8	5,108	181	145	5,434
Connecticut No. 554	507	159	...	666
Totals	10,639	806	3,911	15,356

The comparison study on cleaning and grading New Jersey hybrids is not as complete as in previous years because the relocation of the mill made it impossible to compile as complete records. A total of 16.9 bushels of New Jersey No. 7 was sealed per acre, the lowest on record. In 1949, another very dry year, 19.2 bushels per acre were sealed. This year the percentages of large, medium and flat grades remained within the same ratio as in previous years. New Jersey No. 8 responded more favorably to the dry year than New Jersey No. 7 yielding 28.7 bushels per acre or 11.8 bushels per acre more than New Jersey No. 7. Although the total bushels per acre of New Jersey No. 8 were considerably less than the previous year when 43.5 bushels were reported a satisfactory yield was obtained.

NEW JERSEY HYBRID SEED CORN CLEANING AND GRADING  
1949-54

	NEW JERSEY No. 7					
	1954	1953	1952	1951	1950	1949
Growers' records used	12	17	13	11	12	12
Acreage	270	388	333	282	303	237
Rough corn received at mill (bushels)	...	15,973	12,779	10,763	12,632	7,651
Bushels rough corn (ear parent) harvested per acre	...	41.2	38.4	38.2	41.6	28
Total bushels of flat grades certified	4,568	11,895	9,247	8,096	8,996	4,548
Average bushels of flats per acre	16.9	30.6	27.8	28.6	29.6	19.2
Average percentage of flat grades harvested per acre	...	74.3	72.3	74.9	71	59
Large flats (bushels)	661	815	624	598	1,180	506
(per cent)	14.4	6.9	6.8	7	13	11
Medium flats (bushels)	3,276	8,494	4,166	3,717	4,517	1,979
(per cent)	71.6	71.4	45	46	50	44
Narrow flats (bushels)	631	2,586	4,457	3,781	3,299	2,009
(per cent)	14	21.7	48.2	47	37	45

	NEW JERSEY No. 8		CONNECTICUT No. 554
	1954	1953	1954
Growers' records used	9	5	3
Acreage	178	53	34
Rough corn received at mill (bushels)	...	2,871	...
Bushels rough corn (ear parent) harvested per acre	...	54.2	...
Total bushels of flat grades certified	5,108	2,303	507
Average bushels of flats per acre	28.7	43.5	14.9
Average percentage of flat grades harvested per acre	...	80.3	...
Large flats (bushels)	852	163	122
(per cent)	16.7	7.1	24.1
Medium flats (bushels)	3,483	1,555	338
(per cent)	68.2	67.5	66.7
Narrow flats (bushels)	773	585	47
(per cent)	15.1	25.4	9.2

*Sweet Corn*

The first successful attempt in producing hybrid sweet corn seed was completed this year. The success of the pilot plantings can be attributed to the interest and desire of the seed producers, the delayed planting dates in order to afford adequate isolation and the use of fertile soil with irrigation. The pilot plantings consisted of two fields, one acre of New Jersey No. 101 and one acre of New Jersey No. 106. The detasseling was accomplished without any self-pollinating plants. It was necessary to spray or dust with continued regularity throughout the growing season for the control of ear worm and corn borer. Late in the growing season a hurricane damaged the

fields to some extent and kernel mold developed. The seed was graded and treated by the certifying agency and will be tested extensively throughout the State comparing it with western produced seed and other varieties.

### *Barley*

This year 330 more acres of Wong barley were entered for certification than during the previous year making a total of 694 acres, the largest seed barley crop ever to be entered in New Jersey. There were two acres of foundation, 54 acres of registered and 638 acres of certified. Field inspections started with the loose smut inspection in early May as the seed head unfolded from the leaves. In the registered fields, which are one year from hot water treatment, not a single smut head was found. In certified fields loose smut ranged from 10 plants per acre to 30 which is considered excellent control. It appears that with the continuation of the hot water treatment program loose smut in barley will be no problem.

A rather high percentage of field rejections was necessary this year because of the mixture of other grains and inseparable weeds. A total of 311 acres, 44 per cent of the total, was rejected. The previous year 11 per cent were rejected and in 1952 27 per cent. One of the largest problems in producing pure seed is the control of volunteer plants which are introduced because farmers in New Jersey have been grain farming continually.

Favorable weather prevailed during the harvest period of barley seed. There was no problem with high moisture and the entire seed crop was harvested before July 1. The seed possessed an extremely bright color and a test weight averaging approximately 50 pounds per bushel. Barley yielded 55 to 56 bushels of clean seed per acre compared with an average of 42 bushels in 1953.

A total of 16,532 bushels of certified Wong barley was sealed, approximately 8,000 more bushels than the previous year. The increase was apparently too much to be absorbed by the markets resulting in approximately 3,500 bushels of carry-over which were placed in satisfactory storage and will be resampled for germination next year.

It is generally believed that this year's certified seed is one of the finest ever produced. Field inspections were rigid to control impurities and weather conditions were ideal for harvest.

