STATE OF NEW JERSEY

DEPARTMENT OF AGRICULTURE

W. H. ALLEN, *Secretary*

# Thirty-ninth Annual Report

of the

# New Jersey State Department of Agriculture

July 1, 1953—June 30, 1954



Trenton, N. J., June 30, 1954

# NEW JERSEY
# STATE BOARD OF AGRICULTURE

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Messrs. Stuart and Hartung will retire from the Board on June 30, 1954. The new members will be George H. Combs of Hamilton Square and Peter P. Van Nuys of Belle Mead.

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

June 30, 1954

*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 Thirty-ninth Annual Report of the New Jersey Department of Agriculture, for the fiscal year ended June 30, 1954.

Respectfully yours,

W. H. Allen

# THIRTY-NINTH ANNUAL REPORT OF THE NEW JERSEY STATE DEPARTMENT OF AGRICULTURE

## *The Year In Review*

During the year New Jersey farmers experienced the effects of a downward trend in farm prices which was general over the country. Although the gross value of our agricultural products in 1953 reached a new record high of $404,187,000, this was due almost entirely to substantially higher prices for eggs and poultry. The total value of these latter products was 16 per cent greater than in the previous year and accounted for 42 cents of each dollar of value of farm products. Practically all other products moved to comparatively lower levels and collectively their gross value was about 5 per cent under the 1952 figures.

Potatoes showed the most drastic drop in farm value, in 1953 being 50 per cent below 1952. Prices per bushel were less than half those of the previous year and in spite of slightly greater production the great gap in farm value could not be overtaken. Hay, vegetables and tree fruits, in addition to poultry and eggs, were the only other general commodities enjoying a larger gross value than in the previous year and these increases were only moderate.

The farm value of agricultural products in 1953, with percentage changes from 1952 indicated in parentheses, was: eggs $132,454,000 (plus 18.5 per cent); milk $65,200,000 (minus 6.6 per cent); vegetables $59,501,000 (plus 4.4 per cent); poultry $37,131,000 (plus 9.9 per cent); nursery and greenhouse $27,000,000 (no change); grains $24,268,000 (minus 9.1 per cent); meat animals $18,000,000 (minus 14.3 per cent); hay $16,524,000 (plus 9.4 per cent); tree fruits $10,187,000 (plus 8.4 per cent); berries $7,281,000 (minus 5.4 per cent); white potatoes $5,541,000 (minus 50 per cent); miscellaneous (seeds, honey, lumber, etc.) $1,100,000 (no change).

### The Work of the Department

Regulatory and promotional work are the two broad phases in which the Department has continued its activities. The former comprises the enforcement of laws which the Legislatures have enacted and given to the Department to administer. Promotional services are wide in scope and are concerned with programs, in cooperation with farmers and farmer organizations, which are designed to benefit both producers and consumers through better grading and packaging, improved quality and more efficient marketing practices.

In the regulatory work one of the oldest projects is the control and eradication of tuberculosis in cattle. Incidence of the disease during this fiscal year was slightly higher than the record low point of the previous year, but far within the limits prescribed by the Federal government for accreditation. Tests revealed an average of only one TB reactor in each 975 animals tested. The test and slaughter program initiated years ago by which dairymen are indemnified by both Federal and state governments has enabled the incidence of the disease to be maintained at about as low a level as can be expected. State indemnities amounted to a little over $15,000 for the year; this is conservative insurance to protect the State's investment of several millions of dollars expended over the years to control and near-eradicate this disease.

Newest among livestock diseases to which considerable time and attention have been devoted is vesicular exanthema in hogs. Because of its similarity to foot-and-mouth disease in cattle, an outbreak of which would be disastrous to the dairy and beef industry, every effort has been made through quarantines and other procedures to reduce its incidence. The main concentration of the disease has been in the two large garbage feeding areas in Hudson and Gloucester counties. Currently there is a trend toward the cooking of raw garbage by herd owners which has proved to have great merit in reducing and even eliminating the disease.

Great progress has been made in the eradication of brucellosis in cattle through testing programs and calfhood vaccination. The work has been accelerated through the announced requirement that all fluid milk and cream sold in New Jersey after April 1, 1958, must be from brucellosis-free herds. At the year's end two-thirds of the cattle in the State were in plans involving blood testing. An additional number are in herds which have followed only calfhood vaccination as yet.

Various endeavors in the field of marketing have comprised a sizeable and effective achievement of the Department. The industry is better stabilized through voluntary programs based on official grades and standards in the marketing of fruits and vegetables for the fresh market and for processing. Cooperation with farmer-owner produce, egg and live poultry, and livestock auction markets has helped these organizations in developing and maintaining the most efficient marketing procedures. An extensive service of market news information has been of assistance to producers and handlers. Cooperation with groups promoting and advertising New Jersey products has aided in meeting competition from other areas.

About 50 million pounds of asparagus were delivered to processing plants on the basis of official grades agreed to by buyer and seller, and the price per delivery determined accordingly. Similarly, nearly 200,000 tons of tomatoes moving into processing plants were sold in accordance with contract agreements based on official grades. This system of marketing

processing crops has had a stable influence on the vegetable industry, particularly in the southern half of the State where most of the processing plants are established.

Shipping point auction markets continued to render outstanding service to fruit and vegetable growers, egg and poultry producers and livestock men. Collectively these markets enjoyed a gross business for the year of about $38,475,000. More than half of this represented eggs alone, about one-fourth of the gross was from fruit and vegetable sales and the balance was livestock and live poultry.

Much time is devoted to plant pest control, the major lines of activity being centered on Japanese beetle, gypsy moth, canker stain, white pine weevil and other pests of forestry and watershed plantings, golden nematode and blueberry stunt. Established nurseries which today represent an important segment of New Jersey agriculture are frequently checked to ascertain their freedom from insects and disease.

Farmers in New Jersey have recognized more and more the importance of good seed as a foundation for efficient crop production. Seed certification is a major contribution that the Department has been able to make to our agricultural progress. Within the past decade the volume of grain seed certified has more than doubled, amounting to 61,182 bushels in the current fiscal year. In addition nearly 20,000 bushels of white potatoes were certified as were also 105,646 pounds of tomato seed. Most of this last was of the Rutgers variety. This famed New Jersey seed not only went to producing areas in the United States but also to Cuba, Ceylon, South Africa and other countries.

### ACKNOWLEDGMENT

It is appropriate here to acknowledge the diligence and efforts which the members of the staff have given to their respective projects. 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 State as a whole and 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

During the 1953-54 fiscal year licenses were issued to 189 dealers who filed bonds totaling $4,407,500. This represents a decrease in the number of dealers as well as in the number of bonds. Last year 198 dealers filed bonds amounting to $4,517,000. Claims and complaints during 1953-54 totaled $28,001.15.

In December Cooper's Dairy, a licensee of Elmer, was adjudged insolvent and a receiver was appointed to take over its affairs. A representative of the Office of Milk Industry and the Licensing and Bonding supervisor met with the dairymen who had been supplying this dealer with milk to discuss the situation and to assist them in filing their claims against the bond on deposit with the Department.

### MILK DEALERS LICENSED AND BONDED

July 1, 1953 to June 30, 1954

| County | | Licenses Issued | Bonds Filed | Amount of Bond |
|---|---|---|---|---|
| Atlantic | | 4 | 4 | $56,500 |
| Bergen | | 6 | 6 | 141,000 |
| Burlington | | 10 | 10 | 238,000 |
| Camden | | 7 | 7 | 104,000 |
| Cape May | | 3 | 3 | 5,000 |
| Cumberland | | 9 | 9 | 133,000 |
| Essex | | 11 | 11 | 375,000 |
| Gloucester | | 9 | 9 | 96,000 |
| Hunterdon | | 11 | 11 | 458,000 |
| Mercer | | 19 | 19 | 323,000 |
| Middlesex | | 11 | 11 | 264,000 |
| Monmouth | | 20 | 20 | 259,000 |
| Morris | | 17 | 17 | 250,000 |
| Ocean | | 3 | 3 | 68,000 |
| Passaic | | 11 | 11 | 406,000 |
| Salem | | 6 | 6 | 55,000 |
| Somerset | | 10 | 10 | 244,000 |
| Sussex | | 1 | 1 | 100,000 |
| Union | | 6 | 6 | 145,000 |
| Warren | | 4 | 4 | 39,000 |
| Out-of-State | | 11 | 11 | 648,000 |
| Totals: | 1953-54 | 189 | 189 | $4,407,500 |
| | 1952-53 | 198 | 200 | 4,517,000 |
| | 1951-52 | 210 | 210 | 4,276,000 |
| | 1950-51 | 214 | 214 | 4,136,000 |
| | 1949-50 | 214 | 214 | 4,066,200 |

## PRODUCE DEALERS' LICENSING AND BONDING ACT

An amendment to the Produce Dealers' Licensing and Bonding Act became effective January 1 and required live poultry and egg dealers to procure licenses to purchase such commodities from New Jersey poultrymen. The act exempts from a license those dealers who pay cash in full at the time of a transaction and also those dealers who purchase these commodities from farmer cooperative associations.

Licenses were issued to 364 dealers who filed bonds amounting to $1,084,500. Claims and complaints totaled $5,567.

### PRODUCE DEALERS LICENSED AND BONDED

May 1, 1953 to April 30, 1954

| County | | Licenses Issued | Bonds Filed | Amount of Bond |
|---|---|---|---|---|
| Atlantic | | 46 | 46 | $138,000 |
| Bergen | | 2 | 2 | 6,000 |
| Burlington | | 3 | 3 | 9,000 |
| Camden | | 9 | 9 | 27,000 |
| Cumberland | | 53 | 53 | 156,500 |
| Essex | | 35 | 35 | 105,000 |
| Gloucester | | 31 | 31 | 93,000 |
| Hunterdon | | 2 | 2 | 3,500 |
| Mercer | | 14 | 14 | 42,000 |
| Middlesex | | 10 | 10 | 30,000 |
| Monmouth | | 23 | 23 | 69,000 |
| Morris | | 1 | 1 | 3,000 |
| Ocean | | 1 | 1 | 3,000 |
| Passaic | | 6 | 6 | 18,000 |
| Salem | | 8 | 8 | 21,500 |
| Somerset | | 1 | 1 | 3,000 |
| Union | | 1 | 1 | 3,000 |
| Warren | | 6 | 6 | 18,000 |
| Out-of-State | | 112 | 112 | 336,000 |
| Totals: | 1953-54 | 364 | 364 | $1,084,500 |
| | 1952-53 | 366 | 366 | 1,098,000 |
| | 1951-52 | 383 | 383 | 1,149,000 |
| | 1950-51 | 396 | 396 | 1,191,000 |
| | 1949-50 | 401 | 401 | 1,202,000 |

## CATTLE DEALERS' LICENSING ACT

Although prices for dairy animals showed a drop during the licensing year the decline in prices for beef animals was severe so that fewer beef animals were handled by licensees and some dealers reported they had stopped buying entirely.

The severe drought felt in most parts of the country also had an effect on the cattle business and in October a delegation of cattlemen from the west visited Secretary of Agriculture Ezra T. Benson to discuss the plight

of the cattlemen in that area. The group asked Secretary Benson to support cattle prices at 90 per cent of parity to help the cattlemen but the request was not granted.

By January some New Jersey dealers reported the market seemed to be stronger and they felt that prices would become better than during the latter part of 1953.

Licenses were issued to 192 dealers this year.

CATTLE DEALERS LICENSED

July 1, 1953 to June 30, 1954

| County | | Licenses Issued |
|---|---|---|
| Bergen | | 1 |
| Burlington | | 19 |
| Camden | | 19 |
| Cape May | | 1 |
| Cumberland | | 13 |
| Essex | | 7 |
| Gloucester | | 5 |
| Hunterdon | | 15 |
| Mercer | | 8 |
| Middlesex | | 4 |
| Monmouth | | 13 |
| Morris | | 11 |
| Ocean | | 7 |
| Passaic | | 6 |
| Salem | | 17 |
| Somerset | | 13 |
| Sussex | | 20 |
| Union | | 8 |
| Warren | | 17 |
| Out-of-State | | 3 |
| Totals: | 1953-54 | 192 |
| | 1952-53 | 213 |
| | 1951-52 | 224 |
| | 1950-51 | 229 |
| | 1949-50 | 218 |

## LICENSING OF OPERATORS OF DISPOSAL PLANTS

On January 1 the new Disposal Plant law became effective and required persons operating a disposal plant as defined in P. L. 1953, Chapter 415 to obtain licenses from the Department of Agriculture. The purpose of the act is to aid in the protection of the livestock on the farms in New Jersey by reducing the hazards to exposure or spread of highly contagious diseases.

Although the act became effective on January 1 it designates that the licensing year shall extend from July 1 of one year to June 30 of the

following year. Therefore, this licensing term covered only a period of six months, January 1, 1954 to June 30, 1954.

Licenses were issued to 10 operators during the six months.

DISPOSAL PLANT OPERATORS LICENSED

January 1, 1954 to June 30, 1954

| County | Licenses Issued |
|---|---|
| Hudson | 1 |
| Monmouth | 1 |
| Morris | 2 |
| Sussex | 3 |
| Out-of-State | 3 |
| Total 1954 | 10 |

## THE NEW JERSEY JUNIOR BREEDERS' FUND

During the fiscal year 1953-54 the New Jersey Junior Breeders' Fund made 217 loans, the greatest number in the history of the Fund. These loans totaled $23,314.89, an increase of 17 per cent over the previous year and the second highest amount ever loaned. Fiscal year 1948-49 is the record year for dollars loaned when 190 loans were made totaling $23,429.10.

Charges against the Emergency Fund for livestock losses incurred by borrowers totaled 530 dollars. This amount is exceptionally low. Effective February 1, 1954, sellers of dairy calves contributed a sum equivalent to 2 per cent of the loan on the calves to help underwrite losses for heifers that prove to be non-breeders. Sellers have been most cooperative in accepting this assessment and the additional income will help defray Emergency Fund losses in the future.

The year marked the inauguration of the Frelinghuysen Memorial Awards. Designed to focus attention on milk production of the individual cow and its relationship to profitable dairying, six awards were given to 4-H and FFA members who made the best production records. The awards will be presented each year by Joseph S. Frelinghuysen, Jr., in memory of his father who established the New Jersey Junior Breeders' Fund to encourage farm youth in the development of profitable herds with good purebred livestock.

Other awards made to Junior Breeder members during the year were:

| | |
|---|---|
| State 4-H Dairy Show, Flemington Fair | $260 |
| State FFA Livestock Show, New Jersey State Fair | 115 |
| Cumberland County 4-H Show, Cumberland County Fair | 95 |
| 4-H Baby Beef Show, New Jersey Mid-Atlantic Farm Show | 140 |
| 4-H Meritorious Production Winners | 40 |
| | $650 |

All borrowers were provided subscriptions to a breed journal pertinent to their project and through the courtesy of William A. Haffert all received subscriptions to *New Jersey Farm and Garden.*

TOTAL AMOUNT LOANED BY COUNTIES

| | Loaned 1953-54 | Total Loans Since 1921 |
|---|---|---|
| Atlantic | $384.30 | $3,970.17 |
| Bergen | 512.50 | 587.50 |
| Burlington | 835.00 | 18,135.91 |
| Camden | ..... | 676.15 |
| Cape May | 150.00 | 3,177.43 |
| Cumberland | 1,105.00 | 10,151.63 |
| Essex | ..... | 805.30 |
| Gloucester | 1,015.00 | 8,714.30 |
| Hudson | ..... | ..... |
| Hunterdon | 1,525.00 | 23,538.21 |
| Mercer | 1,780.00 | 31,700.95 |
| Middlesex | 2,328.00 | 37,406.59 |
| Monmouth | 3,114.25 | 26,957.90 |
| Morris | 500.00 | 7,509.00 |
| Ocean | 230.00 | 3,706.00 |
| Passaic | ..... | 716.25 |
| Salem | 1,739.26 | 31,169.70 |
| Somerset | 865.00 | 18,859.20 |
| Sussex | 4,696.43 | 48,831.85 |
| Union | ..... | ..... |
| Warren | 2,535.15 | 27,274.73 |
| Totals | $23,314.89 | $303,888.77 |

## Livestock Loans Made Annually Since Establishment of Junior Breeders' Fund

| Fiscal | Dairy Loans | | Beef Cattle | | Pig Loans | | Poultry Loans | | Lamb Loans | | Total Livestock Loans | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | No. | Amount | No. | Amount | No. | Amount | No. | Amount | No. | Amount | No. | Amount |
| 1920-21 | 30 | $2,815.00 | ... | ..... | ... | ..... | ... | ..... | ... | ..... | 30 | $2,815.00 |
| 1921-22 | 92 | 7,985.00 | ... | ..... | 16 | $1,074.98 | 16 | $824.25 | ... | ..... | 124 | 9,884.23 |
| 1922-23 | 81 | 6,365.00 | ... | ..... | 21 | 1,267.25 | 13 | 636.25 | ... | ..... | 115 | 8,268.50 |
| 1923-24 | 96 | 8,670.00 | ... | ..... | 10 | 409.50 | 14 | 932.00 | ... | ..... | 120 | 10,011.50 |
| 1924-25 | 81 | 7,065.00 | ... | ..... | 26 | 1,320.00 | 17 | 1,183.50 | ... | ..... | 124 | 9,568.50 |
| 1925-26 | 71 | 6,639.50 | ... | ..... | 25 | 1,684.30 | 32 | 1,563.10 | ... | ..... | 128 | 9,886.90 |
| 1926-27 | 83 | 7,444.00 | ... | ..... | 19 | 1,240.00 | 28 | 1,112.50 | ... | ..... | 130 | 9,796.50 |
| 1927-28 | 54 | 4,644.00 | ... | ..... | 10 | 620.00 | 31 | 890.70 | ... | ..... | 95 | 6,154.70 |
| 1928-29 | 55 | 4,960.00 | ... | ..... | 13 | 805.00 | 15 | 680.65 | ... | ..... | 83 | 6,445.65 |
| 1929-30 | 37 | 3,317.50 | ... | ..... | 15 | 876.00 | 17 | 692.20 | ... | ..... | 69 | 4,885.70 |
| 1930-31 | 38 | 3,467.50 | ... | ..... | 12 | 769.00 | 7 | 308.00 | ... | ..... | 57 | 4,544.50 |
| 1931-32 | 38 | 2,875.00 | ... | ..... | 8 | 415.00 | 9 | 394.00 | ... | ..... | 55 | 3,684.00 |
| 1932-33 | 24 | 1,820.00 | ... | ..... | 10 | 426.75 | 8 | 323.00 | ... | ..... | 42 | 2,569.75 |
| 1933-34 | 30 | 2,310.00 | ... | ..... | 9 | 295.00 | 24 | 940.43 | ... | ..... | 63 | 3,545.43 |
| 1934-35 | 46 | 4,169.00 | ... | ..... | 3 | 110.00 | 23 | 1,174.49 | ... | ..... | 72 | 5,453.49 |
| 1935-36 | 26 | 2,050.00 | ... | ..... | 5 | 297.00 | 18 | 797.85 | ... | ..... | 49 | 3,144.85 |
| 1936-37 | 32 | 2,905.00 | ... | ..... | 14 | 941.00 | 21 | 894.40 | ... | ..... | 67 | 4,740.40 |
| 1937-38 | 43 | 4,366.00 | ... | ..... | 8 | 492.50 | 31 | 1,644.82 | ... | ..... | 82 | 6,503.32 |
| 1938-39 | 45 | 3,740.00 | 21 | $1,050.00 | 28 | 1,377.00 | 32 | 1,399.24 | ... | ..... | 126 | 7,566.24 |
| 1939-40 | 36 | 3,680.00 | 35 | 2,012.20 | 9 | 303.00 | 49 | 2,213.92 | ... | ..... | 129 | 8,209.12 |
| 1940-41 | 34 | 2,503.50 | 40 | 2,309.10 | 3 | 110.00 | 34 | 1,321.10 | ... | ..... | 111 | 6,243.70 |
| 1941-42 | 40 | 3,127.00 | 43 | 2,754.48 | 10 | 295.50 | 24 | 888.88 | ... | ..... | 117 | 7,065.86 |
| 1942-43 | 24 | 2,095.00 | 39 | 2,654.85 | 1 | 50.00 | 7 | 377.20 | ... | ..... | 71 | 5,177.05 |
| 1943-44 | 21 | 2,055.00 | 32 | 2,348.77 | 2 | 95.00 | 1 | 36.25 | ... | ..... | 56 | 4,535.02 |
| 1944-45 | 13 | 1,305.00 | 35 | 2,384.68 | ... | ..... | ... | ..... | ... | ..... | 48 | 3,689.68 |
| 1945-46 | 13 | 1,160.00 | 17 | 1,675.19 | ... | ..... | ... | ..... | 14 | $375.28 | 44 | 3,210.47 |
| 1946-47 | 36 | 3,930.00 | 30 | 3,040.20 | ... | ..... | ... | ..... | ... | ..... | 66 | 6,970.20 |
| 1947-48 | 79 | 9,755.00 | 28 | 3,846.40 | 1 | 45.00 | ... | ..... | ... | ..... | 108 | 13,646.40 |
| 1948-49 | 151 | 19,570.00 | 33 | 3,746.10 | 1 | 50.00 | 1 | 13.00 | ... | ..... | 186 | 23,379.10 |
| 1949-50 | 112 | 14,092.50 | 56 | 5,929.15 | 5 | 225.00 | 2 | 180.00 | ... | ..... | 175 | 20,426.65 |
| 1950-51 | 97 | 11,539.00 | 55 | 6,004.97 | ... | ..... | 4 | 166.00 | ... | ..... | 156 | 17,709.97 |
| 1951-52 | 95 | 12,595.00 | 33 | 3,325.00 | ... | ..... | 3 | 293.75 | 1 | 25.00 | 132 | 16,238.75 |
| 1952-53 | 102 | 14,092.50 | 45 | 4,203.00 | 4 | 275.00 | 2 | 190.00 | 6 | 350.00 | 159 | 19,110.50 |
| 1953-54 | 136 | 16,462.50 | 63 | 5,598.20 | ... | ..... | 8 | 544.40 | 1 | 120.00 | 208 | 22,725.10 |
| Totals | 1,991 | $205,569.50 | 605 | $52,882.29 | 288 | $15,868.78 | 491 | $22,615.88 | 22 | $870.28 | 3,397 | $297,806.73 |

grossed $210, compared with $70 per acre in California, $66 in Iowa, $45 in Wisconsin, $38 in Minnesota and $27 as the average gross income per acre for the entire nation. Intensive production with high yields of crops of high value obviously is the explanation to New Jersey's top rank. Another example of efficiency is indicated by the annual production of milk per cow. New Jersey with an average production of 7,590 pounds of milk per year per cow is second only to California.

In terms of total output New Jersey also is an important producer of some crops despite the fact that the State ranks only 45th in total land area. With much less land available than in any of the larger States the Garden State is listed as an important producer of peaches (seventh) apples (twelfth), fresh tomatoes (first in late crop), cannery tomatoes (fourth), potatoes (second among intermediate crop States), asparagus (second), blueberries (first), and lima beans (third). Such statistics reveal the skill and qualifications of New Jersey farmers and the productivity of their land.

## LIVESTOCK VERSUS CROPS

The trends in New Jersey agriculture also are of interest and indicate that in recent years livestock and livestock products have registered a substantial growth and now account for a greater share of the total farm value of output than is credited to crops, especially fruits and vegetables. Up to 1910 poultry keeping was a sideline on most New Jersey farms; today it is first in value of output. The combined value of eggs and poultry exceeds 169 million dollars and accounts for more than one third of the State total for all farm crops. Dairying ranked next with about 65 million dollars in 1953.

In the annual summary issued by the Division of Information the total value of farm products reported for 1953 is estimated to be over 404 million dollars listed as follows:

| | |
|---|---|
| Eggs | $132,454,000 |
| Milk | 65,200,000 |
| Vegetables | 59,501,000 |
| Poultry | 37,131,000 |
| Nursery and Greenhouse | 27,000,000 |
| Grains | 24,268,000 |
| Meat Animals | 18,000,000 |
| Hay | 16,524,000 |
| Tree Fruits | 10,187,000 |
| Berries | 7,281,000 |
| White Potatoes | 5,541,000 |
| Miscellaneous | 1,100,000 |
| Total | $404,187,000 |

## EDITORIAL ACTIVITIES

### *News Releases*

The newspapers, especially the rural weeklies, and radio stations in New Jersey as well as in New York and Philadelphia offer the best media for reaching a large audience, particularly New Jersey farmers. During the past year a total of 239 releases was issued compared to 255 and 239 releases issued in 1952-53 and 1951-52, respectively.

The following tabulation indicates the origin and subject matter of the releases issued during the current year including comparisons with the three previous years and classified according to the division units of the Department:

| | 1953-54 | 1952-53 | 1951-52 |
|---|---|---|---|
| Administration | 21 | 14 | 13 |
| Division of Animal Industry | 7 | 11 | 22 |
| Division of Markets | 41 | 42 | 47 |
| Division of Plant Industry | 14 | 13 | 13 |
| Division of Information | 105 | 96 | 100 |
| Office of Milk Industry | 32 | 57 | 20 |
| Miscellaneous | 19 | 22 | 24 |
| Totals | 239 | 255 | 239 |

While no clipping service is available to the Division, inspection and sampling throughout the year indicate that these releases were used quite generally throughout the State in both the weeklies and dailies as well as by radio stations. They also appear regularly in a number of trade and commodity group publications. As usual, a number became subjects of editorial comment.

Because of the trend toward increased use of illustrations in all publications, it has been necessary to meet a demand for photographs and mats. Over 300 glossy prints were released during the year in addition to 11 series of photographs and charts issued in mat form to a selected list of papers.

Special acknowledgment should be made of the cooperation of the publisher and staff of *New Jersey Farm and Garden* throughout the entire year. An editorial prepared by the Secretary of Agriculture is published each month and the columns of the magazine with its circulation of over 25,000 farm readers in New Jersey are always available to members of the staff of the Department. A review of New Jersey agriculture totaling about 1,200 to 1,500 words is submitted each month by the Division of Information to *New Jersey Farm and Garden.* Feature articles, photographs and short items are furnished regularly to the *American Agriculturist, The Moos, Pennsylvania Farmer, Rural New Yorker* and to news letters and house organs issued by commodity groups within the State.

### *Radio Stations*

To date the Department of Agriculture has not participated consistently in a regular series of radio programs. However, all New Jersey and nearby radio stations receive the news releases issued each week and most of them are used as source or background material. Nine special radio talks were prepared, eight broadcasts were made and 22 recordings were made or arranged for during the past year, mostly for promoting Farmers Week. The stations having special farm programs continue to render outstanding service and the program directors also have aided in reaching consumers with frequent and favorable mention of New Jersey farm products. Their cooperation in the peach and apple promotion campaigns was especially effective and appreciated by the grower groups.

## PUBLICATIONS AND CIRCULARS

All publications and circulars prepared by members of the Department staff are edited in the Division, prepared for printing and serviced for proofreading. Last year most of the publications were routine reports. Those issued during the year included:

Circular No. 390—Insects of Importance in New Jersey Nurseries.

Circular No. 391—Licensed Dealers Under the Milk Dealers' Licensing and Bonding Act, Produce Dealers' Licensing and Bonding Act and Cattle Dealers' Licensing Act.

Circular No. 392—Distribution of Certain Weeds of Economic Importance in New Jersey.

Circular No. 393—Facts and Figures—Annual Potato Summary—Crop of 1953.

Pamphlet— An Act Providing for the Licensing of Operators of Disposal Plants (P. L. 1953, Chapter 415 (C. 4:5A–1 to C. 4:5A–19) 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.

Sticker— Supplement (Regulation 17) to Official Grades for Raw and Pasteurized Milk and Cream.

Report— Thirty-seventh Annual Report of the New Jersey State Department of Agriculture—July 1, 1951-June 30, 1952.

Binding— 12 issues of *New Jersey Farm and Garden*, for calendar year 1953.

*Farm Sevice News*—Six issues—July, September, November, 1953; January, March, May, 1954.

As of June 30, 1954, the following have been edited but delivery has not been completed by the printer:

Circular No. 394—A Study of Nutritional Problems of the American Elm.

Circular No. 378—New Jersey—The Garden State—Manuscript has not been submitted to the printer.

Report— Thirty-eighth Annual Report of the New Jersey State Department of Agriculture—July 1, 1952-June 30, 1953.

Binding— (not completed) New Jersey State Department of Agriculture Circulars Nos. 383-393.

Publications edited and issued prior to or during the 1954 Farmers Week are as follows:

1954 Farmers Week Program

Flyers—Future Farmers of America
Crops and Livestock
Beef Cattle (N. J. Aberdeen Angus Association)
American Cranberry Growers Association

Women's Program—1954 Farmers Week

Highlights of Your Convention

Citations for Distinguished Service to New Jersey Agriculture, 1954

Eleven sets of mats were distributed.

*Farm Service News* was continued with six bi-monthly issues during the past year, serving as the semi-official publication of the Department and reaching about 18,000 individuals on a statewide mailing list. 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 substituting for a separate publication of such a list of breeders.

## FARMERS WEEK PUBLICITY

Each year during October, November, December and early January the principal activity of the Division of Information is devoted to the advance preparation for Farmers Week which continues to attract an increasing attendance. This major event of New Jersey agriculture now consists of six days of meetings planned by 40 farm or rural organizations. Every effort is made to assist the participating organizations in developing strong programs and arranging for their meetings. A total of 22,000 printed programs was distributed in advance of the Week. Other advance activities include special editions of *New Jersey Farm and Garden* and *Farm Service News,* both of which are mailed to an extensive list during the first 10 days of January. During the Week each meeting is promptly serviced for the press and radio. A number of advance and current broadcasts and recordings were made at Farmers Week this past year.

## PROMOTING NEW JERSEY FARM PRODUCTS

During the past fiscal year the agricultural activities of the Office of State Promotion, 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 two State agencies concerned as well as to the cooperating farm groups.

The allotment for agriculture was only about $12,000 which was divided among eight projects. Although the allotments were supplemented by funds from each of the cooperating commodity groups, 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 with copy and photographs for use in reader column space. An effort also was made to enlist the cooperation of other agencies, the trade and the home economics staffs of 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.

A number of special illustrated releases on New Jersey foods made available to the State Agricultural Extension Service for distribution to the local papers through the offices of the home agents in each county. The releases consisted of original recipes using New Jersey products in season which are made into dishes by a home economics specialist and then photographed in a New York City studio. Mats are then made and turned over to the county home agents for distribution to the papers.

Acknowledgment again should be made of the cooperation of the members of the home economics staffs of all four of the principal utilities supplying electric power in New Jersey. These include about 30 home economics 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 bringing them directly to thousands of food-minded housewives. Two of the utilities again prepared at their own expense consumer leaflets on New Jersey products. One concern continued as sponsor of a series of general institutional advertisements emphasizing the availability of local products illustrated with photographs made on New Jersey farms.

Brief outlines of the projects carried on cooperatively with the farm commodity groups follow:

*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 eight insertions in each of these weekly publications during April, May and June. The layout included a map of New Jersey showing the locations of the produce auction markets and the copy included

a list of crops in season which was revised each week. During the 1953 season a total of about 1,100 different buyers from 13 states and Canada purchased New Jersey products at the auctions. In addition to the fact that the auctions furnished an outlet for a considerable volume of New Jersey produce, they also establish a price level for many other transactions.

*Blueberry Cooperative Association*

This group which marketed a very large crop of cultivated blueberries under the *Tru-Blu* label operates through a well planned sales program. At present the value of the cultivated blueberry crop exceeds that of cranberries. The association also carries on a consistent advertising and publicity program toward which a small allotment of New Jersey Council funds was made sufficient to meet the cost of posters on display on 400 platforms of the New York Subway, the Hudson and Manhattan Railroad and at the stations and terminals of several commuter railroads. Some aid also was extended to a new organization, the Blueberry Institute, which sponsors a program for all blueberries regardless of brand names.

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

This organization is engaged in the production and sale of 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 soybeans, wheat, oats and barley in season. The advertisements were carried in 11 issues of *New Jersey Farm and Garden* and seven issues of *The Moos*.

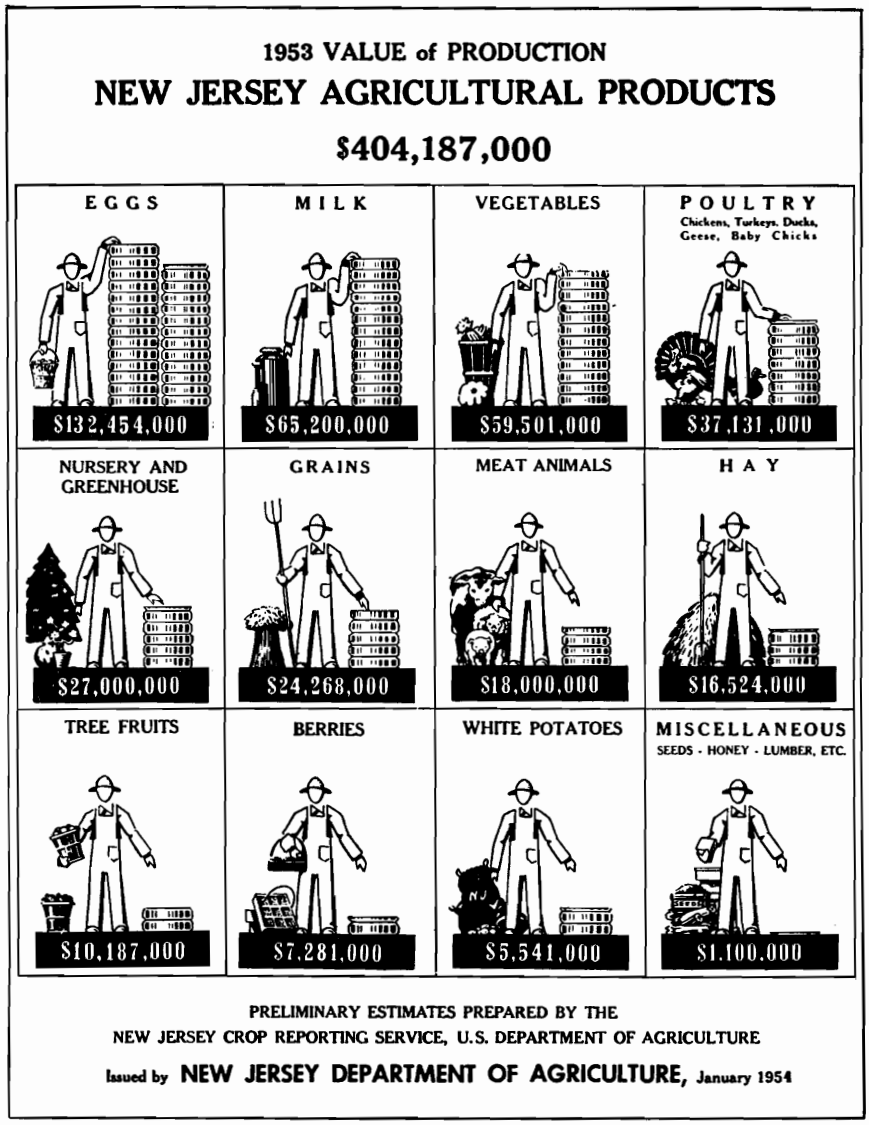
*New Jersey Peach Industry Committee*

This statewide organization continued last year with its promotional activities to call attention to the new varieties of New Jersey peaches now available. This theme was featured in the releases, photographs and recipes issued during July and August.

As usual the campaign was launched with a dinner in Medford attended by 40 prominent food editors, radio commentators, representatives of the wholesale and retail trade and others concerned with the promotion of food products. The dinner has become an established annual conference which has accomplished a great deal in helping to promote good relations with a number of individuals and agencies that are in a position to render many services to the growers and the Department throughout the year. A review of the season's prospects was prepared and gift boxes of peaches and cultivated blueberries were provided for the guests attending the luncheon. The response in terms of newspaper reader column space, editorial mention and radio time was excellent.

*New Jersey Apple Institute*

The New Jersey growers experienced little serious difficulty in moving the main season varieties of apples so most of the promotional effort was concentrated again on the summer varieties which are important in New Jersey. Consequently, a special series of releases, photographs and recipes was issued advising or illustrating how the Starr, Twenty Ounce and



Wealthy varieties could be used by consumers. In addition the services of a publicity agent in New York City were retained to handle relations with the food page editors of newspapers and magazines, radio food editors and the representatives of the utilities. A luncheon similar to that scheduled for peaches was held in Ramsey in September and attended by about 40 guests. Gift packages of Stayman apples were sent to the editors in February and repeated with Rome Beauty apples in March. As usual the response in terms of publicity was excellent and aided materially in moving the crop.

## MISCELLANEOUS SERVICES

The Division of Information is called upon frequently for a wide variety of services. The director has continued 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 conducted an active educational program during the past year devoted to the more efficient use of electricity on New Jersey farms now that the project of extending electrical service in the State is about completed. Monthly mailings of a series of articles on types and uses of electrical equipment have been prepared for extension workers and teachers of vocational agriculture. A new series has been started on farm household equipment.

Another similar assignment is that of serving as secretary of the Committee on Agriculture of the New Jersey State Chamber of Commerce. That activity consisted largely of arranging for and conducting the farm industrial tour held in Gloucester County. These tours have been scheduled every year since 1938 and have developed excellent relations between business and agriculture in New Jersey.

Other activities have included the preparation of special articles, most of them with photographs, for the *Dairymen's League News, American Agriculturist, New Jersey Counties, New Jersey Municipalities* and a number of New Jersey weeklies. Cooperation has been extended frequently to feature writers and to members of the Associated Press staff in the preparation of special articles on agriculture.

As in previous years a great deal of time was devoted to the servicing of a wide variety of requests for information on New Jersey agriculture. While these requests are received from a number of different sources, one principal group has accounted for most of them during the past year. Most of the requests are received from pupils in schools who usually write for information under the direction of their teachers. The number of such requests always fluctuates but reaches a peak during the latter six months of the fiscal year and the servicing of them becomes quite a task for the office staff. However, it has been assumed that as a public agency the Department is obligated to meet such requests which provide an opportunity to make new and favorable contacts with many city residents.

# *Report of the Division of Animal Industry*

DR. R. A. HENDERSHOTT, *Director*

## REVIEW OF THE YEAR'S ACTIVITIES

With the exception of vesicular exanthema in raw garbage-fed swine, the health of livestock in the State for the past year has been excellent.

### *Anthrax*

During the year there were no confirmed cases of anthrax in the State. It was anticipated that as a result of the great number of farms on which animals succumbed to anthrax, particularly on pasture, during 1952 that there would be an increase in the number of anthrax cases during the summer when pastures were short. This has not occurred.

The Division continued the program of immunization of livestock on those farms on which anthrax was diagnosed as well as stock on farms in our so-called "Anthrax Area" in southern New Jersey. In the southern part of the State 886 cattle on 31 farms and five horses on four farms were immunized while 230 cattle on five farms where anthrax was diagnosed last year were given protective immunization this year.

As a result of the spread of infection occurring through the uncontrolled activity of rendering plants and mink feeders a bill was introduced and passed to provide for licensing of operators of disposal plants (P. L. 1953, Chapter 415, C. 4:5A–1 to C. 4:5A–19). This act has been given to the licensing and bonding office of the Department for administration.

### *Encephalomyelitis*

Encephalomyelitis, a virus disease primarily of horses and pheasants and transmissible to man, was once a serious problem in horses throughout the State and is still a considerable problem in the raising of pheasants. The disease has continued to be controlled during the past year, however. The educational program advocating immunization of horses against the eastern strain of encephalomyelitis virus apparently has adequately controlled this disease in horses as no cases were reported during the past year.

Dr. F. R. Beaudette, poultry pathologist in New Brunswick, has been working closely with pheasant breeders in the control of this disease. Egrets and domestic fowl, are reported to be inapparent carriers of this virus and the mosquito the transmitting agent of the virus.

### *Foot-and-Mouth Disease*

The recurring outbreak of foot-and-mouth disease in Gutierrez, Zamora, Mexico on May 23, 1953 has been eradicated through vaccination of livestock in the area surrounding the infected center and the prompt destruction of infected and exposed stock followed by thorough cleaning and disinfection of the premises. Should no new cases be disclosed between now and December 1, 1954 it is proposed to lift the quarantine.

### *Personnel*

After several years the Division is again practically 100 per cent staffed as far as veterinary personnel is concerned.

Dr. Robert Simms of Morris County, who had been on sick leave for some time, died on February 19. For the past quarter of a century he had administered the annual disease control program in Morris and Passaic counties.

On January 1, 1954, Dr. M. K. Mann of Phillipsburg, the oldest veterinarian in State service, retired. Dr. Mann joined the staff on November 1, 1917 and pioneered in the tuberculosis eradication project. To him credit is due for the high standard of animal health prevailing in Warren County, the area he supervised for so many years. An application for Dr. Mann's position has been received and the new veterinarian will be employed as of July 15, 1954.

Dr. S. D. Novich of Haddonfield is filling the vacancy created by the transfer of Dr. R. E. Kerlin to the Trenton office and is supervisor of tuberculosis eradication in Camden, Gloucester and Cumberland counties. Dr. Antonie A. van Munster of Haddonfield is assigned to supervise brucellosis control in Burlington, Camden, Ocean and Gloucester counties while Dr. E. R. Marookian of Annandale will supervise the brucellosis eradication project in Hunterdon and Somerset counties. Dr. R. H. Cohen of Bridgeton, replacing Dr. Robert M. Sauer who resigned, will supervise brucellosis eradication in Cumberland, Salem, Atlantic and Cape May counties.

## LIVESTOCK AUCTION MARKETS

Dr. Arthur R. Gemberling was appointed supervisor at the Harris Sales by the Division.