BARLEY CERTIFICATION PROGRAM

Variety	Acres Entered	Field Inspection	Acres Rejected		Acres Passed	Bushels Sealed
			Bin Inspection			
Wong (foundation)	2	...	...		2	130
(registered)	54	32	...		22	1,296
(certified)	638	279	31		328	16,532
Totals	694	311	31		352	17,958

*Wheat*

A total of 1,068 acres of wheat was entered for certification, a decrease of 730 acres from the previous year. The reduction in acreage was caused by the government restrictions on wheat acreage plus the large carry-over held by the marketing cooperative from the previous year. The total number of certified bushels that were sold this year increased approximately 1,000.

This year for the first time the Pennoll variety of wheat was approved for certification by the New Jersey Agricultural Experiment Station. Pennoll originated in Pennsylvania and is a soft red winter wheat that is taller than Thorne and possesses a white straw. It appears to tiller very well, resists lodging and seems to be adapted to a wide range of New Jersey soil conditions. It has outyielded Thorne and Seneca and has been showing a higher test weight. As a result the acreage entered comprised almost 50 per cent of the Pennoll variety.

Field inspections were completed during June with 281 acres rejected mainly because of the presence of noxious weeds, loose smut and varietal mixture. The 281 acres rejected represents 28 per cent of the entered acreage as compared to 24 per cent rejected the previous year. It was necessary to reject 171 acres of the Seneca variety for loose smut infection. Seneca seed that was only three or four generations removed from hot water treatment remained well below the tolerance. The Foundation Seed Committee recognizing the susceptibility of the Seneca variety to smut has started a hot water treatment program for the control of this disease.

Several fields of wheat were rejected from seed certification because of the mixture of rye. During the latter part of the seed wheat growing season there was very little rainfall. However, this did not interfere with high yields and aided considerably in harvesting seed with low moisture content. During the bin inspection it was necessary to reject 91 acres of seed mainly because of too much inert material. Some rejections were made because of low germination and inseparable weed seeds. Wild onion and garlic as well as radish are the most troublesome weeds. In the cleaning process of the Pennoll variety it was noted that this variety has a tendency to retain its glumes and appear chaffy. The small amount of chaff does not lower seed quality or add difficulty to the planting but does affect appearance. Attempts to eliminate the inert material have not been successful.

Each year there is an increased use of bulk handling of grains in New Jersey. At present approximately one-half of the seed acreage is handled in bulk from the combine to the seed cleaning plant, eliminating the use of burlap bags which had been a source of mixture with other grains. However, if the grain elevators of the auger type are not working properly or being fed to capacity the seed is cracked considerably which lowers the germination and increases the amount of inert material.

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A total of 3,208 bushels of carry-over seed met the requirements for certification. This seed was repackaged, retagged and moved to market. Approximately 5,000 more bushels of certified seed were sold this year than last year. This year's crop was successful in yield as well as quality and was believed to be of the highest quality ever obtained. The formation of the Foundation Seed Committee in the New Jersey Field Crop Improvement Association and the establishment of registered seed fields are important steps in maintaining genetic purity of seed.

## 1954 WHEAT PROGRAM

Variety	Acres Entered	Acres Rejected Field	Bin	Acres Passed	Bushels Sealed
Pennoll					
(certified)	516	66	55	395	10,067.5
(registered)	2	...	...	2	106
Seneca					
(certified)	368	171	...	197	5,944.5
(registered)	5	5	...	...	...
(carry-over)	...	...	...	...	310.5
Thorne					
(certified)	173	39	36	98	1,599
(registered)	4	...	...	4	100.5
(carry-over)	...	...	...	...	2,898
Totals	1,068	281	91	696	21,026

*Spring Oats*

One grower entered eight acres for certification which passed both field and bin inspection and 312 bushels were certified. The oats were very good in appearance and tested 39 pounds per bushel. The seed had little inert material and germinated 95 per cent. The public acceptance of a New Jersey spring oat has not improved with the Clinton variety and the program will not be increased greatly until a more satisfactory variety is developed.

## SPRING OAT PROGRAM

Variety	Acres Entered	Acres Rejected Field	Bin	Acres Passed	Bushels Sealed
Clinton	8	...	...	8	312

*Winter Oats*

A total of 27 acres of Le Conte oats was entered for certification, the same as last year. It is impossible to buy genetically pure LeConte seed oats, so the Foundation Seed Committee has undertaken to produce New Jersey registered seed. Research trials at the Agricultural Experiment Station have found LeConte oats especially good for the southern part of the State.

It was necessary to reject one six acre field because of inseparable weeds. The growing and harvesting weather was excellent, allowing the seed producers to harvest the seed with low moisture content and bright color. Germinations were in the high 90's and test weights averaged 42 pounds per bushel. The demand for this crop is very good.