WORK PERFORMED AT HARRIS SALES

| Cattle Transferred | Lots | Cattle Tuberculin Tested |
|---|---|---|
| Inshipped | 1 | 19 |
| Local | 520 | 1,009 |
| Totals | 521 | 1,028 |

### LIVESTOCK SOLD AT HARRIS SALES STABLES

July 1, 1953 to June 30, 1954

| Lambs | Cattle | Bulls | Calves | Hogs | Goats & Sheep | Steers | Horses | Reactors |
|---|---|---|---|---|---|---|---|---|
| 157 | 5,810 | 645 | 14,940 | 3,484 | 1,564 | 1,741 | 453 | 362 |

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, 1953 to June 30, 1954

| 1953 | Cattle | Sheep | Calves | Hogs | Horses |
|---|---|---|---|---|---|
| July | 9,757 | 26,766 | 58 | 12,899 | .. |
| August | 12,208 | 50,544 | 8,665 | 12,231 | 2 |
| September | 9,125 | 54,861 | 6,620 | 16,309 | 2 |
| October | 10,791 | 59,903 | 5,961 | 16,390 | .. |
| November | 10,407 | 50,086 | 7,422 | 17,304 | 3 |
| December | 10,990 | 57,892 | 9,596 | 15,252 | 4 |
| 1954 | | | | | |
| January | 10,966 | 55,945 | 7,321 | 16,818 | .. |
| February | 8,816 | 60,604 | 3,309 | 16,507 | .. |
| March | 9,953 | 74,250 | 3,536 | 15,160 | 13 |
| April | 10,919 | 60,197 | 2,982 | 12,113 | 3 |
| May | 12,159 | 65,837 | 5,626 | 12,201 | .. |
| June | 10,210 | 27,554 | 6,525 | 9,531 | .. |
| Totals | 126,301 | 644,439 | 67,621 | 172,715 | 27 |

In addition livestock is received in the Yards from points in New Jersey and from adjacent states.

### SUMMARY OF LIVESTOCK SOLD AT THE JERSEY CITY YARDS FOR SLAUGHTER AT POINTS THROUGHOUT THE STATE

July 1, 1953 to June 30, 1954

| 1953 | Calves | Sheep | Cows | Bulls | Hogs | Steers |
|---|---|---|---|---|---|---|
| July | 4,210 | 92 | 468 | 49 | .. | 108 |
| August | 3,515 | 425 | 537 | 42 | .. | 3 |
| September | 2,299 | 324 | 645 | 31 | .. | 22 |
| October | 2,554 | 1,287 | 992 | 66 | .. | 82 |
| November | 1,753 | 350 | 1,439 | 46 | .. | 24 |
| December | 1,355 | 222 | 1,000 | 85 | .. | 95 |
| 1954 | | | | | | |
| January | 1,357 | 1 | 917 | 38 | .. | 66 |
| February | 1,173 | 11 | 893 | 44 | .. | 24 |
| March | 1,305 | 4 | 1,034 | 72 | .. | 178 |
| April | 1,455 | 217 | 657 | 38 | .. | 77 |
| May | 1,906 | 348 | 600 | 37 | .. | 66 |
| June | 1,556 | 48 | 529 | 45 | .. | 46 |
| Totals | 24,438 | 3,329 | 9,711 | 593 | .. | 791 |

## POULTRY DISEASE CONTROL

Throughout the year the Division has been called upon to issue health certificates for New Jersey hatcheries for the shipment of poultry and eggs out of the country. These certificates were countersigned by Dr. J. R. Porteus. Only those hatcheries operating under the National Poultry Improvement Plan are eligible to ship out of the country. Several foreign countries demand that an inspection be made of the flock just prior to shipment and in such instances it has been necessary for a Division representative to make such examinations and in infrequent cases conduct a pullorum test on the poultry.

## NEW JERSEY EXPORTS OF HATCHING EGGS AND POULTRY

July 1, 1953 to June 30, 1954

| Country to Which Consigned | Hatcheries Shipping | Eggs Shipped | Baby Chicks Shipped | Cockerels Shipped | Pullets Shipped | Bantam Eggs Shipped | Bantam Chicks Shipped | Game Birds Shipped | Pigeons Shipped | Turkey Chicks Shipped |
|---|---|---|---|---|---|---|---|---|---|---|
| Argentina | 1 | ..... | ..... | 3 | 6 | ..... | ..... | 4 | ..... | ..... |
| Bermuda | 1 | ..... | ..... | ..... | ..... | ..... | 300 | ..... | ..... | ..... |
| Canada | 5 | 356 | 300 | 50 | 600 | ..... | 24 | ..... | ..... | 725 |
| Colombia, South America | 1 | ..... | 1,500 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Greece | 1 | ..... | ..... | 1,000 | 3,000 | ..... | ..... | ..... | ..... | ..... |
| Israel | 1 | 1,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Holland | 1 | 360 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Italy | 2 | 1,850 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Panama, Republic of | 2 | 8,000 | ..... | ..... | ..... | 48 | ..... | ..... | ..... | ..... |
| Puerto Rico | 3 | ..... | 11,550 | 5,000 | 5,950 | ..... | ..... | ..... | 8 | ..... |
| Venezuela | 3 | ..... | 125,200 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| West Indies | 4 | 1,800 | 1,585 | ..... | ..... | ..... | 79 | ..... | 3 | ..... |
| Totals | | 13,366 | 140,135 | 6,053 | 9,556 | 48 | 403 | 4 | 11 | 725 |

INSPECTIONS OF POULTRY MADE BY STATE OF ORIGIN

July 1, 1953 to June 30, 1954

| State | Truck Loads Inspected | Birds Inspected | Approximate Weight in Pounds |
|---|---|---|---|
| Connecticut | 616 | 795,000 | 3,080,000 |
| Delaware | 469 | 657,000 | 2,345,000 |
| Kentucky | 8 | 4,000 | 40,000 |
| Maine | 69 | 75,000 | 345,000 |
| Maryland | 51 | 49,000 | 255,000 |
| Massachusetts | 55 | 57,000 | 275,000 |
| New Hampshire | 38 | 38,000 | 190,000 |
| New Jersey | 1,852 | 2,079,000 | 9,260,000 |
| New York | 173 | 175,000 | 865,000 |
| North Carolina | 5 | 2,000 | 15,000 |
| Pennsylvania | 1,620 | 1,814,000 | 8,086,000 |
| Rhode Island | 38 | 38,000 | 190,000 |
| Virginia | 34 | 21,000 | 170,000 |
| West Virginia | 176 | 82,000 | 845,000 |
| Totals | 5,204 | 5,886,000 | 25,961,000 |

POULTRY CONDEMNED AT POULTRY TERMINALS

July 1, 1953 to June 30, 1954

| 1953 | Birds Condemned | Approximate Weight in Pounds |
|---|---|---|
| July | 3,400 | 13,600 |
| August | 3,200 | 11,600 |
| September | 7,300 | 29,200 |
| October | 2,800 | 11,200 |
| November | 2,100 | 15,200 |
| December | 2,300 | 9,200 |
| 1954 | | |
| January | 3,700 | 14,800 |
| February | 3,500 | 14,000 |
| March | 2,300 | 9,200 |
| April | 2,000 | 8,000 |
| May | 3,400 | 13,600 |
| June | 3,100 | 12,400 |
| Totals | 39,100 | 162,000 |

## PULLORUM DISEASE CONTROL

The assignment of areas and the quality of work performed by the various crews operating in pullorum control work during this fiscal year made it possible for the Division to complete the work with favorable results. There was a slight drop in the number of tests conducted in this project probably due to a decrease in the number of birds maintained on the premises when the tests were made.

There is a continuous decline in the number of laboratory tube tests conducted for pullorum disease because poultrymen have learned that the

interpretations made in the field are as reliable as those in the laboratory. Since any reactors disclosed may be removed immediately without a rehandling of the entire flock to sort them labor on the farm is saved. During the past season 982,283 tests with 0.03 per cent reactions were conducted in the field and 47,314 tube tests in the laboratory.

During the year a Division representative visited the farm of Louis Kickasola of Delmont regarding a suspected typhoid outbreak on his pedigreed poultry farm. The inspector examined the flock and brought some affected birds back to the laboratory for further study and bacteriological examination. The examinations revealed that the birds were infected with fowl typhoid. Since Dr. James J. Black of the Vineland Laboratories had been called in by the owner, the Division contacted him and he, in conjunction with the Division representative, worked out a plan to eliminate the disease from the flock and to prevent, if possible, a recurrence of the disease at a future date. The flock consisted of approximately 6,000 birds.

The Division expended time and effort to assist Kickasola not only in getting rid of the disease but in salvaging young stock in order to retain well established blood lines that he had been building up over a number of years through breeding of pedigreed stock. Kickasola also had a group of breeding Leghorns which were highly infected with typhoid and he could not afford to sell these birds because he needed them for egg production. However, the Division did start the following plan of procedure on one group of pedigreed breeders:

1. A special fowl typhoid antigen was prepared in the laboratory from cultures recovered from infected birds on the farm.
2. Tests were conducted first with both the typhoid antigen and the pullorum antigen and the findings of both tests as interpreted by a field representative were identical. One advantage was that all of the hatching eggs were identified by the hen number and were so placed in the incubator, giving the workers knowledge at all times of each of the individual hen's eggs and where they were located.
3. Tests were conducted when eggs from the birds were scheduled to be transferred from the incubator to the hatcher. In this manner any eggs from infected birds could be destroyed before they caused further damage in the hatcher by association with chicks hatched from disease-free eggs. This practice was conducted for a number of hatches and the chicks were started on another farm to prevent contamination from the equipment, flock and premises.
4. The premises were cleaned and disinfected and sanitary measures to be followed were outlined to the owner.

The work performed at this farm has resulted in the owner's retaining valuable blood lines and he presently has a salvaged flock of pullets all of which are sound, healthy birds.

## FOWL BLOOD-TESTED FOR PULLORUM DISEASE

### NUMBER AND PER CENT REACTING AND RECORD OF CHECK TESTS MADE

July 1, 1953 to June 30, 1954

| County | Fowl Tested in Field | Number Reacting | Per Cent Reacting | Fowl Tested in Laboratory | Number Reacting | Per Cent Reacting | Total Fowl Tested | Total Fowl Reacting | Per Cent Reacting | Total Laboratory Check Tests Conducted | Number Reacting | Per Cent Reacting |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlantic | 30,503 | 14 | .05 | 201 | .... | .... | 30,704 | 14 | .05 | .... | .... | .... |
| Bergen | 3,250 | .... | .... | .... | .... | .... | 3,250 | .... | .... | .... | .... | .... |
| Burlington | 19,713 | 38 | .19 | 3,533 | 256 | 7.25 | 23,246 | 294 | 1.27 | .... | .... | .... |
| Camden | .... | .... | .... | 887 | .... | .... | 887 | .... | .... | .... | .... | .... |
| Cape May | 16,717 | 1 | .01 | .... | .... | .... | 16,717 | 1 | .01 | .... | .... | .... |
| Cumberland | 198,781 | 19 | .01 | .... | .... | .... | 198,781 | 19 | .01 | .... | .... | .... |
| Essex | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Gloucester | 32,649 | 1 | .003 | 1,480 | .... | .... | 34,129 | 1 | .002 | .... | .... | .... |
| Hudson | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Hunterdon | 108,207 | 9 | .01 | 26,173 | 13 | .05 | 134,380 | 22 | .02 | 4 | .... | .... |
| Mercer | 57,776 | 37 | .06 | 5,427 | .... | .... | 63,203 | 37 | .06 | .... | .... | .... |
| Middlesex | 62,478 | 4 | .01 | 1,878 | .... | .... | 64,356 | 4 | .01 | .... | .... | .... |
| Monmouth | 188,576 | 102 | .05 | 80 | .... | .... | 188,656 | 102 | .05 | 8 | .... | .... |
| Morris | 700 | .... | .... | 729 | .... | .... | 1,429 | .... | .... | .... | .... | .... |
| Ocean | 178,419 | 13 | .01 | 4,551 | .... | .... | 182,970 | 13 | .01 | .... | .... | .... |
| Passaic | 6,746 | 12 | .18 | 138 | .... | .... | 6,884 | 12 | .17 | .... | .... | .... |
| Salem | 45,540 | 4 | .01 | .... | .... | .... | 45,540 | 4 | .01 | .... | .... | .... |
| Somerset | 25,624 | 4 | .02 | 238 | .... | .... | 25,862 | 4 | .02 | .... | .... | .... |
| Sussex | 5,474 | 2 | .04 | 1,880 | .... | .... | 7,354 | 2 | .03 | .... | .... | .... |
| Union | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Warren | 1,130 | .... | .... | 119 | .... | .... | 1,249 | .... | .... | .... | .... | .... |
| State | 982,283 | 260 | .03 | 47,314 | 269 | .57 | 1,029,597 | 529 | .05 | 12 | .... | .... |
| 1952-53 Totals | 1,025,726 | 537 | .05 | 52,081 | 24 | .05 | 1,077,807 | 561 | .05 | 53 | 3 | 5.66 |

## CATTLE IMPORTED AND RELEASED FOR DAIRY AND BREEDING PURPOSES

July 1953 to June 1954

| Origin | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| California | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 |
| Canada | 76 | 61 | 41 | 63 | 46 | 64 | 33 | 9 | 35 | 14 | 13 | 40 | 495 |
| Colorado | ... | ... | 1 | 1 | ... | ... | ... | ... | 1 | ... | 2 | ... | 5 |
| Connecticut | 31 | 3 | 27 | 61 | ... | 5 | 2 | 20 | 19 | 9 | 30 | 24 | 231 |
| Delaware | 1 | ... | ... | ... | 2 | ... | 1 | ... | ... | ... | ... | ... | 4 |
| Florida | ... | ... | ... | ... | ... | 1 | ... | ... | 3 | ... | ... | 3 | 7 |
| Georgia | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 |
| Idaho | 49 | ... | ... | 38 | ... | 25 | ... | ... | ... | ... | ... | ... | 112 |
| Illinois | 8 | ... | 1 | ... | ... | 2 | 1 | 1 | ... | ... | ... | 3 | 16 |
| Indiana | ... | 6 | ... | ... | ... | 1 | 1 | ... | ... | ... | ... | ... | 8 |
| Iowa | ... | 4 | ... | ... | 2 | ... | 2 | ... | 2 | 1 | ... | ... | 11 |
| Ireland | ... | 108 | ... | ... | ... | ... | 74 | ... | 1 | ... | ... | 106 | 289 |
| Kansas | ... | ... | ... | ... | ... | ... | ... | ... | 2 | ... | ... | ... | 2 |
| Kentucky | ... | 2 | ... | ... | ... | ... | ... | ... | 11 | 3 | ... | ... | 16 |
| Maryland | 10 | 31 | 10 | 44 | 5 | 10 | 7 | 12 | 19 | 5 | 21 | 7 | 181 |
| Massachusetts | ... | ... | 2 | 11 | 3 | 2 | 10 | 1 | ... | ... | 1 | 4 | 34 |
| Michigan | 103 | 293 | 117 | 101 | 66 | 117 | 103 | 54 | 25 | 34 | 48 | 115 | 1,176 |
| Minnesota | 24 | 26 | 42 | 2 | 9 | ... | ... | ... | 8 | ... | ... | 12 | 123 |
| Mississippi | ... | ... | ... | ... | ... | ... | ... | ... | ... | 68 | 1 | ... | 69 |
| Missouri | ... | 9 | ... | ... | 1 | ... | 1 | ... | 8 | ... | 1 | ... | 20 |
| Montana | ... | ... | ... | ... | ... | ... | 7 | ... | ... | ... | ... | ... | 7 |
| Nebraska | 2 | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | 3 |
| New York | 269 | 342 | 376 | 434 | 382 | 267 | 263 | 279 | 163 | 256 | 218 | 339 | 3,588 |
| North Carolina | 1 | ... | ... | ... | ... | ... | 1 | ... | 7 | ... | ... | ... | 9 |
| North Dakota | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 |
| Ohio | 59 | 17 | 15 | 62 | 49 | 33 | 36 | 16 | 24 | 61 | 30 | 77 | 479 |
| Oklahoma | 3 | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 4 |
| Oregon | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | 1 |
| Pennsylvania | 92 | 84 | 93 | 69 | 62 | 73 | 82 | 46 | 78 | 41 | 35 | 84 | 839 |
| Rhode Island | 1 | ... | ... | ... | ... | ... | ... | ... | ... | 15 | 15 | 2 | 33 |
| Tennessee | ... | 1 | ... | ... | ... | ... | ... | ... | 2 | ... | 1 | ... | 4 |
| Texas | ... | ... | ... | ... | ... | ... | ... | ... | 6 | 20 | 18 | 1 | 45 |
| Vermont | 13 | ... | ... | 1 | ... | ... | ... | ... | ... | ... | 1 | 2 | 17 |
| Virginia | ... | 1 | 24 | 5 | ... | 2 | ... | ... | 31 | 1 | 14 | 1 | 79 |
| West Virginia | ... | 3 | ... | ... | ... | ... | ... | ... | 2 | ... | ... | 1 | 6 |
| Wisconsin | 349 | 792 | 531 | 1,015 | 525 | 664 | 200 | 163 | 290 | 157 | 514 | 362 | 5,562 |
| Totals | 1,093 | 1,783 | 1,280 | 1,907 | 1,152 | 1,266 | 825 | 601 | 738 | 687 | 963 | 1,183 | 13,478 |

## Dairy and Breeding Cattle Under 6 Months of Age Imported and Released

July 1, 1953 to June 30, 1954

| Origin | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada | 3 | 1 | 3 | 1 | ... | 1 | ... | ... | ... | ... | ... | ... | 9 |
| Florida | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 |
| Illinois | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 |
| Maine | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 |
| Massachusetts | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 |
| Michigan | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | 1 |
| New York | 1 | ... | ... | ... | ... | 3 | 1 | 2 | 4 | 16 | 8 | ... | 35 |
| North Carolina | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | 1 |
| Pennsylvania | 1 | ... | ... | 2 | ... | ... | 1 | ... | 2 | ... | ... | 12 | 18 |
| Ohio | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 |
| Rhode Island | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | 2 | ... | 3 |
| Vermont | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | 1 |
| Totals | 5 | 1 | 4 | 3 | ... | 6 | 6 | 2 | 6 | 17 | 10 | 13 | 73 |

## Feeder Steers Imported and Released

July 1953 to June 1954

| Origin | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Florida | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 6 | 6 |
| Illinois | ... | ... | ... | ... | ... | ... | ... | ... | 95 | ... | ... | ... | 95 |
| Idaho | ... | ... | ... | ... | ... | 28 | ... | ... | ... | ... | ... | ... | 28 |
| Iowa | ... | ... | 41 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 41 |
| Kansas | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 45 | 45 |
| Kentucky | ... | ... | ... | ... | ... | 32 | ... | ... | ... | ... | ... | ... | 32 |
| Lancaster Stock Yards | 107 | 37 | 39 | ... | 9 | 299 | 119 | 44 | 177 | 140 | 201 | 75 | 1,247 |
| Maryland | 3 | ... | ... | ... | ... | ... | ... | 12 | 2 | ... | 10 | ... | 27 |
| Ohio | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 26 | ... | 26 |
| Oklahoma | ... | ... | ... | 44 | 97 | ... | ... | ... | 54 | ... | ... | 94 | 289 |
| Pennsylvania | ... | ... | ... | ... | ... | ... | ... | ... | 9 | ... | ... | ... | 9 |
| South Carolina | ... | ... | ... | ... | ... | ... | ... | ... | 64 | ... | ... | ... | 64 |
| Virginia | ... | ... | ... | 57 | 31 | ... | ... | ... | ... | ... | ... | ... | 88 |
| Totals | 110 | 37 | 80 | 101 | 137 | 359 | 119 | 56 | 401 | 140 | 237 | 220 | 1,997 |

## Summary of Inshipments

July 1, 1953 to June 30, 1954

| | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total cattle imported | 1,093 | 1,783 | 1,280 | 1,907 | 1,152 | 1,266 | 825 | 601 | 738 | 687 | 963 | 1,183 | 13,478 |
| Calves under 6 months imported | 5 | 1 | 4 | 3 | ... | 6 | 6 | 2 | 6 | 17 | 10 | 13 | 73 |
| Total dairy and breeding 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 |
| Total dairy cattle imported July 1952 to June 1953 | 1,274 | 1,414 | 1,798 | 1,826 | 1,037 | 1,302 | 689 | 542 | 702 | 823 | 961 | 999 | 13,367 |
| Feeder steers imported July 1953 to June 1954 | 110 | 37 | 80 | 101 | 137 | 359 | 119 | 56 | 401 | 140 | 237 | 220 | 1,997 |
| Feeder steers imported July 1952 to June 1953 | 160 | 100 | 343 | 336 | 671 | 505 | 83 | 104 | 52 | 180 | 155 | 283 | 2,972 |
| 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 |
| Total dairy cattle and feeder steers imported July 1952 to June 1953 | 1,434 | 1,514 | 2,141 | 2,162 | 1,708 | 1,807 | 772 | 646 | 754 | 1,003 | 1,116 | 1,282 | 16,339 |

RECORD OF BLOOD TESTS MADE ON INSHIPPED ANIMALS

July 1, 1953 to June 30, 1954

| State of Origin | Lots Bled | Cattle Bled | Reactors Found | |
|---|---|---|---|---|
| | | | Number | Percentage |
| Canada | 61 | 527 | 10 | 1.90 |
| Colorado | 5 | 7 | .... | .... |
| Connecticut | 34 | 231 | 1 | .43 |
| Delaware | 3 | 5 | 1 | 20.00 |
| Florida | 3 | 6 | .... | .... |
| Georgia | 1 | 1 | .... | .... |
| Illinois | 9 | 27 | .... | .... |
| Indiana | 5 | 17 | .... | .... |
| Iowa | 7 | 8 | .... | .... |
| Ireland | 27 | 218 | .... | .... |
| Kansas | 3 | 11 | .... | .... |
| Kentucky | 5 | 12 | .... | .... |
| Louisiana | 1 | 2 | .... | .... |
| Maryland | 46 | 202 | 3 | 1.49 |
| Massachusetts | 15 | 22 | .... | .... |
| Michigan | 73 | 1,220 | 4 | .33 |
| Minnesota | 12 | 123 | .... | .... |
| Mississippi | 2 | 69 | 5 | 7.25 |
| Missouri | 10 | 20 | .... | .... |
| Montana | 1 | 7 | .... | .... |
| Nebraska | 1 | 2 | .... | .... |
| New York | 531 | 3,593 | 51 | 1.42 |
| North Carolina | 3 | 9 | .... | .... |
| North Dakota | 1 | 1 | .... | .... |
| Ohio | 41 | 503 | 3 | .60 |
| Oklahoma | 4 | 10 | .... | .... |
| Oregon | 1 | 1 | .... | .... |
| Pennsylvania | 143 | 771 | 4 | .52 |
| Rhode Island | 16 | 33 | .... | .... |
| Tennessee | 5 | 13 | .... | .... |
| Texas | 8 | 45 | .... | .... |
| Vermont | 7 | 18 | 1 | 5.56 |
| Virginia | 31 | 104 | .... | .... |
| Washington | 2 | 2 | .... | .... |
| West Virginia | 2 | 4 | .... | .... |
| Wisconsin | 259 | 5,463 | 7 | .13 |
| Totals | 1,378 | 13,307 | 90 | .68 |

In addition to the above four lots of 87 Idaho cattle were shipped in and tested on arrival and one or 1.15 per cent reactor was disclosed.

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

| 1949-50 | 1950-51 | 1951-52 | 1952-53 | 1953-54 |
|---|---|---|---|---|
| 18,815 | 19,996 | 19,565 | 16,339 | 15,548 |

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

CATTLE SHIPPED OUT OF NEW JERSEY

July 1, 1953 to June 30, 1954

| Month 1953 | Lots From Herds Under Supervision | Animals From Herds Under Supervision |
|---|---|---|
| July | 80 | 246 |
| August | 70 | 170 |
| September | 242 | 489 |
| October | 154 | 386 |
| November | 116 | 241 |
| December | 103 | 199 |
| 1954 | | |
| January | 94 | 216 |
| February | 81 | 238 |
| March | 162 | 297 |
| April | 315 | 416 |
| May | 759 | 842 |
| June | 201 | 259 |
| Totals | 2,377 | 3,999 |

## BUREAU OF TUBERCULOSIS ERADICATION

At the close of the 1952-53 fiscal year the tuberculosis picture appeared as follows:

239,489 tests conducted
176 reactors disclosed
0.07 per cent reactions
76 infected herds being carried at end of the year.

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 infected herds being carried at end of the year.

The purpose of presenting this statistical picture for the past two fiscal years is to show the comparison and trend. It will be noted that there were 742 fewer tests conducted during the present fiscal year than during the last year, resulting in an increase of 0.03 per cent or 69 reactions over the previous year. The 0.07 per cent reactions for last year was the lowest for all time. It was mentioned in the 1952-53 report that this per cent was about as low as could be expected and probably would increase at times in future years. There were also 91 infected herds being carried at the end of the present year as compared with 76 being carried at the end of 1952-53. The increase in reactions was largely due to disclosures in one herd but the increase of 15 infected herds is difficult to explain. Of the 245

reactions, however, 185 were disclosed in 120 previously accredited herds, three in initial tests of three herds and 57 were disclosed in 29 previously infected herds.

TUBERCULIN TESTS

| Month | Total Reactors | Accredited Herds | Accredited Reactors | Initial Tests | Initial Reactors | Infected Herds | Infected Reactors | Additions | |
|---|---|---|---|---|---|---|---|---|---|
| July | ... | ... | ... | ... | ... | ... | ... | ... | |
| August | 1 | 1 | 1 | ... | ... | ... | ... | 1 | |
| September | 12 | 8 | 11 | 1 | 1 | ... | ... | 2 | |
| October | 14 | 11 | 13 | 1 | 1 | ... | ... | 4 | (2 goats) |
| November | 24 | 15 | 21 | 1 | 1 | 2 | 2 | 7 | |
| December | 20 | 17 | 18 | ... | ... | 2 | 2 | 2 | |
| January | 35 | 20 | 31 | ... | ... | 3 | 4 | 16 | |
| February | 15 | 9 | 12 | ... | ... | 3 | 3 | 5 | |
| March | 34 | 19 | 26 | ... | ... | 7 | 8 | 9 | |
| April | 53 | 15 | 47 | ... | ... | 5 | 6 | 10 | |
| May | 17 | 5 | 5 | ... | ... | 5 | 12 | 3 | |
| June | 20 | ... | ... | ... | ... | 2 | 20 | ... | |
| Totals | 245 | 120 | 185 | 3 | 3 | 29 | 57 | 59 | |

One hundred and twenty accredited herds disclosed reactions compared with reaction disclosures in only 29 infected and three initial test herds. The larger number of accredited herds disclosing reactions during the fiscal year no doubt accounts for the increase of from 76 to 91 infected herds being carried at the end of the year. The summary shows that except for one month (April) accredited herds disclosed but one and two reactions. The one exception was the herd belonging to Elston Brothers of Sussex which at the time was composed of 87 animals tested between April 19 and 22, with 31 reactions disclosed. Until early 1953 this herd was owned and operated by John Elston, a cattle dealer and father of the Elston brothers. Dealing and milking herd operations supposedly were conducted independently at all times in widely separated barns. However, a close interchange of animals between the two barns was noticed.

The John Elston herd was initially tested in 1947 and disclosed only two "no visible lesion" reactors in 1950. Since that time the herd has passed annual tests and qualified for reaccreditation. In early 1953 the herd ownership was transferred from John Elston to his two sons and was routinely tested and reaccredited as of November 10 to 13. This test was conducted by Dr. Edward C. Preston, a local veterinary practitioner.

Related to this outbreak is the herd formerly owned by Irving Ackerson of Oak Ridge. The Ackerson herd was last tested by Dr. Preston and reaccredited in February 1953. Fire forced the owner to abandon the Oak Ridge farm in September 1953 and move his herd to the Elston barns. The move was approved as both the Ackerson herd and the Elston herd were accredited. The Ackerson herd was quartered in the Elston barns

about a month and was put up for public sale in October 1953. Following the sale of the Ackerson herd on the Elston premises at least four of the Ackerson animals reacted in herds of those who made the purchase and presented lesions of tuberculosis when slaughtered.

It was at first thought that the Ackerson herd and its being quartered and sold on the premises of the Elstons might have been the cause of the 31 reaction disclosures in the Elston brothers herd. Since post-mortem reports for the 31 reactors have been received, however, it is questionable whether this Ackerson herd can be at fault.

At the time of the Ackerson herd sale Elston bought four of the Ackerson animals. Of the 31 reactors only one of the Ackerson animals reacted and it turned out to be a "no visible lesion." On the other hand, of the 31 Elston reactors 14 originated in Canada within a year and of these six presented lesions, including one which presented lesions of the lungs. Nineteen of the 31 reactors were "no visible lesions" and 12 presented lesions of tuberculosis, three of these presenting infection of the lungs. The three lung lesion cases originated in Canada, New York and Michigan and all were purchased within about a year. It is difficult to believe that lung lesion animals originating in Canada, New York and Michigan could have developed lesions to this extent in such a comparatively short time after their importation.

The high per cent of "no visible lesions" (19) among the 31 reactors could and usually does mean that the herd was exposed to an animal eliminating a "hot bug" infection and the 19 "no visible lesions" were affected recently and acutely not allowing time for the organization of macroscopic lesions.

This herd, at the time comprised of 59 animals, was again tested on June 21 to 24. Nineteen reactions were disclosed which means that this previously accredited herd contributed 50 of the 245 reactors disclosed during the year.

Two infected herds contributed 15 reactions. The herd belonging to Leslie Decker of Vernon was comprised of 66 animals which were tested between January 25 and 28. Two reactions were disclosed and when retested from March 22 to 25 two more reactions were discovered. Prior to the January test this herd had been clean for seven years.

Frank G. Riddle of Hampton has 35 animals which were tested between February 22 and 25 disclosing four reactors. When retested from May 10 to 13 seven more reactors were disclosed, a total of 11 for the year. This herd was initially tested in 1926 and has been under supervision for the control of tuberculosis for 28 years. Through 1944 the herd disclosed from time to time a total of 41 reactions, making it more or less troublesome from 1926 to 1944. From 1944 until the February 1954 test, a period of 10 years, the herd did not disclose any reactions.

The three herds mentioned individually contributed more reactors than any other individual herds and their combined reactor contribution was 65 or 26.9 per cent of the 245 disclosed during the year.

The Lewis Guerin of Dover herd, a problem in past years and a heavy reactor contributor, passed three clean tests during the year without evidence of reactions. However, an unwanted or beef animal was sent to slaughter between the second and third clean tests and presented marked lesions of tuberculosis.

All certified milk producing herds, of which there are two bovine herds, Walker-Gordon in Plainsboro and Woodbrook Farm in Metuchen, and three goat herds, Forest Hills Goat Dairy in Belle Mead, Crowley Goat Dairy in Ironia and Tyler Goat Dairy in Flemington, were subjected to semi-annual tests. The Walker-Gordon herd, comprised of 16 units and about 2,680 cattle, disclosed three reactors during the year. These were the first reactors found in these units in three years. The Forest Hills Goat Dairy of approximately 291 goats disclosed two reactors during the year. Both of these were slaughtered on the farm and presented lesions of tuberculosis. While the incidence of tuberculosis in goats is small, this herd did disclose one reactor in each of the years 1948, 1949 and 1952.

### *Economy Testing Program*

On December 9, 1953 the State Board of Agriculture approved a recommendation to limit the tuberculin testing and bleeding of one to five animal herds to once in two years. The tuberculin test was to be applied to all herds in an area the year that area was to be reaccredited but one to five animal herds were to be skipped the intervening year. This recommendation to the Board was brought about because there would be a shortage of about $30,000 in veterinary service fees for the fiscal year. The new program became effective January 1.

In the tuberculosis field about half of the counties were due for reaccreditation after January 1. This meant that in these counties all one to five animal herds had to be tested and were tested either before or after January 1. Although there was some saving brought about by not testing the one to five animal herds in counties not due for reaccreditation, the saving was not as great as first anticipated. The saving for one-half of the fiscal year is somewhat difficult to figure exactly, but it should be worthwhile in a full year period and easily estimated. There were some complaints from small herd owners that their herds were not being tested but after some explaining these complaints did not prove serious.

In line with this economy testing program was a savings contribution from the stepped-up testing by State employed veterinarians. During the last fiscal year veterinary practitioners conducted 84.09 per cent of the tests

and State veterinarians 12.08 per cent of the tests. During the present year practitioners conducted 77.29 per cent of the tests and State veterinarians 18.75 per cent, an increase in tests conducted by State veterinarians of 6.80 per cent. This increase in testing was brought about in spite of the extraneous services the tuberculosis personnel is called upon to render.

These other services include the rebleeding of all inshipments by the tuberculosis personnel; investigating, bacterinating and rebacterinating in anthrax exposed herds; investigating other disease outbreaks and abnormal affections as reported by practitioners, and checking livestock receipts and permits at auctions. The field personnel is also often called upon to make swine herd inspections for the purpose of issuing intra and interstate movement permits and also truck cleaning and disinfection certificates. These requests will increase under the present program requiring that swine movement permits be issued by State or Federal employees.

### *Personnel*

At the end of the fiscal year there were nine State and three Federal veterinarians employed in the Bureau.

State

Dr. H. A. Roney, Sussex-Warren County area
Dr. R. A. Wilson, Sussex County area
Dr. T. A. Newlin, Morris-Passaic County area
Dr. C. K. Jewell, Somerset-Middlesex County area
Dr. B. F. Clapham, Mercer-Middlesex County area
Dr. E. L. Brower, Monmouth-Ocean-Middlesex County area
Dr. M. J. Bonese, Burlington-Ocean County area
Dr. R. S. Armstrong, Salem-Cape May County area
Dr. S. D. Novich, Camden-Gloucester-Cumberland-Atlantic County area

Federal

Dr. S. D. Bamber, Hunterdon County area
Dr. G. J. Gruenewald, Dr. A. G. Olivier } Bergen-Hudson-Essex-Union and Middlesex County area

*Reaccreditation of Counties*

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

COUNTIES LISTED FOR REACCREDITATION FOR TWO-YEAR PERIOD

| | Dates Tested | Herds | Cattle | Reactors |
|---|---|---|---|---|
| Atlantic | 2/1/52 | 122 | 617 | .... |
| | 2/1/54 | 105 | 650 | .... |
| | | Increase 17 | Increase 33 | |
| Camden | 11/1/51 | 198 | 1,807 | .... |
| | 11/1/53 | 176 | 1,965 | .... |
| | | Decrease 22 | Increase 158 | |
| Cape May | 2/1/52 | 88 | 494 | .... |
| | 2/1/54 | 83 | 478 | .... |
| | | Decrease 5 | Decrease 16 | |
| Cumberland | 11/1/51 | 657 | 6,717 | .... |
| | 11/1/53 | 596 | 6,925 | 2 |
| | | Decrease 61 | Increase 208 | |
| Hudson | 8/1/51 | 4 | 29 | .... |
| | 8/1/53 | 2 | 37 | .... |
| | | Decrease 2 | Increase 8 | |
| Morris | 8/1/51 | 668 | 11,377 | .... |
| | 8/1/53 | 591 | 11,395 | 6 |
| | | Decrease 77 | Increase 18 | |
| Salem | 6/1/52 | 968 | 18,023 | 9 |
| | 6/1/54 | 894 | 18,875 | 7 |
| | | Decrease 74 | Increase 852 | |
| Somerset | 5/1/52 | 712 | 13,678 | 3 |
| | 5/1/54 | 612 | 13,508 | .... |
| | | Decrease 100 | Decrease 170 | |
| Union | 7/1/51 | 79 | 1,636 | .... |
| | 7/1/53 | 58 | 1,265 | .... |
| | | Decrease 21 | Decrease 371 | |

On June 30 there were 9,797 herds of 214,212 head of cattle under supervision, a decrease of 618 herds and 1,448 cattle from the number recorded at the beginning of the fiscal year.

During the year initial tests were conducted on 625 herds of 4,216 cattle, resulting in the disclosure of seven reactors or .17 per cent reaction. The per cent of reaction disclosed on tests of cattle added to herds under supervision was 1.84 or 53 reactors in 2,877 cattle tested. A total of 238,747 tuberculin tests were conducted resulting in 245 reactors or .10 per cent reaction as compared with .07 per cent a year ago. Of the 245 reactors disclosed 188 were eligible for indemnity, 25 registered and 163 grade animals.

TUBERCULIN TEST RESULTS 1944-54

| Year | Herds Under Supervision | Animals Under Supervision | Tests Conducted | Reactors Resulting | Per Cent Reaction |
|---|---|---|---|---|---|
| 1944-45 | 15,803 | 208,459 | 232,087 | 3,138 | 1.35 |
| 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 |

In 1953-54, 13,551 head of dairy cattle were imported, of which 2,877 were retested as herd additions, disclosing 53 reactors. In 1952-53 there were 13,367 head of dairy cattle imported, of which 3,642 were subjected to herd addition tests, resulting in 42 reactors.

The amount of State indemnity paid during this fiscal year for reactors condemned increased from an average of $81.16 for the fiscal year 1952-53 to $82.10 for 1953-54. During the year 13,551 dairy cattle and 1,997 steers, a total of 15,548 head, were imported as compared with a total of 16,339 during the previous year, a decrease of 791 over the number imported during last fiscal year.

## CATTLE TUBERCULIN TESTED UNDER ACCREDITED HERD PLAN

July 1, 1953 to June 30, 1954

### INITIAL TESTS

| | Lots | Registered Animals | Grade Animals | Total |
|---|---|---|---|---|
| Tested | 625 | 460 | 3,756 | 4,216 |
| Reacted | .... | .... | 7 | 7 |

Percentage of Reactors: .17

### HERD ADDITION TESTS

| | Lots | Registered Animals | Grade Animals | Total |
|---|---|---|---|---|
| Tested | 729 | 236 | 2,641 | 2,877 |
| Reacted | .... | 1 | 52 | 53 |

Percentage of Reactors: 1.84

### OTHER TESTS

| | Lots | Registered Animals | Grade Animals | Total |
|---|---|---|---|---|
| Tested | 9,951 | 40,049 | 191,605 | 231,654 |
| Reacted | .... | 6 | 179 | 185 |

Percentage of Reactors: .08

| | |
|---|---|
| Tested | 238,747 |
| Reacted | 245 |
| Percentage of Reactors | .10 |
| Percentage of Reactors Based on Cattle Population | .11 |

## STATE INDEMNITY PAID FOR REACTORS TO TUBERCULIN TEST

July 1, 1953 to June 30, 1954

| Class of Cattle | Animals | Amount Paid | Average State Indemnity Paid per Head |
|---|---|---|---|
| Registered | 25 | $3,679.65 | $147.19 |
| Grade | 163 | 11,754.61 | 72.11 |
| Registered and Grade | 188 | $15,434.26* | 82.10 |

* In addition, indemnity amounting to $40 was paid on two goats that reacted to the tuberculin test in Forest Hill Goat Dairy under the old law; no Federal indemnity paid.

## SALVAGE RECEIVED BY OWNERS FOR REACTORS TO TUBERCULIN TEST

July 1, 1953 to June 30, 1954

| Class of Cattle | Animals | Amount Paid | Average Salvage Received per Head |
|---|---|---|---|
| Registered | 25 | $2,839.85 | $113.59 |
| Grade | 163 | 17,630.69 | 108.16 |
| Registered and Grade | 188 | $20,470.54 | 108.89 |

## FEDERAL INDEMNITY PAID FOR REACTORS TO TUBERCULIN TEST

July 1, 1953 to June 30, 1954

| Class of Cattle | Animals | Amount Paid | Average Federal Indemnity Paid per Head |
|---|---|---|---|
| Registered | 25 | $1,250.00 | $50.00 |
| Grade | 163 | 3,960.69 | 24.30 |
| Registered and Grade | 188 | $5,210.69 | 27.72 |

| | |
|---|---|
| Total amount received by owners for reactors (Sum of salvage, Federal and State indemnity) | $41,115.49 |
| Average amount received per head by owners for reactors | $218.70 |

## TOTAL STATE INDEMNITY PAID FOR TUBERCULIN TEST REACTORS

July 1, 1953, to June 30, 1954

| County | |
|---|---|
| Atlantic | $..... |
| Bergen | ..... |
| Burlington | 374.77 |
| Camden | 74.29 |
| Cape May | ..... |
| Cumberland | 300.00 |
| Essex | ..... |
| Gloucester | 375.00 |
| Hudson | ..... |
| Hunterdon | 975.00 |
| Mercer | 108.09 |
| Middlesex | 108.33 |
| Monmouth | 75.00 |
| Morris | 1,275.00 |
| Ocean | ..... |
| Passaic | ..... |
| Salem | 2,175.00 |
| Somerset | 340.00* |
| Sussex | 8,093.78 |
| Union | ..... |
| Warren | 1,200.00 |
| State | $15,474.26* |

* Indemnity amounting to $40 was paid on two goats that reacted to the tuberculin test in Forest Hill Goat Dairy under the old law; no Federal indemnity paid.