## WINTER OAT PROGRAM

Variety	Acres Entered	Acres Rejected Field	Bin	Acres Passed	Bushels Sealed
LeConte	27	6	...	21	1,317
(carry-over)	...	...	...	...	21
Totals	27	6	...	21	1,338

*Rye*

One grower entered 13 acres of Balbo rye for seed certification which passed both field and bin inspections. A total of 387 bushels of seed was certified which is approximately 30 bushels per acre. It has been extremely difficult financially to grow rye under certification standards and to compete on the open market with common rye. Most of the rye in New Jersey is used for cover crops and these farmers buy the cheapest seed obtainable.

The tetraploid varieties of rye are being examined and tested. It appears that they will be successful and probably replace the common rye in a few years. As soon as good seed sources are established and sufficient years of testing have proved its value the tetraploid rye will be certified.

## RYE PROGRAM

Variety	Acres Entered	Acres Rejected	Acres Passed	Bushels Sealed
Balbo	13	...	13	387

*Soybeans*

The area of soybeans entered for certification was 88 acres less than that of the previous year but the rate of rejection was much smaller resulting in more acres being approved. A total of 823 acres was entered for certification. Again four varieties of soybeans were recognized for certification, Blackhawk, Hawkeye, Chief and Lincoln. Approximately two-thirds of the total acreage was devoted to the Hawkeye variety. The others have only special uses in the soybean industry and their seed requirements are not as great.

A minimum acreage was rejected during the field inspection of soybeans due to few disease problems being prevalent in New Jersey and because the certified seed growers have selected their seed sources carefully and have been maintaining high genetic standards. It was necessary this year to



reject a field of foundation Hawkeye because the field developed under such poor growing conditions making it impossible to select and rogue properly. The field of foundation Lincoln was rogued twice and cleaned to a high degree of purity.

Extremely dry weather during the growing season lowered the yield considerably and made possible an infestation of weeds. The weeds in many cases prevented proper harvesting of the seed. One grower irrigated a field of soybeans. The additional moisture produced larger plants and more beans but it is questionable whether the increased yield offset the expense of irrigation.

Soybean seed for the most part was harvested during September. Rain in late August and early September advanced the seed to maturity with acceptable yields. With an oversupply of rain during the harvest period it was difficult to harvest without having a high moisture content in the seed and in some cases seed was artificially dried to maintain germination and to control decay. Approximately 200 acres had to be rejected for moldy seed and low germination.

Purple stain disease, in some growing seasons the cause of many rejections, was not a factor in this year's production. The increase in row planting which allows more air circulation and lowers humidity is one of the main reasons for the reduction of this disease. The processing of soybean seed was delayed because of the construction and installation of the seed cleaners in the new plant of the Field Crop Improvement Association. The seed cleaning commenced in April and was completed by the middle of May. A total of 9,564.5 bushels of soybeans was sealed, approximately 1,000 bushels more than last year.

#### SOYBEAN SEED PROGRAM

Variety	Acres Entered	Acres Rejected	Acres Passed	Bushels Sealed
Blackhawk				
(certified)	108	30	78	1,095
(certified carry-over)	...	...	...	10.5
Chief				
(certified)	47	...	47	741
Hawkeye				
(registered)	4	4	...	...
(certified)	613	203	410	6,045
(registered carry-over)	...	...	...	30
(certified carry-over)	...	...	...	117
Lincoln				
(registered)	2	...	2	33
(certified)	49	...	49	1,493
Totals	823	237	586	9,564.5



*Summary*

Under 1954 seed certification program 65,941 bushels were sealed, in quantity second only to the 1952 crop. The demand or amount of seed certified is a direct reflection upon the quality of the seed. The seed trade will return to the same seed source only if satisfactory results are obtained. There is a trend toward the use of more certified seed and for many crops the demand is much greater than the available supply.

GRAIN CERTIFICATION SEALINGS OF 1941-54  
(bushels)

	Total Sealed	Corn	Oats	Wheat	Barley	Soybeans	Rye
1954	65,941	15,356	1,650	21,026	17,958	9,564	387
1953	61,182	19,794	2,115	20,172	10,438	8,663	...
1952	67,777	14,593	1,836	25,159	15,265	10,924	...
1951	56,404	13,315	2,745	19,224	13,828	7,292	...
1950	43,819	13,583	2,904	9,961	9,999	7,372	...
1949	41,935	14,288	2,145	8,666	12,366	4,470	...
1948	27,278	12,993	1,941	3,996	5,784	2,564	...
1947	23,937	9,173	1,612	5,188	6,994	970	...
1946	27,217	9,371	2,853	6,915	7,098	980	...
1945	21,226	12,408	2,306	2,424	3,653	435	...
1944*	25,253	9,534	5,316	4,068	5,473	874	...
1943*	25,074	6,461	1,408	3,917	3,023	13,263	...
1942*	24,571	9,744	1,576	4,882	2,052	5,900	...
1941	19,159	9,125	1,750	3,706	...	3,764	...

\* Total sealed, represents only the principal crops.