TOTAL STATE INDEMNITY PAID FOR TUBERCULIN TEST REACTORS FROM BEGINNING OF ACCREDITED HERD WORK IN 1916 TO JUNE 30, 1954

| County | |
|---|---|
| Atlantic | $10,229.81 |
| Bergen | 37,793.59 |
| Burlington | 529,857.67 |
| Camden | 19,452.55 |
| Cape May | 10,954.64 |
| Cumberland | 84,749.15 |
| Essex | 40,686.29 |
| Gloucester | 67,231.56 |
| Hudson | 4,455.78 |
| Hunterdon | 375,820.62 |
| Mercer | 191,202.90 |
| Middlesex | 85,555.17 |
| Monmouth | 141,831.73 |
| Morris | 163,670.24 |
| Ocean | 34,199.08 |
| Passaic | 37,153.60 |
| Salem | 382,346.32 |
| Somerset | 228,831.09 |
| Sussex | 1,061,436.70 |
| Union | 40,867.91 |
| Warren | 399,497.19 |
| State | $3,947,823.59 |

## HERDS AND CATTLE UNDER STATE AND FEDERAL SUPERVISION

### TUBERCULIN TESTS MADE AND REACTIONS DISCLOSED

| County | Herds Under Supervision June 30, 1954 | Herds Fully Accredited June 30, 1954 | Cattle Under Supervision June 30, 1954 Reg. | Gr. | Total | Tuberculin Tests Made July 1, 1953 to June 30, 1954 | Reactors Disclosed | Per Cent Infection |
|---|---|---|---|---|---|---|---|---|
| Atlantic | 106 | 84 | 116 | 542 | 658 | 749 | .... | .... |
| Bergen | 98 | 78 | 283 | 1,008 | 1,291 | 1,292 | .... | .... |
| Burlington | 823 | 741 | 3,711 | 22,083 | 25,794 | 27,668 | 16 | .06 |
| Camden | 177 | 152 | 522 | 1,485 | 2,007 | 1,837 | 1 | .05 |
| Cape May | 83 | 77 | 80 | 398 | 478 | 986 | .... | .... |
| Cumberland | 587 | 520 | 539 | 6,289 | 6,828 | 5,950 | 4 | .07 |
| Essex | 39 | 37 | 248 | 500 | 748 | 771 | .... | .... |
| Gloucester | 653 | 614 | 1,033 | 5,511 | 6,544 | 7,189 | 5 | .07 |
| Hudson | 2 | 2 | .... | 37 | 37 | 37 | .... | .... |
| Hunterdon | 1,416 | 1,279 | 5,482 | 27,011 | 32,493 | 34,271 | 14 | .04 |
| Mercer | 340 | 321 | 2,574 | 6,019 | 8,593 | 8,995 | 2 | .02 |
| Middlesex | 422 | 385 | 852 | 5,077 | 5,929 | 9,301 | 3 | .03 |
| Monmouth | 714 | 670 | 3,309 | 6,746 | 10,055 | 12,362 | 3 | .02 |
| Morris | 606 | 525 | 2,891 | 8,817 | 11,708 | 13,346 | 27 | .20 |
| Ocean | 150 | 122 | 165 | 1,018 | 1,183 | 1,271 | .... | .... |
| Passaic | 101 | 93 | 48 | 744 | 792 | 1,372 | .... | .... |
| Salem | 894 | 815 | 1,342 | 17,531 | 18,873 | 21,720 | 30 | .14 |
| Somerset | 599 | 545 | 3,851 | 9,383 | 13,234 | 14,562 | 7 | .05 |
| Sussex | 967 | 827 | 5,346 | 31,475 | 36,821 | 41,758 | 110 | .26 |
| Union | 59 | 51 | 16 | 1,067 | 1,083 | 1,849 | .... | .... |
| Warren | 961 | 874 | 2,131 | 26,932 | 29,063 | 31,461 | 23 | .07 |
| State | 9,797 | 8,812 | 34,539 | 179,673 | 214,212 | 238,747 | 245 | .10 |

## INFECTED HERD RECORD

June 30, 1954

| County | Infected Herds | Cattle in Infected Herds |
|---|---|---|
| Atlantic | ... | ... |
| Bergen | ... | ... |
| Burlington | 8 | 468 |
| Camden | 1 | 29 |
| Cape May | ... | ... |
| Cumberland | 4 | 95 |
| Essex | ... | ... |
| Gloucester | 2 | 29 |
| Hudson | ... | ... |
| Hunterdon | 4 | 193 |
| Mercer | 2 | 31 |
| Middlesex | ... | ... |
| Monmouth | 2 | 125 |
| Morris | 19 | 1,052 |
| Ocean | ... | ... |
| Passaic | ... | ... |
| Salem | 16 | 578 |
| Somerset | 5 | 213 |
| Sussex | 14 | 727 |
| Union | ... | ... |
| Warren | 14 | 656 |
| State | 91 | 4,196 |

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

July 1, 1953 to June 30, 1954

| | INITIAL TESTS | | | | | HERD ADDITION TESTS | | | | | OTHER TESTS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Tested | | Reactors | | | Tested | | Reactors | | | Tested | | Reactors | |
| | Lots | Reg. | Gr. | Reg. | Gr. | Lots | Reg. | Gr. | Reg. | Gr. | Lots | Reg. | Gr. | Reg. | Gr. |
| 1953 | | | | | | | | | | | | | | | |
| July | 39 | 87 | 188 | .. | .. | .. | .. | .. | .. | .. | 37 | 21 | 539 | .. | .. |
| August | 11 | .. | 23 | .. | .. | .. | 4 | 11 | .. | .. | 19 | 66 | 574 | .. | .. |
| September | 11 | .. | 31 | .. | .. | .. | .. | 6 | .. | 1 | 185 | 226 | 2,158 | .. | .. |
| October | 10 | 15 | 33 | .. | .. | .. | .. | .. | .. | .. | 152 | 735 | 2,173 | .. | 2 |
| November | 9 | 2 | 20 | .. | .. | .. | .. | 26 | .. | 2 | 157 | 1,352 | 3,199 | .. | 3 |
| December | 32 | 5 | 46 | .. | .. | .. | 1 | 5 | .. | .. | 198 | 1,634 | 3,289 | .. | 5 |
| 1954 | | | | | | | | | | | | | | | |
| January | 1 | .. | .. | .. | .. | .. | .. | 47 | .. | 10 | 273 | 1,007 | 4,758 | .. | 9 |
| February | 1 | .. | 34 | .. | 3 | 1 | .. | 5 | .. | 2 | 235 | 816 | 4,416 | 1 | 3 |
| March | .. | .. | .. | .. | .. | .. | .. | 17 | .. | 3 | 300 | 1,235 | 5,278 | .. | 9 |
| April | .. | .. | .. | .. | .. | 1 | .. | 7 | .. | 4 | 191 | 1,780 | 3,459 | .. | 30 |
| May | 9 | .. | 119 | .. | .. | .. | .. | 7 | .. | 2 | 111 | 709 | 1,886 | .. | .. |
| June | 15 | 2 | 30 | .. | .. | 1 | .. | 1 | .. | .. | 186 | 532 | 2,153 | .. | 19 |
| Totals | 138 | 111 | 524 | .. | 3 | 3 | 5 | 132 | .. | 24 | 2,044 | 10,113 | 33,882 | 1 | 80 |
| Per Cent Reaction | | | | | .57 | | | | | 18.18 | | | | .01 | .24 |
| Average Per Cent Reaction | | | | .47 | | | | | 17.52 | | | | | .18 | |

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

July 1, 1953 to June 30, 1954

| | INITIAL TESTS | | | | | HERD ADDITION TESTS | | | | | OTHER TESTS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Tested | | Reactors | | | Tested | | Reactors | | | Tested | | Reactors | |
| | Lots | Reg. | Gr. | Reg. | Gr. | Lots | Reg. | Gr. | Reg. | Gr. | Lots | Reg. | Gr. | Reg. | Gr. |
| 1953 | | | | | | | | | | | | | | | |
| July | 6 | .. | 13 | .. | .. | .. | .. | 8 | .. | .. | 52 | 9 | 277 | .. | .. |
| August | .. | .. | .. | .. | .. | .. | .. | 7 | .. | .. | 63 | 185 | 208 | .. | .. |
| September | 6 | .. | 10 | .. | .. | .. | .. | 8 | .. | .. | 16 | .. | 67 | .. | .. |
| October | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 1 | 113 | .. | .. |
| November | 7 | .. | 10 | .. | .. | .. | 3 | 12 | .. | .. | 49 | 105 | 380 | .. | .. |
| December | 10 | .. | 21 | .. | .. | .. | .. | 23 | .. | .. | 65 | 4 | 975 | .. | .. |
| 1954 | | | | | | | | | | | | | | | |
| January | .. | .. | .. | .. | .. | .. | .. | 13 | .. | .. | 52 | 54 | 1,933 | .. | .. |
| February | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 100 | 419 | 1,428 | .. | .. |
| March | .. | .. | 1 | .. | .. | .. | .. | 1 | .. | .. | 38 | 297 | 332 | .. | .. |
| April | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | 45 | 222 | 767 | .. | .. |
| May | 11 | 31 | 15 | .. | .. | .. | .. | .. | .. | .. | 17 | 50 | 1,112 | .. | 7 |
| June | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 87 | 187 | 153 | .. | .. |
| Totals | 41 | 31 | 71 | .. | .. | .. | 3 | 73 | .. | .. | 588 | 1,533 | 7,745 | .. | 7 |
| Per Cent Reaction | | | | | .. | | | | | .. | | | | | .09 |
| Average Per Cent Reaction | | | | | .. | | | | | .. | | | | .08 | |

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

July 1, 1953 to June 30, 1954

| | INITIAL TESTS | | | | | HERD ADDITION TESTS | | | | | OTHER TESTS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Tested | | Reactors | | | Tested | | Reactors | | | Tested | | Reactors | |
| | Lots | Reg. | Gr. | Reg. | Gr. | Lots | Reg. | Gr. | Reg. | Gr. | Lots | Reg. | Gr. | Reg. | Gr. |
| 1953 | | | | | | | | | | | | | | | |
| July | 20 | 2 | 66 | .. | .. | 80 | 15 | 194 | .. | .. | 158 | 220 | 1,148 | .. | .. |
| August | 6 | 32 | 7 | .. | .. | 62 | 9 | 213 | .. | 1 | 89 | 416 | 837 | .. | .. |
| September | 26 | 22 | 164 | .. | 1 | 54 | 19 | 149 | .. | 1 | 386 | 1,294 | 6,753 | .. | 9 |
| October | 30 | 10 | 306 | .. | 1 | 56 | 11 | 194 | .. | 3 | 658 | 1,608 | 13,912 | 1 | 7 |
| November | 52 | 2 | 544 | .. | 1 | 61 | .. | 325 | .. | 3 | 902 | 2,815 | 18,120 | .. | 15 |
| December | 43 | 16 | 313 | .. | .. | 63 | 71 | 337 | .. | 2 | 845 | 3,617 | 17,473 | 2 | 11 |
| 1954 | | | | | | | | | | | | | | | |
| January | 21 | 6 | 131 | .. | .. | 56 | 17 | 168 | .. | 6 | 716 | 3,400 | 19,311 | .. | 10 |
| February | 60 | 32 | 449 | .. | 1 | 50 | 1 | 122 | .. | .. | 789 | 3,139 | 16,185 | 1 | 4 |
| March | 68 | 112 | 392 | .. | .. | 58 | 8 | 188 | 1 | 5 | 977 | 3,119 | 22,566 | 1 | 15 |
| April | 61 | 41 | 358 | .. | .. | 38 | 3 | 193 | .. | 6 | 930 | 5,730 | 20,688 | .. | 13 |
| May | 54 | 28 | 366 | .. | .. | 82 | 68 | 218 | .. | 1 | 639 | 2,318 | 10,529 | .. | 7 |
| June | 5 | 15 | 65 | .. | .. | 66 | 6 | 135 | .. | .. | 230 | 727 | 2,456 | .. | 1 |
| Totals | 446 | 318 | 3,161 | .. | 4 | 726 | 228 | 2,436 | 1 | 28 | 7,319 | 28,403 | 149,978 | 5 | 92 |
| Per Cent Reaction | | | | .. | .13 | | | | .44 | 1.15 | | | | .02 | .06 |
| Average Per Cent | | | | .11 | | | | | 1.09 | | | | | .05 | |

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

| County | July 1953 to June 1954 | | | | | July 1952 to June 1953 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | 658 | ... | ... | 749 | ... | 675 | ... | ... | 439 | ... |
| Bergen | 1,291 | ... | ... | 1,292 | ... | 1,257 | ... | ... | 1,296 | ... |
| Burlington | 25,794 | 16 | .06 | 27,668 | .06 | 26,766 | 11 | .04 | 27,303 | .04 |
| Camden | 2,007 | 1 | .05 | 1,837 | .05 | 2,002 | ... | ... | 2,007 | ... |
| Cape May | 478 | ... | ... | 986 | ... | 501 | ... | ... | 514 | ... |
| Cumberland | 6,828 | 4 | .06 | 5,950 | .07 | 7,131 | 5 | .07 | 7,435 | .07 |
| Essex | 748 | ... | ... | 771 | ... | 786 | ... | ... | 838 | ... |
| Gloucester | 6,544 | 5 | .08 | 7,189 | .07 | 6,783 | 1 | .01 | 7,086 | .01 |
| Hudson | 37 | ... | ... | 37 | ... | 27 | ... | ... | 29 | ... |
| Hunterdon | 32,493 | 14 | .04 | 34,271 | .04 | 31,735 | 16 | .05 | 33,372 | .05 |
| Mercer | 8,593 | 2 | .02 | 8,995 | .02 | 8,468 | 2 | .02 | 9,229 | .02 |
| Middlesex | 5,929 | 3 | .05 | 9,301 | .03 | 6,728 | 1 | .01 | 9,392 | .01 |
| Monmouth | 10,055 | 3 | .03 | 12,362 | .02 | 10,283 | 6 | .06 | 11,761 | .05 |
| Morris | 11,708 | 27 | .23 | 13,346 | .20 | 11,407 | 35 | .31 | 12,874 | .27 |
| Ocean | 1,183 | ... | ... | 1,271 | ... | 1,250 | ... | ... | 1,361 | ... |
| Passaic | 792 | ... | ... | 1,372 | ... | 774 | ... | ... | 733 | ... |
| Salem | 18,873 | 30 | .16 | 21,720 | .14 | 19,454 | 29 | .15 | 22,509 | .13 |
| Somerset | 13,234 | 7 | .05 | 14,562 | .05 | 14,336 | 5 | .03 | 15,206 | .03 |
| Sussex | 36,821 | 110 | .30 | 41,758 | .26 | 36,059 | 45 | .12 | 41,284 | .11 |
| Union | 1,083 | ... | ... | 1,849 | ... | 1,283 | ... | ... | 2,408 | ... |
| Warren | 29,063 | 23 | .08 | 31,461 | .07 | 27,955 | 20 | .07 | 32,413 | .06 |
| State | 214,212 | 245 | .11 | 238,747 | .10 | 215,660 | 176 | .08 | 239,489 | .07 |

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

| County | July 1951 to June 1952 | | | | | July 1950 to June 1951 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | 652 | 4 | .62 | 1,078 | .37 | 538 | 4 | .74 | 914 | .44 |
| Bergen | 1,268 | ... | ... | 1,421 | ... | 1,382 | 1 | .07 | 1,450 | .07 |
| Burlington | 25,419 | 47 | .18 | 28,284 | .17 | 24,340 | 46 | .19 | 26,208 | .18 |
| Camden | 1,948 | ... | ... | 2,008 | ... | 1,697 | ... | ... | 1,889 | ... |
| Cape May | 496 | ... | ... | 498 | ... | 541 | ... | ... | 1,297 | ... |
| Cumberland | 6,905 | 13 | .19 | 7,543 | .17 | 6,829 | 12 | .18 | 6,772 | .18 |
| Essex | 775 | ... | ... | 784 | ... | 972 | ... | ... | 987 | ... |
| Gloucester | 6,587 | 1 | .02 | 7,142 | .01 | 5,939 | 5 | .08 | 6,700 | .07 |
| Hudson | 29 | ... | ... | ..... | ... | 35 | ... | ... | 63 | ... |
| Hunterdon | 30,461 | 16 | .05 | 31,449 | .05 | 28,969 | 37 | .13 | 31,966 | .12 |
| Mercer | 8,551 | 2 | .02 | 9,181 | .02 | 8,299 | 1 | .01 | 8,746 | .01 |
| Middlesex | 6,649 | ... | ... | 10,246 | ... | 6,557 | 4 | .06 | 9,471 | .04 |
| Monmouth | 9,863 | 2 | .03 | 11,260 | .02 | 9,413 | 42 | .45 | 10,673 | .39 |
| Morris | 11,403 | 54 | .47 | 12,514 | .43 | 11,433 | 2 | .02 | 12,669 | .02 |
| Ocean | 1,149 | ... | ... | 1,108 | ... | 1,149 | ... | ... | 1,201 | ... |
| Passaic | 901 | ... | ... | 1,024 | ... | 987 | ... | ... | 1,018 | ... |
| Salem | 18,409 | 13 | .07 | 20,361 | .06 | 16,997 | 38 | .22 | 21,279 | .18 |
| Somerset | 13,690 | 6 | .04 | 15,194 | .04 | 12,829 | 16 | .12 | 14,429 | .11 |
| Sussex | 34,094 | 60 | .18 | 40,866 | .15 | 33,873 | 59 | .17 | 39,144 | .15 |
| Union | 1,755 | ... | ... | 2,872 | ... | 1,636 | ... | ... | 2,739 | ... |
| Warren | 26,955 | 16 | .06 | 27,778 | .06 | 26,081 | 31 | .12 | 28,365 | .11 |
| State | 207,959 | 234 | .11 | 232,611 | .11 | 200,496 | 298 | .15 | 227,980 | .13 |

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

| County | July 1949 to June 1950 | | | | | July 1948 to June 1949 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | 572 | 2 | .35 | 1,102 | .18 | 567 | 9 | 1.59 | 1,279 | .70 |
| Bergen | 1,645 | 2 | .12 | 1,994 | .10 | 1,778 | 27 | 1.52 | 2,132 | 1.27 |
| Burlington | 24,701 | 46 | .19 | 27,222 | .17 | 24,116 | 38 | .16 | 26,065 | .15 |
| Camden | 1,772 | ... | ... | 1,943 | ... | 1,689 | 1 | .06 | 1,954 | .05 |
| Cape May | 503 | ... | ... | 507 | ... | 511 | ... | ... | 506 | ... |
| Cumberland | 6,917 | 15 | .22 | 7,859 | .19 | 6,985 | 5 | .07 | 7,688 | .07 |
| Essex | 1,005 | ... | ... | 1,154 | ... | 1,076 | ... | ... | 1,088 | ... |
| Gloucester | 5,942 | 6 | .10 | 6,579 | .09 | 5,758 | 5 | .09 | 6,144 | .08 |
| Hudson | 32 | ... | ... | 32 | ... | 32 | ... | ... | 39 | ... |
| Hunterdon | 29,416 | 29 | .10 | 31,267 | .09 | 28,942 | 28 | .10 | 31,431 | .09 |
| Mercer | 9,323 | 7 | .08 | 8,280 | .08 | 9,138 | 4 | .04 | 9,633 | .04 |
| Middlesex | 6,380 | 7 | .11 | 9,894 | .07 | 6,945 | 8 | .12 | 9,872 | .08 |
| Monmouth | 8,823 | 12 | .14 | 9,991 | .12 | 8,202 | 11 | .13 | 9,742 | .11 |
| Morris | 11,492 | 2 | .02 | 11,263 | .02 | 11,405 | 1 | .01 | 12,641 | .01 |
| Ocean | 1,193 | 2 | .17 | 1,274 | .16 | 1,194 | ... | ... | 1,185 | ... |
| Passaic | 1,565 | 1 | .06 | 1,098 | .09 | 1,744 | ... | ... | 1,503 | ... |
| Salem | 16,871 | 32 | .19 | 21,737 | .15 | 16,371 | 68 | .42 | 22,982 | .30 |
| Somerset | 13,002 | 5 | .04 | 14,242 | .04 | 12,619 | 12 | .10 | 13,610 | .09 |
| Sussex | 35,655 | 49 | .14 | 41,686 | .12 | 34,493 | 106 | .31 | 45,367 | .23 |
| Union | 1,796 | 1 | .06 | 2,324 | .04 | 1,907 | ... | ... | 2,909 | ... |
| Warren | 26,500 | 24 | .09 | 28,739 | .08 | 25,345 | 55 | .22 | 29,167 | .19 |
| State | 205,105 | 242 | .12 | 230,187 | .11 | 200,817 | 378 | .19 | 236,937 | .16 |

## GOATS

### TUBERCULOSIS

| County | Under Supervision June 30, 1954 Herds | Reg. | Grade | Total | Fully Accredited June 30, 1954 Herds | Reg. | Grade | Total | Number Tested July 1953 to June 1954 Herds | Reg. | Grade | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlantic | 15 | 23 | 87 | 110 | 11 | 23 | 75 | 98 | 10 | .. | 95 | 95 |
| Bergen | 18 | 17 | 82 | 99 | 14 | 15 | 64 | 79 | 4 | 17 | 24 | 41 |
| Burlington | 12 | .. | 109 | 109 | 9 | .. | 101 | 101 | 14 | .. | 129 | 129 |
| Camden | 8 | .. | 32 | 32 | 3 | .. | 19 | 19 | 2 | .. | 10 | 10 |
| Cape May | 4 | 1 | 7 | 8 | 2 | 1 | 4 | 5 | 3 | .. | 7 | 7 |
| Cumberland | 4 | .. | 37 | 37 | 3 | .. | 34 | 34 | 1 | .. | 32 | 32 |
| Essex | 5 | .. | 59 | 59 | 5 | .. | 59 | 59 | 16 | .. | 99 | 99 |
| Gloucester | 31 | 9 | 90 | 99 | 16 | 3 | 57 | 60 | 11 | 6 | 30 | 36 |
| Hudson | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hunterdon | 36 | 190 | 100 | 290 | 23 | 187 | 61 | 248 | 39 | 362 | 94 | 456 |
| Mercer | 10 | 6 | 29 | 35 | 6 | 5 | 17 | 22 | 10 | 6 | 28 | 34 |
| Middlesex | 17 | 7 | 80 | 87 | 9 | 6 | 53 | 59 | 16 | 5 | 89 | 94 |
| Monmouth | 23 | 56 | 66 | 122 | 20 | 45 | 58 | 103 | 20 | 56 | 50 | 106 |
| Morris | 50 | 74 | 246 | 320 | 32 | 59 | 176 | 235 | 26 | 52 | 226 | 278 |
| Ocean | 6 | .. | 17 | 17 | 2 | .. | 6 | 6 | 4 | .. | 11 | 11 |
| Passaic | 15 | 48 | 69 | 117 | 12 | 50 | 60 | 110 | 17 | 80 | 79 | 159 |
| Salem | 14 | 5 | 25 | 30 | 7 | 3 | 14 | 17 | 9 | 2 | 14 | 16 |
| Somerset | 34 | 364 | 88 | 452 | 22 | 58 | 63 | 121 | 40 | 947 | 90 | 1,037 |
| Sussex | 8 | 14 | 47 | 61 | 2 | .. | 5 | 5 | 9 | 16 | 47 | 63 |
| Union | 4 | 10 | 8 | 18 | 3 | 10 | 6 | 16 | 2 | 6 | 5 | 11 |
| Warren | 12 | 18 | 106 | 124 | 8 | 18 | 71 | 89 | 11 | 18 | 104 | 122 |
| State | 326 | 842 | 1,384 | 2,226 | 209 | 483 | 1,003 | 1,486 | 264 | 1,573 | 1,263 | 2,836 |

### BRUCELLOSIS

| County | Under Supervision June 30, 1954 Herds | Reg. | Grade | Total | Fully Accredited June 30, 1954 Herds | Reg. | Grade | Total | Number Tested July 1953 to June 1954 Herds | Reg. | Grade | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlantic | 20 | 26 | 93 | 119 | 13 | 26 | 77 | 103 | 10 | .. | 95 | 95 |
| Bergen | 22 | 14 | 79 | 93 | 13 | 14 | 56 | 70 | 2 | .. | 12 | 12 |
| Burlington | 20 | 4 | 103 | 107 | 8 | .. | 69 | 69 | 8 | .. | 69 | 69 |
| Camden | 5 | .. | 15 | 15 | 2 | .. | 11 | 11 | .. | .. | .. | .. |
| Cape May | 3 | .. | 7 | 7 | .. | .. | .. | .. | 3 | .. | 7 | 7 |
| Cumberland | 4 | .. | 34 | 34 | 3 | .. | 32 | 32 | 1 | .. | 30 | 30 |
| Essex | 6 | 35 | 25 | 60 | 6 | 35 | 25 | 60 | 3 | 34 | 71 | 105 |
| Gloucester | 30 | 6 | 92 | 98 | 7 | .. | 20 | 20 | 22 | 6 | 79 | 85 |
| Hudson | 1 | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. |
| Hunterdon | 42 | 14 | 267 | 281 | 18 | 6 | 227 | 233 | 29 | 11 | 418 | 429 |
| Mercer | 10 | 8 | 26 | 34 | 8 | 7 | 19 | 26 | 6 | 1 | 24 | 25 |
| Middlesex | 10 | 14 | 47 | 61 | 6 | 9 | 38 | 47 | 6 | 27 | 23 | 50 |
| Monmouth | 22 | 30 | 68 | 98 | 16 | 23 | 56 | 79 | 21 | 41 | 52 | 93 |
| Morris | 40 | 87 | 159 | 246 | 32 | 83 | 122 | 205 | 23 | 40 | 123 | 163 |
| Ocean | 10 | 4 | 24 | 28 | 1 | .. | 3 | 3 | 5 | .. | 12 | 12 |
| Passaic | 11 | 40 | 55 | 95 | 10 | 40 | 53 | 93 | 8 | 72 | 42 | 114 |
| Salem | 12 | 2 | 20 | 22 | 3 | .. | 4 | 4 | 9 | .. | 19 | 19 |
| Somerset | 41 | 83 | 427 | 510 | 22 | 71 | 360 | 431 | 36 | 58 | 674 | 732 |
| Sussex | 6 | 5 | 71 | 76 | 4 | 2 | 35 | 37 | 4 | 4 | 38 | 42 |
| Union | 6 | 15 | 12 | 27 | 4 | 9 | 7 | 16 | 2 | 6 | 5 | 11 |
| Warren | 14 | 65 | 46 | 111 | 8 | 64 | 9 | 73 | 6 | .. | 44 | 44 |
| State | 335 | 452 | 1,671 | 2,123 | 184 | 389 | 1,223 | 1,612 | 204 | 300 | 1,837 | 2,137 |

## ACTIVITIES OF STATE EMPLOYED VETERINARIANS

December 1, 1953 to June 30, 1954

| | Armstrong | Bonese | Brower | Clapham | Jewell | Newlin | Novich | Roney | Sauer | Savage | vanMunster | Wilson | Wells | Total State |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Tuberculosis** | | | | | | | | | | | | | | |
| 1. Herds tested | 66 | 222 | 380 | 285 | 242 | 149 | 177 | 50 | ... | ... | ... | 125 | ... | 1,696 |
| 2. Cattle and goats tested | 1,166 | 5,821 | 4,523 | 4,363 | 4,198 | 4,887 | 2,059 | 2,015 | ... | ... | ... | 5,387 | ... | 34,419 |
| 3. Reactors disclosed | 10 | 2 | 1 | 5 | 5 | 16 | 4 | 28 | ... | ... | ... | 59 | ... | 130 |
| 4. Reactors appraised | 15 | 5 | ... | 4 | 4 | 15 | 8 | 16 | ... | ... | ... | 52 | ... | 119 |
| (a) N.S. react. moved | 9 | 1 | 1 | 1 | 2 | 9 | 2 | 12 | ... | ... | ... | 5 | ... | 42 |
| **Brucellosis** | | | | | | | | | | | | | | |
| 5. Herds bled | 1 | 64 | 1 | ... | 7 | 4 | 23 | 3 | 16 | 61 | 115 | 1 | ... | 296 |
| 6. Cattle and goats bled | 1 | 125 | 7 | ... | 26 | 12 | 265 | 20 | 525 | 2,022 | 2,290 | 2 | ... | 5,295 |
| 7. Herds ABR tested | ... | ... | ... | ... | ... | ... | ... | ... | 12 | 55 | 31 | ... | ... | 98 |
| 8. Reactors branded and appraised | ... | 2 | ... | ... | ... | ... | ... | ... | 50 | 32 | 302 | ... | ... | 386 |
| 9. Farm visits to discuss programs | 18 | 5 | ... | ... | 47 | 1 | ... | 13 | 23 | 198 | 145 | 4 | ... | 454 |
| **Miscellaneous** | | | | | | | | | | | | | | |
| 10. Barn inspections—TB | 26 | 9 | 2 | 5 | 5 | 22 | 12 | 30 | ... | ... | ... | 23 | ... | 134 |
| Brucellosis | ... | ... | ... | ... | ... | ... | ... | 1 | 6 | 17 | 107 | ... | ... | 131 |
| 11. Lots inships rebled | 23 | 4 | 15 | 5 | 17 | 3 | 1 | 115 | ... | 52 | 5 | 84 | 30 | 354 |
| 12. Cattle inships rebled | 183 | 5 | 123 | 9 | 73 | ... | 92 | 971 | ... | 345 | 11 | 496 | 361 | 2,669 |
| 13. Condemned imp. cattle disposed of—Lots | 2 | 1 | 2 | ... | ... | ... | 1 | 6 | ... | 1 | ... | 4 | 1 | 18 |
| Cattle | 4 | 1 | 6 | ... | 2 | ... | 7 | 17 | ... | 2 | ... | 5 | 3 | 47 |
| 14. Steers released—Lots | 2 | ... | 6 | 4 | ... | 2 | ... | 15 | ... | ... | ... | 3 | ... | 32 |
| Cattle | 106 | ... | 137 | 10 | ... | 54 | ... | 235 | ... | ... | ... | 57 | ... | 599 |
| **Special Investigation Visits** | | | | | | | | | | | | | | |
| 15. To auction markets | 49 | 41 | 58 | ... | ... | 2 | 19 | 30 | ... | ... | 3 | 62 | ... | 264 |
| To farms | 11 | 38 | 3 | 24 | 3 | 43 | 109 | 73 | 9 | 47 | 126 | 52 | ... | 538 |
| To veterinarians | 14 | 37 | 8 | 13 | 11 | 21 | 38 | 79 | ... | 35 | 6 | 87 | ... | 349 |
| To county agents | 2 | ... | ... | ... | ... | ... | ... | 9 | 3 | 3 | 2 | ... | ... | 19 |
| To local farm meetings | 3 | ... | ... | ... | ... | 1 | ... | 9 | ... | 1 | 2 | 1 | ... | 17 |
| Others | 14 | 4 | 5 | ... | 3 | 1 | ... | 16 | 5 | 12 | 14 | 24 | 1 | 99 |
| 16. Anthrax vaccination—Herds | 35 | 1 | ... | ... | ... | ... | ... | 3 | ... | ... | ... | ... | ... | 39 |
| Animals | 891 | 3 | ... | ... | ... | ... | ... | 178 | ... | ... | ... | ... | ... | 1,072 |
| 17. Vacation | ... | ... | ... | ... | ... | ... | ... | 10 | ... | ... | ... | ... | ... | 10 |

## ACTIVITIES OF FEDERAL EMPLOYED VETERINARIANS

December 1, 1953 to June 30, 1954

| | Bamber | Carbrey | Gruenewald | McKinney | Olivier | Total Federal | Total State | Total State and Federal |
|---|---|---|---|---|---|---|---|---|
| Tuberculosis | | | | | | | | |
| 1. Herds tested | 261 | .... | 173 | .... | 99 | 533 | 1,696 | 2,229 |
| 2. Cattle and goats tested | 3,982 | .... | 4,639 | .... | 2,952 | 11,573 | 34,419 | 45,992 |
| 3. Reactors disclosed | 7 | .... | .... | .... | .... | 7 | 130 | 137 |
| 4. Reactors appraised | 13 | .... | .... | .... | .... | 13 | 119 | 132 |
| (a) N.S. react. moved | 1 | .... | .... | .... | .... | 1 | 42 | 43 |
| Brucellosis | | | | | | | | |
| 5. Herds bled | 2 | 572 | 1 | 147 | 76 | 798 | 296 | 1,094 |
| 6. Cattle and goats bled | 14 | 10,502 | 1 | 6,982 | 1,464 | 18,963 | 5,295 | 24,258 |
| 7. Herds ABR tested | .... | .... | .... | 498 | .... | 498 | 98 | 596 |
| 8. Reactors branded and appraised | 2 | 42 | .... | 73 | 49 | 166 | 386 | 552 |
| 9. Farm visits to discuss programs | 25 | 165 | 21 | 160 | 208 | 579 | 454 | 1,033 |
| Miscellaneous | | | | | | | | |
| 10. Barn inspections—TB | 5 | .... | 2 | .... | .... | 7 | 134 | 141 |
| Brucellosis | 1 | 12 | 1 | 40 | 36 | 90 | 131 | 221 |
| 11. Lots inships rebled | 65 | 14 | 3 | 1 | 3 | 86 | 354 | 440 |
| 12. Cattle inships rebled | 766 | 120 | 11 | 9 | 8 | 914 | 2,669 | 3,583 |
| 13. Condemned imp. cattle disposed of—Lots | 2 | 2 | .... | 2 | .... | 6 | 18 | 24 |
| Cattle | 2 | 2 | .... | 2 | .... | 6 | 47 | 53 |
| 14. Steers released—Lots | .... | .... | .... | .... | .... | .... | 32 | 32 |
| Cattle | .... | .... | .... | .... | .... | .... | 599 | 599 |
| Special Investigation Visits | | | | | | | | |
| 15. To auction markets | 30 | .... | .... | 2 | .... | 32 | 264 | 296 |
| To farms | 27 | 75 | 76 | 37 | 9 | 224 | 538 | 762 |
| To veterinarians | 25 | 13 | 16 | 54 | 8 | 116 | 349 | 465 |
| To county agents | 1 | 4 | .... | 8 | .... | 13 | 19 | 32 |
| To local farm meetings | .... | .... | .... | 1 | .... | 1 | 17 | 18 |
| Others | 3 | 8 | 7 | 4 | 1 | 23 | 99 | 122 |
| 16. Anthrax vaccination—Herds | .... | .... | .... | .... | .... | .... | 39 | 39 |
| Cattle | .... | .... | .... | .... | .... | .... | 1,072 | 1,072 |
| 17. Vacation | .... | .... | 8 | .... | .... | 8 | 10 | 18 |

## BUREAU OF SWINE DISEASE CONTROL

### VESICULAR EXANTHEMA

Vesicular exanthema is still present in New Jersey and State and U. S. Department of Agriculture agents are continuing semi-monthly inspections of all garbage feeding farms.

An educational program to encourage garbage feeders to cook all garbage prior to feeding is making progress. One large feeder in the Secaucus area has been cooking adequately for some months and this farm has been released from Federal quarantine. The owner states that the quality of pork produced is better than that obtained from uncooked garbage but not as good as grain fed carcasses. He also states that he would not return to a program of not cooking garbage. Some of the feeders in the Westville Grove area are considering cooking garbage and several have invested in equipment. No satisfactory legislation has been passed and the prospects at this time are not good.

California is progressing with their cooking and many farms have been released from quarantine. Raw garbage feeders have been given the ultimatum of either cooking garbage or discontinuing feeding garbage. Garbage cooking laws or regulations have been passed in 43 States. Reports from Los Angeles County, California, indicate that swine consume cooked garbage better than they do raw garbage and come to market weight on less feed.

The fact still remains as it was two years ago; namely, that cooking must be employed if New Jersey is to be freed of this disease and released from Federal quarantine.

During the first few days of July 1953 differential tests were completed on three affected shipments received at Charles W. Miller's, North Bergen, in late June. The shipments comprised of two carloads (282 head) from South St. Paul, Minnesota, and one truck load (142 head) from St. Marys, Ohio. The tests eliminated possible foot-and-mouth infection and a diagnosis of vesicular exanthema was made. All swine in the shipments were ordered specially processed.

No new infected farms or reports of infected inshipments were reported until August 3, when infection was discovered in nine loads (1,224 head) of slaughter swine at Charles W. Miller's, in Secaucus. These shipments originated in Illinois, Ohio and New York. At the time the infection was found, 353 hogs from seven of the loads had been slaughtered. Upon receipt of the report that infection had been found a quarantine was placed on all hogs in the shipments, excluding the carcasses of the 353 previously slaughtered. Differential tests for vesicular exanthema were started on

the morning of August 4 with two bovines and two shoats. These were inocculated with composite infective material from all shipments.

ORIGIN, DATE OF ARRIVAL AND FINAL DISPOSITION OF SHIPMENTS

| Dep. | Ar. | Point of Origin | Via | Total Swine | Dead | Kill | Held in Quarantine | Number of Quarantined Swine Killed Aug. 4 | Aug. 5 |
|---|---|---|---|---|---|---|---|---|---|
| 7/28 | 7/29 | St. Marys, Ohio | Truck | 135 | ... | 71 | 64 | 37 | ... |
| 7/29 | 7/30 | St. Marys, Ohio | Truck | 148 | 1 | 1 | 146 | 67 | ... |
| 7/29 | 7/30 | St. Marys, Ohio | Truck | 138 | 1 | 2 | 135 | 68 | ... |
| 7/28 | 7/29 | Willshire, Ohio | Truck | 141 | 3 | ... | 138 | 57 | ... |
| 7/29 | 7/30 | London, Ohio | Truck | 121 | ... | ... | 121 | 75 | ... |
| 7/28 | 7/29 | Cleveland, Ohio | Truck | 142 | ... | 72 | 70 | ... | 23 |
| 7/29 | 7/30 | E. Buffalo, N. Y. | Rail | 69 | ... | ... | 69 | 18 | ... |
| 7/28 | 7/30 | Nat. S. Y., Ill. | Truck | 167 | 7 | 88 | 72 | 48 | ... |
| 7/28 | 7/31 | Peoria, Ill. | Rail | 163 | 2 | 119 | 42 | 23 | 21 |
| | Totals | | | 1,224 | 14 | 353 | 857 | 393 | 44 |

It will be noted that of the lot (1,224 head), 14 were dead on arrival, 353 were slaughtered the day of arrival before infection was detected and the remaining 857 animals were held under State quarantine. Many of these 857 animals were not affected and permission was given to slaughter the non-affected swine of this quarantined lot for special processing. Of the 857 there were 393 slaughtered August 4 and 44 on August 5, leaving 420 in quarantine. On August 6, when it was almost definitely established that the affection was vesicular exanthema, the State quarantine was removed and permission given to slaughter for special processing any of the 420 previously quarantined swine not presenting evidence of infection. The affected swine were held until they recovered sufficiently for slaughter and special processing.

Then again on August 29, King Pig Company, South St. Paul, Minnesota, shipped two carloads (172 head) of swine to Charles W. Miller's in North Bergen. The swine were fed and watered in Calumet City, Illinois, August 30, and in Pittsburgh, Pennsylvania, September 1. Four swine were found dead upon arrival at Pittsburgh leaving 168 which arrived at the Miller Plant at 6:30 A. M. September 2. They were immediately unloaded and all swine were in pens within two hours. Ante-mortem inspections by the Meat Inspection Service disclosed evidences of healed and healing lesions. These findings were confirmed by Dr. H. C. King on the afternoon of September 2. Animals were quarantined and a differential test was started September 4. Tests were completed on September 14 and proved negative. Forty-seven swine died during the period of quarantine and the remaining were released for straight kill.

Since September 2 no reports have been received of swine affected upon arrival at slaughtering establishments or while being held for slaughter.

This freedom from infection, especially at the Miller Plant, is felt due principally to the changed policy of a shortened holding time and prompt slaughter of the swine after arrival at the plant and to less disease in and around points of origin of the swine.

## ESTABLISHMENT OF BUREAU

The Bureau of Swine Disease Control was set up under a State Board of Agriculture order dated June 23, 1953, effective as of July 1, 1953, and provided for a chief of the Bureau, two veterinarians, four lay inspectors and two office personnel. An appropriation of $50,000 was provided for personnel, salaries and operational expenses. Dr. J. W. Crouse was appointed chief of the Bureau. One veterinarian, Dr. G. J. Mitchell, was employed June 1, 1953 and resigned as of March 1, 1954. Toward the end of the year two veterinarians, Drs. G. Donner and H. Recht, were employed. These veterinarians plus four lay inspectors, H. Baird, J. Butterhof, M. Evans and H. Pool, constituted the State Bureau of Swine Disease Control personnel.

The State personnel was matched by the Federal Government in addition to three and four enforcement men part of the year. The Federal personnel at first was comprised of one veterinarian, Dr. H. King. He was transferred to Iowa as of January 10, 1954, and was succeeded by Dr. E. A. Schilf who joined the local Federal force December 7, 1953. Later in the year Dr. G. Smith was added to the force. Four to six Federal lay inspectors, F. W. Germaine, C. Kell, R. Kaufman, E. J. Deering, T. H. Hudgins and W. C. Gauntt, performed inspectional work for varying periods throughout the year.

The duties of the veterinarians in the Bureau of Swine Disease Control include making swine herd inspections, confirming lay inspector findings, conducting differential tests, checking swine movements on highways and interstate channels and advising on heating apparatus set-ups. The duties of the lay inspectors are to make semi-monthly inspections of all raw garbage feeding farms, discuss garbage heating and act in an advisory capacity. It was only toward the end of the year that the full personnel quota was nearly reached and it was felt that the semi-monthly inspection schedule could be carried out.

### *Inspections*

During the year there were 5,748 garbage feeding herds inspected and these herds were comprised of 249,737 swine. As a result of these inspections there were many reports of healed and healing lesions but no infective material could be taken for test. Therefore, reports of old lesions in a herd merely means that it had at some previous time been affected.

These inspections throughout the year, in addition to the old lesion reports, disclosed active infection, presence of unruptured vesicles in 28 herds and warranted putting on the test in 24 of these herds. The other four herds were either in close proximity to herds where the tests were being or had been conducted or were closely related through interchange of animals with these herds which brought about the decision that the infection was the same and tests were not indicated.

TESTS CONDUCTED

| Owner | Address | No. Swine | Dates of Test | Results |
|---|---|---|---|---|
| Eugene Delmonico | Morris Plains | 250 | 1/28-2/7/54 | Vesicular Exanthema |
| Riddle Farms | Westville | 1,500 | 1/26-2/7/54 | Vesicular Exanthema |
| Wittenberg Brothers | Annandale | 1,800 | 2/3-14/54 | Vesicular Exanthema |
| John Schoch | Secaucus | 950 | 2/6-16/54 | Vesicular Exanthema |
| Chris Raditas | Sewell | 1,200 | 2/10-20/54 | Vesicular Exanthema |
| Stanley Soboleski | Marlton | 900 | 2/10-20/54 | Vesicular Exanthema |
| Dziedzic Brothers | Marlton | 300 | 2/10-20/54 | Vesicular Exanthema |
| Walter Land | Sewell | 1,200 | 2/13-23/54 | Vesicular Exanthema |
| Tony Penk | Sewell | 500 | 2/18-28/54 | Vesicular Exanthema |
| James & Charles Price | Sewell | 500 | 2/20-3/2/54 | Vesicular Exanthema |
| Jack Nilsen (Romeus Kolwalus) | Sewell | 700 | 2/7-17/54 | Vesicular Exanthema |
| James Scanlon | Sewell | 900 | 2/27-3/9/54 | Vesicular Exanthema |
| Haines Brothers | Sewell | 1,800 | 3/26-4/5/54 | Vesicular Exanthema |
| Robert Laurie | Vincentown | 200 | 4/24-5/4/54 | Vesicular Exanthema |
| Charles Miller and Company | North Bergen | 938 | 8/4-14/53 | Vesicular Exanthema |
| Charles Miller and Company | North Bergen | 168 | 9/4-14/53 | Negative |
| Knob Hill Farm | Farmingdale | 1,800 | 9/18-29/53 | Vesicular Exanthema |
| John Semsek | Secaucus | 2,100 | 10/26-11/5/53 | Vesicular Exanthema |
| Supel Stock Farm | Secaucus | 1,000 | 11/5-16/53 | Vesicular Exanthema |
| Ray's Feed Farm | Vincentown | 2,100 | 12/10-20/53 | Vesicular Exanthema |
| George Singley | Marlton | 600 | 12/16-28/53 | Vesicular Exanthema |
| Croton Farms, Inc. | Pittstown | 1,600 | 12/18-28/53 | Vesicular Exanthema |
| Daniel Kinsley | Sewell | 3,000 | 1/6-16/54 | Vesicular Exanthema |
| Marvyn Gallbraith | Westville | 1,600 | 1/28-2/7/54 | Vesicular Exanthema |

Infected but not tested—close proximity.

| | | |
|---|---|---|
| E. R. Bird | Sewell | 500 |
| B. F. Koenemund | Secaucus | 450 |
| Sabolski Brothers | Marlton | 600 |
| William Ulleg | Sewell | 900 |

Seventeen farms were found infected in February 1954 and tests were conducted on 13 of these. The remaining four were closely associated with farms where tests were being or had been conducted. One infected farm was found in March 1954, one in April 1954, one recurrent infection was found in May and none in June.

*State Program*

On August 18 a conference was held in the Board Room with Secretary Allen, Drs. F. J. Mulhern, H. C. King, G. J. Mitchell and J. W. Crouse attending. At the meeting a State program was drawn up, agreed upon and forwarded to Washington, D. C., for approval by Dr. B. T. Simms.

Program No. I

1. Certify by State or Federal personnel all interstate shipments of grain-fed swine, swine from non-garbage feeding premises and cooked garbage-fed swine.
2. Movements from quarantined areas
   a. Swine from infected garbage feeding premises can only be shipped intrastate to an establishment having Federal inspection for special processing or to another infected premise.
   b. Swine from non-infected garbage-feeding premises in a quarantined area can be shipped intrastate to an establishment not having Federal inspection for straight kill or to another garbage-feeding premise.
3. Movements from areas not under quarantine will be restricted according to Bureau of Animal Industry Order 383 Revised, with the exception that swine fed grain on non-garbage-feeding premises must be accompanied with a permit.
4. The Federal Government will be provided with a list of the grain-feeding, non-garbage-feeding and cooked-garbage-feeding premises and the inspectors approved to issue permits.
5. There will be semi-monthly inspection of all garbage-feeding premises by State or Federal approved personnel.
6. Swine on non-infected premises in a quarantined area may be released from quarantine after cooking garbage for 30 days and approved by the State or Federal authorities.
7. It is recommended that it be provided that owners of previously infected premises where all swine on the premises have been recovered for eight months or more, be released from quarantine if all garbage fed to swine has been cooked for a period of 30 days under State or Federal supervision.
8. Grain-fed, non-garbage-fed and cooked-garbage-fed swine in a quarantined area can be released when it is determine that no raw garbage is being fed on the premises.
9. State quarantine will be placed on all new infection until all swine on the premises at the time the infection was found are processed. The raiser would be permitted to depopulate as the swine reach marketable size. The pens that were used by the swine that were sent to market must be cleaned and disinfected and these pens may only be used by additions to the herd. The depopulation and the cleaning and disinfecting would be under State and Federal supervision.
10. All conveyances hauling swine intrastate will be moved in cleaned and disinfected conveyances.
11. All swine that are introduced on a farm by being imported into the State of New Jersey must be held in an isolated section of the farm that has not been exposed to the disease or has been cleaned and disinfected since it was exposed. Such swine shall be held in the isolated section until at least 10 days from the time they were introduced.
12. Swine referred to in Point 11 shall receive veterinary inspection at the time of introduction on the premise and at the expiration of the 10-day quarantine period and a report of inspection shall be made to the State office.

It was assumed that Dr. Simms would approve the program and on August 21 a letter was sent to Washington recommending the release from Federal quarantine of all of Cape May County, excepting two small areas in which three infected herds were located (Ben Germanio, Lester Germanio and Edwin T. Bradway). This recommendation was approved and Cape May County, excepting the two small areas, was released as of August 26.

On October 21 another conference was held in the Board Room attended by Secretary Allen, Drs. F. J. Mulhern, J. R. Porteus, H. C. King and J. W. Crouse for the purpose of drafting a cooperative State-Federal program for the control of vesicular exanthema. A program was agreed upon and signed by Secretary Allen for the State and Dr. Mulhern for the Federal Government. This was the first so-called cooperative program to be in effect in New Jersey.

## Program No. II

1. All garbage-feeding premises within the State will be inspected semi-monthly by State or Federal personnel. All movements intrastate from premises that feed raw garbage will be under State permit in compliance with State regulations. Raw-garbage-fed swine, not previously infected, can only be moved directly to a non-Federal plant for immediate slaughter.
2. All conveyances used to haul swine from raw-garbage-feeding premises will be cleaned and disinfected after each such use.
3. All swine that are introduced on a farm by being imported into the State of New Jersey must be held in an isolated section of the farm that has been thoroughly cleaned and disinfected since it was last used or exposed. Such swine shall be held in the isolated section until at least 10 days from the time they were introduced.
4. Swine referred to in the previous paragraph shall receive veterinary inspection at the time of introduction on the premises and at the expiration of the 10-day quarantine period and a report of inspection shall be made to the State office.
5. Cooked garbage is garbage that has been heated throughout to boiling or equivalent temperature for 30 minutes, or heated according to a method specifically approved by the chief of bureau, U. S. Department of Agriculture.

On the basis that the above points are carried out, it is requested that the Federal Government release from quarantine those premises where vesicular exanthema has not been known to exist, and provided

A. These premises are located within an area that can be described by township, county, State or United States roads or political subdivisions.

B. None of the swine on the premises have been fed raw garbage for at least the past 30 days, or those that do not feed garbage except from their own households as determined by frequent periodic inspections that have been carried out by State or Federal personnel.

It is requested that the Federal Government release their quarantine from premises where infection previously existed, but not during the past eight months or more, provided that they are handled in the following manner:

(1) The premises are located within an area that can be described by township, county, State or United States roads or political subdivisions.

(2) All the swine that were on the premises at the time the last infection occurred have been removed intrastate for slaughter.

(3) If there are swine still on the (feeder) premises that were there at the time the last infection was found, they will be moved to plants not having Federal inspection before they would be eligible to be released from Federal quarantine.

(4) Require that any swine (sows) still remaining on (breeding) premises that were there at the time that the infection was last found will be kept separate and apart from the remaining herd until they are disposed of under special permit to a plant not having Federal inspection.

(5) The premises will be cleaned and disinfected since the infection was present.

(6) All of the swine on these premises have not been fed uncooked garbage for at least 30 days.

New Infection

Owners will have a choice

A. To slaughter and specially process all infected swine at the time that they are found infected and the premises cleaned and disinfected and the quarantine lifted immediately, provided that they are cooking the garbage.

B. The entire herd will be held under strict State quarantine for at least 30 days from the time that the last infected swine on the premises showed any evidence of the disease. The State will cooperate in assisting the Federal Government to prevent any movement of swine or swine products from these premises from entering interstate trade for at least eight months following the time of the last evidence of the infection on these premises, or at which time the Federal quarantine would be lifted if no new infection were discovered during eight-month period and all swine on the premises at the time of the last infection had been slaughtered and provided they are feeding cooked garbage.

Based partly upon the soundness of the above and latest New Jersey control program and principally for the relief of the swine grain feeders, a recommendation went to Washington, D. C., on November 24 for the release from Federal quarantine of Bass River, Washington, Delran, Shamong and Tabernacle townships in Burlington County. On January 18, a request was sent for the release of the J. S. Turp Farm, Hightstown, and the New Jersey Agricultural Experiment Station Farm, New Brunswick. The Burlington County townships were released as of December 18, 1953, and the Turp and College farms as of February 24, 1954. The North Bergen Stock Farm, North Bergen, which had been experimentally cooking garbage since the fall of 1953 qualified, was approved as properly cooking garbage and was recommended by Secretary Allen for release from Federal quarantine under date of April 21, 1954. The recommendation was approved and the farm was released as of May 19, 1954.

At the close of the fiscal year there were 18 counties in the State entirely or partly under Federal quarantine.

NON-QUARANTINED COUNTIES

| | | |
|---|---|---|
| Sussex | Essex | Mercer |
| Somerset | Passaic | Salem |
| Warren | | Cumberland |

PARTLY QUARANTIED COUNTIES

All of Hudson, excepting North Bergen Stock Farm, North Bergen

All of Middlesex, excepting the New Jersey Agricultural Farm, New Brunswick

All of Burlington County, excepting Delran, Shamong, Tabernacle, Washington and Bass River Townships, and the J. S. Turp, Hightstown, farm

Cape May County—released from quarantine, excepting two small areas in which three farms are located, operated by Ben and Lester Germanio, Belle Plains area, and Edwin T. Bradway, Lower Township area

QUARANTINED COUNTIES

| | | |
|---|---|---|
| Bergen | Hunterdon | Gloucester |
| Union | Monmouth | Camden |
| Morris | Ocean | Atlantic |

The designation "quarantined areas" means that these areas are under Federal not State quarantine and that the Federal quarantine brings about certain restrictions in the movement of swine in the areas, to and from the areas, and definitely for interstate movements. However, despite the restrictions in effect throughout the year permits were issued for the movement of 147,667 swine, more than half of the total State swine population (289,175). This swine movement total was taken from permits issued and received by the Division and covers movements to slaughter, special processing and for feeding and breeding purposes.

## *Conferences*

Many conferences were held throughout the year attended by representatives of the swine industry, other livestock interests, representatives from adjoining States and disease control personnel from the Department and local Federal office. At these conferences all phases of vesicular exanthema control, garbage cooking and quarantine enforcement and restrictions were discussed but little, if any, cooperative constructive control progress resulted.

On March 19 a conference was called by Secretary Allen, Senator H. W. Hannold, Gloucester County Agent George E. Lamb, Dr. J. W. Crouse and industry members from the Westville area to discuss a licensing bill and sanitary program drawn up by the industry in the Westville area. The bill was tentatively approved by a majority of those present.

On March 22 a delegation from the Secaucus area presented their sanitary program based upon correcting conditions in the area through cooperative action on the part of the State Department of Health, the Municipal Board of Health and a sanitary engineer employed by the industry.

On December 31 delegations from the Secaucus and Westville areas met in the Board Room with Secretary Allen and Drs. J. R. Porteus and Crouse present. The merits of the Westville Licensing Bill were discussed. This bill is based on old Bill No. 205 Committee Substitutions and with some minor changes was tentatively agreed upon by the delegates from the two concentrated garbage feeding areas. The bill provides for the licensing of garbage feeders and the correction of unsanitary conditions on premises and when the effectiveness of garbage heating is proven, in the control of swine diseases, to make heating of garbage one of the requirements for licensing, the last to be brought about through regulations promulgated by the State Board of Agriculture.

A conference was held on April 26 with Secretary Allen, Miss Grace M. Ziegler, William Brainard and Dr. Crouse attending. The purpose of this meeting was to discuss the Inter-Breed Association Bill drawn up by the Cooperative Inter-Breed Cattle Association of New Jersey and presented by Brainard, president of the Association. The bill provides for the licensing of garbage feeders and the cooking of garbage six months after enactment of the law, as compared with the Charles Schoch Bill, also discussed, which provides for licensing and further control of vesicular exanthema by State Board regulations. Both bills bring the correction of environmental unsanitary conditions in with the licensing provisions. The Inter-Breed Bill, with slight modifications, was approved at this meeting and was delivered to Assemblyman William Haines at the State House by Secretary Allen and Brainard.

On May 24 there was a public hearing in the Assembly Chamber on Inter-Breed Licensing and Cooking Bill and dairy, breed, inter-breed associations and the garbage feeding industry were represented. The hearing was held before the Assembly Agricultural Committee of which Assemblyman Haines is chairman and the usual arguments were presented. Generally the garbage feeders were against the bill while other phases of the livestock industry were in favor of enactment.

Charles Schoch of Secaucus, president of the Secaucus Garbage Feeders Association, met in the Board Room with Secretary Allen, Miss Ziegler and Dr. Crouse. On May 25 Schoch had a copy of the modified Westville Bill, now known as the Charles Schoch Bill, and requested a change in the wording of Section 9. He assured the group that if this section was changed the bill would meet with the industry's approval and would be enacted into law. The change was made. At the close of the fiscal year, however, the

Inter-Breed Bill is seemingly stymied in committee and the Charles Schoch Bill cannot be found.

On April 28 the State Board of Agriculture approved a recommendation that grain-fed swine from non-quarantined areas could move to auction markets and other eligible areas on an owner's statement that the swine were grain-fed and originated on the farm of the person signing the statement. Also, that grain-fed swine, other than for immediate slaughter such as weanlings, feeders and breeding stock, could move to auction markets on owner's statement. Prior to April 28 all grain-fed swine consigned to auction markets was limited to finished swine for slaughter only.

Secretary Allen was invited to Washington, D. C., in May to discuss the vesicular exanthema control situation in New Jersey. At this meeting a proposed program for the control and eradication of vesicular exanthema in New Jersey and other problem states was presented. This program differed little, if any, from the program in effect in New Jersey, other than the degree of enforcement of features of the program.

## Program No. III

1. All feeders that feed garbage to swine in the State must be identified (listed by inspectors).
2. Those premises having swine infected with vesicular exanthema must be held under strict quarantine (periodic checks by inspectors).
3. No swine shall be moved on or off quarantined premises except for special processing until 30 days have elapsed after the lesions on the last animal that showed outward evidence of the disease had healed (checked by inspectors).
4. In order to release infected or reinfected premises from Federal quarantine:
   (a) All the swine that were on the premises at the time the infection was diagnosed must be slaughtered at a non-federally inspected plant, or at a plant that has Federal inspection for special processing (report by inspector in charge).
   (b) The premises must be cleaned and disinfected (under State supervision).
   (c) All the swine that are on the premises after those referred to in paragraph (a) have been removed must have been fed cooked garbage for at least 30 days (frequent checks by State inspector).
   (d) At least semi-monthly inspections shall be made during this period (by State or Federal inspectors).
5. Any violations of State regulations will be prosecuted.
6. All raw-garbage-fed swine may move under certificate only (a) directly to slaughtering establishments not having Federal inspection, (b) to federally inspected plants for special processing, or (c) to another raw-garbage feeder provided the movement consists only of feeder pigs (certificate issued by State inspector).
7. All raw-garbage-feeders shall notify the local State or Federal inspector when any swine have been purchased by them and shall report the origin of such swine (report kept by local State inspector).
8. The certificate for swine movement that is issued by the State or Federal inspector is good for only 48 hours from time of issuance.

9. The certificate that accompanies the swine shall be returned immediately to the State or Federal office by the meat inspection force, by the management if no inspection is maintained, or by a feeder (if feeder pigs are sold to another garbage feeder).
10. If the certificate specified in paragraph 9 is not received within 96 hours of issuance by the State or Federal office, a check will be made to determine the cause of delay (check made by regulatory official).
11. No raw-garbage-fed swine may move to a grain-fed farm, nor to a market that handles only grain-fed swine.
12. Conveyances used to haul raw-garbage-fed swine shall be cleaned and disinfected after each use. When shipment is made and permit given, a follow-up will be made on the truck to see that it is cleaned and disinfected.
13. Any refusal to permit inspection of a premises will automatically place such premises in an infected status.
14. A certificate shall be required to accompany (a) all raw-garbage-fed swine moving within New Jersey, and (b) all grain-fed swine moving within or from federally quarantined areas.
15. No raw-garbage-fed swine may move out of or into New Jersey.

After the program was received by Secretary Allen he called a meeting attended by Drs. Hendershott, Porteus and Crouse to discuss the program submitted by Washington.

On June 2 another meeting was attended by Secretary Allen, Drs. Hendershott, Porteus, E. A. Schilf and Crouse and garbage feeding representatives from the Westville and Secaucus areas (N. Super, J. Henkel, C. Schoch, L. Blatz, M. Rosansky, L. B. Haines, S. Meserindino, J. McIntyre and N. Lichtman). The Federal program was discussed with industry representatives. Secretary Allen emphasized that the program largely in effect in New Jersey, excepting for full enforcement, would, after State Board approval, be strictly enforced. Non-compliance with features of the program and a lack of enforcement also would mean a Federal quarantine of the entire State.

All personnel connected with vesicular exanthema control met on June 16 to discuss the New Jersey program. The program was read, interpreted and discussed. All personnel present were instructed as to their duties and responsibilities in carrying out and enforcing the provisions of the program.

On June 23 the State Board of Agriculture met and with a few constructive changes approved the New Jersey program for the eradication of vesicular exanthema.

On June 25 a copy of the "New Jersey Program for the Eradication of Vesicular Exanthema" with an accompanying letter was sent out to garbage feeders in the State, Federal and State field men, county agents and animal practitioners. The accompanying letter stated that the program would become effective July 1, 1954 and on and after that date would be strictly enforced.

*Miscellaneous*

At the end of the fiscal year the following personnel was assigned to swine disease control:

State—Two veterinarians and four lay inspectors;

Federal—Two veterinarians, three lay inspectors and two enforcement men or investigators.

The lay inspectors check the farms of all garbage feeders and near the end of the year approached a semi-monthly inspection schedule. The enforcement personnel checks interstate bridges, ferries, tunnels and highways for legitimate or swine movements in violation of regulations.

During the year some interstate violations were reported and evidence was recorded for future action. One intrastate movement, without permit, was apprehended and the owner fined 25 dollars and costs in municipal court. The violator, Nick Super of Westville, was apprehended in the Secaucus area and was escorted by a State trooper and Federal inspector to a local municipal court. There was evidence of other intrastate violations but there were not sufficient grounds for prosecuting. Also, one illegal shipment of 105 slaughter swine supposedly imported from Pennsylvania and consigned to the Wildwood Packing Company in Rio Grande was ordered slaughtered and returned to the state of origin for special processing. The health certificate accompanying these swine had been tampered with, swine were raw-garbage-fed as revealed by stomach contents and there was evidence of old lesions among the swine.

The trend among raw garbage feeders seems to be toward cooking and at the end of the year, about 10 or 12 of the larger feeders have boilers and are piping trucks preparatory to cooking.

## Herds and Swine Under Inspection

June 30, 1954

| County | NON-INFECTED | | | | INFECTED | | TOTALS | |
|---|---|---|---|---|---|---|---|---|
| | Number Grain Fed Herds | Number Swine in Grain Fed Herds | Number Garbage Fed Herds | Number Swine in Garbage Fed Herds | Inf. Herds Fed Garbage | Number Swine in Inf. Herds Feeding Garbage | Herds | Swine |
| Atlantic | 174 | 2,790 | 72 | 6,706 | ... | ... | 246 | 9,496 |
| Bergen | 12 | 460 | 15 | 481 | 1 | 4,500 | 28 | 5,441 |
| Burlington | 201 | 2,603 | 26 | 12,204 | 8 | 8,876 | 235 | 23,683 |
| Camden | 162 | 1,112 | 12 | 1,691 | 3 | 1,460 | 177 | 4,263 |
| Cape May | 95 | 1,733 | 56 | 6,906 | ... | ... | 151 | 8,639 |
| Cumberland | 308 | 2,613 | 13 | 1,090 | ... | ... | 321 | 3,703 |
| Essex | 2 | 288 | 2 | 631 | ... | ... | 4 | 919 |
| Gloucester | 548 | 3,511 | 36 | 14,042 | 57 | 85,786 | 641 | 103,339 |
| Hudson | ... | ... | 31 | 59,474 | 3 | 13,020 | 34 | 72,494 |
| Hunterdon | 347 | 5,261 | 7 | 4,805 | ... | ... | 354 | 10,066 |
| Mercer | 97 | 1,651 | 18 | 2,104 | ... | ... | 115 | 3,755 |
| Middlesex | 112 | 1,459 | 19 | 3,591 | ... | ... | 131 | 5,050 |
| Monmouth | 298 | 3,573 | 50 | 10,610 | ... | ... | 348 | 14,183 |
| Morris | 137 | 1,328 | 17 | 7,852 | ... | ... | 154 | 9,180 |
| Ocean | 56 | 988 | 10 | 603 | ... | ... | 66 | 1,591 |
| Passaic | 6 | 13 | 2 | 69 | ... | ... | 8 | 82 |
| Salem | 577 | 4,124 | 3 | 35 | ... | ... | 580 | 4,159 |
| Somerset | 135 | 2,495 | 11 | 1,250 | ... | ... | 146 | 3,745 |
| Sussex | 155 | 1,341 | 16 | 1,555 | ... | ... | 171 | 2,896 |
| Union | 11 | 350 | 6 | 388 | ... | ... | 17 | 738 |
| Warren | 175 | 1,745 | 1 | 8 | ... | ... | 176 | 1,753 |
| State | 3,608 | 39,438 | 423 | 136,095 | 72 | 113,642 | 4,103 | 289,175 |

VESICULAR EXANTHEMA INSPECTIONS MADE AND PERMITS ISSUED FOR INTRASTATE MOVEMENT OF SWINE

July 1, 1953 to June 30, 1954

| County | Infected Premises | Non-Infected Premises | Total Premises | Swine Moved |
|---|---|---|---|---|
| Atlantic | 23 | 466 | 489 | 4,925 |
| Bergen | 2 | 25 | 27 | 2,355 |
| Burlington | 126 | 475 | 601 | 7,736 |
| Camden | 20 | 149 | 169 | 1,272 |
| Cape May | 4 | 438 | 442 | 6,580 |
| Cumberland | 1 | 183 | 184 | 877 |
| Essex | ... | 1 | 1 | 373 |
| Gloucester | 382 | 449 | 831 | 36,863 |
| Hudson | 213 | 313 | 526 | 53,750 |
| Hunterdon | 24 | 326 | 350 | 5,657 |
| Mercer | 6 | 205 | 211 | 2,001 |
| Middlesex | 14 | 105 | 119 | 1,758 |
| Monmouth | 41 | 679 | 720 | 11,023 |
| Morris | 9 | 322 | 331 | 2,575 |
| Ocean | 5 | 183 | 188 | 1,989 |
| Passaic | ... | 10 | 10 | 181 |
| Salem | ... | 106 | 106 | 1,746 |
| Somerset | ... | 245 | 245 | 3,188 |
| Sussex | ... | 40 | 40 | 1,189 |
| Union | ... | 114 | 114 | 525 |
| Warren | ... | 44 | 44 | 1,104 |
| State | 870 | 4,878 | 5,748 | 147,667 |

SWINE IMPORTED FOR SLAUGHTER PURPOSES

July 1, 1953 to June 30, 1954

| | Swine |
|---|---|
| Armour and Company, Jersey City | 174,676 |
| C. W. Brown, Mount Royal | 60 |
| Delaware Packing Company, Trenton | 8,580 |
| John Englehorn & Son, Newark | 389,337 |
| Fisher Brothers, Bridgeton | 895 |
| Frank Gazzaro, Hammonton | 1,300 |
| Charles Haag, Incorporated, Hoboken | 114,490 |
| Jaeger's Market, Sussex | 2 |
| Jersey City Stock Yards, Jersey City | 4,701 |
| C. Miller & Company, North Bergen | 196,601 |
| Swift & Company, Jersey City | 121,496 |
| Trenton Packing Company, Trenton | 9,364 |
| Van Wagenen & Schickhaus, Harrison | 148,165 |
| Wildwood Packing Company, Wildwood | 18,557 |
| Total | 1,188,224 |

A total of 115,788 swine weighing approximately 28,433,552 pounds were moved during the fiscal year to Charles Haag, Inc., Abbatoir, Secaucus, for special processing.

## FEEDER AND BREEDING SWINE IMPORTED

July 1, 1953 to June 30, 1954

| County | Feeders | Breeders |
|---|---|---|
| Atlantic | ... | .. |
| Bergen | 950 | .. |
| Burlington | ... | 6 |
| Camden | ... | 5 |
| Cape May | 565 | 13 |
| Cumberland | ... | .. |
| Essex | ... | .. |
| Gloucester | 7,308 | 3 |
| Hudson | 23,153 | .. |
| Hunterdon | 2,160 | .. |
| Mercer | ... | .. |
| Middlesex | ... | .. |
| Monmouth | 1,819 | 3 |
| Morris | 1,104 | .. |
| Ocean | ... | .. |
| Passaic | ... | .. |
| Salem | 221 | 1 |
| Somerset | ... | 1 |
| Sussex | 2 | 1 |
| Union | ... | .. |
| Warren | ... | .. |
| State | 37,282 | 33 |

## ACTIVITIES OF STATE EMPLOYEES—BUREAU SWINE DISEASE CONTROL

January 1, 1954 to June 30, 1954

| Vesicular Exanthema | Armstrong | Baird | Bonese | Butterhof | Brower | Clapham | Evans | Jewell | Lambert | Mitchell | Pool | Roney | Wilson | Total State |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Herds inspected | ... | 376 | 25 | 400 | ... | 1 | 597 | 13 | 71 | 13 | 433 | 52 | 1 | 1,982 |
| 2. Approx. no. swine | ... | 76,000 | 2,663 | 134,204 | 40 | 25 | 64,998 | 2,210 | 54,832 | 5,000 | 139,813 | 4,205 | 100 | 484,090 |
| 3. Herds infected | ... | 11 | 1 | 53 | ... | ... | ... | ... | ... | 2 | 7 | ... | ... | 74 |
| Active lesions | ... | 4 | 1 | 2 | ... | ... | ... | ... | ... | 1 | 4 | ... | ... | 12 |
| Recent inf. | ... | ... | 1 | 2 | ... | ... | ... | ... | ... | ... | 1 | ... | ... | 4 |
| Old inf. | ... | 8 | 1 | 48 | ... | ... | ... | ... | ... | 1 | 2 | ... | ... | 60 |
| 4. Farms quarantined | ... | 9 | 5 | 2 | ... | ... | ... | ... | ... | 7 | 3 | ... | ... | 26 |
| 5. Differential tests | ... | ... | 1 | 2 | ... | ... | ... | ... | ... | ... | 3 | ... | ... | 6 |
| 6. Farms released from quarantine | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | 3 | ... | ... | 4 |
| 7. No. permits issued | 174 | 18 | 118 | 10 | 153 | ... | 31 | 12 | 4 | 3 | 21 | 72 | 73 | 689 |
| For feeders | 39 | 8 | 55 | 392 | 48 | ... | 5 | ... | ... | 1 | 170 | 20 | ... | 738 |
| For slaughter | 1,318 | ... | 98 | 315 | 105 | ... | 6 | 214 | 4 | 2 | 530 | 52 | 52 | 2,696 |
| 8. Vehicles stopped | ... | ... | ... | 29 | ... | ... | 16 | ... | 12 | ... | 15 | 13 | ... | 85 |
| With permit | ... | ... | ... | 29 | ... | ... | 7 | ... | 12 | ... | 11 | 13 | ... | 72 |
| Without permit | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | 1 |
| 9. Slaughtering est. checked | ... | ... | 3 | 6 | ... | ... | 7 | ... | 1 | ... | 3 | 5 | ... | 25 |
| 10. Time off—Vacation | 10 | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 11 |
| Sick leave | ... | 12 | ... | 3 | ... | ... | ... | ... | 2 | ... | 2 | 4 | ... | 23 |
| Inspection of swine at auction markets | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 15 | 24 | ... | 39 |
| Disinfection of trucks | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 87 | ... | 87 |
| Swine erysipelas | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | 1 |
| Other visits | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | 1 |

## ACTIVITIES OF FEDERAL EMPLOYEES—BUREAU SWINE DISEASE CONTROL

January 1, 1954 to June 30, 1954

| Vesicular Exanthema | Bamber | Carbrey | Deering | Gauntt | Hudgins | Kaufman | Kell | McKinney | Olivier | Smith | Total Federal | Total Federal and State |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Herds inspected | 1 | ... | 148 | 32 | 205 | 142 | 275 | 2 | 11 | 56 | 872 | 2,854 |
| 2. Approx. no. swine | 1,800 | ... | 122,956 | 30,000 | 256,929 | 124,226 | 103,464 | 3,200 | 18,100 | 49,419 | 710,094 | 1,194,184 |
| 3. Herds infected | 1 | ... | 39 | 32 | 52 | 62 | 35 | ... | ... | 1 | 222 | 296 |
| Active lesions | 1 | ... | 9 | ... | 2 | 6 | 8 | ... | ... | 1 | 27 | 39 |
| Recent inf. | 1 | ... | 9 | 4 | 1 | 19 | 11 | ... | ... | 5 | 50 | 54 |
| Old inf. | ... | ... | 21 | 18 | 49 | 38 | 38 | ... | 8 | 23 | 195 | 255 |
| 4. Farms quarantined | 1 | ... | 3 | 1 | 2 | 4 | 8 | ... | ... | 1 | 20 | 46 |
| 5. Differential tests | 2 | 3 | 4 | ... | 1 | 4 | 3 | 3 | 3 | ... | 23 | 29 |
| 6. Farms released from quarantine | ... | ... | 2 | ... | 1 | 3 | 4 | ... | 2 | ... | 12 | 16 |
| 7. No. permits issued | ... | ... | ... | ... | 2 | ... | 36 | 27 | ... | ... | 65 | 754 |
| For feeders | ... | ... | ... | ... | ... | ... | 294 | 200 | ... | ... | 494 | 1,232 |
| For slaughter | ... | ... | ... | ... | 3 | ... | 191 | 142 | ... | ... | 336 | 3,032 |
| 8. Vehicles stopped | ... | ... | ... | ... | 12 | ... | 10 | ... | ... | ... | 22 | 107 |
| With permit | ... | ... | ... | ... | 11 | ... | ... | ... | ... | ... | 11 | 83 |
| Without permit | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 | 2 |
| 9. Slaughtering est. checked | ... | ... | ... | ... | 2 | ... | 2 | ... | ... | ... | 4 | 29 |
| 10. Time off—Vacation | ... | ... | 1 | ... | ... | ... | ... | 1 | ... | ... | 2 | 13 |
| Sick leave | ... | ... | ... | ½ | ... | 1 | ... | 1 | ... | ... | 2½ | 25½ |
| Inspection of swine at auction markets | ... | ... | ... | ... | ... | 2 | ... | ... | ... | ... | 2 | 41 |
| Disinfection of trucks | ... | ... | ... | ... | ... | ... | .. | ... | ... | ... | ... | 87 |
| Swine erysipelas | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 |
| Other visits | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 |

## BUREAU OF BRUCELLOSIS CONTROL AND ERADICATION

The cooperative brucellosis eradication program in New Jersey completed its eighth year under the existing revised laws and regulations and this costly disease has been given another setback.

The first official test for brucellosis in New Jersey was conducted February 5, 1927. The work done in the following 19 years provided a good foundation for the expanded program which became effective July 1, 1946.

Since the cooperative brucellosis eradication program in New Jersey is entirely voluntary its progress can be measured, in part, by the number of herds and cattle enrolled in the various plans comprising the program. In the past eight years the number of herds in all the plans increased from 1,592, or 10.7 per cent of the herds in the State, to 7,635 or 77.9 per cent. The number of cattle enrolled increased from 29,069, or 14.4 per cent of the cattle in the State, to 191,692 or 89.5 per cent. These figures include the herds which practice calfhood vaccination without testing.

The plans incorporating the all-important brucellosis test now serve 5,852 herds or 59.7 per cent of the herds in the State. In these progressive herds are 144,909 cattle or 67.6 per cent of the State's cattle.

When calfhood vaccination against brucellosis was incorporated in the program it was anticipated that the number of calves vaccinated annually would increase for a few years then level off. The long expected leveling off of the calves vaccinated annually occurred this year. This by no means indicates any decrease in interest. It actually substantiates the belief that nearly all calves raised in the State are officially vaccinated against brucellosis. Continuous effort is made to remind all cattlemen of this service.

CALVES OFFICIALLY VACCINATED AGAINST BRUCELLOSIS

| | | | |
|---|---|---|---|
| 1946-47 | 13,381 | 1950-51 | 19,944 |
| 1947-48 | 14,813 | 1951-52 | 22,394 |
| 1948-49 | 16,183 | 1952-53 | 23,626 |
| 1949-50 | 18,305 | 1953-54 | 22,029 |

Although testing and calfhood vaccination are important and necessary parts of the brucellosis eradication program, they would be of negligible value without elimination of infected cattle. More brucellosis reactors were sent to slaughter in New Jersey this year than ever before. Indemnity was paid on 653 reactors removed under the provisions of Plan A. Of these reactors 341 were disclosed on initial tests of herds; the remaining 312 were disclosed on retest of herds enrolled in this plan.

With the expansion of the program the Bureau of Brucellosis Control altered and developed its method of operation. To a considerable degree the actual schedule of testing made a transition from an individual herd basis to a township basis.

## TESTING BY PLANS

The milk ring test (Brucella abortus ring test; A.B.R. test) is an integral part of the program. The only true application of the ring test is in the screening of herds to expose infection; it should not be thought of as a diagnostic agent in individual animals. Although there are definite limits on the use of this test its proper use in a brucellosis eradication program results in considerable saving in manpower and money.

One point that is always assumed but has not often been expressed factually is that brucellosis infection is being reduced. The best factor to show amount of brucellosis infection is the percentage of reacting animals in herds tested. This factor is the rate of infection.

| Classification of Herds | Rate of Infection (Per Cent) |
|---|---|
| Certified Brucellosis-Free | 0.13 |
| Plan A (not certified) | 0.95 |
| Plan B | 3.80 |
| Initial Test | 4.38 |

These few figures show that herds becoming certified brucellosis-free generally remain free of this disease. The fact that the rate of infection can be kept so low shows that the program is practical and that the gains made can be held. Even in the Plan A herds that are not yet certified the rate of infection is low. This is particularly encouraging since this category actually includes infected herds in the process of cleaning up.

The rate of infection in Plan B herds strengthens confidence in the program. These are all infected herds yet the infection rate is below the infection rate on initial tests. This demonstrates that Plan B is of definite value. Cattlemen do use the test results to guide them in disposing of infected animals. Good herd management utilizes testing and elimination of reactors to defeat brucellosis.

The rate of infection on initial tests of herds is higher than in tested herds. However, this figure is also encouraging; it is much lower than a few years ago. The three 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; (2) the program of subjecting all imported cattle to retest on arrival and the proper disposal of any reactors has prevented the introduction of infection and (3) resistance to brucellosis infection is induced by calfhood vaccination. More farmers are disposing of reactors by having them slaughtered, thus taking infected animals out of circulation.

## NATIONAL PICTURE

Across the nation there is an increasing demand by health officers that milk offered for distribution in areas under their supervision be produced only by brucellosis negative cattle. At this time three States are certified brucellosis-free. They are North Carolina, New Hampshire and Maine.

Following is a list of areas and the dates when herds must be free of this disease in order to market milk and cream in them:

### MILK FROM BRUCELLOSIS-FREE HERDS REQUIRED

| | | Effective Date |
|---|---|---|
| New Jersey | all fluid milk and cream | April 1, 1958 |
| North Carolina | all Grade A | July 1, 1952 |
| Oregon | all Grade A | Aug. 1, 1951 |
| Montana | all Grade A | Jan. 1, 1954 |
| Nevada | all milk sold | 1940 |
| Illinois | all Grade A | July 1, 1955 |
| New Mexico | all graded milk | 20 cities |
| Kansas | eight cities require it | present time |
| Wisconsin | all herds free | Nov. 15, 1954 |
| Wyoming | all products sold | |
| South Carolina | all milk | 1955 |

### FEDERAL MILK CODE ADOPTED

(Herds must be under one of Federal testing plans of BAI.)

| | | Effective Date |
|---|---|---|
| Minnesota | all herds in program | Jan. 1, 1955 |
| Alabama | all herds in program | in 5 years |
| Iowa | all herds in program | Jan. 1, 1955 |
| Kentucky | 53 counties adopt Federal Code | |
| Georgia | major cities exceed code requirements | |
| Pennsylvania | all herds on state program | Jan. 1, 1957 |
| Ohio | 11 cities adopt code (Cleveland and Cincinnati considering) | in 5 years |
| South Dakota | | in 5 years |
| District of Columbia | | Aug. 3, 1952 |

### SOME CITIES ADOPTING CODES

| | | Effective Date |
|---|---|---|
| Erie | herds in state plan | Jan. 1, 1954 |
| Pittsburgh | herds in state plan | Jan. 1, 1953 |
| Chicago | herds brucellosis-free | Jan. 1, 1955 |
| Washington, D. C. | in test plan | Aug. 3, 1952 |
| Burlington, Iowa | brucellosis-free | |
| Ames, Iowa | brucellosis-free | |
| Sioux City, Iowa | brucellosis-free | |
| Steubenville, Ohio | brucellosis-free | |
| Findley, Ohio | brucellosis-free | |
| Portland, Oregon | all herds tested | |
| Salem, Oregon | all herds tested | |
| Salt Lake City | under Federal Code | three years |
| Petersburg, Virginia | brucellosis-free | |
| Wichita, Kansas | brucellosis-free or under approved plan | |
| Kansas City, Missouri | under Federal testing plan | Jan. 1, 1956 |
| St. Louis, Missouri | under Federal testing plan | Jan. 1, 1955 |
| St. Joseph, Missouri | under Federal testing plan | Jan. 1, 1957 |

## LAWS GOVERNING IMPORTATION OF CATTLE

On July 1, 1955 legislation passed in 1946 with respect to the health of livestock from the standpoint of brucellosis will become operative. This law, Chapter 257, paragraph 20, page 899 and designated in the Revised Statutes as 4:5-93.40, reads as follows:

> "On and after July first, one thousand nine hundred and fifty-five, only bovine animals which are negative to a test administered within thirty days prior to entry into New Jersey and which also have had an official calfhood vaccination or are from an accredited brucellosis-free herd may be imported into New Jersey, except that animals under the age of two years which are accompanied by an official certificate of vaccination may be imported without said test."

This law changes only the brucellosis health requirements and such cattle must still comply with the general requirement of being free from all other infectious disease or recent exposure and must comply also with the health requirements with respect to tuberculosis.

All States and areas which may consign cattle to New Jersey for the past several years have been notified of this requirement and no difficulty is expected in compliance with the law.