## LATE CROP WHITE POTATO SEED CERTIFICATION

Eight seed potato growers entered 120.5 acres for inspection. This is a decrease of four acres from the previous year. It was necessary to reject 14.5 per cent of the acreage leaving 106 acres meeting the requirements for certification. Total production of New Jersey certified seed potatoes was estimated at 23,119 bushels. Four varieties were entered as compared with eight varieties during the previous year. The four varieties are the major commercial or table stock varieties of New Jersey. One variety that was not entered for certification this year is the Jersey Red Skin which has been grown in New Jersey for many years. However, for the past few years the acreage has been decreasing and has shown poor quality.

This is the first time in many years that only two states are listed as seed sources with Maine contributing 91 per cent and the other 9 per cent obtained from New Jersey sources. The seed potato acreage was planted after the usual dates when growing conditions were extremely dry. Several fields were poor in appearances early in the growing season because of the uneven stand. Because of poor stand one field was rejected at first inspection. Rain early in September aided the crop considerably. A total of 14.5 acres of potatoes was rejected mainly because of disease such as leaf roll and mosaic in quantities.

The Department again made available to all seed growers in New Jersey the Florida testing program which is carried on with the cooperation of the New York Certified Seed Growers' Cooperative. Nine samples, three more than the previous year, were sent to Florida in November for testing. A representative sample is composed of 155 tubers selected by the grower during harvest uniformly throughout his field. Samples are collected by State inspectors and sent to Ithaca for chemical treatment. The seed is then sent to Florida for planting and at the end of six to eight weeks a field sampling can then be made to determine the virus disease content of the sample. All certified seed fields in New Jersey are not required to be tested in Florida. New Jersey seed stocks were kept in well ventilated storages and were taken out in the spring in very good condition. Although seed supplies throughout the nation were plentiful New Jersey seed moved on the market with little effort.

## PRODUCTION OF CERTIFIED WHITE POTATO SEED

Variety	1954		1953	
	Passed	Production (Bushels)	Passed	Production (Bushels)
Cobbler	10.50	2,856	19.00	2,515
Katahdin	73.00	15,525	55.00	11,627
Chippewa	18.50	4,458	16.50	3,363
Red Skin	...	...	1.00	75
Netta Gem	...	...	1.00	120
Kennebec	4.00	1,080	11.50	1,170
Pungo	...	...	.25	50
Cherokee	...	...	.25	45
Totals	106.00	23,919	104.50	18,965

## ACREAGE FAILING AND PASSING CERTIFICATION

	Acres	Per Cent
Rejected or withdrawn at first inspection	4.50	4
Rejected or withdrawn at second inspection	10	8
Rejected at third inspection	...	...
Rejected resulting from Florida testing	...	...
Rejected or withdrawn at fourth inspection	...	...
Passing fourth inspection (certified)	106	88

## VARIETAL DISTRIBUTION OF REJECTIONS AND WITHDRAWALS

Variety	Acres Entered	Acres Rejected and Withdrawn by Inspections				Acres Certified
		First	Second	Third	Florida	
Katahdin	81	...	8	...	...	73
Cobbler	15	4.50	...	...	...	10.50
Chippewa	18.50	...	...	...	...	18.50
Kennebec	6	...	2	...	...	4
Totals	120.50	4.50	10	...	...	106

## STATE DEPARTMENT OF AGRICULTURE

INSPECTION AND CERTIFICATION WORK OF NEW JERSEY LATE CROP WHITE  
POTATO SEED IN 1954

	Seed Source	
	100-lb. Bags	Per Cent
Maine	1,515	91
New Jersey	165	9
Totals	1,680	100

## WHITE POTATO SEED CERTIFICATION

	Growers	Acres Entered	Percentage Rejection	Variety	Acres
1949	13	153.5	8.47	Katahdin	94.50
				Chippewa	27
				Red Skin	9
				Pawnee	10.50
				Sequoia	5.50
				Cobbler	4
				Mohawk	3
1950	21	268.5	5.80	Katahdin	167.33
				Chippewa	46.67
				Cobbler	39.25
				Red Skin	9
				Sequoia	2.50
				Red Bliss Triumph	.25
				Kennebec	3.50
1951	14	154	12.30	Katahdin	92.40
				Chippewa	22.10
				Cobbler	15
				Kennebec	13.50
				Essex	2
				Netta Gem	1
				Sequoia	1
				Red Skin	7
1952	10	131	30.60	Katahdin	78.50
				Kennebec	17.50
				Red Skin	.50
				Chippewa	14.50
				Idaho	1.50
				Cobbler	7.50
				Red Bliss Triumph	10
				Ontario	1
1953	12	127.5	18	Katahdin	73
				Chippewa	21.50
				Cobbler	19
				Kennebec	11.50
				Red Skin	1
				Pungo	.25
				Cherokee	.25
				Netta Gem	1
1954	8	120.5	14.50	Katahdin	81
				Chippewa	18.50
				Cobbler	15
				Kennebec	6

## ***Official Proceedings of the Fortieth Annual State Agricultural Convention***

The 40th annual State Agricultural Convention was held in the Assembly Chamber of the State Capitol in Trenton on Tuesday, January 25, 1955. The meeting was called to order at 10:00 a. m. by Carleton E. Heritage, president of the State Board of Agriculture. The invocation was offered by the Rev. Edward C. Dunbar of the Flemington Baptist Church.