### STATE INDEMNITY PAID FOR REACTORS TO BRUCELLOSIS TEST

July 1, 1953 to June 30, 1954

| Class of Cattle | Animals | Amount Paid |
|---|---|---|
| Registered | 66 | $9,892.76 |
| Grade | 587 | 43,895.07 |
| Registered and grade | 653 | $53,787.83 |

Average State Indemnity Paid per Head:

| | |
|---|---|
| Registered animal | $149.89 |
| Grade animal | 74.78 |
| Registered and grade | 82.37 |

SALVAGE RECEIVED BY OWNERS FOR REACTORS TO BRUCELLOSIS TEST

July 1, 1953 to June 30, 1954

| Class of Cattle | Animals | Amount Paid |
|---|---|---|
| Registered | 66 | $6,923.01 |
| Grade | 587 | 64,446.82 |
| Registered and grade | 653 | $71,369.83 |

Average Salvage Received per Head:

| | |
|---|---|
| Registered animal | $104.89 |
| Grade animal | 109.79 |
| Registered and grade | 109.30 |

FEDERAL INDEMNITY PAID FOR REACTORS TO BRUCELLOSIS TEST

July 1, 1953 to June 30, 1954

| Class of Cattle | Animals | Amount Paid |
|---|---|---|
| Registered | 66 | $1,700.00 |
| Grade | 587 | 6,371.00 |
| Registered and grade | 653 | $8,071.00 |

Average Federal Indemnity Paid per Head:

| | |
|---|---|
| Registered animal | $25.76 |
| Grade animal | 10.85 |
| Registered and grade | 12.36 |
| Total amount received by owners for reactors (sum of salvage, Federal and State indemnity) | $134,001.87 |
| Average amount received per head | $205.21 |

## 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, 1953 to June 30, 1954

| County | Reactors Appraised | | | Appraised Value | | | Total Amount Paid to Owners (Salvage, State and Federal Indemnity) | | | Average Amount Paid Owners per Head | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Reg. | Gr. | Total | Reg. | Grade | Total | Reg. | Grade | Total | Reg. | Grade | Total |
| Atlantic | ... | ... | ... | $..... | $..... | $..... | $..... | $..... | $..... | $..... | $..... | $..... |
| Bergen | ... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Burlington | 12 | 82 | 94 | 4,255.00 | 21,175.00 | 25,430.00 | 3,246.14 | 15,417.25 | 18,663.39 | 270.51 | 188.02 | 198.55 |
| Camden | ... | 6 | 6 | ..... | 1,660.00 | 1,660.00 | ..... | 1,179.98 | 1,179.98 | ..... | 196.66 | 196.66 |
| Cape May | ... | 1 | 1 | 265.00 | 265.00 | ..... | ..... | 148.80 | 148.80 | ..... | 148.80 | 148.80 |
| Cumberland | 4 | 36 | 40 | 1,475.00 | 9,750.00 | 11,225.00 | 1,219.86 | 7,584.01 | 8,803.87 | 304.97 | 210.67 | 220.10 |
| Essex | ... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Gloucester | 1 | 20 | 21 | 375.00 | 5,110.00 | 5,485.00 | 322.63 | 3,625.47 | 3,948.10 | 322.63 | 181.27 | 188.00 |
| Hudson | ... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Hunterdon | 8 | 49 | 57 | 2,875.00 | 12,364.00 | 15,239.00 | 2,282.78 | 9,390.13 | 11,672.91 | 285.35 | 191.64 | 204.79 |
| Mercer | 3 | 18 | 21 | 1,100.00 | 4,735.00 | 5,835.00 | 811.13 | 3,348.97 | 4,160.10 | 270.38 | 186.05 | 198.10 |
| Middlesex | ... | 3 | 3 | ..... | 800.00 | 800.00 | ..... | 594.21 | 594.21 | ..... | 198.07 | 198.07 |
| Monmouth | 3 | 26 | 29 | 1,200.00 | 6,660.00 | 7,860.00 | 824.40 | 5,031.60 | 5,856.00 | 274.80 | 193.52 | 201.93 |
| Morris | 5 | 9 | 14 | 1,433.00 | 2,214.00 | 3,647.00 | 1,261.47 | 1,715.83 | 2,977.30 | 252.29 | 190.65 | 212.66 |
| Ocean | ... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Passaic | ... | 1 | 1 | ..... | 275.00 | 275.00 | ..... | 165.25 | 165.25 | ..... | 165.25 | 165.25 |
| Salem | 8 | 195 | 203 | 3,000.00 | 50,715.00 | 53,715.00 | 2,357.02 | 39,565.73 | 41,922.75 | 294.63 | 202.90 | 206.52 |
| Somerset | 7 | 36 | 43 | 2,755.00 | 9,543.00 | 12,298.00 | 2,128.56 | 6,714.04 | 8,842.60 | 304.08 | 186.50 | 205.64 |
| Sussex | 8 | 89 | 97 | 3,025.00 | 25,248.00 | 28,273.00 | 2,268.50 | 17,789.94 | 20,058.44 | 283.56 | 199.89 | 206.79 |
| Union | ... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Warren | 7 | 16 | 23 | 2,232.00 | 3,855.00 | 6,087.00 | 1,793.28 | 3,214.89 | 5,008.17 | 256.18 | 200.93 | 317.75 |
| State | 66 | 587 | 653 | $23,725.00 | $154,369.00 | $178,094.00 | $18,515.77 | $115,486.10 | $134,001.87 | $280.54 | $196.74 | $205.21 |

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

July 1, 1953 to June 30, 1954

| County | Reactors Appraised | | | Amount of Salvage Received | | | Amount of State Indemnity Paid | | | Amount of Federal Indemnity Paid | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Reg. | Gr. | Total | Reg. | Grade | Total | Reg. | Grade | Total | Reg. | Grade | Total |
| Atlantic | ... | ... | ... | $..... | $..... | $..... | $..... | $..... | $..... | $..... | $..... | $..... |
| Bergen | ... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Burlington | 12 | 82 | 94 | 1,198.14 | 8,402.48 | 9,600.62 | 1,800.00 | 6,132.77 | 7,932.77 | 248.00 | 882.00 | 1,130.00 |
| Camden | ... | 6 | 6 | ..... | 659.98 | 659.98 | ..... | 450.00 | 450.00 | ..... | 70.00 | 70.00 |
| Cape May | ... | 1 | 1 | ..... | 64.80 | 64.80 | ..... | 75.00 | 75.00 | ..... | 9.00 | 9.00 |
| Cumberland | 4 | 36 | 40 | 547.86 | 4,560.01 | 5,107.87 | 600.00 | 2,700.00 | 3,300.00 | 72.00 | 324.00 | 396.00 |
| Essex | ... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Gloucester | 1 | 20 | 21 | 154.63 | 1,851.37 | 2,006.00 | 150.00 | 1,482.10 | 1,632.10 | 18.00 | 292.00 | 310.00 |
| Hudson | ... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Hunterdon | 8 | 49 | 57 | 906.78 | 5,231.94 | 6,138.72 | 1,200.00 | 3,669.19 | 4,869.19 | 176.00 | 489.00 | 665.00 |
| Mercer | 3 | 18 | 21 | 243.13 | 1,772.97 | 2,016.10 | 450.00 | 1,350.00 | 1,800.00 | 118.00 | 226.00 | 344.00 |
| Middlesex | ... | 3 | 3 | ..... | 326.21 | 326.21 | ..... | 225.00 | 225.00 | ..... | 43.00 | 43.00 |
| Monmouth | 3 | 26 | 29 | 224.40 | 2,815.60 | 3,040.00 | 450.00 | 1,950.00 | 2,400.00 | 150.00 | 266.00 | 416.00 |
| Morris | 5 | 9 | 14 | 428.71 | 927.83 | 1,356.54 | 742.76 | 675.00 | 1,417.76 | 90.00 | 113.00 | 203.00 |
| Ocean | ... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Passaic | ... | 1 | 1 | ..... | 65.25 | 65.25 | ..... | 75.00 | 75.00 | ..... | 25.00 | 25.00 |
| Salem | 8 | 195 | 203 | 885.02 | 22,349.40 | 23,234.42 | 1,200.00 | 14,594.12 | 15,794.12 | 272.00 | 1,867.00 | 2,139.00 |
| Somerset | 7 | 36 | 43 | 952.56 | 3,514.04 | 4,466.60 | 1,050.00 | 2,700.00 | 3,750.00 | 126.00 | 500.00 | 626.00 |
| Sussex | 8 | 89 | 97 | 796.50 | 9,993.94 | 10,790.44 | 1,200.00 | 6,675.00 | 7,875.00 | 272.00 | 1,121.00 | 1,393.00 |
| Union | ... | ... | ... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Warren | 7 | 16 | 23 | 585.28 | 1,911.00 | 2,496.28 | 1,050.00 | 1,141.89 | 2,191.89 | 158.00 | 144.00 | 302.00 |
| State | 66 | 587 | 653 | $6,923.01 | $64,446.82 | $71,369.83 | $9,892.76 | $43,895.07 | $53,787.83 | $1,700.00 | $6,371.00 | $8,071.00 |

STATE INDEMNITY PAID FOR REACTORS TO BRUCELLOSIS TEST

December 16, 1940 to June 30, 1954

| Class of Cattle | Animals | Amount Paid |
|---|---|---|
| Registered animals | 1,214 | $118,989.06 |
| Grade animals | 3,918 | 203,815.40 |
| Registered and grade | 5,132 | $322,804.46 |

Average State Indemnity Paid per Head:

| | |
|---|---|
| Registered animals | $98.01 |
| Grade animals | 52.02 |
| Registered and grade | 62.90 |

SALVAGE RECEIVED BY OWNERS FOR REACTORS TO BRUCELLOSIS TEST

December 16, 1940 to June 30, 1954

| Class of Cattle | Animals | Amount Paid |
|---|---|---|
| Registered animals | 1,214 | $114,824.87 |
| Grade animals | 3,918 | 386,042.72 |
| Registered and grade | 5,132 | $500,867.59 |

Average Salvage Received per Head:

| | |
|---|---|
| Registered animals | $94.58 |
| Grade animals | 98.53 |
| Registered and grade | 97.60 |

FEDERAL INDEMNITY PAID FOR REACTORS TO BRUCELLOSIS TEST

December 16, 1940 to June 30, 1954

| Class of Cattle | Animals | Amount Paid |
|---|---|---|
| Registered animals | 1,208* | $50,673.09 |
| Grade animals | 3,924 | 78,454.09 |
| Registered and grade | 5,132 | $129,127.18 |

Average Federal Indemnity Paid per Head:

| | |
|---|---|
| Registered animals | $41.95 |
| Grade animals | 19.99 |
| Registered and grade | 25.16 |
| Total amount received by owners for reactors (sum of salvage, Federal and State indemnity) | $953,572.36 |
| Average amount received per head | $185.81 |

* 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.

## 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, 1954

| County | Reactors Appraised | | | Appraised Value | | | Total Amount Paid to Owners (Salvage, State and Federal Indemnity) | | | Average Amount Paid Owners per Head | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Reg. | Gr. | Total | Reg. | Grade | Total | Reg. | Grade | Total | Reg. | 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 | 110 | 282 | 392 | 33,450.00 | 70,115.00 | 103,565.00 | 28,304.95 | 54,443.75 | 82,748.70 | 257.31 | 193.06 | 211.09 |
| Camden | 12 | 32 | 44 | 3,740.00 | 6,950.00 | 10,690.00 | 3,396.88 | 5,551.07 | 8,947.95 | 283.07 | 173.47 | 203.36 |
| Cape May | ... | 64 | 64 | ..... | 7,560.00 | 7,560.00 | ..... | 6,767.19 | 6,767.19 | ..... | 105.74 | 105.74 |
| Cumberland | 67 | 236 | 303 | 20,585.00 | 48,925.00 | 69,510.00 | 19,098.14 | 43,510.58 | 62,608.72 | 285.05 | 184.37 | 206.63 |
| Essex | ... | 15 | 15 | ..... | 1,400.00 | 1,400.00 | ..... | 1,305.92 | 1,305.92 | ..... | 87.06 | 87.06 |
| Gloucester | 23 | 163 | 186 | 7,960.00 | 40,240.00 | 48,200.00 | 6,712.40 | 34,501.86 | 41,214.26 | 291.84 | 211.67 | 221.58 |
| Hudson | ... | 2 | 2 | ..... | 730.00 | 730.00 | ..... | 557.53 | 557.53 | ..... | 278.77 | 278.77 |
| Hunterdon | 145 | 284 | 429 | 44,474.00 | 76,588.50 | 121,062.50 | 36,658.52 | 62,255.35 | 98,913.87 | 252.82 | 219.21 | 230.57 |
| Mercer | 105 | 426 | 531 | 28,715.00 | 87,895.00 | 116,610.00 | 24,141.46 | 78,178.89 | 102,320.35 | 229.92 | 183.52 | 192.69 |
| Middlesex | 86 | 605 | 691 | 14,245.00 | 80,210.00 | 94,455.00 | 12,788.69 | 72,392.85 | 85,181.54 | 148.71 | 119.66 | 123.27 |
| Monmouth | 67 | 150 | 217 | 17,725.00 | 31,510.00 | 49,235.00 | 15,614.16 | 26,234.53 | 41,848.69 | 233.05 | 174.90 | 192.85 |
| Morris | 167 | 338 | 505 | 43,627.00 | 63,794.00 | 107,421.00 | 36,746.90 | 53,033.87 | 89,780.77 | 220.04 | 156.90 | 177.78 |
| Ocean | ... | 9 | 9 | ..... | 1,885.00 | 1,885.00 | ..... | 1,740.20 | 1,740.20 | ..... | 193.36 | 193.36 |
| Passaic | 8 | 54 | 62 | 2,335.00 | 9,440.00 | 11,775.00 | 1,977.77 | 7,896.89 | 9,874.66 | 247.22 | 146.24 | 159.27 |
| Salem | 80 | 480 | 560 | 22,985.00 | 100,105.00 | 123,090.00 | 20,924.03 | 83,198.42 | 104,122.45 | 261.55 | 173.33 | 185.93 |
| Somerset | 155 | 304 | 459 | 41,235.00 | 57,108.00 | 98,343.00 | 34,497.92 | 45,991.59 | 80,489.51 | 222.57 | 151.29 | 175.36 |
| Sussex | 107 | 231 | 338 | 33,130.00 | 69,790.50 | 102,920.50 | 27,679.63 | 52,578.55 | 80,258.18 | 258.69 | 227.61 | 237.45 |
| Union | ..... | 10 | 10 | ..... | 1,450.00 | 1,450.00 | ..... | 1,317.61 | 1,317.61 | ..... | 131.76 | 131.76 |
| Warren | 76 | 135 | 211 | 17,383.00 | 27,865.00 | 45,248.00 | 14,638.70 | 22,709.54 | 37,348.24 | 192.61 | 168.22 | 177.01 |
| State | 1,214 | 3,918 | 5,132 | $333,029.00 | $800,276.00 | $1,133,305.00 | $284,487.02 | $699,085.34 | $953,572.36 | $234.34 | $170.77 | $185.81 |

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

December 16, 1940 to June 30, 1954

| County | Reactors Appraised | | | Amount of Salvage Received | | | Amount of State Indemnity Paid | | | Amount of Federal Indemnity Paid | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Reg. | Gr. | Total | Reg. | Grade | Total | Reg. | Grade | Total | Reg. | Grade | Total |
| 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 | 110 | 282 | 392 | 11,554.36 | 30,583.56 | 42,137.92 | 12,223.75 | 18,256.57 | 30,480.32 | 4,526.84 | 5,603.72 | 10,130.56 |
| Camden | 12 | 32 | 44 | 1,149.88 | 2,931.60 | 4,081.48 | 1,647.00 | 1,924.31 | 3,571.31 | 600.00 | 695.16 | 1,295.16 |
| Cape May | ... | 64 | 64 | ..... | 3,555.61 | 3,555.61 | ..... | 1,995.17 | 1,995.17 | ..... | 1,216.49 | 1,216.49 |
| Cumberland | 67 | 236 | 303 | 8,537.12 | 25,834.13 | 34,371.25 | 7,692.12 | 12,987.42 | 20,679.54 | 2,868.90 | 4,689.03 | 7,557.93 |
| Essex | ... | 15 | 15 | ..... | 846.86 | 846.86 | ..... | 276.55 | 276.55 | ..... | 182.51 | 182.51 |
| Gloucester | 23 | 163 | 186 | 3,346.81 | 20,790.31 | 24,137.12 | 2,429.90 | 10,155.25 | 12,585.15 | 935.69 | 3,556.30 | 4,491.99 |
| Hudson | ... | 2 | 2 | ..... | 357.53 | 357.53 | ..... | 150.00 | 150.00 | ..... | 50.00 | 50.00 |
| Hunterdon | 145 | 284 | 429 | 14,265.92 | 37,440.15 | 51,706.07 | 16,167.80 | 18,597.55 | 34,765.35 | 6,224.80 | 6,217.65 | 12,442.45 |
| Mercer | 105 | 426 | 531 | 9,742.52 | 48,117.59 | 57,860.11 | 10,020.45 | 21,171.91 | 31,192.36 | 4,378.49 | 8,889.39 | 13,267.88 |
| Middlesex | 86 | 605 | 691 | 5,413.59 | 40,547.67 | 45,961.26 | 4,458.20 | 19,760.48 | 24,218.68 | 2,916.90 | 12,084.70 | 15,001.60 |
| Monmouth | 67 | 150 | 217 | 7,155.09 | 15,307.12 | 22,462.21 | 5,710.19 | 7,960.95 | 13,671.14 | 2,748.88 | 2,966.46 | 5,715.34 |
| Morris | 167 | 338 | 505 | 12,626.10 | 26,950.84 | 39,576.94 | 16,710.97 | 18,402.70 | 35,113.67 | 7,409.83 | 7,680.33 | 15,090.16 |
| Ocean | ... | 9 | 9 | ..... | 954.91 | 954.91 | ..... | 573.70 | 573.70 | ..... | 211.59 | 211.59 |
| Passaic | 8 | 54 | 62 | 731.81 | 4,163.04 | 4,894.85 | 865.95 | 2,529.02 | 3,394.97 | 380.01 | 1,204.83 | 1,584.84 |
| Salem | 80 | 480 | 560 | 9,371.78 | 49,438.56 | 58,810.34 | 8,251.42 | 25,732.93 | 33,984.35 | 3,300.83 | 7,271.72 | 10,572.55 |
| Somerset | 155 | 304 | 459 | 13,235.61 | 24,716.47 | 37,952.08 | 14,764.60 | 15,003.21 | 29,767.81 | 6,497.71 | 6,271.91 | 12,769.62 |
| Sussex | 107 | 231 | 338 | 11,901.85 | 31,296.97 | 43,198.82 | 11,223.96 | 16,666.34 | 27,890.30 | 4,553.82 | 4,615.14 | 9,168.96 |
| Union | ... | 10 | 10 | ..... | 724.60 | 724.60 | ..... | 399.41 | 399.41 | ..... | 193.60 | 193.60 |
| Warren | 76 | 135 | 211 | 5,322.00 | 12,955.00 | 18,277.00 | 6,273.24 | 6,951.89 | 13,225.13 | 3,043.46 | 2,784.65 | 5,828.11 |
| State | 1,214 | 3,918 | 5,132 | $114,824.87 | $386,042.72 | $500,867.59 | $118,989.06 | $203,815.40 | $322,804.46 | $50,673.09 | $78,454.09 | $129,127.18 |

HERDS AND ANIMALS IN HERDS UNDER BLOOD TESTING PROGRAM AND THOSE CERTIFIED BRUCELLOSIS FREE

| County | PLAN A Herds | PLAN A Animals | PLAN B Herds | PLAN B Animals | PLAN D Herds | PLAN D Animals | Total Herds | Total Animals |
|---|---|---|---|---|---|---|---|---|
| Atlantic | 102 | 391 | 2 | 258 | ... | ... | 104 | 649 |
| Certified | 84 | 354 | ... | ... | ... | ... | 84 | 354 |
| Bergen | 43 | 574 | 3 | 104 | ... | ... | 46 | 678 |
| Certified | 31 | 524 | ... | ... | ... | ... | 31 | 524 |
| Burlington | 267 | 9,189 | 95 | 5,749 | ... | ... | 362 | 14,938 |
| Certified | 122 | 3,550 | 3 | 223 | ... | ... | 125 | 3,773 |
| Camden | 89 | 997 | 3 | 125 | 2 | 107 | 94 | 1,229 |
| Certified | 56 | 672 | ... | ... | ... | ... | 56 | 672 |
| Cape May | 82 | 478 | ... | ... | ... | ... | 82 | 478 |
| Certified | 76 | 472 | ... | ... | ... | ... | 76 | 472 |
| Cumberland | 443 | 4,405 | 26 | 1,045 | 2 | 130 | 471 | 5,580 |
| Certified | 304 | 2,392 | 1 | 89 | ... | ... | 305 | 2,481 |
| Essex | 21 | 362 | 2 | 196 | ... | ... | 23 | 558 |
| Certified | 16 | 65 | 1 | 192 | ... | ... | 17 | 257 |
| Gloucester | 421 | 4,057 | 20 | 837 | 1 | 89 | 442 | 4,983 |
| Certified | 272 | 2,657 | ... | ... | ... | ... | 272 | 2,657 |
| Hudson | 1 | 37 | ... | ... | ... | ... | 1 | 37 |
| Certified | ... | ... | ... | ... | ... | ... | ... | ... |
| Hunterdon | 901 | 19,303 | 180 | 7,776 | 3 | 176 | 1,084 | 27,255 |
| Certified | 442 | 9,910 | 2 | 73 | ... | ... | 444 | 9,983 |
| Mercer | 331 | 5,491 | 41 | 2,224 | 1 | 51 | 373 | 7,766 |
| Certified | 201 | 3,738 | 1 | 21 | ... | ... | 202 | 3,759 |
| Middlesex | 129 | 1,378 | 25 | 3,159 | ... | ... | 154 | 4,537 |
| Certified | 94 | 900 | 3 | 160 | ... | ... | 97 | 1,060 |
| Monmouth | 482 | 7,383 | 22 | 1,126 | 3 | 443 | 507 | 8,952 |
| Certified | 250 | 4,742 | 1 | 196 | ... | ... | 251 | 4,938 |
| Morris | 222 | 5,043 | 36 | 2,200 | 3 | 400 | 261 | 7,643 |
| Certified | 160 | 3,232 | ... | ... | ... | ... | 160 | 3,232 |
| Ocean | 128 | 585 | 6 | 307 | ... | ... | 134 | 892 |
| Certified | 82 | 297 | ... | ... | ... | ... | 82 | 297 |
| Passaic | 19 | 222 | 2 | 62 | 1 | 78 | 22 | 362 |
| Certified | 12 | 127 | ... | ... | ... | ... | 12 | 127 |
| Salem | 386 | 10,852 | 65 | 2,738 | 4 | 176 | 455 | 13,766 |
| Certified | 107 | 2,334 | ... | ... | ... | ... | 107 | 2,334 |
| Somerset | 473 | 9,620 | 69 | 2,986 | 1 | 67 | 543 | 12,673 |
| Certified | 218 | 6,073 | 1 | 133 | ... | ... | 219 | 6,206 |
| Sussex | 267 | 11,411 | 107 | 7,367 | 6 | 307 | 380 | 19,085 |
| Certified | 114 | 5,097 | 2 | 1,583 | ... | ... | 116 | 6,680 |
| Union | 23 | 178 | 1 | 2 | ... | ... | 24 | 180 |
| Certified | 21 | 108 | ... | ... | ... | ... | 21 | 108 |
| Warren | 180 | 7,042 | 108 | 5,505 | 2 | 121 | 290 | 12,668 |
| Certified | 73 | 2,577 | ... | ... | ... | ... | 73 | 2,577 |
| State | 5,010 | 98,998 | 813 | 43,766 | 29 | 2,145 | 5,852 | 144,909 |
| Certified | 2,735 | 49,821 | 15 | 2,670 | ... | ... | 2,750 | 52,491 |

## INITIAL TESTS FOR BRUCELLOSIS MADE BY COUNTIES

July 1, 1953 to June 30, 1954

| | Initial Clean Tests | | Initial Tests With Reactors | | | Total Initial Tests Made | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Herds | Cattle | Herds | Cattle | Reactors | Herds | Cattle | Reac-tors | Per Cent |
| July | 27 | 264 | 9 | 289 | 19 | 36 | 553 | 19 | 3.44 |
| August | 30 | 322 | 12 | 501 | 40 | 42 | 823 | 40 | 4.86 |
| September | 77 | 639 | 26 | 836 | 66 | 103 | 1,475 | 66 | 4.47 |
| October | 52 | 620 | 22 | 1,041 | 59 | 74 | 1,661 | 59 | 3.55 |
| November | 87 | 863 | 23 | 1,199 | 81 | 110 | 2,062 | 81 | 3.93 |
| December | 65 | 782 | 42 | 1,781 | 131 | 107 | 2,563 | 131 | 5.11 |
| January | 87 | 763 | 40 | 1,755 | 130 | 127 | 2,518 | 130 | 5.16 |
| February | 142 | 1,775 | 48 | 2,104 | 129 | 190 | 3,879 | 129 | 3.33 |
| March | 130 | 1,957 | 84 | 3,368 | 240 | 214 | 5,325 | 240 | 4.51 |
| April | 97 | 1,299 | 59 | 2,347 | 203 | 156 | 3,646 | 203 | 5.57 |
| May | 102 | 1,155 | 52 | 1,972 | 125 | 154 | 3,127 | 125 | 4.00 |
| June | 51 | 273 | 10 | 381 | 16 | 61 | 654 | 16 | 2.45 |
| Totals | 947 | 10,712 | 427 | 17,574 | 1,239 | 1,374 | 28,286 | 1,239 | 4.38 |

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

July 1, 1953 to June 30, 1954

| County | Tests Made | Negative | Positive | Sus-picious | Samples Not Tested | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Ins. Sera | Hemo-lyzed | Bro-ken | Cont. |
| Atlantic | 534 | 473 | 19 | 42 | .. | .. | .. | .. |
| Bergen | 485 | 451 | 12 | 22 | .. | .. | .. | .. |
| Burlington | 14,053 | 12,114 | 563 | 1,376 | 5 | .. | 2 | .. |
| Camden | 829 | 736 | 37 | 56 | 1 | .. | .. | .. |
| Cape May | 411 | 402 | 1 | 8 | .. | .. | .. | .. |
| Cumberland | 4,882 | 4,398 | 168 | 316 | 2 | .. | 1 | .. |
| Essex | 542 | 486 | 2 | 54 | .. | .. | .. | .. |
| Gloucester | 4,598 | 4,243 | 113 | 242 | .. | .. | .. | .. |
| Hudson | 2 | .... | .... | 2 | .. | .. | .. | .. |
| Hunterdon | 22,633 | 20,662 | 546 | 1,425 | 6 | 10 | 13 | .. |
| Mercer | 6,845 | 5,993 | 188 | 644 | .. | .. | 2 | .. |
| Middlesex | 8,592 | 8,229 | 28 | 335 | .. | .. | 1 | .. |
| Monmouth | 7,815 | 7,136 | 143 | 536 | .. | .. | 1 | .. |
| Morris | 6,996 | 6,385 | 166 | 445 | 1 | .. | 4 | .. |
| Ocean | 751 | 655 | 24 | 72 | .. | .. | .. | .. |
| Passaic | 502 | 425 | 12 | 65 | .. | .. | 1 | .. |
| Salem | 14,469 | 12,752 | 651 | 1,066 | 2 | 1 | 8 | .. |
| Somerset | 13,064 | 11,810 | 329 | 925 | 1 | .. | 3 | .. |
| Sussex | 17,886 | 15,962 | 395 | 1,529 | 2 | .. | 21 | .. |
| Union | 125 | 109 | 2 | 14 | .. | .. | .. | .. |
| Warren | 9,951 | 8,574 | 442 | 935 | 1 | .. | 4 | 1 |
| State | 135,965 | 121,995 | 3,841 | 10,129 | 21 | 11 | 61 | 1 |

| | |
|---|---|
| Per Cent Negative | 89.66 |
| Per Cent Positive | 2.82 |
| Per Cent Suspicious | 7.44 |
| Per Cent Not Tested | .07 |

SUMMARY—BLOOD SAMPLES DRAWN FROM CATTLE—ROUTINE BRUCELLOSIS TESTS

July 1, 1953 to June 30, 1954

| Veterinarians Bleeding | Lots | Animals |
|---|---|---|
| New Jersey Division of Animal Industry | 454 | 7,806 |
| United States Bureau of Animal Industry | 1,213 | 27,709 |
| Accredited Practitioners (State Expense) | 3,059 | 100,545 |
| Accredited Practitioners (Tests at Owner's Expense) | 1,559 | 13,235 |
| Totals | 6,285 | 149,295 |

SUMMARY—BLOOD SAMPLES DRAWN FROM INSHIPPED CATTLE—BRUCELLOSIS TESTS

| | | |
|---|---|---|
| New Jersey Division of Animal Industry | 1,314 | 6,621 |
| United States Bureau of Animal Industry | 601 | 2,036 |
| Accredited Practitioners (State Expense) | 10 | 10 |
| Accredited Practitioners (Tests at Owner's Expense) | 928 | 4,727 |
| Totals | 2,853 | 13,394 |

SUMMARY—BLOOD SAMPLES DRAWN FROM GOATS—ROUTINE BRUCELLOSIS TESTS

| | | |
|---|---|---|
| New Jersey Division of Animal Industry | 28 | 184 |
| United States Bureau of Animal Industry | 42 | 253 |
| Accredited Practitioners (State Expense) | 132 | 1,694 |
| Accredited Practitioners (Tests at Owner's Expense) | 3 | 8 |
| Totals | 205 | 2,139 |

SUMMARY—MISCELLANEOUS BLOOD SAMPLES DRAWN—ROUTINE BRUCELLOSIS TESTS

| | | |
|---|---|---|
| New Jersey Division of Animal Industry | .. | .. |
| Accredited Practitioners (Tests at Owner's Expense) | 5 | 34 swine |
| Totals | 5 | 34 swine |

## RESULTS OF MILK RING TEST

July 1, 1953 to June 30, 1954

| County | Herds | Cattle | Tested | Negative | Positive | Sus-picious | Broken | Sour |
|---|---|---|---|---|---|---|---|---|
| Atlantic | ... | ... | ... | ... | ... | ... | ... | ... |
| Bergen | 5 | 183 | 27 | 24 | 2 | 1 | ... | ... |
| Burlington | 47 | 2,675 | 311 | 236 | 38 | 37 | ... | ... |
| Camden | 4 | 192 | 13 | 13 | ... | ... | ... | ... |
| Cape May | ... | ... | ... | ... | ... | ... | ... | ... |
| Cumberland | 3 | 85 | 11 | 9 | ... | 2 | ... | ... |
| Essex | ... | ... | ... | ... | ... | ... | ... | ... |
| Gloucester | 15 | 507 | 66 | 59 | 2 | 5 | ... | 1 |
| Hudson | ... | ... | ... | ... | ... | ... | ... | ... |
| Hunterdon | 60 | 2,471 | 292 | 252 | 11 | 29 | 1 | ... |
| Mercer | 19 | 638 | 73 | 61 | 5 | 7 | ... | ... |
| Middlesex | ... | ... | ... | ... | ... | ... | ... | ... |
| Monmouth | 2 | 79 | 14 | 14 | ... | ... | ... | ... |
| Morris | 29 | 1,011 | 136 | 123 | 8 | 5 | ... | ... |
| Ocean | 6 | 225 | 27 | 23 | 4 | ... | ... | ... |
| Passaic | 1 | 25 | 12 | 7 | 2 | 3 | ... | ... |
| Salem | 9 | 444 | 53 | 43 | 3 | 7 | ... | ... |
| Somerset | 19 | 753 | 83 | 79 | ... | 4 | 2 | ... |
| Sussex | 101 | 5,313 | 667 | 616 | 24 | 27 | 7 | 10 |
| Union | ... | ... | ... | ... | ... | ... | ... | ... |
| Warren | 57 | 2,608 | 347 | 311 | 18 | 18 | 1 | ... |
| State | 377 | 17,209 | 2,132 | 1,870 | 117 | 145 | 11 | 11 |

## CALFHOOD VACCINATIONS REPORTED

July 1, 1953 to June 30, 1954

| County | Plan A | | Plan B | | Plan C | | Plan D | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Lots | Calves | Lots | Calves | Lots | Calves | Lots | Calves | Heifers | Adults | Lots | Calves | Heifers | Adults |
| Atlantic | 8 | 23 | 1 | 8 | 2 | 10 | .... | .... | .... | .... | 11 | 41 | ... | ... |
| Bergen | 10 | 42 | 2 | 7 | 1 | 1 | .... | .... | .... | .... | 13 | 50 | ... | ... |
| Burlington | 209 | 1,049 | 105 | 545 | 213 | 1,030 | 2 | 14 | 39 | .... | 529 | 2,638 | 39 | ... |
| Camden | 25 | 98 | .... | .... | 14 | 64 | 3 | 21 | .... | .... | 42 | 183 | ... | ... |
| Cape May | 9 | 20 | .... | .... | 1 | 1 | .... | .... | .... | .... | 10 | 21 | ... | ... |
| Cumberland | 100 | 336 | 29 | 110 | 16 | 49 | 1 | 5 | .... | .... | 146 | 500 | ... | ... |
| Essex | 6 | 43 | 4 | 43 | 4 | 19 | .... | .... | .... | .... | 14 | 105 | ... | ... |
| Gloucester | 96 | 367 | 26 | 117 | 43 | 125 | 2 | 13 | 2 | .... | 167 | 622 | 2 | ... |
| Hudson | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | ... | ... |
| Hunterdon | 761 | 2,669 | 171 | 635 | 295 | 934 | 6 | 25 | 1 | .... | 1,233 | 4,263 | 1 | ... |
| Mercer | 211 | 738 | 43 | 208 | 22 | 56 | 1 | 5 | 3 | .... | 277 | 1,007 | 3 | ... |
| Middlesex | 37 | 202 | 29 | 298 | 56 | 156 | .... | .... | .... | .... | 122 | 656 | ... | ... |
| Monmouth | 224 | 1,041 | 29 | 114 | 67 | 187 | 4 | 24 | .... | .... | 325 | 1,366 | ... | ... |
| Morris | 108 | 423 | 34 | 273 | 59 | 217 | 6 | 59 | .... | .... | 207 | 972 | ... | ... |
| Ocean | 13 | 41 | 7 | 38 | 9 | 37 | .... | .... | .... | .... | 29 | 116 | ... | ... |
| Passaic | 11 | 25 | 3 | 13 | 4 | 7 | .... | .... | .... | .... | 18 | 45 | ... | ... |
| Salem | 239 | 845 | 59 | 266 | 138 | 500 | 5 | 13 | 1 | .... | 441 | 1,624 | 1 | ... |
| Somerset | 307 | 1,119 | 45 | 180 | 60 | 194 | .... | .... | .... | .... | 412 | 1,493 | ... | ... |
| Sussex | 375 | 1,376 | 151 | 739 | 408 | 1,361 | 10 | 42 | .... | .... | 944 | 3,518 | ... | ... |
| Union | 8 | 16 | 1 | 1 | 2 | 4 | .... | .... | .... | .... | 11 | 21 | ... | ... |
| Warren | 201 | 786 | 108 | 472 | 384 | 1,508 | 7 | 22 | 5 | 3 | 700 | 2,788 | 5 | 3 |
| State | 2,958 | 11,259 | 847 | 4,067 | 1,799 | 6,460 | 47 | 243 | 51 | 3 | 5,651 | 22,029 | 51 | 3 |

## HERDS AND ANIMALS IN HERDS UNDER BRUCELLOSIS CONTROL PLANS INCORPORATING THE USE OF CALFHOOD VACCINATION TO JUNE 30, 1954

| County | Plan A | | Plan B | | Plan C | | Plan D | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Herds | Cattle | Herds | Cattle | Herds | Cattle | Herds | Cattle | Herds | Cattle |
| Atlantic | 8 | 197 | 1 | 205 | 1 | 5 | ... | ... | 10 | 407 |
| Bergen | 5 | 325 | 3 | 104 | 4 | 105 | ... | ... | 12 | 534 |
| Burlington | 183 | 8,225 | 85 | 5,396 | 202 | 7,541 | ... | ... | 470 | 21,162 |
| Camden | 31 | 787 | 3 | 125 | 21 | 366 | 2 | 107 | 57 | 1,385 |
| Cape May | 11 | 120 | ... | ... | 1 | 1 | ... | ... | 12 | 121 |
| Cumberland | 130 | 3,253 | 18 | 826 | 22 | 454 | 2 | 130 | 172 | 4,663 |
| Essex | 4 | 255 | 1 | 192 | 3 | 70 | ... | ... | 8 | 517 |
| Gloucester | 98 | 2,947 | 13 | 731 | 42 | 728 | 1 | 89 | 154 | 4,495 |
| Hudson | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Hunterdon | 736 | 18,257 | 165 | 7,279 | 301 | 4,900 | 3 | 176 | 1,205 | 30,612 |
| Mercer | 198 | 5,072 | 39 | 1,758 | 18 | 492 | 1 | 51 | 256 | 7,373 |
| Middlesex | 54 | 1,111 | 15 | 2,200 | 95 | 1,051 | ... | ... | 164 | 4,362 |
| Monmouth | 233 | 6,440 | 20 | 1,065 | 71 | 1,167 | 3 | 443 | 327 | 9,115 |
| Morris | 104 | 3,988 | 28 | 1,893 | 89 | 2,037 | 3 | 400 | 224 | 8,318 |
| Ocean | 22 | 324 | 4 | 255 | 12 | 304 | ... | ... | 38 | 883 |
| Passaic | 8 | 154 | 2 | 62 | 7 | 52 | 1 | 78 | 18 | 346 |
| Salem | 236 | 8,449 | 43 | 1,909 | 120 | 2,400 | 4 | 176 | 403 | 12,934 |
| Somerset | 310 | 8,826 | 56 | 2,547 | 40 | 507 | 1 | 67 | 407 | 11,947 |
| Sussex | 236 | 11,061 | 101 | 7,149 | 362 | 13,040 | 6 | 307 | 705 | 31,557 |
| Union | 16 | 171 | 1 | 2 | 6 | 72 | ... | ... | 23 | 245 |
| Warren | 150 | 6,513 | 98 | 5,039 | 366 | 11,491 | 2 | 121 | 616 | 23,164 |
| State | 2,773 | 86,475 | 696 | 38,737 | 1,783 | 46,783 | 29 | 2,145 | 5,281 | 174,140 |

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

July 1, 1946 to June 30, 1954

| County | Lots | Calves | Heifers | Adults |
|---|---|---|---|---|
| Atlantic | 38 | 247 | 4 | .... |
| Bergen | 75 | 375 | 8 | .... |
| Burlington | 4,056 | 19,821 | 78 | 94 |
| Camden | 280 | 1,157 | 16 | 84 |
| Cape May | 39 | 76 | .... | .... |
| Cumberland | 1,041 | 3,821 | 7 | 7 |
| Essex | 121 | 716 | 15 | .... |
| Gloucester | 1,073 | 3,843 | 17 | 13 |
| Hudson | .... | .... | .... | .... |
| Hunterdon | 8,843 | 28,127 | 46 | 156 |
| Mercer | 2,254 | 8,064 | 42 | 205 |
| Middlesex | 958 | 4,747 | 7 | 9 |
| Monmouth | 2,363 | 9,189 | 101 | 133 |
| Morris | 1,655 | 7,522 | 20 | 325 |
| Ocean | 226 | 767 | .... | .... |
| Passaic | 100 | 265 | .... | 8 |
| Salem | 2,711 | 9,787 | 3 | 59 |
| Somerset | 3,503 | 11,697 | 17 | 83 |
| Sussex | 6,106 | 23,444 | 167 | 213 |
| Union | 124 | 257 | 4 | 8 |
| Warren | 4,297 | 16,753 | 31 | 77 |
| State | 39,863 | 150,675 | 583 | 1,474 |

## Calves Vaccinated for Brucellosis

July 1, 1946 to June 30, 1954

| County | 1946-47 | 1947-48 | 1948-49 | 1949-50 | 1950-51 | 1951-52 | 1952-53 | 1953-54 | Totals |
|---|---|---|---|---|---|---|---|---|---|
| Atlantic | .... | .... | 3 | 25 | 13 | 102 | 63 | 41 | 247 |
| Bergen | 19 | 18 | 69 | 53 | 46 | 60 | 60 | 50 | 375 |
| Burlington | 1,898 | 1,982 | 2,206 | 2,566 | 2,842 | 2,892 | 2,797 | 2,638 | 19,821 |
| Camden | 82 | 88 | 94 | 115 | 145 | 240 | 210 | 183 | 1,157 |
| Cape May | .... | .... | 1 | 4 | 19 | 11 | 20 | 21 | 76 |
| Cumberland | 251 | 381 | 451 | 546 | 518 | 596 | 578 | 500 | 3,821 |
| Essex | 86 | 99 | 76 | 78 | 94 | 89 | 89 | 105 | 716 |
| Gloucester | 239 | 304 | 353 | 364 | 594 | 621 | 746 | 622 | 3,843 |
| Hudson | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Hunterdon | 2,261 | 2,732 | 3,005 | 3,298 | 3,664 | 4,200 | 4,704 | 4,263 | 28,127 |
| Mercer | 979 | 905 | 845 | 935 | 1,092 | 1,194 | 1,107 | 1,007 | 8,064 |
| Middlesex | 507 | 456 | 521 | 625 | 590 | 731 | 661 | 656 | 4,747 |
| Monmouth | 780 | 828 | 1,136 | 1,207 | 1,189 | 1,343 | 1,340 | 1,366 | 9,189 |
| Morris | 814 | 890 | 758 | 853 | 972 | 1,090 | 1,173 | 972 | 7,522 |
| Ocean | 37 | 93 | 88 | 84 | 114 | 120 | 115 | 116 | 767 |
| Passaic | 32 | 24 | 19 | 26 | 35 | 45 | 39 | 45 | 265 |
| Salem | 723 | 835 | 1,010 | 1,179 | 1,276 | 1,476 | 1,664 | 1,624 | 9,787 |
| Somerset | 1,109 | 1,246 | 1,349 | 1,470 | 1,499 | 1,711 | 1,820 | 1,493 | 11,697 |
| Sussex | 1,920 | 2,204 | 2,368 | 2,913 | 3,085 | 3,711 | 3,725 | 3,518 | 23,444 |
| Union | 22 | 34 | 23 | 22 | 34 | 70 | 31 | 21 | 257 |
| Warren | 1,622 | 1,694 | 1,808 | 1,942 | 2,123 | 2,092 | 2,684 | 2,788 | 16,753 |
| State | 13,381 | 14,813 | 16,183 | 18,305 | 19,944 | 22,394 | 23,626 | 22,029 | 150,675 |

# DIVISION LABORATORY REPORT

JULY 1, 1953 TO JUNE 30, 1954

## BLOOD TESTS MADE FOR BRUCELLOSIS ON INSHIPPED ANIMALS

| | |
|---|---|
| Samples received | 13,394* |
| Samples broken | 16 |
| Insufficient sera | .... |
| Tests completed | 13,378* |
| Reactors | 93 |
| Negative | 13,284* |
| Hemolyzed | 1 |

* Includes titre carrying calfhood vaccinates eligible for entry.

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

| | |
|---|---|
| Samples received | 153,624 |
| Samples broken | 57 |
| Insufficient sera | 19 |
| Tests completed | 153,548 |
| Reactors | 4,029 |
| Suspicious | 11,017 |
| Negative | 138,485 |
| Hemolyzed | 17 |

## MILK RING (ABR) TESTS FOR BRUCELLOSIS

| | |
|---|---|
| Samples received | 2,154 |
| Samples broken | 21 |
| Samples sour | 1 |
| Samples tested | 2,132 |
| Reactors | 117 |
| Suspicious | 145 |
| Negative | 1,870 |

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

| | |
|---|---|
| Number of animals | 545 |
| Number of samples | 2,122 |
| Streptococci | 509 |
| Staphylococci | 1 |
| Negative | 1,431 |
| Other organisms | 276 |

## BLOOD TESTS MADE FOR PULLORUM DISEASE OF POULTRY

| | |
|---|---|
| Samples received | 47,322 |
| Samples broken | .... |
| Insufficient sera | .... |
| Tests completed | 47,322 |
| Reactors | 269 |
| Negative | 47,053 |
| Hemolyzed | .... |

BACTERIOLOGICAL, MICROSCOPIC AND POST-MORTEM EXAMINATIONS

| Animal | Specimens Received | Specimen Received | Condition Suspected | Laboratory Findings |
|---|---|---|---|---|
| Avian | 282 | Birds | S. pullorum | Negative |
| Avian | 32 | Birds | S. pullorum | Confirmed |
| Avian | 2 | Turkeys | S. pullorum | Negative |
| Avian | 4 | Chicks | Unknown | Undetermined |
| Avian | 3 | Geese | Unknown | Undetermined |
| Avian | 6 | Birds | Unknown | Undetermined |
| Avian | 10 | Poults | Unknown | Unabsorbed yolk sacs |
| Avian | 1 | Poult | Unknown | Aspergillosis |
| Avian | 1 | Poult | Unknown | Blackhead |
| Avian | 3 | Chicks | Unknown | Air sac disease |
| Avian | 4 | Birds | Unknown | Leukosis |
| Avian | 3 | Birds | Typhoid | Negative |
| Avian | 10 | Birds | Typhoid | Confirmed |
| Avian | 10 | Chicks | Coccidiosis | Confirmed |
| Avian | 6 | Birds | Coccidiosis | Confirmed |
| Bovine | 9 | Ears | Anthrax | Negative |
| Bovine | 1 | Spleen | Anthrax | Negative |
| Bovine | 1 | Blood sample | Anthrax | Negative |
| Bovine | 20 | Feti | Brucella, Vibrio and Trichomonads | Negative |
| Bovine | 2 | Placenta | Brucella, Vibrio and Trichomonads | Negative |
| Bovine | 1 | Vaginal discharge | Brucella, Vibrio and Trichomonads | Negative |

BACTERIOLOGICAL, MICROSCOPIC AND POST-MORTEM EXAMINATIONS

| Animal | Specimens Received | Specimen Received | Condition Suspected | Laboratory Findings |
|---|---|---|---|---|
| Bovine | 2 | Milk samples | Brucella | Negative |
| Bovine | 1 | Fetus | Brucella | Confirmed |
| Bovine | 1 | Reticulum | Cause of death | Mucinous adenocarcinoma |
| Bovine | | Exudate from swelling of leg and shoulder | Blackleg | Negative |
| Bovine | | Exudate from udder | Pathogens | E. coli |
| Bovine | 2 | Feces | Parasites | Confirmed |
| Bovine | | Hoof scrapings | Micro-organisms | Negative |
| Bovine | | Section of small intestines | Johnes | Negative |
| Bovine | 1 | Placenta | Pathogenic organisms | Negative |
| Bovine | 2 | Pus from abscess | Pathogenic organisms | Negative |
| Equine | 1 | Urine | Pregnancy | Negative |
| Equine | 1 | Urine | Pregnancy | Positive chemical reaction to Cuboni Test |
| Porcine | 1 | Shoat | Unknown | Enteritis |
| Porcine | 1 | Fetus | Pathogenic organisms | Negative |
| Porcine | 2 | Pigs | Unknown | Anemia |
| Porcine | 1 | Hog | Unknown | Undetermined |
| Porcine | 1 | Kidney | Pathogenic organisms | Negative |
| Porcine | 1 | Pig | Unknown | Intense gastritis and enteritis |
| Ovine | 2 | Milk samples | Pathogenic organisms | Negative |
| Ovine | 1 | Ear | Anthrax | Negative |

# *Report of the Division of Markets*

WARREN W. OLEY, *Director*

This fiscal year has been a prosperous one judging by the number of people gainfully employed, incomes received and total output of goods and services. Most prices, except those of farm products, have been fairly stable. Prices of farm crops produced in New Jersey have been better than those received in most parts of the country. Prices of eggs, the most important agricultural product in the State, were good for the first six months of the fiscal year but were reduced drastically during the next six months. While prices for fruits and vegetables were collectively slightly below those received in the previous year total amount harvested was so much larger that the gross return to fruit and vegetable growers was above that of the previous year.

Greater output of all commodities at stable prices signifies a rise in living standards and although a sizable share of the national product has been for defense, the volume of goods and services available for everyday living and for additions to the country's wealth has been great. Such a condition in the country means an abundance of purchasing power and that power has been a safeguard against reductions in the amount of money spent for food.

This was the first full year under a new administration. During it there was a reorganization of the Federal Department of Agriculture and the changes that affect State work appear to have caused a more business-like and efficient operation. Briefly, the new organization has divided the Department into four main groups. They are (1) Federal-States Relations, (2) Marketing and Foreign Agriculture, (3) Agricultural Stabilization and (4) Agricultural Credit.

Among the major changes in the Department's structure there has been established an Agricultural Marketing Service. This is part of number (2) of the four branches and it is with this service that most cooperative work with the Federal Department takes place. Under number (3) there has been established a Commodity Stabilization Service which carries on functions formerly handled by the Production and Marketing Administration such as acreage allotments and marketing quotas. It also carries on price support operations of the Commodity Credit Corporation. A relatively small amount of State work is affected by operations under number (3) but the decisions on price support and acreage allotments have a bearing on prices received and costs of production by New Jersey farmers.

Research in marketing is being emphasized not only by the agencies in Washington but by Congress through moneys appropriated. Research work is not a function of this Division except where it is carried out in a cooperative way with service responsibilities.

The people in New Jersey as well as in all parts of the country are interested in what Congress will do in relation to support prices. The Northeast in particular is adversely affected by the high rigid supports at 90 per cent of parity. The farmers who produce milk and poultry products have to pay high prices for feed. The Administration has called for flexible supports on next year's basic crops. Representatives in Congress from the States greatly benefited by high support prices are opposed to the administration policy as are many other representatives, from a political viewpoint.

As the year ended the House Agricultural Committee gave almost unanimous approval to a major farm bill which calls for a one-year extension of high price supports on basic agricultural commodities. Earlier the Senate Agricultural Committee voted 8 to 7 to continue supports at 90 per cent of parity for one year. Under such a program large surpluses are bound to plague this nation and high prices for the grain feeds poultrymen and dairymen have to buy will continue.

Because price supports have been in effect so many years many farmers have adjusted their operations to them on a permanent basis. Also, because so many other segments of the country are receiving special consideration in the form of minimum wage levels, unemployment insurance and other aids in making farm costs high, it becomes increasingly difficult to adjust to a realistic food policy.

Commodity groups and organizations, such as poultry, livestock, vegetables and fruit, agree that they do not want too much government interference in their affairs and would like to restrict the grain groups to modest support levels. They also would like to see legislation prohibiting the planting of acreage taken out of production of supported crops to crops for which there is no support program. In New Jersey less than 5 per cent of the value of agricultural production is directly aided by supports to the basic commodities. About two-thirds of the total value of New Jersey farm production is for products in which purchased feed is the largest single item of cost.

Continued progress has been made in lines of work carried by the Division. Increased demand for services in egg marketing required the assignment of an additional man for grading work. The year was favorable for both fruit and vegetable production. Increased yields, especially in cannery tomatoes, resulted in a much larger inspection program. Increases

were also made in the program of inspection in the production and marketing of milk under State grades. The work with cooperative associations was advanced.

As in the past the Division has had close cooperation with other State agencies. Under provisions of Chapter 10, Title 4 of the Revised Statutes, this Department cooperating with the Division of Weights and Measures of the Department of Law and Public Safety may promulgate standards for packages for agricultural products. During the year the Department approved standards for three packages, crates for sweet corn, blueberries and strawberries. It is expected that the Division of Weights and Measures also will approve the recommended dimensions for these packages and follow with a joint regulation. The packages mentioned have been regulated at the request of several cooperatives and commodity groups. The effect will be that one size package will be made legal to replace a variety of dimensions. This will aid manufacturers, truck haulers who prefer uniform size packages and growers. In recent years several packages for farm products have been standardized in a like manner.

Relations with the College and Experiment Station and the Extension Service have been excellent and several cooperative agreements with the Federal Department of Agriculture have been continued. These agreements have helped in carrying out the farm products grading work and in market news. The Division also has worked closely with many 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

There are two important main functions of this Bureau as the name indicates. The market news project was organized in 1919. Since then new services have been demanded by the agricultural interests of the State. These have been evaluated and where they appeared practical they have been added to the program.

The second important function of the Bureau deals with cooperatives and consists of aiding farmers to organize so that together they can accomplish things that would be impossible for the individual. The Legislature, in setting up functions of the Department, included a paragraph quoted as follows: "Assist and advise in the organization and maintenance of producers' and consumers' cooperative selling and buying associations." Under this authorization the Bureau works with farmer members of cooperatives, their boards of directors, their attorneys and accountants in order to aid in the improvement and strengthening of farm business organizations.

As can be judged from the foregoing, work of the Bureau crosses commodity lines and requires close association with all factors in the distributive field. This includes work with the specialists in commodity lines as they influence transportation, packaging, regulation and market analysis. The staff of the Bureau attempts to maintain close relations with individuals in other State and Federal agencies as well as with growers, members of the trade and others who can supply information of value to the growers. Information obtained from these sources benefits the work of the Bureau and so provides better service for New Jersey farmers and members of New Jersey cooperatives.

### MARKET REPORTING

Market reporting as a timely crop and market information project includes weekly and special reports and daily reports in season. Market Conditions reports are issued on about 10 important commodities. These include information gleaned from all sources that might help New Jersey producers to market their produce more advantageously. The Weekly Market Review is a digest of prices of important commodities on a weekly basis. An Annual Potato Summary is published which reviews growing and marketing conditions of the year. Promotional articles are written for trade papers and the general press. These often accompany advertisements sponsored by growers' associations. In cooperation with other agencies the Bureau issues the New Jersey Truck Crop News on a weekly basis from May 1 to October 30. In addition, requests for special information are serviced on volume of certain crops on hand, in storage or on the farm and conditions of the market for these crops.

### DAILY PRICE REPORTING

Daily price reporting is obtained through a cooperative agreement with the U. S. Department of Agriculture in the Philadelphia and New York markets. Cooperating employees on these markets make special studies when requested. Summaries of early morning prices may be obtained by New Jersey growers from the radio broadcasts in these cities and more detailed later information may be obtained by telephone or from mimeographed reports.

### DAILY POTATO DESTINATIONS REPORTING

There is only one daily reporting function wholly under the control of and originally organized by the Division of Markets. This is the reporting of truck destinations of potatoes during the active marketing season. Practically all shippers of New Jersey potatoes cooperate. Daily calls are made to each shipper in the Central and South Jersey areas and a summary is

compiled and mailed to them daily. Each shipper's operation is confidential and his figures lose their identity in the totals, which include the number of trucks, number of sacks and the state to which they are being shipped. The USDA is now carrying this information on leased wires to all parts of the country and it is included in the daily potato summary issued by the Philadelphia office.

## WEEKLY MARKET REPORTS

One market report is issued regularly each week during the year with the exception of the week between Christmas and New Year's Day. This is called the "Weekly Market Review." It is a digest of the prices of feeds, grains, eggs, poultry, livestock, fruits and vegetables, and minimum milk prices. It is a four-page publication with about a half-page of brief market comments on the major commodities. Sources of the information are noted, although prices at the auction markets are identified only by the town in which the market is located.

During the spring months of 1954 requests were received to include livestock prices at one of the South Jersey points. After a check on the source for accuracy it was decided to include the livestock prices at the Woodstown auction market. Through the cooperation of the management weighted average prices were supplied for each class as well as the high and the low for the sale. Weighted average prices are used in quoting the fruit and vegetable prices in the Auction News. An effort is being made to obtain weighted average prices from the Hackettstown and Flemington livestock auctions on the same basis. These latter markets now supply the weighted average prices of eggs by classes. The livestock and poultry prices which have been reported in the Review have had a wide range from low to high and no attempt has been made to note the point at which most of the sales were made.

## *Market Conditions Reports*

Market Conditions reports are issued on 10 commodities. This report is a single sheet publication covering one commodity and is mailed on request to growers and others interested in that commodity. Only items concerned with the marketing of that particular crop are included. This usually includes information on the acreage planted or to be planted as obtained from Federal crop estimate reports and conditions of those crops in other competing areas, including harvesting data. It also gives changes in transportation costs, in the types of packages used and methods of preparation for market. This last may include information on steri-coolers, brushers and waxers and their effect on prices. Growers are kept informed on government regulations or new programs and changes in standards and grades, and export requirements.

For most commodities the Conditions reports are issued at about the time of planting, just prior to the New Jersey marketing and through the period of marketing. Growers desire information on probable market supply as determined by total acreage of the crop and when the crop will be sold. The crop estimates of the USDA are very valuable in determining supply. This is supported in later issues with information on weather conditions and stocks of the commodity in cold or common storage.

There were nine reports on sweet potatoes. The New Jersey sweet potato crop for harvest during the fall of 1953 and marketed during the fall, winter and spring months was favored with good growing conditions. The final harvested volume was very good. Total production for the United States in 1953 was about 18 per cent higher than in 1952. A comparison of the unloads in the Philadelphia and New York markets showed an increase in consumption of about 23 per cent over 1952. Possibly this was due to a better package and lower prices. A special study was made of the unloads, including the terminal markets of New York, Philadelphia, Baltimore and Pittsburgh, which ordinarily consume a large amount of New Jersey potatoes.

From that study it was found that New Jersey's percentage of increase in unloads was about equal to that of the increase in production over 1952. For all of the producing areas in these markets the unloads were 127 per cent of 1952 compared with a production of 123 per cent of 1952.

While the results of this study are not conclusive it seems that New Jersey was not keeping up with some of the other States in increasing its business in markets which have not been used heavily. There are several factors which might contribute to this, such as price considerations, varietal buying habits of the consumers and general promotional endeavors. One report included a comparison of prices as of January 15 following the crop year along with a comparison of total production. There was a definite correlation between low prices and high production which changed to higher prices as the crop decreased in size.

The white potato industry was serviced by 22 reports. These carried estimates of yields as announced by the Crop Reporting Service, proposed revisions in the U. S. Standards for grading potatoes, the "Intentions to Plant" report on the 1954 crop, economic information and the "Stocks on Hand" report which to a large extent influences the spring market on old crop potatoes. The 1953 crop was overplanted and resulted in a theoretical surplus of about 24 million bushels. Prices were well below those of the year before.

The average market price was 69 cents a bushel on January 15 following the harvest, while at the same time a year previous the price was $1.92 a bushel on the 1952 crop. The white potato crop was theoretically about a

size which would create a balance between demand and supply. The high prices of the 1952 crop during the winter and spring influenced heavy plantings in most producing areas, resulting in the large 1953 crop. For harvest in 1954 the growers have planted a more reasonable acreage which should result in a total supply more nearly equal to demand and possibly about the size of the 1952 crop of approximately 350 million bushels. Prices are much higher for the 1954 crop than they were for the 1953 crop.

By special act of Congress white potatoes were again made eligible for purchase with Section 32 funds for school lunch purposes and starch making. This helped the late marketings of the 1953 crop in Maine and advanced the price. Toward the end of the old crop marketing season, old crop potatoes out of Maine brought as much as $4.50 to $5.00 per hundredweight in the New York market.

Seven reports were issued on apples. These reports included holdings as of January 1 and revised figures as they were available on production. The apple crop in 1953 was about equal to that of 1952. The eastern crop in which New Jersey growers are most interested was about equal to that of 1952 while the central States and western States had productions 20 per cent and 7 per cent respectively below that of 1952. This put the eastern areas in a relatively strong position for marketing during the fall and winter months.

Two reports were issued on lettuce. New Jersey planted a total of about 4,200 acres in the spring of 1954 compared with about 3,900 in 1953 and with a 10 crate increase in yield this gave a total production of over one million crates compared with 897,000 in 1953. Early spring production for the United States was reduced in 1954 as compared with 1953. As most of this decrease was in California and as that State overlaps the New Jersey season to some extent, the early demand for New Jersey lettuce was stronger and relatively high prices were obtained by New Jersey growers.

Three reports were issued on asparagus. Production over the entire country for 1954 amounted to slightly over 10 million crates, about equal to that produced in 1953 and also to the four-year average. Acreage had been increased but reduced yields due to unfavorable weather held down the total production. New Jersey experiencd a satisfactory season although supply was uneven during the year. Early harvest increased rapidly due to high temperatures and quality was exceptionally good. In late May and early June the yield was reduced by rather cool temperatures which caused fairly high prices during what might be normally a glut period. Toward the end of the season higher temperatures increased production, but the threat of oversupply was reduced by increased purchases for cannery purposes.

Five reports were issued on strawberries. New Jersey acreage was reduced for 1954 from 1953 as was that of the United States as a whole. Slightly lower yields for the country made a reduction in the total amount available for marketing when compared with 1953. Most beds set in 1953 were damaged to some extent by the dry weather during the 1953 season, accounting for some of the reduction in the yield per acre. Generally, prices during 1954 were satisfactory to those farmers who had reasonably good yields.

Three reports were issued on onions. These included estimates of production in the early spring and early summer States. New Jersey is the largest producer in the early summer group. For the most part, yields were satisfactory and prices were good.

One report was issued on tomatoes for fresh market. Production for the late spring States exceeded the 1953 crop by 62 per cent and the 10-year average by 21 per cent. The crop estimate for the early summer group of States, based on conditions as of June 1, showed an increase of about 10 per cent over 1953 and about 25 per cent more than average. However, after June 1 conditions in New Jersey and in the nearby competing sections changed and supply for market was very light. Marketings of the 1954 crop following July 1 will depend to a large extent on a favorable weather for production.

Three reports were issued on peaches. The latest estimate, based on conditions as of June 1, indicated the crop in New Jersey for this year was about equal to that of 1953. However, moisture has been deficient and peaches are not sizing as well as would normally be expected. There is every possibility that the crop will be lighter than was originally estimated. Prices on the 1954 crop from southern States reflect a drop in production over 1953 as three-fourths bushel containers in the terminal markets are generally at about the same level of prices as bushel baskets were in 1953.

### *New Jersey Truck Crop News*

The New Jersey Truck Crop News is compiled from information obtained by the Division of Markets, the Trenton office of the Agricultural Marketing Service (formerly BAE) of the USDA and the Trenton office of the Weather Bureau of the United States Department of Commerce. The Weather Bureau furnishes a brief resume of weather conditions during the week and reports from some 20 weather stations throughout the State on the high and low temperatures, the rainfall for the week and the total rainfall for the previous four weeks at each of those stations. A five-day forecast is also included. The cooperating agencies pool all crop information so as to make the report as accurate as possible. These reports are

seasonal starting in May and ending in October. Truck Crop News is mailed under the franking privilege of the USDA to about 2,000 persons of whom approximately 700 are buyers of New Jersey produce.

### *Auction News*

The Auction News is compiled and edited from information obtained from the fruit and vegetable auction markets in New Jersey. It is a promotional sheet listing the produce being marketed and the markets at which the commodities can be obtained. The expenses of paper and mailing are paid by the auction markets and the clerical work is contributed as a service by the Department. This is a weekly, direct mail approach to about 700 buyers in the nearby areas that purchase all or part of their needs at the New Jersey auctions.

### *Cooperative Trade Paper Advertising*

The cooperative auction markets also underwrite about half of the expense of trade paper advertising in cooperation with the Division of Information and the Department of Conservation and Economic Development. The primary aim of the trade paper advertising is to attract new buyers and thus extend the markets and acceptance of New Jersey produce. While it is hard to evaluate the effectiveness of such advertising, it is acknowledged that much of the export business on asparagus originated with an inquiry for information from a Canadian reader. Requests for copies of the Auction News have been received from readers of the trade papers. Similar requests to add certain buyers' names have also been forwarded by market managers.

### *Annual Potato Summary*

The Annual Potato Summary has been prepared in circular form and has been mailed to those requesting copies. The information is as complete as is practical. It includes harvesting and marketing information, such as yields, acreage and weather during harvest and growing seasons, daily shipping point prices and the jobbing prices in nearby markets. Distribution of the crop by States is a feature, as well as the statistics shown by the inspection records on grades and the percentages of the crop that moved in various sized packages.

Those interested in the circular include growers, shippers, statisticians, research workers, bag manufacturers, transportation officials and marketing officials of the USDA and other States.

## SERVICE WORK WITH COOPERATIVES

Most of the work with cooperatives started in the early 1920's when the first agricultural cooperative association law was passed by the New Jersey Legislature. In 1924 the law was repealed and a new act passed which was more in line with the laws governing farmers' cooperatives in other States. It was written to conform to certain provisions of the Federal Capper-Volstead Act. Over a period of years there have been few amendments to this law; however, some changes have been made in the past four years, mostly to clarify sections concerning which there was a difference of opinion.

In the 1930's cooperative business organizations in New Jersey made the most growth, probably as a result of the depression period when it became increasingly necessary for producers to buy and sell as cheaply as possible.

Much of the work with cooperatives was done by the present director of the Division. Later the number of cooperatives increased and the director was unable to devote as much time to cooperatives. For that reason, the responsibility for working with the cooperative groups was assigned to this Bureau.

Since the service was assigned to the Bureau several important objectives have been attained. The law has been amended in many sections. One important amendment permits the dissolution of an association by proclamation under certain circumstances. In many cases cooperatives ceased to function years ago. In most cases there were no financial assets. Records have been lost and often the original incorporators or officers had died. Under the amended law 60 cooperatives have been dissolved after thorough investigation, including consent of any persons still interested in the association.

A bi-monthly newsletter called "New Jersey Cooperative News" is mailed by the Bureau to the directors, managers and officers of cooperatives and to persons in authority in organizations closely associated with cooperative work such as the American Institute of Cooperation. In some cases meetings have been arranged with suitable speakers to cover problems of mutual interest to all cooperatives.

Cooperation has been extended to the Committee on Cooperatives organized under the New Jersey Farm Bureau. One project has been to promote more emphasis on the teaching of cooperative business in vocational agriculture classes. Another has been to promote attendance at the summer meeting of the American Institute of Cooperation to be held this year at Cornell University.

STATISTICS ON COOPERATIVES IN NEW JERSEY

| | | |
|---|---|---|
| Cooperatives incorporated in New Jersey | | 84 |
| Foreign co-ops. domesticated in New Jersey | | 25 |
| Total co-ops. doing business in New Jersey as of July 1, 1953 | | 109 |
| Cooperatives incorporated during fiscal year 1953-54 | 5 | |
| Foreign co-ops. domesticated during fiscal year | 0 | |
| Co-ops. dissolved during fiscal year | 5 | |
| Foreign co-ops. withdrawn during fiscal year | 0 | |
| Total co-ops. doing business as of June 30, 1954 | | 109 |

## 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 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. In the formative years of this project there were many obstacles to overcome. A survey made 25 years ago showed over 30 ordinances of local municipalities in which many variations in milk production requirements were outlined. In developing grade requirements consideration had to be given to these ordinances and in particular to the ordinances in important distribution centers. Today the official grades of milk are respected and recognized as meeting requirements in practically all markets of the State.

While the volume of milk under the grades has increased the coverage of the State has drastically decreased. This is largely due to the ability of distributors to obtain milk from cheaper sources of supply outside of the State. It is true that a much larger percentage of milk under State supervision is sold as fluid milk, commanding a higher percentage of Class I price than the State average. There also are not as many dealers under the grade program because of consolidations and the elimination of many small producer-dealers who formerly were under the grade supervision.

Other activities of the project include cooperation with the New Jersey Dairymen's Council and other agencies and cooperation with certain municipal health authorities. The project leader also obtains statistical information on livestock auction sales and cooperates with the Bureau of Market Reporting and Cooperatives by furnishing this material for the Weekly Market Review.

## NEW JERSEY OFFICIAL GRADES

The volume of milk sold under the New Jersey official grades again has shown a substantial gain over the previous year. As the year closed 123,505 quarts were being marketed daily, processed by 20 dealers. Of these 20 dealers, one distributes raw milk only, 13 are purchasing dealers, three producer-dealers and four both produce and purchase milk. There are 347 producers in the program.

When the New Jersey official grades were established a rigid herd inspection system was introduced. At the present time the program not only is praised by municipal health officers but serves as a model for several other inspection agencies. During this fiscal year there were 11,477 cows examined semi-annually by veterinarians in accordance with grade regulations.

### PHYSICAL EXAMINATION OF COWS

July 1, 1953 to June 30, 1954

| County | Herd Examinations | Animal Examinations | Animals Passed | Animals Isolated | Animals Condemned |
|---|---|---|---|---|---|
| Hunterdon | 322 | 9,991 | 9,885 | 101 | 5 |
| Mercer | 27 | 1,044 | 1,021 | 19 | 4 |
| Monmouth | 5 | 127 | 126 | 1 | .. |
| Morris | 69 | 2,458 | 2,437 | 21 | .. |
| Somerset | 258 | 7,903 | 7,799 | 101 | 3 |
| Sussex | 33 | 1,247 | 1,238 | 8 | 1 |
| Warren | 4 | 183 | 183 | .. | .. |
| Totals | 718 | 22,953 | 22,689 | 251 | 13 |

| | Number | Per Cent |
|---|---|---|
| Herds in which all animals were passed | 556 | 77.44 |
| Herds in which animals were excepted | 162 | 22.56 |
| Animals passed | 22,689 | 98.85 |
| Animals isolated | 251 | 1.09 |
| Animals condemned | 13 | 0.06 |

Physical examinations were made of all employees on farms producing raw milk under the grades and employees in bottling plants handling the official grades. Each was approved by the examining physician as a safe individual to handle milk and cards of identification were issued to them. There were 147 milk handlers' cards issued during the year. Laboratory examinations of specimens submitted by physicians in connection with physical examinations were made by the New Jersey Department of Health.

Microscopic analysis of all samples of milk taken in control work are made at the New Jersey Dairy Laboratories operated by Dr. David Levowitz, an expert in bacteriology and one of the leaders in developing processes for safeguarding milk supplies. The milk standardization program has been in effect 23 years and during this time not one case of infectious

disease has been traceable to the milk supply. During the year 4,904 samples were collected, analyzed and reports sent to cooperating producers, dealers and health officers.

Complying with Regulation 17 approved by the State Board of Agriculture during the year and effective September 1, 1953, the office issued 29 warning letters following two consecutive high counts. Corrections were made immediately most of the time, but in seven cases the Division advised dealers that the supply did not comply with regulations and was unacceptable for official grades sales. The producers were aided in corrective procedure and were quickly reinstated by dealers.

## LIVESTOCK AUCTION MARKETS

The trend of sales at the livestock auctions in New Jersey is best illustrated by the fact that the six reporting livestock auctions showed an increase of 8,575 head, or 5.85 per cent, while the gross returns dropped from $8,506,930.71 in 1952-53 to $7,252,161.26 in 1953-54, a decrease of 14.74 per cent.

The sales of three of the reporting livestock auctions are by cooperative associations, all organized with the assistance of the Department. The other three are privately operated. The six markets reported the sale of 155,108 animals, which is estimated at about two-thirds of the possible volume. Continued support of the cooperative auction markets and well conducted private markets will be of great benefit in establishing fair prices for farmer-producers in New Jersey.

LIVESTOCK AUCTION MARKETS

July 1, 1953 to June 30, 1954

| | Head | Value |
|---|---|---|
| Flemington | 22,529 | $800,678.66 |
| Hackettstown | 46,229 | 2,211,286.88 |
| Mount Holly | 3,769 | 81,567.00 |
| New Egypt | 11,907 | 779,987.48 |
| Sussex | 42,076 | 1,651,594.98 |
| Woodstown | 28,598 | 1,727,046.26 |
| Totals | 155,108 | $7,252,161.26 |

## SPECIAL SERVICES

The supervisor has cooperated with the New Jersey Official Grades Milk Dealers Association, Inc. and has been of special help in promotional work. He cooperated in developing an exhibit shown at the Flemington Fair and at the Farm Show in Atlantic City.

The supervisor again worked with the New Jersey Dairymen's Council, serving on committees and attending all meetings of the Council during the year.

## BUREAU OF FRUIT AND VEGETABLE SERVICE

The Bureau of Fruit and Vegetable Service is the agency most directly concerned with activities associated with the marketing of New Jersey fresh fruits and vegetables. Generally these include the development and establishment of outlet facilities such as local shipping point markets and terminal markets in large adjacent cities, city market and consumer educational promotional work to create greater demand for New Jersey products, assistance of growers and shippers in better grading and packaging to promote greater returns, supervision of the inspection and certification of products for shipment to domestic and foreign markets and the grading of fresh products for processing.

The inspection, certification and grading of fresh fruits and vegetables in accordance with Federal and State standards to be marketed in the fresh form or used for processing are the main responsibilities of this Bureau. The procedures are conducted in accordance with inspection practices approved by both Federal and State Departments of Agriculture. Both departments and the New Jersey Agricultural Society are responsible in a three-way agreement under which the inspection service is operated in New Jersey. This arrangement was instituted in 1945.

Under the agreement the cooperators have individual as well as collective responsibilities. The agreement outlines the general functions for which each must assume responsibility including the supplying of needed personnel to conduct the work, interpretation and application of grade standards, general supervision of the conduct of the service, collection of fees for services and disbursements to cover costs of operation. The volume of work performed under the agreement each year is influenced by such factors as crop production, market prices and regulations which might be in effect for the purpose of controlling the marketing of certain commodities. The agreement makes it possible to render a national and State service in a manner which could not be accomplished as effectively by one without the cooperation of the other.

Inspections on products for fresh market shipment this fiscal year amounted to 61.3 per cent of last year. Most of this reduction was due to a drop in the number of potato inspections which were only 45 per cent of last season.

The rapid growth in the use of frozen foods, particularly fruits and vegetables, is making the inspection and grading of raw products for processing increasingly more important. Improved service has been possible by research and development of visual aids to be used in conjunction with better training programs and closer supervision in the application of established inspection principles and procedures. Further improvement will

be possible in the future if studies being made of mechanical color measuring equipment prove satisfactory and practical. This will be particularly advantageous in the grading of tomatoes for processing.

Inspectors stationed at receiving platforms where products for processing are delivered render a highly valuable service to growers by suggesting ways and means by which they may improve the quality of the products being delivered.

## PURPOSE OF INSPECTION

The shipping point inspection service supplies information to growers, shippers and receivers of fresh farm produce, enabling them to trade on a basis of mutual understanding through the use of uniform grades. The service, which is voluntary, provides an official, unbiased inspection and certification at a reasonable cost to interested parties. Inspection of commercial quantities such as carlots, trucklots, warehouse and storage lots is made available through the shipping point service. Inspections are usually made at railroad sidings, on farms, in storages or warehouses and other points of assembly.

Most of the trading on commercial quantities of fresh products throughout the United States as well as internationally is done on the basis of official inspection and certification in accordance with U. S. Standards. The service provides a means by which selling and buying may be done with mutual confidence between seller and buyer. It offers proof of compliance with State and Federal regulations, export requirements and Government purchase contracts or programs. Controversies arising between shippers, buyers, storage companies or carriers are usually settled by official inspection and certification of the quality and condition of such products as may be in dispute. The shipping point inspection service serves as a stabilizing factor in its aid to the orderly marketing of fresh fruits and vegetables. Through this service the Bureau of Fruit and Vegetable Service renders assistance to growers and shippers not merely by inspection activities but also in providing information as to proper grading, packaging, loading and handling practices.

The processing industry in New Jersey provides a highly important market for fruits and vegetables. Production on about 50 per cent of the acreage planted to vegetables in the Garden State is sold to processing plants. The two main crops grown for processing are tomatoes and asparagus. Prior to the season the processors contract acreage from growers producing the crop or crops which they are interested in packing. While most of the acreage contracted is in tomatoes and asparagus, other contract crops include carrots, peas, red peppers, green tomatoes, apples, snap beans, sweet potatoes and lima beans.

Contracts on most products are based on Federal or State standards and prices are fixed between processors and growers before the season opens. This insures the grower against a fluctuating market which may be very low during heavy production periods. Each load delivered to the plant or receiving station is sampled and graded by inspectors employed by the New Jersey Agricultural Society and the results are applied to the entire lot or load. The value of each lot is thus determined since prices have been fixed by contracts on the basis of quality and prices received by growers are directly proportionate to quality delivered. Delivery of a superior quality raw product to the processor results in the lowering of his operational costs. This is usually reflected in higher contract prices, thereby increasing the returns to producers.

## CERTIFYING FRESH PRODUCE

### *Apples*

This was another off year in the inspection of apples in New Jersey. The two main factors affecting work on apples, as well as on other commodities, are the condition of the domestic markets and the condition of foreign markets. The first is governed largely by countrywide production as well as production within the State. The second depends mainly upon the monetary situation in the countries which normally import New Jersey apples.

While production figures indicate that the 1953 crop for the United States was about 10 per cent below the 10-year average for 1943-52 it was about 400,000 bushels greater than the 1952 crop. In the northeastern States production was about 25 per cent above the 1952 figures and in New Jersey about 15 per cent greater.

The increase in production did not seem to have any great or lasting effect on the domestic market. This was mostly because a larger proportion of the crop in New Jersey was shipped to processors, thereby making it possible to avoid heavy storage supplies. The processing market was strong and average prices were good throughout the harvesting period. This enabled the disposal of much of the slightly inferior quality which would normally go into fresh market channels. Under these conditions growers were able to exercise greater care in the grading and packing of fruit to be stored and shipped later.

Prices on fresh pack apples were good throughout the entire harvesting and storage periods. Under these conditions the volume of inspections is affected adversely. The only apples inspected were those being exported or those sold to the Quartermaster Department for distribution to United States Government installations. Under the Export Apple and Pear Act

inspection and certification are mandatory and in the case of Government purchase all fruits and vegetables are required to be inspected. The Government agency handling the produce specifies that certain quality must be certified to before acceptance.

This fiscal year 228 lots of apples covering 83,142 bushel containers were inspected and certified compared with 157 lots covering 58,963 bushel containers last year.

*Green Corn*

A unique method for the marketing of green corn was instituted by the Cooperative Growers' Association, Inc. of Beverly in 1945. Each successive season the program has been resumed and has proven its value to the growers in Burlington County. The purpose of the program was not only to assist the growers in the marketing of their vast production but to provide homemakers with field-fresh corn. At the start of this program an agreement was entered into between several large chain store organizations and the Cooperative Growers' Association, Inc. for the purpose of supplying stores located in the Greater Philadelphia area with sweet corn which was as fresh as one could pick in his own garden. Daily harvesting operations are begun shortly after midnight and the corn is harvested, graded, packed, inspected, loaded and rolling by 5:00 A. M. The transporting trucks deliver directly to the stores where the corn is available to consumers when the stores begin their daily business.

While this type of marketing is responsible for the movement of a large part of the volume, all green corn shipped from Burlington County is not marketed on the field-fresh program. Harvesting continues throughout most of the day and in some cases until late evening and night. The majority of this corn is shipped under refrigeration outside of the area considered as nearby.

The part of this program which mostly concerns the Bureau of Fruit and Vegetable Service is the inspection. The inspector assigned and supervised by the Bureau is required to work from early morning until late at night. The large volume which has to be moved in a period of about three weeks necessitates that everybody concerned put in long hours through the deal.

This year another shipper in the Burlington area sold a considerable volume of green corn to the Quartermaster Marketing Service for distribution to northeast area military training bases. He also shipped to Canada. Inspections on these lots were handled on a day-to-day basis by inspectors from the Hightstown office.

This season the Federal-State Agricultural Society inspector assigned to the field-fresh program inspected 112 trucklots covering 33,112 wirebound crates, 622 open-mesh sacks and 100 bushel baskets. All containers had approximately 50 to 55 ears. Last season 97 trucklots were inspected on this program and covered 31,779 packages.

The shipper supplying corn to training centers had 23 trucklots inspected covering 10,119 wirebound crates. The season's total inspections on green corn were 135 lots and covered 43,953 packages of 50 to 55 ears each.

### *White Potatoes*

Weather conditions during the planting and growing seasons for white potatoes in the spring of 1953 were similar to those of 1952. Excessive rain delayed planting in most areas and after the plants were above ground periodic heavy rains resulted in drowning out areas in some fields. This served to further reduce acreage, which was already only about half of the 10-year average of 1943-52.

As in 1952 there was no Government purchase program or price support on white potatoes and no mandatory requirements of inspection and certification.

This season, with poor demand and low prices prevailing, along with a late season, growers were reluctant to begin general harvesting operations until the last week in July, about two weeks later than usual. This gave the early varieties an opportunity to attain better size and maturity. Early potatoes were of excellent quality and growers experienced little difficulty in packing to meet the grade requirements of U. S. No. 1, Size A. Most of the lots inspected in July were exported to South America, mainly to Venezuela.

Requests for potato inspection were fewer than had been anticipated. Poor demand, low prices and adverse weather were hard on the growers this year. The general quality of the crop was good and growers felt that by voluntarily doing a job of grading and packing acceptable to the trade they could save the added cost of inspection.

POTATO INSPECTIONS

| 1953-54 | | 1952-53 | |
|---|---|---|---|
| No. of Lots | Volume | No. of Lots | Volume |
| 782 | 213,998 cwts. | 1,748 | 462,869 cwts. |

## CANNERY CROPS

### *Asparagus*

Asparagus is the second most important crop grown for processing in New Jersey. The State ranks second only to California in the production of asparagus both for fresh market and processing. About 60 per cent of the 29 thousand acres of asparagus grown in New Jersey goes to processing plants.

Grading of asparagus for processing is the biggest individual project within the Bureau of Fruit and Vegetable Service. It requires the use of more personnel than any other single operation. During recent years most processors have increased their zones of operation by placing receiving stations at strategic locations throughout the producing areas. This has been done because of competition between processors in their bids for contracts with growers. The spreading out of receiving stations has necessitated an increase in personnel to handle the grading operation. This season there were 29 receiving stations operated throughout the production areas by five processors and 10 brokers. Forty-seven Federal-State inspectors, employed by the New Jersey Agricultural Society, were needed to do the grading work.

There was no change in the contracts with growers this year as compared with those of the past several years. There were two main types of contracts: those based upon the specifications of the New Jersey Standards for Green Asparagus for Processing and those based upon an agreement between the growers and the processor. There was one contract which incorporated parts of both.

Under the first type processors agreed to pay their growers for all asparagus spears of seven inch length, 3/8 inch minimum diameter, measured at the base, and meeting all quality requirements of the New Jersey Standards for N. J. No. 1. No payment was made for spears of N. J. No. 2 quality, culls, undersize spears or butts (part of the spear in excess of seven inches). Better than 90 per cent of the total volume of asparagus inspected was purchased on the basis of this contract which deviates from the original grade specification only in length and diameter of spears and the point at which diameter is measured.

Under the contract between canners and growers specifications for quality, length and diameter of spears are written into the contract. This enables inspectors to grade the asparagus in accordance with the contract specifications. About 8 per cent of the total volume was graded on the basis of canner-grower contracts this season.

The contract which incorporated part of each of the other two types was based primarily upon the New Jersey Standards but permitted acceptance of spears in the pay weight classification which did not meet the N. J. No. 1 grade specifications for "spreading tips." Length of acceptable spears was nine inches and diameter 3/8 inch measured at base of spears.

In the application of the grading service samples are taken from each lot delivered to the receiving points and graded by inspectors. The percentages of pay weight, off-grade and butts are determined by analyzing the samples. The percentages then are applied as the grading percentages for the entire lot represented by the sample. Value of the lots is determined by application of the contract prices to the pay weight in the load indicated by the percentage.

This asparagus season was different from last mostly because of the alternating periods of hot and cold weather. The overall figures for this season are little different from last year. However, in 1953 it was estimated that about 65 per cent of the volume was delivered by the end of May. This year deliveries to processors began April 19 but volume was light and increased slowly until the last few days of the month. Although it was not realized at the time May 3 proved to be the peak day of the season. From then on daily volume varied with weather changes, being heavy during warm or hot periods and lighter during cool or cold periods. By the end of May the volume was only 5 per cent to 10 per cent behind that of last year for the same date. June deliveries surpassed those of last season and when the season's figures were all in, the total volume graded exceeded that of last season by 3,212,935 pounds. This figure is misleading because there was an estimated increase of 7 per cent in acreage contracted for processing this year. On the basis of yield per acre growers were about 14 pounds per acre under last year.

Although varying widely from week to week this season's average grades based on the New Jersey Standards were identical to those of last year. Under the contracts based on these standards inspectors graded 48,831,761 pounds. Average grades were 73 per cent N. J. No. 1 for which growers were paid at contract prices, 7 per cent below grade and size specifications and 20 per cent classified as butts. In the spring of 1953 under the same contracts the volume graded was 45,204,332 pounds with averages of 73 per cent pay weight, 7 per cent off-grade and 20 per cent butts.

Comparing the two seasons based on canner-grower contracts, this year 4,056,914 pounds were graded with averages of 87 per cent pay weight and 13 per cent butts. The number of contract culls was negligible. Last season 4,668,268 pounds were graded with averages of 87.8 per cent pay weight, 0.3 per cent contract culls and 11.9 per cent butts.

Under the single contract incorporating New Jersey Standards and canner-grower specifications 196,860 pounds were graded during the season. Of this 84 per cent met the specifications for pay weight, 6 per cent failed and 10 per cent were butts.

DELIVERIES AND AVERAGE GRADES OF ASPARAGUS FOR PROCESSING BASED ON NEW JERSEY STANDARDS

| Week Ending | Loads Inspected | Total Pounds | N. J. No. 1 ⅜ Inch Min. 7 Inch Spear | Per Cent N. J. No. 2 Undersize and Culls | Butts |
|---|---|---|---|---|---|
| April 24 | 878 | 523,090 | 63 | 12 | 25 |
| May 1 | 3,747 | 3,276,981 | 72 | 8 | 20 |
| May 8 | 4,997 | 6,351,466 | 73 | 6 | 21 |
| May 15 | 4,183 | 4,347,183 | 77 | 8 | 15 |
| May 22 | 4,939 | 5,626,639 | 75 | 6 | 19 |
| May 29 | 5,728 | 6,414,114 | 75 | 6 | 19 |
| June 5 | 5,996 | 7,174,271 | 71 | 6 | 23 |
| June 12 | 5,750 | 6,184,572 | 72 | 7 | 21 |
| June 19 | 5,249 | 4,408,940 | 71 | 8 | 21 |
| June 26 | 4,540 | 3,788,678 | 68 | 10 | 22 |
| July 3 | 1,197 | 735,827 | 68 | 11 | 21 |
| Season | 47,204 | 48,831,761 | 73 | 7 | 20 |

DELIVERIES AND AVERAGE GRADES OF ASPARAGUS FOR PROCESSING BASED ON CANNER-GROWER CONTRACTS

| Week Ending | Loads Inspected | Total Pounds | Pay Weight | Per Cent Contract Culls | Butts |
|---|---|---|---|---|---|
| April 24 | 28 | 26,282 | 83 | 1 | 16 |
| May 1 | 289 | 246,806 | 87 | .. | 13 |
| May 8 | 472 | 572,832 | 87 | .. | 13 |
| May 15 | 371 | 389,334 | 88 | .. | 12 |
| May 22 | 475 | 478,992 | 88 | .. | 12 |
| May 29 | 598 | 534,480 | 88 | .. | 12 |
| June 5 | 626 | 632,196 | 86 | .. | 14 |
| June 12 | 594 | 512,652 | 85 | .. | 15 |
| June 19 | 515 | 373,286 | 84 | 1 | 15 |
| June 26 | 471 | 258,060 | 85 | 1 | 14 |
| July 3 | 107 | 31,994 | 96 | .. | 4 |
| Season | 4,546 | 4,056,914 | 87 | .. | 13 |

DELIVERIES AND AVERAGE GRADES OF ASPARAGUS FOR PROCESSING BASED ON NEW JERSEY STANDARDS AND CANNER-GROWER CONTRACTS

| Week Ending | Loads Inspected | Total Pounds | N. J. No. 1 Except for Spreading Tips ⅜ Inch Min. 9 Inch Spear | Per Cent N. J. No. 2 and Contract Culls | Butts |
|---|---|---|---|---|---|
| June 5 | 5 | 2,108 | 85 | 5 | 10 |
| June 12 | 44 | 38,488 | 83 | 7 | 10 |
| June 19 | 86 | 64,056 | 83 | 7 | 10 |
| June 26 | 98 | 74,902 | 85 | 5 | 10 |
| July 3 | 33 | 17,306 | 83 | 7 | 10 |
| Season | 266 | 196,860 | 84 | 6 | 10 |

*Tomatoes*

Grading of tomatoes for processing is the second largest project within the Bureau, requiring almost as much personnel to handle the work as asparagus. New Jersey is one of the top ranking States in the production of tomatoes for processing, usually ranking third in the nation behind California and Indiana. It is the largest crop produced in New Jersey for processing purposes.

During 1953 there were seven processors and two brokers using the grading service. There were 15 receiving stations conveniently located throughout the producing areas, including those at processing plants. The services of 35 to 40 Federal-State inspectors were needed during most of the season to handle the grading of samples from each lot delivered. As with asparagus, grading provides a basis for determining the value of each lot delivered by application of contract prices to grading percentages established by grading samples in accordance with U. S. Standards for Tomatoes for processing.