The roll of delegates was called by Secretary of Agriculture W. H. Allen as follows:

### DELEGATES OF THE STATE AGRICULTURAL CONVENTION

#### *From County Boards of Agriculture*

Name	Address	Term	County
Joseph English, Mays Landing, alternate for			
*Joseph Quarella	Landisville	2 years	Atlantic
Charles Canale	Pleasantville, R. D. 2	1 year	Atlantic
Irving Christensen	Woodridge	2 years	Bergen
Richard Sylstra	Wyckoff	1 year	Bergen
*Barclay H. Allen	Mount Holly	2 years	Burlington
Clement B. Lewis	Riverton	1 year	Burlington
Samuel C. DeCou	Merchantville	2 years	Camden
Luther Jennings, Berlin, alternate for			
*J. Evans Jennings	Sicklerville	1 year	Camden
Leland Stanford	Green Creek	2 years	Cape May
Felix Wuerker, Rio Grande, alternate for			
*Forrest McClain	Green Creek	1 year	Cape May
Caesar Simoni	Vineland, R. D. 6	2 years	Cumberland
Louis Pizzo	Rosenhayn	1 year	Cumberland
Henry Becker	Roseland	2 years	Essex
George Meyer	Caldwell, R. D.	1 year	Essex
Harry Lentz	Thorofare	2 years	Gloucester
Leslie Richards	Sewell, R. D.	1 year	Gloucester
Clarence Manzano	Weehawken	2 years	Hudson
Albert Schenone	Union City	2 years	Hudson
Charles Burd	Pittstown, R. D. 1	2 years	Hunterdon
Harold B. Everitt	Flemington, R. D. 1	1 year	Hunterdon
Edgar L. Cubberley	Trenton, R. D. 2	2 years	Mercer
Herbert Hurley, Princeton, R. D., alternate for			
*Charles W. Holman	Dutch Neck	1 year	Mercer

Name	Address	Term	County
Alex Dembeck, Jr. ....	New Brunswick, R. D. 2	.2 years	Middlesex
George R. Parker, Jr. ....	Plainsboro	.1 year	Middlesex
Walter W. Lott	Freehold, R. D. 3	.2 years	Monmouth
R. C. Clayton	Freehold, R. D. 3	.1 year	Monmouth
G. Mills Bockoven	Basking Ridge, R. D.	.2 years	Morris
Robert J. Lecher	Wharton, R. D.	.1 year	Morris
Raymond Schumacher	Lakewood, R. D. 4	.2 years	Ocean
Martin Schubkegel, Sr.	Lakewood, R. D. 4	.1 year	Ocean
Ernest Hausamann	Preakness	.2 years	Passaic
Edward Anthony	Clifton, R. D. 1	.1 year	Passaic
Norman E. Harris, Jr.	Salem	.2 years	Salem
Russell B. Harris	Salem	.1 year	Salem
David W. Amerman	Neshanic	.2 years	Somerset
Gilbert I. Runyon	Skillman	.1 year	Somerset
Mrs. William Boning	Newton, R. D. 3	.2 years	Sussex
John Cowling	Newton, R. D. 1	.1 year	Sussex
William A. Happel	Scotch Plains	.2 years	Union
Charles H. Brewer	Rahway, R. D. 1	.1 year	Union
Azariah M. Frey	Stewartsville	.2 years	Warren
Alfred Baylor, Columbia, R. D., alternate for			
*Edwin Francisco	Allamuchy	.1 year	Warren

*From Pomona Granges*

Name	Address	Term	County
Martin Decker	Hammonton, R. D. 1	.1 year	Atlantic
John Clauss	Fairlawn	.1 year	Bergen and Passaic
C. Harold Joyce	Medford, R. D.	.1 year	Burlington
Reuben H. Dobbs	Marlton, R. D.	.1 year	Camden
Allan McClain	Green Creek	.1 year	Cape May
Robert Wheaton	Bridgeton, R. D. 2	.1 year	Cumberland
Leslie Richards	Sewell, R. D.	.1 year	Gloucester
John T. Hudnutt	Flemington	.1 year	Hunterdon
*Charles M. Ewart	Yardville	.1 year	Mercer
*J. V. S. Dumont	Somerville, R. D. 3	.1 year	Middlesex and Somerset
Howard Clayton	Freehold, R. D. 4	.2 years	Monmouth
Arthur Y. Jarman	Monroeville, R. D.	.1 year	Salem
Rev. John W. Dorney	Newton, R. D.	.1 year	Sussex
Alexander Loskot	Washington	.1 year	Warren

*From Other Organizations*

- American Cranberry Growers Association—Daniel M. Crabbe, Toms River, 1 year ; Anthony R. DeMarco, Hammonton, 1 year.
- Jersey Chick Association—C. T. Darby, Somerville, 1 year ; \*Nello Melini, Vineland, 1 year.
- New Jersey Association of Nurserymen—Russell M. Bettes, Princeton, 1 year ; Albert Flemer, Springfield, 1 year.
- New Jersey State Florists Association—George H. Masson, Jr., Yardville, R. D. 1, 1 year ; August Bosenberg, New Brunswick, 1 year.
- New Jersey State Grange—Franklin Nixon, Vincentown, alternate for \*Clarence M. Alles, Flemington, R. D., 1 year ; Ellsworth Oberly, Stewartsville, 1 year.
- New Jersey State Horticultural Society—Clarence H. Steelman, Sr., Princeton, R. D. 3, 2 years ; Lester Collins, Moorestown, 1 year.
- New Jersey State Poultry Association—Herbert O. Wegner, Newfield, 1 year ; Harold Ibbotson, Jamesburg, 1 year.
- United Milk Producers of New Jersey—Benjamin Hart, Pennington, R. D. 1, 1 year ; Thomas L. Lawrence, Hamburg, 1 year.
- Blueberry Cooperative Association—W. A. Jarvis, Pemberton, 1 year.
- Cooperative Growers Association, Inc.—Albert Heisler, Burlington, R. D., alternate for \*Raymond J. Anderson, Bridgeboro, 1 year.
- E. B. Voorhees Agricultural Society—William M. Nulton, Jr., New Brunswick, R. D. 3, 1 year.
- New Jersey Holstein-Friesian Cooperative Association, Inc.—Charles Kirby, Harrisonville, 1 year.
- New Jersey Agricultural Experiment Station—Louis J. Sanguinetti, Minotola, 1 year.
- New Jersey Beekeepers Association—Otto Eberle, West Caldwell, 1 year.
- New Jersey College of Agriculture—William H. Martin, New Brunswick, 1 year.
- New Jersey Field Crop Improvement Cooperative Association—\*George Stevens, Eatontown, R. D., 2 years.
- New Jersey Guernsey Breeders Association—Roy C. Patrick, Salem, 2 years.
- New Jersey State Potato Association—Lawrence Dey, Plainsboro, 1 year.
- New Jersey Aberdeen-Angus Breeders Association—Charles I. Smith, Allentown, 1 year.
- The Cooperative Marketing Associations in New Jersey, Inc.—William J. Lauderdale, Lambertville, 1 year.

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\* Absent.

# APPOINTMENT OF COMMITTEES

At the Delegates' Dinner held on the evening preceding the Convention the following committees were appointed by President Heritage:

## NOMINATING COMMITTEE FOR MEMBERS OF THE STATE BOARD OF AGRICULTURE

George R. Parker, Jr., Chairman	Middlesex County Board of Agriculture
Rosco C. Clayton	Monmouth County Board of Agriculture
Edgar L. Cubberley	Mercer County Board of Agriculture
Lawrence Dey	New Jersey State Potato Association
Joseph English	Atlantic County Board of Agriculture
John T. Hudnutt	Hunterdon County Pomona Grange
Harold Ibbotson	New Jersey State Poultry Association
C. Harold Joyce	Burlington County Pomona Grange
William J. Lauderdale	The Cooperative Marketing Associations in New Jersey
Harry Lentz	Gloucester County Board of Agriculture
Roy C. Patrick	New Jersey Guernsey Breeders Association
Louis Pizzo	Cumberland County Board of Agriculture
Raymond Schumacher	Ocean County Board of Agriculture
George Stevens	New Jersey Field Crop Improvement Cooperative Association
Felix Wuerker	Cape May County Board of Agriculture

## NOMINATING COMMITTEE FOR MEMBER OF FISH AND GAME COUNCIL

Henry Becker, Chairman	Essex County Board of Agriculture
G. Mills Bockoven	Morris County Board of Agriculture
John Clauss	Bergen-Passaic County Pomona Grange
John Cowling	Sussex County Board of Agriculture
Ernest Hausmann	Passaic County Board of Agriculture
Alexander Loskot	Warren County Pomona Grange
Clarence Manziano	Hudson County Board of Agriculture

## COMMITTEE ON RESOLUTIONS

Martin Decker, Chairman	Atlantic County Pomona Grange
Russell M. Bettes	New Jersey Association of Nurserymen
Daniel M. Crabbe	American Cranberry Association
C. T. Darby	Jersey Chick Association
William A. Happel	Union County Board of Agriculture
Thomas L. Lawrence	United Milk Producers of New Jersey
Clement B. Lewis	Burlington County Board of Agriculture
Charles I. Smith	New Jersey Aberdeen-Angus Breeders Association

## COMMITTEE ON CREDENTIALS

George H. Masson, Jr., Chairman	New Jersey State Florists Association
Edward Anthony	Passaic County Board of Agriculture
Samuel C. DeCou	Camden County Board of Agriculture
Clarence H. Steelman, Sr.	New Jersey State Horticultural Society



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### COMMITTEE TO WAIT ON THE GOVERNOR