Deliveries of contract tomatoes for processing began the last week in July and continued in light volume through the first week in August. The quality of early season tomatoes was varied. Some loads coming in from the market growing areas in South Jersey showed the effects of the extremely high temperatures and dry weather during July, much of the fruit being sunburned and faded. Other loads were pale because they were picked before the fruit reached the proper degree of maturity for canning purposes. The average quality, however, was about normal for first of the season deliveries. During the second week in August both volume and quality took a sharp upturn. The weather during this period was dry and cool and favorable to growth and ripening of tomatoes. Rain over the weekend of August 15 made many growers fearful that their crops were in danger of an oversupply of moisture should the wet weather continue. The result was an increase in volume delivered but a decline in quality with many loads showing pale color due to poor picking. However, most growers refused to be panicked and the overall average quality was kept at a fairly high level. With the return of dry weather grades advanced steadily for 10 days.

The total volume graded was 192,623 tons and the season's average grades were 66 per cent U. S. No. 1, 32 per cent U. S. No. 2 and 2 per cent culls. The 1952 crop figures show a total volume graded of 127,418 tons with average grades of 57 per cent U. S. No. 1, 39 per cent U. S. No. 2 and 4 per cent culls. Average yield in New Jersey per acre for 1953 was 10.8 tons compared with 5.5 tons in 1952.

SUMMARY 1953 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) |
|---|---|---|---|---|
| 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 |
| 1943 | 149,786 | 66 | 32 | 2 |

## *Other Cannery Crops*

Asparagus and tomatoes are the two main crops grown for processing in New Jersey but there are several other commodities upon which grading service is requested. During the 1953-54 season the New Jersey Agricultural Society inspectors graded a total of 15,622,781 pounds of other products on the basis of the U. S. Standards for Processing for the commodity.

OTHER PRODUCTS AND VOLUME GRADED

| Product | Pounds |
|---|---|
| Carrots | 11,388,743 |
| Red Sweet Peppers | 2,292,000 |
| Green Tomatoes | 952,000 |
| Apples | 491,085 |
| Snap Beans | 335,667 |
| Sweet Potatoes | 163,286 |

## *Other Vegetables*

Each year several brokers in the Swedesboro area make shipments of asparagus to processors in Canada. Under the Canadian import laws such shipments must be inspected and certified as meeting Canadian Import Requirements. These requirements specify that asparagus must at least meet the minimum specifications of U. S. No. 2 grade for fresh asparagus with not less than two-thirds of the stalk length green. There are other requirements in the law relative to the marking of packages incident to proper conformity.

Some years most of the asparagus for shipment to Canada is bought at the Swedesboro auction market when prices dip to a point where Canadian buyers feel they can profitably handle it. This helps to serve as a

stabilizer on the domestic market by removing the surplus of small sizes which seem to be preferable to the Canadian processors. This year the asparagus bought at the auction market was handled by only one Canadian processor.

A cutting operation was installed in the local broker's warehouse in Swedesboro and the asparagus was uncrated, unbunched and cut to about 4¼ inch spear lengths. The spears were packed in climax baskets. The Canadian processor importing this asparagus appealed to the Canadian Department of Agriculture and was granted a special permit to also import such green "center cuts" of about 1½ inch length as could be recovered from the second cut on that portion of the spear normally considered as the butt. Under this arrangement 14,424 climax baskets of spears and 4,064 climax baskets of green cuts were inspected and certified. Average weight of a basket is 9.5 pounds.

Another broker shipping to Canada contracted with growers on the basis of the New Jersey Standards for Green Asparagus for Processing; seven inch spear length, 3/8 inch minimum diameter at base of spear. He recut the spears to approximately six inches. These were packed upright in used unlidded tomato lugs with tips well below top edge of end cleats for protection. Spears in these shipments ranged from small to large sizes, being delivered just as they were cut in the field with no sorting for diameter. Under this arrangement each lot was inspected when delivered to determine the price to the growers and inspected again after cutting and packing for shipment to Canada on the basis of the U. S. Standards for Fresh Market Asparagus. A total of 12,066 lugs averaging 16 pounds net were shipped this season.

The main reason for trimming spears to a shorter length before shipment to Canada was the elimination of excess weight from the unusable portion of the spear, thereby reducing the amount of import tariff which is based on net weight.

In addition to the asparagus shipped under these two systems, 1,600 pyramid asparagus crates averaging 30 pounds net were shipped to Canadian processors. One lot of 120 pyramid crates failed to meet grade requirements and was not shipped.

This season a total of 649,974 pounds of asparagus was exported to Canada compared with 789,687 pounds in the spring of 1953. Transportation was in refrigerated semi-trailers and 35 loads were required to move the volume shown above.

During this fiscal year other products inspected included snap beans, beets, cabbage, carrots, cucumbers, lettuce, onions (dry and green), peaches, green peppers, sweet potatoes and tomatoes. One lot contained mixed vegetables. These products were inspected at shipping points or in storages

or warehouses and were certified for shipment to fresh markets. A total of 118 lots covering 28,979 packages were inspected. Several of the New Jersey fruit and vegetable auction markets used Federal-State inspectors for inspection and arbitration purposes.

10-YEAR RECORD OF SHIPPING POINT INSPECTIONS BY PRODUCTS

| | 1944-45 | 1945-46 | 1946-47 | 1947-48 | 1948-49 | 1949-50 | 1950-51 | 1951-52 | 1952-53 | 1953-54 |
|---|---|---|---|---|---|---|---|---|---|---|
| Apples | 408 | 47 | 349 | 213 | 100 | 789 | 234 | 796 | 157 | 228 |
| Asparagus | 16 | 6 | 44 | 3 | 50 | 93 | 46 | 10 | 45 | 36 |
| Beans | 3 | 1 | .. | .. | .. | .. | 1 | .. | 1 | 2 |
| Beets | 3 | 17 | .. | .. | .. | .. | 1 | .. | .. | 1 |
| Cabbage | 22 | 14 | 4 | 13 | 3 | 8 | 5 | 4 | 7 | 2 |
| Carrots | 4 | 3 | 2 | 5 | 5 | 6 | .. | .. | 1 | 1 |
| Cauliflower | .. | .. | .. | 1 | 5 | 2 | .. | .. | .. | .. |
| Celery | 1 | 2 | 6 | 11 | 5 | 2 | .. | .. | .. | .. |
| Corn | 1 | 51 | 82 | 100 | 91 | 37 | 67 | 92 | 113 | 135 |
| Cucumbers | 8 | 3 | 1 | 2 | 3 | 8 | .. | 1 | 4 | 49 |
| Eggplant | 12 | 3 | .. | .. | .. | .. | .. | .. | .. | .. |
| Lemons | .. | .. | 1 | 1 | .. | 1 | .. | .. | .. | .. |
| Lettuce | 20 | 2 | 4 | 1 | 4 | 1 | 2 | .. | 5 | 1 |
| Onions | 3 | 26 | 10 | 38 | 36 | 28 | 15 | 42 | 14 | 27 |
| Onions, Green | .. | .. | .. | .. | 10 | .. | .. | .. | 2 | 1 |
| Parsley | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. |
| Parsnips | 11 | 7 | .. | .. | .. | .. | .. | .. | .. | .. |
| Peaches | 3 | 7 | 3 | .. | .. | 1 | 1 | 5 | 3 | 3 |
| Peppers | 52 | 50 | 12 | 78 | 36 | 48 | .. | 5 | 5 | 2 |
| Potatoes | 2,827 | 5,994 | 11,333 | 14,066 | 12,586 | 10,454 | 18,429 | 9,989 | 1,743 | 782 |
| Radishes | 1 | .. | .. | 1 | 7 | 3 | .. | .. | .. | .. |
| Rhubarb | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. |
| Rutabagas | .. | 2 | .. | .. | .. | .. | .. | .. | 3 | .. |
| Spinach | 13 | 17 | .. | 1 | .. | 2 | .. | .. | 1 | .. |
| Squash | 7 | 1 | .. | .. | .. | 1 | 6 | .. | .. | .. |
| Sweet Potatoes | 178 | 20 | 41 | 5 | 33 | 5 | 26 | 12 | 7 | 24 |
| Tomatoes | .. | .. | .. | 6 | .. | 1 | 1 | .. | .. | 4 |
| Turnips | 2 | 21 | 15 | 2 | .. | 1 | .. | .. | 1 | .. |
| Mixed Fruits and Vegetables | .. | .. | .. | 357 | 684 | 550 | .. | .. | .. | .. |
| Mixed Vegetables | 77 | 65 | 31 | 210 | 155 | 128 | 3 | .. | 2 | 1 |
| Totals | 3,672 | 6,361 | 11,938 | 15,114 | 13,813 | 12,170 | 18,837 | 10,956 | 2,119 | 1,299 |

## *Terminal Work*

In addition to the shipping point work, the primary duty of the Bureau, there is also the responsibility of making inspections of produce shipped into the State when requested by the receiver. Most inspections are requested on potatoes, particularly on seed stock arriving in late winter and early spring and showing freezing damage, but inspections are requested

on many other commodities. Terminal inspections are certified on straight Federal certificates and the work may be performed only by inspectors certified by Letter of Authorization from the U. S. Department of Agriculture. In addition to the chief of the Bureau there are two Federal-State inspectors employed by the Agricultural Society and one Department inspector authorized to make terminal inspections in New Jersey.

This fiscal year 69 terminal inspections were made covering 25,007 packages of various kinds and 128,600 pounds of cranberries. Other commodities inspected were potatoes, onions and tomatoes. In addition the men certified 61,708 pounds of products for delivery to State hospitals and institutions as replacements for items rejected upon original delivery. Commodities covered by these inspections consisted of cantaloupes, celery, grapefruit, lettuce, oranges, peaches, potatoes and tomatoes.

## MARKET ACTIVITIES

New Jersey has a good marketing system for practically all products. This is especially true in the case of fruits and vegetables, the largest outlet for Garden State vegetable growers being the processors.

Fruits and vegetables are the most important commodities offered in city farmers' markets. No new markets of this type have been developed in the State for several years. It is believed that there are enough of the wholesale type city farmers' markets but that there is a possibility that city markets where farmers sell direct to the consumer might be helpful. One outstanding example of the latter kind is the Trenton Farmers' Market.

The main reason for the decline in wholesale markets is the changing habits of wholesale buyers. The situation is not localized in New Jersey but is prevalent over most of the country. It has been influenced by the very heavy sales to consumers by super markets operating high-class fresh fruit and vegetable departments, and by the methods of purchase by chain stores. These organizations do not buy in large volume at city farmers' markets and have forced out of business many independent fruit and vegetable stores which usually did obtain their supplies at the city wholesale markets. The truck-growing areas around the cities are shrinking fast because of decentralization of industry and new housing developments out in what used to be the country.

New Jersey has strategically located markets in the heart of the producing areas. These markets in most cases are farmer owned and operated and are usually incorporated as cooperatives. The plan of farmer ownership in the selling end of agriculture is generally praised.

New Jersey is located between New York and Philadelphia, two of the largest terminal markets in the country. In these markets as in other terminals within a radius of a few hundred miles there are commission mer-

chants who handle millions of dollars worth of fresh fruits and vegetables. Garden State growers also have valuable outlets in roadside stands, in local dealers handling supplies for city outlets and, because of the fine highway network, farmers can sell and load trucks on the farm on an f. o. b. basis.

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 perform promotional work in developing sales programs. The weekly price reports obtained from these markets are also of great value to the Federal Crop Reporting Service and Rutgers University College of Agriculture.

Representatives of the Division have attended all annual meetings of shipping point markets and most city farmers' markets. The Division has also been represented at directors' meetings and at committee meetings where marketing problems have been discussed.

### *Shipping Point Auction Markets*

Following the method of reporting in annual reports of former years, information is given on the complete calendar year or crop growing year rather than break the information into parts of two years to cover only a fiscal year. Therefore, the entire marketing year of 1953 is covered but some information on the first six months of 1954 is also presented.

Average prices for all fruits and vegetables sold over the auctions were 5.37 per cent lower in 1953 than in 1952. Due to a favorable growing season total volume was about 12 per cent higher. Gross returns to the producers were, therefore, $458,984.32 greater than in 1952. In 1954 prices for sweet potatoes sold out of storage were much lower than prices received in the winter and early spring of 1953. Prices for many spring crops such as asparagus, strawberries and early lettuce were much higher than in the former year but prices for some vegetables were lower. The volume sold at the auctions in the first six months of 1954 was slightly below the volume of the corresponding period of 1953. Prices averaged $2.78 in 1954 while prices during the first six months of 1953 averaged $2.92.

The activities of the cooperative marketing associations and especially the auction markets have continued to increase the services rendered to their members. Not only have they increased their business in farm supplies but in three instances during the year the auction associations have conducted sales of used equipment for their members. At these sales the farmer-members have brought in machinery and other tools which they have replaced with new equipment. There is a need for this material by other farmers who may not be financially able to buy new supplies.

The Bureau for years has advised the directors to do anything practical to relieve pressure on the markets in times of oversupply. Progress in this

endeavor has been made. They have sold to processors large volumes of what could have caused a serious surplus. More than 150,000 bushels of sweet potatoes of a small to medium size were sold to processors by the Landisville association in the fall of 1953. Over a half-million pounds of blueberries were taken from the market in Hammonton by the association and sold to processors. The Hammonton group has arranged for the quick-freezing for their own account of 200,000 pounds of blueberries to be taken from the market during the peak of the 1954 season and sold during the winter months. Other markets have installed equipment for icing loads of perishables bought by buyers on the market for distant delivery. Two markets now have cold storage facilities for member use.

The supervisor of fruit and vegetable standardization has continued to devote the greater part of his time to the auction market associations. He works closely with the association managers in planning the year's activities and especially in the development of new equipment and services. He attends monthly directors' meetings at all associations when new ideas are to be discussed.

SUMMARY OF SALES AT FRUIT AND VEGETABLE AUCTION MARKETS

| | Season of 1953 | | Season of 1952 | |
|---|---|---|---|---|
| | Number of Packages Sold | Value of Sales | Number of Packages Sold | Value of Sales |
| Beverly | 256,735 | $310,241.16 | 228,630 | $302,197.84 |
| Beverly Consigned | 220,306 | 474,070.21 | ..... | 463,552.26 |
| and Special | 43,308 | 129,001.50 | 24,588 | 72,267.41 |
| Cedarville | 659,893 | 1,431,748.80 | 613,580 | 1,344,423.38 |
| Glassboro | 280,331 | 565,077.15 | 210,078 | 446,681.97 |
| Hammonton | 245,879 | 873,990.75 | 176,188 | 607,459.55 |
| Hammonton to | | | | |
| Processors | 580,935 lbs. | 116,413.02 | ..... | 65,706.80 |
| Hightstown | 346,359 | 397,912.00 | 329,672 | 453,012.28 |
| Hightstown | | | | |
| Special Sales | 56,631 | 79,106.89 | 22,964 | 90,951.07 |
| Landisville | 542,345 | 1,049,588.91 | 478,207 | 1,127,205.10 |
| Landisville Consigned | | | | |
| and Special | 81,759 | 150,982.67 | 67,473 | 131,443.67 |
| Pedricktown | 169,333 | 488,370.53 | 127,511 | 420,377.43 |
| Swedesboro | 718,175 | 1,899,077.08 | 580,327 | 1,685,122.00 |
| Vineland | 729,412 | 1,189,114.95 | 783,026 | 1,359,657.46 |
| Totals—by auction | 3,948,462 | $8,205,121.33 | 3,527,219 | $7,746,137.01 |
| Value—all sales | ..... | $9,154,695.62 | ..... | $8,570,058.22 |

Average price per package (by auction), 1953 $2.078
Average price per package (by auction), 1952 $2.196

Per cent decrease in price per package, all commodities (by auction), 1953 under 1952 5.37

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

Through the cooperative work of the supervisor and the market managers three additional packages now in general use were made standard for inside dimensions by joint action of the Department and the Division of Weights and Measures of the New Jersey Department of Law and Public Safety. These packages are a 16-quart strawberry crate, a 12-pint blueberry crate and a crate for sweet corn.

### *City Farmers' Markets*

Mention has been made of a decline in importance in the wholesale type of city farmers' markets. This has been especially noticeable at the Newark market and to a lesser degree in Paterson and Atlantic City where some farm products are sold at the retail level. For a few years following the development of the farmer-owned market in Newark, sales approximated 8 million dollars annually. This has drastically declined. During the year the management of the Newark market discontinued the collection of sales volume by commodities on a daily basis. Therefore no report of volume at the Newark Farmers' Market is made.

At the Atlantic City market there was a decline in volume of fruit and vegetable sales and an increase in the volume of eggs and poultry. Total value of all sales decreased from $779,074.55 in 1952-53 to $762,364.55 in 1953-54. There were 323,625 bushels of produce sold as compared with 356,621 bushels in 1952-53. There were also 131,340 dozens of eggs and 57,790 pounds of poultry sold as compared with 126,510 dozens of eggs and 54,560 pounds of poultry in 1952-53.

PRINCIPAL COMMODITIES SOLD AT FRUIT AND VEGETABLE AUCTION MARKETS
VOLUME IN 1953 WITH 1952 COMPARISONS

| | Unit | 1953 | 1952 |
|---|---|---|---|
| Apples | Bushels | 11,684 | 10,005 |
| Peaches | Bushels | 149,680 | 120,121 |
| Blackberries | Crates, 24 quarts | 3,086 | 3,828 |
| Blueberries and huckleberries | Crates, 12 pints | 155,062 | 95,366 |
| Raspberries | Crates, 12 pints | 13,480 | 15,666 |
| Strawberries | Crates, 24 quarts | 72,951 | 82,220 |
| Asparagus | Crates, doz. bunches | 440,838 | 418,366 |
| Beans, lima | Bushels | 26,429 | 25,525 |
| Beans, snap | Bushels | 125,514 | 78,827 |
| Beets | Bushels | 15,318 | 11,751 |
| Broccoli-rabe | Bushels | 55,509 | 47,896 |
| Cabbage | Bushels | 75,287 | 75,601 |
| Cantaloupes | Bushels | 34,638 | 36,263 |
| Carrots | Dozen bunches | .... | 833 |
| Carrots | Bushels | 2,374 | 3,415 |
| Cauliflower | Crates, 1½ bushel | 5,332 | 5,106 |
| Corn, sweet | Bushels or sacks | 74,316 | 75,027 |

| | Unit | 1953 | 1952 |
|---|---|---|---|
| Cucumbers and pickles | Bushels | 223,625 | 295,960 |
| Dandelion | Bushels | 27,525 | 37,120 |
| Eggplants | Bushels | 79,556 | 102,988 |
| Lettuce | Crates, 2 dozen | 283,808 | 275,700 |
| Okra | Climax baskets, 12 qts. | 32,535 | 39,357 |
| Onions | Sacks, 50 lbs. | 157,490 | 135,934 |
| Parsley | Bushels | 32,583 | 20,517 |
| Peppers | Bushels | 509,622 | 507,291 |
| Potatoes, sweet | Bushels | 212,830 | 240,336 |
| Potatoes, white | Sacks, 100 lbs. | 14,772 | 35,895 |
| Radishes | Bushels | 14,660 | 12,225 |
| Rape | Crates | 11,138 | 8,376 |
| Scallions | Bushels | 13,563 | 10,111 |
| Spinach | Bushels | 1,383 | 4,476 |
| Squash | Bushels | 39,511 | 33,075 |
| Tomatoes | Climax baskets | 587,877 | 416,839 |
| Watermelons | | 17,026 | 11,816 |
| Miscellaneous | Packages | 550,706 | 375,789 |

The Trenton Farmers' Market does not make a record of volume of sales. Based on observations and conversations with several farmer-patrons the volume of sales at this market has increased slightly. Farmers express the opinion that this market meets their needs. They have a very fine attendance of consumer buyers throughout most of their season. Prices at the market are in line with retail prices in the Trenton stores. Consumers patronize the market because of parking facilities, quality supplies and courteous market attendants and salesmen.

### *Miscellaneous*

More than 20 years ago it was believed that an advisory committee of farmers interested in cooperative marketing would be of considerable help to the Department. Such a committee was formed in 1930. For several years the use of the group was limited to the fruit and vegetable field. In 1935 an incorporated association of auction market associations was formed with the advisory committee representing produce auctions as the nucleus. This State association is made up of 15 member associations and includes poultry and egg, livestock, and fruit and vegetable associations. The group has one annual meeting, sponsors the Cooperative Interests Dinner during Farmers Week and the fruit and vegetable section holds monthly meetings during the heavy marketing period. The association does much to protect the interests of cooperatives and to keep the reputation of cooperatives on a high level. Through the fruit and vegetable section the publication "Auction News" is financed.

The supervisor of fruit and vegetable standardization conducted the apple packing contest at the New Jersey Mid-Atlantic Farm Show in Atlantic City in December and the apple packing contests held during

Farmers Week in January. In this work he has cooperated closely with the College of Agriculture and vocational agricultural instructors.

The Bureau aided individual farmers in solving personal marketing problems and has worked with package manufacturers and farm leaders in improving packing and packages.

## BUREAU OF POULTRY SERVICE

The Bureau of Poultry Service maintained a high level of accomplishment during the 1953-54 fiscal year. The poultry standardization project nearly attained the million-bird record of the previous year. More than 2-⅓ million cases of eggs were inspected to set a new record in the poultry products standardization project.

In poultry standardization 998,043 birds were certified in 572 flocks in 18 counties, with 109 hatcheries cooperating. The number of birds in participating flocks was 3.5 per cent less than the record high of 1,034,633 birds in 1952-53. Production of chicks and poults in the State supervised hatcheries reached approximately 33,000,000 which was 5.9 per cent below the previous year. An estimated 74 per cent of all chicks and poults hatched in New Jersey were produced under State supervision.

Cumulative totals for 1953-54 show that the 31 egg-marketing projects (three more than last year) under Department supervision handled 2,371,067 cases (71,132,010 dozens), which had been inspected by Bureau of Poultry Service personnel and licensed agents. This was 13.7 per cent more than the previous record year, 1952-53. Approximately one-third of New Jersey's total egg production is now marketed under State inspection supervision. The volume has increased steadily and, with continued encouragement, official grading can be expected to grow in value.

The two projects are administered by a relatively small State-employed staff. The supervisors of poultry standardization and poultry products standardization are the only State employees, excepting clerical personnel. Other personnel are supported by fees paid by the recipients of the services rendered.

The poultry standardization employees paid from fees are a hatchery inspector and seasonally employed assistant. In poultry products standardization there are two inspectors paid from fees. The greatly expanded volumes of work in both projects have been made possible by the Department's policy of extending official recognition to the work of licensed agents who are qualified by training and integrity to perform the functions required. State licensed agents are employed and paid by the hatching egg flock owners, hatcheries, cooperative marketing associations and candling plant operators using the respective State services.

There were 117 privately employed workers certified as flock selectors, 117 as pullorum testing agents, and 109 hatchery owners and 572 hatching egg flock owners working in various phases of the N.J.-U.S. National Poultry Improvement Plan under departmental supervision last year. Within regulations prescribed by the State Board of Agriculture the results of their work are recognized for official ratings in flock health and selection. Each selecting and testing agent has been qualified by examination and his performance is periodically checked by Department personnel.

In poultry products standardization 31 privately-employed resident inspectors are responsible to the Department for the application of official grades. Relatively large crews of egg candlers work under direction of these agents, further multiplying the results obtained through the State-employed supervisory personnel.

Four inspectors assigned to enforcement of the State Fresh Egg Law, through inspections at both wholesale and retail levels, provide a further check upon the work of the licensed agent inspectors in addition to obtaining general egg trade compliance with the law.

The Bureau of Poultry Service staff continued to work closely with the managements of all poultry products marketing organizations. Many services beyond those specified by regulations were performed by the staff which seeks to accommodate all special requests of producers, distributors and consumers for information and technical assistance related to the poultry industry. Cooperation was given other branches of New Jersey, Federal and other states' governments and to 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 eradication program. The functions of breeder selection and blood testing are closely integrated. The New Jersey program is coordinated with that of the U. S. Department of Agriculture and with other States. The National Poultry Improvement Plan has been in operation in New Jersey 19 years, replacing the original State program established in 1923. The National Turkey Improvement Plan has operated for 11 years.

There were 998,043 birds in 572 flocks enrolled during 1953-54. A total of 341,852 birds (34.2 per cent) was 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 February assisted in handling the work.

The supervisor of poultry standardization supervised the work of 123 privately employed field agents qualified for flock selection or pullorum testing, some of whom combined these functions.

New Jersey now has 500 Pullorum-Clean flocks in a total of 572 hatching egg flocks under supervision. Steady progress toward control of pullorum disease was maintained in 1953-54. Few breeding flocks remain in New Jersey whose owners have been unable to attain official health ratings well under the minimum pullorum rating of less than one per cent tolerance.

The work of the testing agents for Pullorum-Clean classification has been satisfactory. The State Board of Agriculture's permission to give official recognition to Pullorum-Clean ratings attained through work of testing agents was made a permanent part of the program with the 1952-53 season. The number of birds in the Pullorum-Clean classification increased from 785,551 in 1952-53 to 904,687 in 1953-54.

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 1,746 birds last year, three times greater than the average of 540 birds 10 years ago. The average hatchery capacity in New Jersey is 117,681 eggs per setting, 26 per cent greater than 10 years ago. The demand for New Jersey official pedigreed males to head up breeding flocks continues to grow because of chick customers' demands for genetic proof of efficient performance.

The classifications used this season were:

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

## *Extent of Program*

Poultry Table 1

| N.J.-U.S. Improvement Plans | Number in 1953-54 | Number in 1952-53 | Per Cent Changes in 1953 |
|---|---|---|---|
| Number of flocks cooperating | 572 | 668 | —14.4 |
| Total number of breeders | 998,043 | 1,034,633 | — 3.5 |
| Number of hatcheries cooperating | 109 | 124 | —12.1 |
| Hatchery capacity cooperating | 11,827,220 | 12,841,016 | — 7.9 |
| Hatchery capacity in New Jersey | 15,900,000 | 16,000,000 | — 0.6 |
| Number of birds in pullorum classes only | 620 | 521 | +19.0 |
| Number of birds in Approved stages | 819,462 | 866,969 | — 5.5 |
| Number of birds in Certified stages | 177,961 | 167,143 | + 6.5 |
| Number of birds in ROP Trapnest | 3,900 | 4,125 | — 5.5 |
| Number of birds qualified in Register of Merit | 274 | 334 | —17.9 |
| Number of birds qualified for Honor Roll | 180 | 220 | —18.1 |
| Number of females in ROP breeding pens | 2,040 | 1,985 | + 2.8 |
| Number of ROP chicks produced | 59,175 | 75,307 | —21.4 |
| Number of ROP chicks and cockerels sold | 2,071 | 9,197 | —77.5 |
| Number of ROP chicks and cockerels entering New Jersey | 2,290 | 3,629 | —36.9 |
| Number of ROP cockerels leg banded | 12,436 | 12,626 | — 1.5 |
| Percentage of birds reacting to the pullorum test | 0.016 | 0.032 | |
| Number of flock inspections | 473 | 553 | —14.5 |
| Number of hatchery inspections | 132 | 160 | —17.5 |
| Number of ROP inspections | 25 | 33 | —24.2 |

Tables 2 and 3 give the classification and distribution of birds under supervision and the number of birds banded by breeds and by counties. Cumberland County has replaced Monmouth County for first position in numbers of breeding birds, followed by Ocean, Hunterdon, Middlesex and Mercer.

White Leghorns again are predominant, accounting for 79.9 per cent of the total of all varieties enrolled in the State program. This is indicative of the preference for white-shelled eggs in the New Jersey marketing area. New Hampshires and Rhode Island Reds went down in numbers, the former to 53,412 birds compared with 87,395 birds last year. New Hampshires still continued as the second most popular breed in hatching egg flocks, however. Plymouth Rocks again increased in number, 28,356 of the Barred variety and 20,165 White Rocks, more than double the previous year's total. Cornish stock, particularly white and buff, is enjoying a boom 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 | No. of Flocks | N. J.-U. S. Certified | | | N. J.-U. S. Approved | | | N. J.-U. S. | | | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pullorum Controlled | Pullorum Passed | Pullorum Clean | Pullorum Controlled | Pullorum Passed | Pullorum Clean | Pullorum Controlled | Pullorum Passed | Pullorum Clean | |
| Atlantic | 17 | ... | ... | 12,330 | ... | 5,045 | 13,942 | ... | ... | ... | 31,317 |
| Bergen | 3 | ... | ... | ... | ... | ... | 3,250 | ... | ... | ... | 3,250 |
| Burlington | 19 | ... | ... | 2,971 | 2,479 | ... | 16,822 | ... | ... | ... | 22,272 |
| Camden | 1 | ... | ... | ... | ... | ... | 754 | ... | ... | ... | 754 |
| Cape May | 9 | ... | ... | ... | ... | 795 | 14,842 | ... | ... | ... | 15,637 |
| Cumberland | 132 | ... | ... | 98,085 | ... | 15,739 | 79,900 | ... | 81 | ... | 193,805 |
| Gloucester | 16 | ... | ... | 16,467 | ... | 3,027 | 13,818 | ... | ... | ... | 33,312 |
| Hunterdon | 93 | ... | ... | ... | ... | ... | 130,779 | ... | ... | ... | 130,779 |
| Mercer | 27 | ... | ... | 348 | ... | ... | 52,891 | ... | ... | ... | 53,239 |
| Middlesex | 27 | ... | ... | 4,613 | ... | ... | 69,176 | ... | ... | ... | 73,789 |
| Monmouth | 72 | ... | 453 | 1,073 | 3,659 | 22,217 | 154,105 | ... | ... | ... | 181,507 |
| Morris | 2 | ... | ... | 700 | ... | 726 | ... | ... | ... | ... | 1,426 |
| Ocean | 65 | ... | 814 | 27,169 | ... | 25,252 | 121,141 | ... | ... | ... | 174,376 |
| Passaic | 8 | ... | ... | ... | 541 | 2,986 | 3,343 | ... | ... | ... | 6,870 |
| Salem | 51 | ... | ... | 12,938 | ... | 9,373 | 19,756 | ... | ... | ... | 42,067 |
| Somerset | 15 | ... | ... | ... | ... | ... | 25,883 | ... | ... | 320 | 26,203 |
| Sussex | 14 | ... | ... | ... | ... | ... | 7,102 | ... | 169 | 50 | 7,321 |
| Warren | 1 | ... | ... | ... | ... | ... | 119 | ... | ... | ... | 119 |
| Totals | 572 | ... | 1,267 | 176,694 | 6,679 | 85,160 | 727,623 | ... | 250 | 370 | 998,043 |

Poultry Table 3

NUMBER OF BREEDERS, BY COUNTIES, BREEDS OR VARIETIES

| County | S. C. White Leghorns | New Hampshires | Rhode Island Reds | Barred Rocks | White Rocks | Cornish | Crosses | Incrossbred | Others | Turkeys | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlantic | 26,757 | 2,840 | .... | .... | .... | .... | 1,080 | 439 | .... | 201 | 31,317 |
| Bergen | 2,345 | 155 | .... | .... | 750 | .... | .... | .... | .... | .... | 3,250 |
| Burlington | 15,088 | 2,225 | 1,472 | 1,002 | 1,772 | .... | .... | .... | .... | 713 | 22,272 |
| Camden | .... | .... | .... | .... | .... | .... | .... | .... | .... | 754 | 754 |
| Cape May | 9,065 | 767 | 5,256 | 147 | 402 | .... | .... | .... | .... | .... | 15,637 |
| Cumberland | 138,686 | 9,527 | 6,684 | 3,568 | 8,790 | 1,124 | 24,738 | 688 | .... | .... | 193,805 |
| Gloucester | 27,673 | 1,525 | .... | .... | 1,563 | .... | 945 | .... | .... | 1,606 | 33,312 |
| Hunterdon | 81,242 | 12,326 | 7,175 | 12,357 | 3,440 | .... | 13,326 | .... | .... | 913 | 130,779 |
| Mercer | 29,915 | 11,404 | 348 | 2,680 | .... | .... | 8,620 | .... | 157 | 115 | 53,239 |
| Middlesex | 66,154 | .... | 1,806 | .... | .... | 178 | 3,774 | .... | .... | 1,877 | 73,789 |
| Monmouth | 172,082 | 176 | 1,000 | 5,225 | .... | .... | 2,556 | .... | 390 | 78 | 181,507 |
| Morris | 700 | .... | 726 | .... | .... | .... | .... | .... | .... | .... | 1,426 |
| Ocean | 167,553 | 1,488 | .... | 1,332 | .... | .... | .... | 2,644 | 451 | 908 | 174,376 |
| Passaic | 1,824 | 2,101 | .... | .... | 423 | .... | 2,384 | .... | .... | 138 | 6,870 |
| Salem | 24,094 | 7,556 | 231 | 998 | 3,025 | .... | 5,222 | 941 | .... | .... | 42,067 |
| Somerset | 22,426 | 764 | 243 | 1,047 | .... | .... | 1,081 | .... | 404 | 238 | 26,203 |
| Sussex | 5,199 | 558 | .... | .... | .... | .... | .... | .... | 268 | 1,296 | 7,321 |
| Warren | .... | .... | .... | .... | .... | .... | .... | .... | .... | 119 | 119 |
| Total | 790,803 | 53,412 | 24,941 | 28,356 | 20,165 | 1,302 | 63,726 | 4,712 | 1,670 | 8,956 | 998,043 |

Efforts to improve interior egg quality through Record of Performance family breeding started three years ago and continued to progress in 1953-54. Five New Jersey ROP breeders are making interior egg quality studies of their poultry families with the technical assistance of the Bureau staff.

Participation in the Turkey Improvement Program totaled 8,956 birds in 1953-54, a 24.4 per cent decrease from 1952-53.

The 13th annual qualification and examination day for flock selectors and pullorum 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. Fourteen persons were qualified by examination and field tests after instruction emphasizing breed improvement and pullorum disease control. Selecting agents operated only in the Approved and Certified breeding stages. Testing agents operated in all pullorum stages.

One Federal supervisor was in the State once this year. Two staff members and two breeders attended the National Poultry Improvement Conference in Washington, D. C. One breeder acted as the State's official delegate. Fowl typhoid was added to the national plans because it is revealed by the same tests as are performed for pullorum eradication. The early use in New Jersey of the hyphenated designation "pullorum-typhoid" is contemplated.

Staff members continued to cooperate in the program of the New Jersey Poultry Breeders' Association which helps disseminate information on breed improvement.

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 Assistant Mission) during the past season. The Division cooperated 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 last year handled more than 1,750,000 cases of eggs, approximately one-quarter of the State's total production. The two principal means of determining egg prices in New Jersey are by public auction and by the bargaining method. The fact that both the auctions and the bargaining cooperatives have grown in sale volumes and scopes of service would seem to indicate that they are performing to the satisfaction of the producers and buyers.

Securing usable statistical information for the bargaining cooperatives has been difficult because their products are not centrally assembled for selling. These cooperatives condition their prices upon the New York Mercantile Exchange prices. The six egg auction markets through a long established reporting system provide a good basis for evaluating the growth of poultry production, the producers' economic condition and the increase in marketing services performed by cooperative associations.

Information with respect to actual volume and dollar value of eggs handled by cooperatives is confined to 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 total of 1,334,554 cases of eggs was marketed by these auctions, 3.29 per cent more than last year. The total value of eggs sold was $20,662,392.41 which is 4.1 per cent less than the previous year. The average price per case of eggs, regardless of size or quality, was $15.48 or 51.606 cents per dozen, about 7.06 per cent less than the 1952-53 average of 55.53 cents per dozen.

The average prices for eggs of all sizes and qualities at the auction markets are annually reported. Vineland commanded the highest annual average price of $15.65 per case; Flemington's annual price was $15.48; Hightstown averaged $15.41; Mount Holly, $14.99; Paterson, $14.87, and Hackettstown, $14.17.

Five cooperative auctions conducted live poultry sales and sold a total of 5,869,994 pounds of poultry, 686 pounds more than the previous year. The total value of live poultry was $1,405,816.19 which was 10.9 per cent less than last year. The 1953-54 average-per-pound price of 23.9 cents was 9.8 per cent less than the previous year's 26.5 cents. On the basis of individual markets, Mount Holly had the highest average price per pound of 25.61 cents per pound, Flemington averaged 24.54 cents, Hightstown 22.93 cents, Hackettstown 22.50 cents and Paterson 20.68 cents per pound for all varieties and qualities of live poultry items.

Assistance was given several organizations in the development of new marketing projects. These include the new central marketing agency formed by 20 eastern cooperatives, including six from New Jersey. Incorporated in New Jersey as Northeastern Poultry Cooperative, Inc., the regional agency engaged in trading on the New York Mercantile Exchange and operated special projects such as the diversion of surplus eggs from the eastern markets.

## Poultry Table 4

### SUMMARY OF EGG AND POULTRY AUCTION MARKETS

July 1, 1953 to June 30, 1954

| | Cases of Eggs | Value of Eggs | Crates of Poultry | Pounds of Poultry | Value of Poultry | Total Value |
|---|---|---|---|---|---|---|
| Flemington | 428,199 | $6,631,522.60 | 60,345 | 2,904,883 | $713,023.27 | $7,344,545.87 |
| Hackettstown | 24,385 | 345,470.83 | 8,850 | 498,652 | 112,210.49 | 457,681.32 |
| Hightstown | 161,023 | 2,480,787.07 | 19,035 | 977,976 | 224,300.88 | 2,705,087.95 |
| Mount Holly | 59,918 | 898,223.56 | 18,562 | 981,983 | 251,509.50 | 1,149,733.06 |
| Paterson | 52,663 | 783,329.86 | 9,282 | 506,500 | 104,772.05 | 888,101.91 |
| Vineland | 608,366 | 9,523,058.49 | .... | .... | ..... | 9,523,058.49 |
| Totals | 1,334,554 | $20,662,392.41 | 116,074 | 5,869,994 | $1,405,816.19 | $22,068,208.60 |

Average price per case, 1953-54 $15.48
Average price per pound of live poultry, 1953-54 $0.239

Average price per case, 1952-53 $16.66
Average price per pound of live poultry, 1952-53 $0.265

## Poultry Table 5

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

| | 1953 | For Comparison 1952 | 1939 |
|---|---|---|---|
| July | $0.6050 | $0.5999 | $0.2647 |
| August | .5996 | .6117 | .2678 |
| September | .6083 | .5483 | .2948 |
| October | .5700 | .5900 | .3029 |
| November | .5547 | .5786 | .3318 |
| December | .5142 | .5207 | .2453 |
| | **1954** | **1953** | **1939** |
| January | .5347 | .5019 | .2372 |
| February | .4933 | .4920 | .2260 |
| March | .4588 | .5698 | .2305 |
| April | .4608 | .5492 | .2218 |
| May | .4094 | .5243 | .2146 |
| June | .4062 | .6006 | .2384 |

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 |
|---|---|---|---|---|
| 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 |
| 1944-45 | 512,667 | 42,644 | 2,132,829 | 7,399,916.56 |
| Totals | 8,906,050 | 970,577 | 51,055,077 | $155,716,721.19 |

*Auction Markets Egg-Feed Ratio*

During the last six months of 1953 New Jersey market egg producers enjoyed relative prosperity, as indicated by the annual summary of the monthly ratios of egg prices compared with feed costs. However, the poultry prosperity of 1953 caused undue optimism and New Jersey entered 1954 with its largest population of hens and pullets in history, 17.5 million birds of laying age. This was more than 1.5 million greater than at the same time in 1953, the previous record year. During the first half of 1954 the egg market was surfeited with the expanded production from New Jersey and other areas and the unfavorable egg-feed ratios resulted as egg prices ranged 10 to 20 cents below those of the same months—February through June—of the previous year.

The New Jersey market egg flock has been growing since 1935, reaching the 5 million mark in 1939, 10 million in 1949, 15,875,000 last year and 17,464,000 in 1954. The 1954 figure is 11 per cent over 1953. The economic events of recent months and the unfavorable prospects of the immediate future have shaken the widely held confidence that the capacity of the East to consume is bottomless. Only as population continues to grow can further expansion be justified, and it must be accompanied by increased and improved services by marketing organizations such as New Jersey has developed in cooperation with the Department.

The accompanying egg-feed ratios, Poultry Table 7, reveal that extreme seasonal variations in production are no longer true in New Jersey. The reporting markets actually sold more eggs during the so-called "short season" from July through December 1953 than during the "flush season" of January through June 1954. In 1939, the prewar year used as a base in these analyses, there were 40 per cent more flush season eggs than in the normally short months.

The egg-feed ratios show that there were six months of unfavorable cost-price relationships during which nine or more dozens of eggs were required to pay for 100 pounds of average laying ration. No wide variation in egg prices occurred, the annual range of 20.21 cents occurring between the September 1953 price of 60.83 cents and the June 1954 price of 40.62 cents per dozen. Feed costs were 40 cents per 100 pounds cheaper from July through December 1953 than a year earlier. However, there was no appreciable difference between January through June 1954 and the same period in 1953.

### *State Certified Fresh Eggs*

The New Jersey State Certified Fresh Egg project completed its 16th year. Unusually large percentages of reject eggs, expansion of candling and storage facilities and advertising programs required numerous conferences. Sales reached a record of 2,370,758 dozens and earnings were satisfactory.

Wholesale graded lots of eggs are supplied to this project by four member auction markets, purchases being determined by the sales volumes of the source markets. Under State supervision the project individually inspects and cartons the eggs for delivery to dairies and retail stores.

Of the 95,280 cases (2,858,406 dozens) purchased—15 per cent more than the previous year—Flemington supplied 35,345 cases (37.1 per cent of the total purchased), Vineland 47,101 cases (49.43 per cent), Hightstown 10,030 cases (10.53 per cent) and Mount Holly 2,804 cases (2.94 per cent). Purchases from all members were valued at $1,360,430.57. The yearly average price paid by the project was 57.46 cents per dozen whereas the average price for all eggs commanded by all New Jersey auctions was 51.6 cents. The average markup between purchase and selling price was 12.24 cents per dozen, 0.22 cent higher than the previous year.