Azariah M. Frey, Chairman .....	Warren County Board of Agriculture
William H. Martin .....	New Jersey College of Agriculture
Franklin C. Nixon .....	New Jersey State Grange
Leslie Richards .....	Gloucester County Pomona Grange

### REPORT OF COMMITTEE ON CREDENTIALS

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

### ELECTION OF MEMBERS OF THE STATE BOARD OF AGRICULTURE

The chairman of the nominating committee placed the names of Ernest C. Bell of Bellmawr and Michael J. Klein of Clifton in nomination for membership on the State Board of Agriculture to succeed Carleton E. Heritage of Richwood and Walter M. Ritchie of Rahway, whose terms expire June 30, 1955. Upon motion made and duly seconded it was voted that the nominations be closed and Messrs. Bell and Klein were unanimously selected for recommendation to the Governor for a four-year period beginning July 1, 1955.

### ELECTION OF A MEMBER OF THE FISH AND GAME COUNCIL

The chairman of the nominating committee for membership on the Fish and Game Council of the Department of Conservation and Economic Development placed in nomination the name of Harry W. Frome of Blairstown for a four-year term as the representative from the northern New Jersey counties, succeeding Roderick D. MacDougall whose term expires April 1, 1955. There being no further nominations, the nominations were closed. Mr. Frome was unanimously elected for recommendation to the Governor for a four-year term beginning April 1, 1955.

### CITATIONS

Citations for distinguished service to agriculture were awarded to John V Bishop of Columbus, Louis J. Sanguinetti of Minotola and William C. Spargo of Dover, R. D.

The citations, read by Secretary of Agriculture Willard H. Allen, were as follows:

#### CITATION OF JOHN V BISHOP

New Jersey is proud to count you as one of her first farmer-citizens. Progressive and efficient in the management of your own farm and herds, you also have devoted your talents to the service of your community and State, upholding the rich traditions of your family. Your outstanding career has included notable service as a member of the State Board of Health and the Milk Control Board.

You have guarded well your heritage of the land, at the same time demonstrating sound principles of conservation. In countless civic, health and welfare projects, you have contributed a high degree of leadership and inspired others to advance the public good.

Because of your sincerity and integrity you are among the first to whom your fellow dairymen turn during serious economic crises. All who are concerned with that industry respect your judgment, aware that you always seek to attain your objectives with understanding and sympathy for other points of view.

In each of the many fields benefiting from your guidance and counsel your colleagues, impressed with your high ideals and innate modesty, have become your friends. They join us in this expression of gratitude.

In the presence of these Delegates we commend you and present this CITATION FOR DISTINGUISHED SERVICE TO NEW JERSEY AGRICULTURE.

#### CITATION OF LOUIS J. SANGUINETTI

Your many years of faithful service to New Jersey agriculture are widely acclaimed. Striving constantly to benefit others, never seeking personal gain, you have won the highest respect and regard of your fellow farmers.

You have filled with distinction many important posts, including President of the State Board of Agriculture, President of the New Jersey State Horticultural Society and Chairman of the Board of Managers of the New Jersey Agricultural Experiment Station.

Demonstrating a sincerity of purpose and a rare understanding of human relations, you have a singular capacity for reconciling divergent views. Your sincere regard for your fellowmen inspires a high degree of loyalty among your colleagues.

You have made the revival and advancement of the sweet potato industry your cause. For decades you fostered the search for new varieties. You generously contributed your farmstead as the laboratory for hundreds of trials and demonstrations.

With patience and diligence you have pursued and eventually are achieving that goal. Thanks to your faith and foresight New Jersey already holds first rank in proficient production and a new day is at hand for the growers.

We take great pride in presenting this CITATION FOR DISTINGUISHED SERVICE TO NEW JERSEY AGRICULTURE.

#### CITATION OF WILLIAM C. SPARGO

You have devoted your lifetime to the betterment of many aspects of rural living. You were one of those who early sensed the difficult adjustments facing New Jersey farms and farm families. You dedicated your career to mobilizing available resources to meet those changes.

Realizing that both efficient government and good schools are basic to rural welfare, you have contributed nearly a half century of outstanding service to the affairs of your Township and County. You have served with distinction as President of the State Association of Chosen Freeholders and President of the State Federation of District Boards of Education.

Endowed with rare foresight, you early recognized that through the Agricultural Extension Service a vast store of scientific knowledge could be made available and more efficient methods demonstrated.

Perhaps you are known best as one of the founders, and later as President, of the New Jersey Farm Bureau which stands as a monument to your zeal and leadership. Today thousands of members are enjoying the fruits of your efforts.

Mindful of your example, it is fitting that the delegates assembled here pause in their proceedings to express appreciation and to pay tribute to your noteworthy career.

The State Board of Agriculture is honored to award to you this CITATION FOR DISTINGUISHED SERVICE TO NEW JERSEY AGRICULTURE.

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## REPORT OF COMMITTEE ON RESOLUTIONS

The following resolutions, presented by Martin Decker and reported favorably by the committee, were adopted by the State Agricultural Convention:

*Resolved*, That the delegate body of this 40th Annual Agricultural Convention express its sincere appreciation to His Excellency, Governor Robert B. Meyner, for his manifest interest and concern in New Jersey's agricultural industry which is so important a segment in the economy and welfare of the Garden State and all of its citizens, urban as well as rural; and be it further

*Resolved*, That a copy of this formal appreciation be directed to the Honorable Robert B. Meyner.

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*Resolved*, That we, the delegates to this 40th Agricultural Convention, commend our able Secretary of Agriculture, Willard H. Allen, as he enters another year in valuable service to New Jersey agriculture, especially in his present executive post in which he has so forcefully demonstrated his leadership, good judgment and deep knowledge of agricultural affairs; and be it further

*Resolved*, That we extend a hearty vote of thanks to him, his staff and the General Committee for Farmers Week for developing this annual event which has long since proved its worth to the farmers of this State; and be it further

*Resolved*, That we acquaint His Excellency, Governor Robert B. Meyner, in whose cabinet Secretary Allen is a valued member, of the esteem in which we hold our Secretary of Agriculture, by forwarding a copy of this resolution to the Chief Executive.

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WHEREAS, A comprehensive and instructive series of articles on New Jersey agriculture are appearing weekly in the NEWARK SUNDAY NEWS; and

WHEREAS, The author, John T. Cunningham, has exhibited a rare capacity for assembling the historical background, current data and other facts, including excellent photographs concerning New Jersey agriculture and farm people; and

WHEREAS, The articles are serving a valuable purpose in bringing New Jersey agriculture and farm products to the favorable attention of large numbers of urban and suburban residents; therefore, be it

*Resolved*, That the official delegates assembled at this 40th Agricultural Convention commend the NEWARK SUNDAY NEWS and express to the editor, publishers and especially to Mr. Cunningham, their sincere appreciation for this excellent series of articles.

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WHEREAS, It is ardently believed by many farm leaders that a successful farm show is an outstanding and valuable method of dramatizing the importance and achievements of the agriculture of an area and in promoting further its agricultural welfare; and

WHEREAS, Efforts have been made by our Department of Agriculture and other groups to establish such an exposition in the excellent facilities available in Atlantic City for the benefit of the Tri-State region of New Jersey, Delaware and Maryland; therefore, be it

*Resolved*, That we strongly favor the continuation of this new farm show if, in the judgment of those directing it, this potential exposition can be further developed with the finances at hand and at such dates as are considered most suitable, and that we support such a worthwhile enterprise by our attendance and in any other way at our command.

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WHEREAS, The Federal government has recognized the need for an accelerated and more inclusive program to control and eradicate brucellosis in dairy herds across the nation by making increased funds available to the states to aid in achieving this objective; and

WHEREAS, In our own State the zero date when all milk sold in New Jersey must be from brucellosis-free herds is April 1, 1958, only three short years away; therefore, be it

*Resolved*, That this Convention through the various farm and commodity organizations here represented by delegates, urge all dairy farmers not now in a brucellosis testing program to enter into a testing plan without delay because: First, the presently greater funds available for increased indemnities, practitioner and other allied services could conceivably be exhausted before the deadline whereby the non-cooperating dairyman would suffer financially; and second, a last minute rush to enter a testing program might be too great a testing load to be properly handled with the consequence that such farmers would completely lose their market for milk until they could later comply with the regulations already established.

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WHEREAS, The need for conservation of our water resources has rapidly risen to become a major critical problem facing New Jersey, both as a State and agriculturally; and

WHEREAS, Several remedial measures have been proposed which are now under study, all of which have a basis for sound opposition in some degree; therefore, be it

*Resolved*, That we urge as a foremost consideration by the State Water Policy and Supply Council, and by the members of our Legislature whose decisions on the problem will be enacted into law, the need for fair and just water-rights legislation especially in regard to our farm areas and land utilization; and be it further

*Resolved*, That adequate representation on the State Water Policy and Supply Council be given to farmers; and be it further

*Resolved*, That copies of this action by the delegates to this 40th annual Agricultural Convention be sent to Governor Robert B. Meyner, the State Water Policy and Supply Council and the members of the New Jersey Legislature.

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WHEREAS, In the past year the passing of Arthur B. Rose and J. Leslie Young has removed two long-time associates from the rolls of the Department of Agriculture; and

WHEREAS, Arthur B. Rose since 1929 devoted his talents and energies as Supervisor, Fruit and Vegetable Standardization, to aiding the development and improvement of our successful fruit and vegetable auction markets, giving himself unselfishly and at personal sacrifice to achieve this objective, for all of which he was held in high esteem; and

WHEREAS, J. Leslie Young since 1929 as Supervisor, Dairy Products Standardization, developed a program of milk marketing which is recognized for its high standards and through which some of our New Jersey dairymen have enjoyed the benefits of a market for premium milk, and devoted long hours to its maintenance and progress; therefore, be it

*Resolved*, That we pause here for a moment of respectful silence to their memory.