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

| | | July | | | August | | | September | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1953 | 1952 | 1939 | 1953 | 1952 | 1939 | 1953 | 1952 | 1939 |
| EGGS | | | | | | | | | | |
| Total dozens sold | | 2,965,320 | 2,567,160 | 891,300 | 2,952,120 | 2,587,050 | 900,540 | 3,229,020 | 3,413,640 | 855,660 |
| Total price paid | dollars | 1,793,876 | 1,539,934 | 235,920 | 1,770,373 | 1,852,616 | 241,138 | 1,964,151 | 1,871,640 | 252,290 |
| Av. price per dozen | dollars | .6050 | .5999 | .2647 | .5996 | .6117 | .2678 | .6083 | .5483 | .2948 |
| FEED | | | | | | | | | | |
| Av. 100 lb. scratch | dollars | 4.05 | 4.35 | 1.60 | 4.05 | 4.40 | 1.50 | 4.10 | 4.35 | 1.86 |
| Av. 100 lb. mash | dollars | 4.80 | 5.30 | 2.18 | 4.85 | 5.30 | 2.16 | 4.85 | 5.40 | 2.02 |
| Av. laying ration | dollars | 4.43 | 4.83 | 1.89 | 4.45 | 4.85 | 1.83 | 4.48 | 4.88 | 1.94 |
| RATIOS | | | | | | | | | | |
| Doz. eggs required to buy 100 lb. feed | | 7.3 | 8.05 | 7.1 | 7.4 | 7.9 | 6.8 | 7.36 | 8.9 | 6.6 |
| No. lb. feed one doz. eggs will buy | | 13.7 | 12.4 | 14.0 | 13.5 | 12.6 | 14.6 | 13.57 | 11.2 | 15.2 |

| | | October | | | November | | | December | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1953 | 1952 | 1939 | 1953 | 1952 | 1939 | 1953 | 1952 | 1939 |
| EGGS | | | | | | | | | | |
| Total dozens sold | | 3,734,340 | 3,624,930 | 995,430 | 3,427,080 | 3,080,850 | 969,330 | 3,717,960 | 3,576,870 | 1,135,350 |
| Total price paid | dollars | 2,128,814 | 2,138,864 | 301,570 | 1,901,008 | 1,782,513 | 302,284 | 1,911,809 | 1,862,367 | 278,465 |
| Av. price per dozen | dollars | .5700 | .5900 | .3029 | .5547 | .5786 | .3118 | .5142 | .5207 | .2453 |
| FEED | | | | | | | | | | |
| Av. 100 lb. scratch | dollars | 4.05 | 4.35 | 1.78 | 3.95 | 4.30 | 1.77 | 4.05 | 4.25 | 1.83 |
| Av. 100 lb. mash | dollars | 4.80 | 5.30 | 2.54 | 4.75 | 5.20 | 2.52 | 4.80 | 5.20 | 2.58 |
| Av. laying ration | dollars | 4.43 | 4.83 | 2.10 | 4.35 | 4.75 | 2.14 | 4.43 | 4.73 | 2.20 |
| RATIOS | | | | | | | | | | |
| Doz. eggs required to buy 100 lb. feed | | 7.77 | 8.19 | 7.1 | 7.8 | 8.2 | 6.9 | 8.6 | 9.1 | 9.0 |
| No. lb. feed one doz. eggs will buy | | 12.87 | 12.2 | 14.0 | 12.7 | 12.2 | 14.6 | 11.6 | 11.0 | 11.2 |

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

| | | January | | | February | | | March | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1954 | 1953 | 1939 | 1954 | 1953 | 1939 | 1954 | 1953 | 1939 |
| EGGS | | | | | | | | | | |
| Total dozens sold | | 3,022,320 | 3,319,200 | 1,099,080 | 3,777,720 | 3,133,590 | 1,085,550 | 3,224,490 | 3,600,060 | 1,372,230 |
| Total price paid | dollars | 1,615,898 | 1,665,956 | 260,807 | 1,733,262 | 1,541,612 | 245,376 | 1,320,246 | 2,051,368 | 316,303 |
| Av. price per dozen | dollars | .5347 | .5019 | .2373 | .4588 | .4920 | .2260 | .4094 | .5698 | .2305 |
| FEED | | | | | | | | | | |
| Av. 100 lb. scratch | dollars | 4.10 | 4.25 | 1.54 | 4.15 | 4.20 | 1.54 | 4.15 | 4.15 | 1.56 |
| Av. 100 lb. mash | dollars | 4.90 | 5.10 | 2.04 | 4.95 | 5.00 | 2.04 | 5.10 | 5.00 | 2.06 |
| Av. laying ration | dollars | 4.50 | 4.68 | 1.79 | 4.55 | 4.60 | 1.79 | 4.63 | 4.58 | 1.81 |
| RATIOS | | | | | | | | | | |
| Doz. eggs required to buy 100 lb. feed | | 8.4 | 9.3 | 7.5 | 9.9 | 9.3 | 7.9 | 11.3 | 8.04 | 7.9 |
| No. lb. feed one doz. eggs will buy | | 11.9 | 10.7 | 13.3 | 10.1 | 10.7 | 12.6 | 8.8 | 12.4 | 12.7 |

| | | April | | | May | | | June | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1954 | 1953 | 1939 | 1954 | 1953 | 1939 | 1954 | 1953 | 1939 |
| EGGS | | | | | | | | | | |
| Total dozens sold | | 3,114,570 | 3,462,840 | 1,213,620 | 3,577,710 | 3,320,370 | 1,388,070 | 3,293,970 | 3,071,970 | 1,117,170 |
| Total price paid | dollars | 1,536,440 | 1,901,807 | 269,176 | 1,648,614 | 1,741,017 | 297,863 | 1,337,896 | 1,845,164 | 266,289 |
| Av. price per dozen | dollars | .4933 | .5492 | .2218 | .4608 | .5243 | .2146 | .4062 | .6006 | .2384 |
| FEED | | | | | | | | | | |
| Av. 100 lb. scratch | dollars | 4.10 | 4.15 | 1.58 | 4.10 | 4.15 | 1.64 | 4.10 | 4.15 | 1.69 |
| Av. 100 lb. mash | dollars | 4.95 | 4.95 | 2.11 | 5.00 | 4.90 | 2.18 | 5.00 | 4.85 | 2.18 |
| Av. laying ration | dollars | 4.53 | 4.55 | 1.84 | 4.55 | 4.53 | 1.91 | 4.55 | 4.50 | 1.94 |
| RATIOS | | | | | | | | | | |
| Doz. eggs required to buy 100 lb. feed | | 9.2 | 8.3 | 8.3 | 9.87 | 8.6 | 8.9 | 11.2 | 7.5 | 8.1 |
| No. lb. feed one doz. eggs will buy | | 10.9 | 12.1 | 12.1 | 10.1 | 11.5 | 11.2 | 8.9 | 13.3 | 12.3 |

The total "yield" for cartoning purposes was 2,370,758 dozens, 82.62 per cent of the eggs purchased. The 17.38 per cent loss on "reject and loss" eggs was 1.26 per cent higher than the previous year. The cash loss above salvage because of reject eggs was over 75,000 dollars.

### *Fresh Egg Law Enforcement*

The New Jersey egg law is a simply constructed legal instrument compared with most egg laws in this area of the country. It does not regulate every detail that is related to egg marketing as the laws of many States have tried to do. Primarily it stipulates that no person shall sell as "fresh" any eggs which are not fresh. It does not say that the eggs must be marked according to their actual grade, that an invoice must be given bearing the true grade of the eggs delivered or that the actual size must be identified. However, most of these are done voluntarily in New Jersey with reasonable conformity with the facts.

Although price is a factor quality is paramount in holding an account. This in itself causes distributors and retailers to grasp every means of attracting attention to their product. The continuous activity of four State inspectors among retail outlets provides a close check on the performance of all who market eggs as fresh.

Occasionally a retailer or distributor will relax in his efforts either accidently or deliberately. The resulting violation immediately becomes a threat of his own making. Invariably compliance is attained quickly with the threat of penalty action remaining in case of future error. It is a generous attitude for an enforcement agency to take but if it causes compliance the objective has been gained. A more stern attitude is quickly adopted toward the violators who appear to be willful and obstinate.

Efforts in carrying out the provisions of the egg law have been directed toward using the law as the rules for marketing eggs. The trade has accepted this, knowing that responsibility for compliance will be placed where it belongs.

The senior egg law inspector made 339 visits to distributing firms to discuss marketing procedures concerned with conformity with the provisions of the law. Inspections by all inspectors were made in 9,469 stores during the year. Violations among all stores totaled 1,458 or 15.4 per cent. Of all the violations 13 resulted in hearings and 441 were issued warnings. There was a total of 10 dollars in penalties assessed.

*Grading and Inspection Service*

This project concerns the use of official grades for live poultry and eggs by firms under contract as well as by those who require official grading for special purposes.

Five cooperatives located in Hackettstown, Flemington, Hightstown, Mount Holly and Vineland continued using the State services. The first four are under contract for the official grading and labeling of live poultry. All except Hackettstown are under similar contract for the official grading and labeling of eggs. The poultry products are inspected in terms of wholesale grades, thus aiding the producers of the respective markets in standardizing the quality of the product offered for sale and providing buyers with means of determining values for purchased products.

## Poultry Table 8
### STORES INSPECTED AND PER CENT VIOLATION, BY COUNTES

| | Independent Stores | | | Chain Stores | | | All Stores | | |
|---|---|---|---|---|---|---|---|---|---|
| | Stores Inspected | Number of Violations | Per Cent Violations | Stores Inspected | Number of Violations | Per Cent Violations | Stores Inspected | Number of Violations | Per Cent Violations |
| Atlantic | 363 | 23 | 6.34 | 47 | 3 | 6.38 | 410 | 26 | 6.34 |
| Bergen | 692 | 197 | 28.47 | 131 | 32 | 24.43 | 823 | 229 | 27.83 |
| Burlington | 312 | 16 | 5.13 | 41 | 2 | 4.88 | 353 | 18 | 5.10 |
| Camden | 564 | 52 | 9.22 | 48 | 4 | 8.33 | 612 | 56 | 9.15 |
| Cape May | 178 | 10 | 5.62 | 18 | 2 | 11.11 | 196 | 12 | 6.12 |
| Cumberland | 174 | 5 | 2.87 | 16 | 2 | 12.50 | 190 | 7 | 3.68 |
| Essex | 1,850 | 172 | 9.30 | 197 | 41 | 20.81 | 2,047 | 213 | 10.40 |
| Gloucester | 151 | 8 | 5.30 | 29 | 2 | 6.90 | 180 | 10 | 5.55 |
| Hudson | 797 | 192 | 24.09 | 116 | 33 | 28.45 | 913 | 225 | 24.64 |
| Hunterdon | 95 | 15 | 15.79 | 18 | 3 | 16.67 | 113 | 18 | 15.93 |
| Mercer | 450 | 40 | 8.89 | 39 | 1 | 2.56 | 489 | 41 | 8.38 |
| Middlesex | 692 | 92 | 13.29 | 59 | 10 | 16.95 | 751 | 102 | 13.58 |
| Monmouth | 199 | 31 | 15.58 | 17 | 3 | 17.65 | 216 | 34 | 15.74 |
| Morris | 253 | 59 | 23.32 | 41 | 15 | 36.59 | 294 | 74 | 25.17 |
| Ocean | 203 | 41 | 20.20 | 9 | .... | .... | 212 | 41 | 19.34 |
| Passaic | 575 | 85 | 14.78 | 72 | 14 | 19.44 | 647 | 99 | 15.30 |
| Salem | 50 | 4 | 8.00 | 5 | 2 | 40.00 | 55 | 6 | 10.91 |
| Somerset | 104 | 18 | 17.31 | 11 | 3 | 27.27 | 115 | 21 | 18.26 |
| Sussex | 107 | 22 | 20.56 | 18 | 6 | 33.33 | 125 | 28 | 22.40 |
| Union | 578 | 153 | 26.47 | 57 | 23 | 40.35 | 635 | 176 | 27.72 |
| Warren | 83 | 20 | 24.10 | 10 | 2 | 20.00 | 93 | 22 | 23.66 |
| Totals | 8,470 | 1,255 | | 999 | 203 | | 9,469 | 1,458 | |

| | 1953-54 | 1952-53 |
|---|---|---|
| Total stores inspected | 9,469 | 10,719 |
| Total violations | 1,458 | 1,174 |
| Average per cent violations | 15.40 | 10.95 |

Nineteen privately owned firms and two cooperatives were under contract for the official grading and labeling of eggs in consumer packages. Official New Jersey consumer grades are used in these instances and their application is under supervision of the Department.

Six other privately owned New Jersey firms perform a similar grading and labeling function but these are under contract with the U. S. Department of Agriculture. Through a Federal-State agreement the New Jersey Department cooperates in administering and supervising the official grading of eggs in these plants.

One cooperative applies an inspection system which is not intended to establish conformity with an official grade but rather to determine the percentage of a specific quality based on the Official New Jersey Standards for Individual Eggs. This is a bargaining organization that negotiates with the egg receiver for the paying price to the member producers. The resulting contract stipulates that the agreed upon price applies to a shipment yielding a certain quantity of eggs of a specific quality. This is the only one of the bargaining type cooperatives in New Jersey which has adopted a program in behalf of its members that demands quality production and control as a prerequisite to receiving top contract price.

In each case where a contract is in force there is a qualified plant employee designated as the principal grader. Where it concerns the administration of New Jersey grades such personnel are licensed by this Department; where it concerns the administration of Federal grades U S D A licenses are issued. A larger staff is needed in some plants to effectuate daily supervision of the grading work. In such cases additional personnel are licensed as assistants to the principal grader.

Periodic supervisory visits by personnel of the Bureau of Poultry Service are conducted at each firm under contract to determine compliance with regulations governing the use of official grades. The same personnel conduct official gradings of eggs for delivery to institutions as requested by the vendor. Similar grading services are frequently performed in connection with producers' shipments of eggs as delivered to receivers.

Bureau personnel assigned to this project have authority to issue official egg grading certificates. They are also licensed by the U. S. Department of Agriculture which qualifies them to make such inspections as necessary under the Federal-State agreement and to issue Federal egg grading certificates when required.

Administrative costs are recovered through the application of a graduated scale of fees contained in the grading service contract. Charges for services in performing specific inspections not under contract are on an hourly basis. The cost of services performed in cooperation with the U. S.

Department of Agriculture is based on fees established by the Federal agency. A major portion of these fees is returned to this Department.

### *Special Poultry Activities*

Bureau personnel are called upon in many instances as consultants in solving marketing problems, providing technical assistance, developing marketing programs and in numerous other ways that provide service to the poultry industry. These activities are in some ways extracurricular to regulatory functions but they contribute to improved public relations and to the furtherance of the projects.

Personnel capable of performing the work of candling eggs became scarce in the Lakewood-Toms River area. An organization of egg receivers, which collectively employs nearly 120 egg candlers and whose members have their respective marketing programs under official supervision, requested the Bureau to conduct an egg candlers' school. The aid of the Northeastern Poultry Producers Council was enlisted and a three-day double session school was held with approximately 60 students taking the final examination. All material costs in connection with the school were paid by the egg receivers.

Bureau personnel were called frequently by the Northeastern Poultry Producers Council to perform certain functions serving the poultry industry of the Northeast. Service is extended in this direction because it is of benefit to the New Jersey poultry industry. A regional egg grading contest was held for qualified 4-H club members and vocational agriculture students.

A series of letters was prepared for distribution by the auction markets to their members describing the authority behind a State inspector's function, how his services can be used to the producer's advantage in meeting a specific grade and suggestions for caring for eggs on the farm.

Other activities include attendance at State, regional and national production and marketing conferences; judging of eggs at the Rutgers Poultry Science Club field day; judging poultry at the Cumberland County Fair and the Mercer County 4-H field day; assisting with the New Jersey Turkey Association dressed turkey show and serving as secretary to the Neppco Turkey Division.

Feature articles were prepared for a number of publications about New Jersey agricultural marketing and the Department's poultry program. Illustrated features appeared in Newark Evening News, Vineland Times Journal, Asbury Park Press and many weekly newspapers. Editorial and pictorial material was supplied to fill requests of local, State and national publications.

Technical assistance was given members of the Legislature in their drafting of bills covering poultry industry matters. Poultry barbecue demonstrations were given before groups which totaled several thousands. Special cooperation was given in arranging farm and industry tours of State Chamber of Commerce, Hunterdon County Board of Agriculture and various groups and individuals.

Several staff members assisted the Agricultural Extension Service and a group of meat poultry growers in advising on the establishment of a live poultry auction market in South Jersey and later on its operation. The project initiated auction sales in the autumn of 1953 but failed because of lack of support of producers and prevailing poor market prices.

The State 4-H Chicken-of-Tomorrow Contest was judged by two staff members.

The Poultry Bureau cooperated closely with the Division of Information in the development of news releases concerning poultry and eggs. There was incidental work on radio and television programs. Approximately 250,000 pieces of literature promoting New Jersey eggs were distributed in a special project which was planned and directed by the Poultry Bureau. Poultry and Egg National Board was assisted in various projects, principally the January "egg month" promotion and the exposition and dinner for food-page editors and radio commentators. Egg grading contests in the 4-H and Vo-Ag programs were held during Farmers Week. These were preceded with elimination contests held in various parts of the State.

Of the 125 total enrollment of the Neppco Egg grading and Quality School held at Rutgers University, 26 were New Jersey residents. Members of the staff of the Poultry Bureau were active on the school faculty. The school returns to New Jersey in June 1956, 1958 and 1960.

The poultry staff cooperated as advisors and as participants in the cooking in the "colossal egg scramble" project of the Vineland Poultry Festival. Using an electrically heated 14-foot diameter frying pan, publicized as the world's largest, 2,160 eggs were scrambled at one time and an additional 180 dozen were subsequently cooked in various ways and served to an estimated 3,500 persons. Television, radio and newspaper coverage was given the event.

At the request of the Department of Conservation and Economic Development a poultry staff member reviewed scientific literature and corresponded extensively with poultry authorities in other States to develop information for a report on the probable effects upon poultry growth and layability when exposed to the loud sounds made by large jet planes. Of concern was the fact that a projected airport, planned for an area close to

Lakewood and Toms River, would be in close proximity to what is probably the largest concentration of poultry population in the world. The report was supplied to the inquiring agency.

The poultry projects participated in both the Farm Show and Farmers Week. At the Farm Show a non-competitive exhibit of eggs in consumer and wholesale packages was staged with 100 per cent participation by the various marketing groups under grade supervision. The poultry industry's annual citations, Golden Egg Awards, were presented during Farmers Week to Harvey C. Wood of Sussex County, national leader and judge, and Dr. James J. Black of Cumberland County, public pathologist for more than a quarter of a century.

# *Report of the Division of Plant Industry*

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

## BUREAU OF ENTOMOLOGY

### NURSERY INSPECTION

From July 1, 1953 to June 30, 1954 a total of 602 nurseries was inspected and certificates were issued to those free of injurious insects and plant diseases. There were 351 infestations found and controlled in 162 nurseries. These figures represent an increase of 13 nurseries certified over 1952-53, 68 fewer infestations and 23 fewer nurseries infested.

INSECT INFESTATIONS

| Insect Pests | Infestations |
|---|---|
| Rhododendron Lace Bug | 65 |
| Juniper Scale | 53 |
| Spruce Gall Aphid | 30 |
| Oyster Shell Scale | 26 |
| Azalea Lace Bug | 24 |
| Holly Leaf Miner | 24 |
| Euonymus Scale | 22 |
| European Pine Shoot Moth | 14 |
| Juniper Webworm | 14 |
| Bagworm | 13 |
| Galls on Willows | 8 |
| Taxus Mealybug | 7 |
| Boxwood Leaf Miner | 6 |
| Pine Leaf Scale | 5 |
| Leaf Roller on Azalea | 4 |
| Pine Tip Moth | 4 |
| Leaf Roller (unidentified) | 3 |
| Lilac Borer | 3 |
| Tulip Poplar Scale | 3 |
| Galls on Hawthorne | 2 |
| Hawthorne Lace Bug | 2 |
| Lace Bug on Andromeda | 2 |
| Rose Aphis | 2 |
| Taxus Weevil | 2 |
| Boxwood Psyllid | 1 |
| Lecanium Scale | 1 |
| Lace Bug on Pieris | 1 |
| Mealybug on Crataegus | 1 |
| Mealybug on Roses | 1 |
| Putnam Scale | 1 |
| Red Spider | 1 |
| Rhododendron Scale | 1 |
| Spruce Leaf Miner | 1 |
| Twig Girdler | 1 |
| White Fly | 1 |
| White Pine Weevil | 1 |
| Willow Cankers | 1 |

### *Dealers' Certificates*

Certificates were issued to 92 dealers in nursery stock after they signed agreements to purchase nursery stock only from sources approved by the Department.

### *Special (Request) Inspections*

A total of 113 inspections was made at the request of residents of New Jersey desiring information about insects and plant diseases affecting their premises.

### *Special Certificates*

Two hundred sixty-one special certificates were issued during the year. Such certification is issued to persons other than nurserymen for the movement of plant material out of the State, in accordance with the requirements of other states or of foreign governments. Certification is given just prior to each shipment.

### *Canadian Certificates*

A total of 94 special certificates was issued for the movement of plant material to Canada, in accordance with Dominion regulations.

### *Special Corn Borer Certificates*

Ninety-five special certificates were issued for the movement of herbaceous plant material into states which have quarantines against the European Corn Borer, *Pyrausta nubilalis*.

### *Dealer Visits*

During the year the premises of 16 dealers were inspected to ascertain freedom from insects and diseases of held-over stock and to check on listed sources of supply. Conditions in all cases were satisfactory.

### *Domestic Inspections*

Special inspections were made of 145 lots of plant material coming into New Jersey from other states. In one shipment of 4,000 rose bushes from Long Island, New York, an estimated 3 to 4 per cent was found to be infected with crown gall. These were destroyed. Also, 54,000 strawberry plants were returned to Maryland because of heavy root-knot nematode infestation.

### *Foreign Inspections*

Six inspections were made of unquarantined plant material entering New Jersey from Canada. No infestation was found.

### *Phylloxera Certificate*

One shipment of plant material destined for Belgium was issued a special grape phylloxera certificate, in accordance with Belgian requirements.

### *Red Stele Disease of Strawberry*

During March and April 123.35 acres of strawberry plantings, entered by 38 growers, were inspected for red stele disease. Because of infection it was necessary to reject 35 acres entered by seven growers, all of Atlantic County. There were 88.35 acres of strawberry plantings certified.

RED STELE INSPECTIONS

| County | Growers | Acreage Inspected |
|---|---|---|
| Atlantic | 17* | 62.35* |
| Camden | 4 | 10.35 |
| Cape May | 1 | 1.25 |
| Cumberland | 3 | 9.75 |
| Gloucester | 1 | 3.00 |
| Hunterdon | 1 | 1.50 |
| Mercer | 4 | 9.25 |
| Monmouth | 5 | 25.38 |
| Salem | 1 | .50 |
| Somerset | 1 | .02 |
| Totals | 38 | 123.35 |

* Growers rejected because of red stele disease—7; acreage—35.

An attempt was made to trace the infections to their source but without success. All seven growers had entered the certification program for the first time and in only one case were the plants less than two years from the source. In that case the plants were one year old and from a grower who had participated in the program for four years, with negative finds, and had been so certified. In other instances the sources had been inspected from three to five years previously, with negative finds, or the growers had reported the plants as from their own plantings and up to 14 years of continuous growing. In the seven rejected plantings the plants were of the Sparkle variety in seven instances and of Fairfax in one.

A total of 525 red stele certificates were issued to the remaining 31 qualified growers so that they could ship their plants within the State and to other states having such requirements.

## BLUEBERRY STUNT DISEASE

This report on the ninth year of blueberry stunt certification covers the 1953 calendar year.

### *Summary of Spring Inspection (1953)*

Twenty-eight growers entered 372.92 acres for inspection. Since it was anticipated that the inspectors would be unable to cover this much acreage 34.75 acres were voluntarily withdrawn. Of the remaining 338.17 acres 21 acres were rejected, 10.5 for stunt in excess of three-fourths of 1 per cent at that inspection and 10.5 acres where the grower was found not to be a nurseryman and therefore was ineligible for the stunt certification program. A total of 485 bushes was tagged on the certifiable 317.17 acres, giving an average of 1.5 stunt diseased bushes per acre for this inspection.

### *Summary of Fall Inspection (1953)*

Prior to the fall inspection an additional 21.5 acres were rejected for non-removal of tagged bushes and seven acres were withdrawn by the grower when they were found to be too overgrown with weeds to enable an adequate inspection. Of the 288.67 acres inspected during the fall no additional acreage was rejected because of stunt in excess of 1 per cent for the two inspections. A total of 205 bushes was tagged and removed, giving an average of 0.71 diseased bushes per acre certified for this inspection.

## 1953 BLUEBERRY INSPECTIONS

| Grower | Entered Acres | Voluntarily Withdrawn Spring | Voluntarily Withdrawn Fall | Acres Inspected Spring | Acres Inspected Fall | Acres Rejected Spring | Acres Rejected Fall | Stunt Bushes Tagged (Certifiable Portion) Spring | Stunt Bushes Tagged (Certifiable Portion) Fall |
|---|---|---|---|---|---|---|---|---|---|
| Ahlrichs | 25.50 | ... | 21.50‡ | 25.50 | ... | 4.00 | ... | 60 | ... |
| Arpin | 16.00 | ... | ... | 16.00 | 16.00 | ... | ... | 45 | 30 |
| Atlantic Blueberry Co., c/o Galletta Brothers | 18.00 | 16.25 | ... | 1.75 | 1.75 | ... | ... | ... | ... |
| Ammon | 3.50 | ... | ... | 3.50 | 3.50 | ... | ... | ... | ... |
| Ballard | 3.00 | ... | ... | 3.00 | 3.00 | ... | ... | ... | ... |
| Beebe | 12.00 | ... | ... | 12.00 | 12.00 | ... | ... | ... | ... |
| Brown | 6.00 | ... | ... | 6.00 | 6.00 | ... | ... | 57 | 8 |
| Budd | 20.00 | ... | ... | 20.00 | 20.00 | ... | ... | 2 | 2 |
| Clevenger | 14.00 | ... | ... | 14.00 | 14.00 | ... | ... | ... | 10 |
| Cohen | 10.00 | ... | ... | 10.00 | 10.00 | ... | ... | 51 | 15 |
| Cutts Brothers | 12.00 | ... | ... | 12.00 | 12.00 | ... | ... | 1 | ... |
| Galletta Brothers | 34.00 | ... | ... | 34.00 | 34.00 | ... | ... | 6 | ... |
| Haines, E. & W. | 13.42 | ... | ... | 13.42 | 13.42 | ... | ... | ... | ... |
| Haines, H. & E. | 23.00 | ... | ... | 23.00 | 23.00 | ... | ... | 4 | 1 |
| Hamilton | 8.00 | ... | ... | 8.00 | 8.00 | ... | ... | ... | 1 |
| Leach | 20.75 | ... | ... | 20.75 | 16.75 | 4.00 | ... | 116 | 44 |
| Manning | 10.50 | ... | ... | 10.50 | 8.00 | 2.50 | ... | 23 | 7 |
| Mood | 10.00 | ... | 7.00§ | 10.00 | 3.00 | ... | ... | 2 | ... |
| Norcross & Son | 8.00 | ... | ... | 8.00 | 8.00 | ... | ... | 47 | 35 |
| O'Neill & Son | 11.00 | ... | ... | 11.00 | 11.00 | ... | ... | 1 | 1 |
| Pursell | 2.50 | ... | ... | 2.50 | 2.50 | ... | ... | ... | ... |
| Rogers | 42.00 | 8.00 | ... | 34.00 | 34.00 | ... | ... | 32 | 8 |
| Scarano | 6.50 | ... | ... | 6.50 | 6.50 | ... | ... | 32 | 42 |
| Scammell & Son | 10.00 | ... | ... | 10.00 | 10.00 | ... | ... | ... | 1 |
| Stevenson | 10.00 | ... | ... | 10.00 | 10.00 | ... | ... | 1 | ... |
| Uncle | 10.50 | ... | ... | 10.50 | ... | 10.50* | ... | ... | ... |
| Volk | 2.25 | ... | ... | 2.25 | 2.25 | ... | ... | 5 | ... |
| White† | 10.50 | 10.50 | ... | ... | ... | ... | ... | ... | ... |
| 28 Growers | 372.92 | 34.75 | 28.50 | 338.17 | 288.67 | 21.00 | ... | 485 | 205 |
| | | | | Spring Average per Acre | | | | 1.5 | |

* First inspection made but eliminated from program when found not to be a nurseryman or propagator.
† Not inspected—not a nurseryman or propagator.
‡ Rejected for non-removal of diseased bushes pre-fall inspection.
§ Withdrawn fall inspection—too weedy to inspect.

Spring—28 growers

372.92 acres entered
34.75 acres voluntarily withdrawn or eliminated prior to inspection

338.17 acres inspected
21.00 acres rejected

317.17 acres certifiable, giving an average of
1.5 "stunted" bushes, per acre; 485 bushes tagged

Fall

317.17 acres certifiable
28.50 acres withdrawn or eliminated prior to fall inspection

288.67 acres inspected (no rejections) and certified, giving an average of
0.71 "stunted" bushes per acre; 205 bushes tagged

*Observations*

In contrast to the season of 1952 when symptoms appeared early and were exceedingly bright, the appearance of symptoms during the 1953 season was slow and protracted. Certain varieties showed few and late symptoms. This slow appearance was continued during the fall inspection season. Checking for removal of tagged bushes disclosed in some plantings bushes bearing symptoms so brilliant as to exclude any assumption of missed plants during the regular inspection. Fields showing these late appearing symptoms were again inspected.

The incidence of stunt in the Magnolia-Pemberton area remains higher than in any other blueberry section in the State. All acreage rejected for excess stunt or for non-removal of tagged bushes was from that area. Early in the program it was surmised that concentration of plantings was the cause. However, similar conditions were found in some areas arount Hammonton but little stunt disease was present in the plantings of those entered in the program. Also, the "sharp-nosed leaf hopper," a vector in the spread of stunt disease, is found in all the producing areas of the State. It can be surmised that this high incidence around Pemberton is caused by poor roguing practices. Continued roguing has contained the disease in other sections and enabled the growers to retain clean plantings.

## 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 the Department until released by the U. S. Department of Agriculture as free from disease. Most material of this nature is released after two growing seasons if it is found uninfected but the holding period may be lengthened or shortened in accordance with the habits of the various plants and their diseases.

## MATERIAL IMPORTED UNDER POST-ENTRY QUARANTINE

### JULY 1, 1953 TO JUNE 30, 1954

| Date of Entry 1953 | County of Origin | Quantity and Material | Destination by Counties |
|---|---|---|---|
| July | Canada | 1 Anthurium | Bergen |
| | Brazil | 15 Vitis | Somerset |
| September | England | 3 Hibiscus | Bergen |
| November | Holland | 500 Acer. palm. atrop. | Somerset |
| | Germany | 57 Rosa | Sussex |
| December | Holland | 200 Acer | Passaic |
| | | 250 Rosa | |
| | | 10 Wisteria | Mercer |
| | | 1,000 Rosa | |
| | | 492 Laburnum vossi (plus five with canker disease—destroyed by burning) | |
| 1954 | | | |
| January | | 300 Berberis thunbergii atrop. nana | Mercer |
| | | 500 Jasminum nodiflorum | Monmouth |
| | | 500 Berberis thungergii atrop. | Somerset |
| February | | 50 Acer | Cumberland |
| March | | 200 Acer palm. atrop. | Bergen |
| | | 25 Wisteria | |
| April | | 100 Acer palm. | Atlantic |
| | Belgium | 10 Acer palm. atrop. | Bergen |
| | Holland | 100 Acer plat. Schwedleri | |
| | | 50 Acer palm. dissectum atrop. | |
| | | 50 Acer palm. atrop. | |
| | Belgium | 400 Acer plat. atrop. | Mercer |
| | | 5 Acer plat. Reitenbachi | |
| | | 5 Acer plat. Schwedleri | |
| | Holland | 30 Acer palm. atrop. | |
| | | 50 Acer dissectum atrop. | |
| | | 84 Laburnum (plus one removed and destroyed) | |
| | Belgium | 200 Acer platanoides atrop. | Middlesex |
| | England | 3 Rosa | |
| | Belgium | 100 Acer palm. atrop. | Monmouth |
| | Holland | 500 Berberis thunbergii nana | Morris |
| | | 1,750 Berberis thunbergii atrop. nana | |
| | | 2,500 Malus | |
| | | 680 Acer palm. atrop. | |
| | | 1,000 Acer palm. | Passaic |
| | Holland | 100 Acer palm. atrop. | Somerset |
| | | 75 Acer plat. Schwedleri | |
| | | 350 Acer | Union |
| | | 50 Aesculus | |
| | | 200 Acer palm. atrop. | |
| | | 500 Acer palm. atrop. | |
| | | 500 Acer palm. atrop. | |
| | | 100 Acer palm. | |
| May | Germany | 3 Rubus mullucanus (rooted cuttings) | Bergen |
| | Canada | 25 Rubus | Middlesex |
| | Holland | 200 Acer palm. atrop. | |
| | | 100 Berberis verruculosa | |
| | | 100 Berberis chaenault | |

## MATERIAL IMPORTED BY GENUS
### JULY 1, 1953 TO JUNE 30, 1954

| Genus of Plants | Number Imported |
|---|---|
| Acer | 5,755 |
| Aesculus | 50 |
| Anthurium | 1 |
| Berberis | 3,250 |
| Hibiscus | 3 |
| Jasminum | 500 |
| Laburnum | 576* |
| Malus | 2,500 |
| Rosa | 1,310 |
| Rubus | 28 |
| Vitis | 15 |
| Wisteria | 35 |

* Plus 6 removed and destroyed.

## PLANTS RELEASED UNDER POST-ENTRY QUARANTINE
### July 1, 1953 to June 30, 1954

| Shipment Released From Hoboken (Original Date) | Country of Origin | Quantity and Kind of Material Imported | | Number of Plants Released | Destination by Counties |
|---|---|---|---|---|---|
| 1951 | | | | | |
| June 4 | Holland | 50 | Hydrangea | 4 | Bergen |
| June 8 | Belgium | 70 | Anthurium | 50 | |
| November 7 | Indonesia | 6 | Anthurium | 5 | |
| | | 1 | Passiflora | ... | |
| December 12 | Holland | 600 | Acer | 560 | Morris |
| December 21 | Japan | 13 | Phoenix Roebelini | 1 | |
| 1952 | | | | | |
| January 7 | Holland | 200 | Berberis | 168 | |
| March 6 | | 1,000 | Rosa | 950 | Somerset |
| | | 1,000 | Hydrangea | 750 | |
| | | 1,000 | Ilex | 624 | |
| March 4 | Germany | 3 | Azalea | 3 | Bergen |
| March 6 | Holland | 100 | Acer palm. atrop. | 70 | Passaic |
| March 13 | | 800 | Acer | 766 | Union |
| March 17 | | 200 | Acer | 159 | Mercer |
| | | 25 | Jasminum | 23 | |
| | | 25 | Rhododendron | 5 | |
| | | 25 | Sorbus | 22 | |
| March 17 | England | 17 | Daphne | 16 | Morris |
| | | 3 | Vaccinium | 3 | |
| March 21 | | 120 | Malus | 102 | Middlesex |
| March 25 | Germany | 15 | Rosa | 12 | Bergen |
| March 25 | England | 1 | Juniperus | 1 | Passaic |
| March 25 | Holland | 60 | Acer | 2 | Somerset |
| | | 25 | Euonymus | 24 | |
| | | 25 | Hydrangea | 20 | |
| | | 100 | Juniperus | 87 | |
| March 25 | | 415 | Acer | 381 | Passaic |
| April 2 | | 100 | Acer | 98 | |
| April 2 | | 425 | Acer | 105 | Somerset |
| | | 453 | Rosa | 100 | |
| April 2 | | 1,000 | Acer | 965 | Morris |
| April 4 | | 100 | Berberis | 72 | |

| Shipment Released From Hoboken (Original Date) | Country of Origin | Quantity and Kind of Material Imported | | Number of Plants Released | Destination by Counties |
|---|---|---|---|---|---|
| April 7 | England | 10 | Hydrangea | 4 | Mercer |
| | | 5 | Ligustrum | 2 | |
| April 7 | Holland | 340 | Acer | 212 | |
| | | 50 | Aesculus | 37 | |
| | | 160 | Euonymus | 70 | |
| | | 100 | Hydrangea | 97 | |
| | | 1,125 | Sorbus | 99 | |
| April 12 | England | 110 | Berberis | 17 | |
| | | 34 | Euonymus | 34 | |
| | | 100 | Ligustrum | 71 | |
| April 14 | Holland | 2,750 | Ilex | 570 | Monmouth |
| April 17 | | 150 | Acer | 70 | Burlington |
| April 18 | England | 27 | Daphne | 7 | Morris |
| | | 6 | Vaccinium | 4 | |
| | | 3 | Juniperus | 3 | |
| April 24 | Holland | 50 | Acer | 50 | Camden |
| | | 250 | Ilex | 250 | |
| May 9 | Indonesia | 2 | Passiflora | 2 | Bergen |
| May 14 | Belgium | 300 | Anthurium | 300 | |
| June 9 | | 40 | Hydrangea | 40 | |
| July 29 | South Africa | 120 | Vitis | ... | |
| 1953 | | | | | |
| May 1 | Japan | 2 | Juniperus | ... | Middlesex |

Of the 13,711 plants originally imported only 8,087, or approximately 58 per cent, were alive and were released at the end of the quarantine period. Plants of the genera *Vitis* and *Ilex* were a failure and the survival rate of certain of the other genera listed raises doubt as to the economic advisability of importing plants of this type other than new horticultural varieties or types difficult to propagate in this country.

SURVIVAL OF PLANTS RELEASED

| Genus of Plants | Number Imported | Number Surviving and Released |
|---|---|---|
| Acer | 4,240 | 3,438 |
| Aesculus | 50 | 37 |
| Anthurium | 376 | 355 |
| Azalea | 3 | 3 |
| Berberis | 410 | 257 |
| Daphne | 44 | 23 |
| Euonymus | 219 | 128 |
| Hydrangea | 1,225 | 915 |
| Ilex | 4,000 | 1,444 |
| Jasminum | 25 | 23 |
| Juniperus | 106 | 91 |
| Ligustrum | 105 | 73 |
| Malus | 120 | 102 |
| Passiflora | 3 | 2 |
| Phoenix | 13 | 1 |
| Rhododendron | 25 | 5 |
| Rosa | 1,468 | 1,062 |
| Sorbus | 1,150 | 121 |
| Vaccinium | 9 | 7 |
| Vitis | 120 | ... |

## NEW JERSEY MID-ATLANTIC FARM SHOW

An exhibit was set up by the Division at the New Jersey Mid-Atlantic Farm Show in Atlantic City, December 4 to 9. The exhibit was arranged to show the various projects participated in by the Division. Displays of live bees, nursery stock, gypsy moth, Japanese beetle, certified seed samples, honey, golden nematode, alfalfa weevil, white-fringed beetle and canker stain of sycamore were shown.

## INVESTIGATION OF BENCH-GROWN ROSES

During the year it was necessary to investigate complaints about the condition of bench-grown rose stock. These packaged roses were being shipped by a New Jersey nurseryman and were reported to be infested with crown gall and nematode. Inspection at the packing shed disclosed little crown gall infected material and this was being picked out for destruction.

No root-knot nematode could be found. However, samples were taken of returned stock and a microscopic examination of the crushed roots in water disclosed the presence of unidentified species of dagger and field nematodes. This material had come into the State from the Middle West and for the most part had good root systems. The presence of these nematodes only can be determined by careful microscopic study since no root-knots are present. It would seem that this complaint against bench-grown material might be unwarranted since it competes on the market with field-grown stock which commonly is infested with the same nematodes.

## WESTERN TENT CATERPILLAR—COAST TENT CATERPILLAR

During mid-June information was received that a western form of tent caterpillar, later identified as *Malacosoma pluvialis* Dyar., had been found infesting nursery stock earlier imported from Oregon. The caterpillars were reported to be mature and about to pupate. A carload of plant material from this Oregon nursery had been shipped east, stops being made in Illinois and in Conshohocken, Pennsylvania and the balance going to Long Island. Material unloaded in Conshohocken was reported shipped to two nurseries in New Jersey, one in Clifton the other in Union. Another lot was sent into the State by a New York landscape firm having a nursery in Princeton.

An immediate check was started of the nurseries receiving this material. Two of the three were scouted with negative results. The third nursery was inspected and empty egg masses of the insect were found but no tents were seen nor were any signs of feeding evident. The owner stated that no

caterpillars had been noticed but that their regular spray program probably would have eliminated any larvae. There were few records of the buyers of most of this material since it was sold on a cash and carry basis. A record was obtained of sales of Norway maples to an upstate municipality.

Additional information was received that two other nurseries, one in Mountain View and one in Little Silver, had received shipments from the same source in Oregon. The proprietor of the nursery in Mountain View had noticed egg masses and had removed and destroyed them. Some missed egg masses hatched and the stock was sprayed. The proprietor believes that he killed all of these larvae. Tents had been observed on the stock heeled-in in Little Silver and these with their contained larvae had been burned. Material still on hand had been hand-defoliated and planted out late in the nursery. An inspection of the stock revealed many empty egg masses.

Both nurseries supplied the names of firms to which this material had been sold and inspectors are tracing the stock and are watching for new egg masses during the regular nursery inspections. The state officials of Maryland, Virginia, Pennsylvania, New York, Wisconsin and Washington, D. C., were informed of the firms in their states to which this Oregon material had been shipped.

## GOLDEN NEMATODE, *Heterodera rostochiensis*

As reported in the previous Annual Report, a golden nematode cyst was found in October 1952 on a seven and one-half acre family farm near Matawan in Middlesex County. The farm was taken under control by means of rental for a necessary period of time to insure the removal of danger of spread of the organism to other land. After a double fumigation with a nemacide at extremely heavy dosage, on May 29 and July 31, 1953, the occupant was required not to disturb the soil until a 30-day period had elapsed. Thereafter, the sowing of grain would be allowed.

After several samplings of the soil, all of which were negative for the nematode, it was considered in the spring of 1954 that the occupant would be allowed any agricultural activity other than the planting and harvesting of root crops or tomatoes during the remainder of the calendar year. After additional 1954 soil samplings if no further nematodes are found, the rental by the Department will be withdrawn with the agreement by the landowner that root crops or tomatoes will not be included in his farm program for a proper number of years.

### *Survey for 1953*

By the end of 1952 five consecutive years of potato field and grader sampling for golden nematodes had been accomplished with negative results. It therefore was decided that a survey of locations other than potato

and tomato fields which could be contaminated through some hazardous operation would be worthwhile.

With the cooperation of the Golden Nematode project of the U. S. Department of Agriculture a plan of survey was developed which would have as its most important objective the sampling of imported materials that might be contaminated with nematode cysts. The survey personnel consisted of one temporary employee from the Department for the period July 7 to September 1, 1953 and one Federal inspector for a one-month period from August 1 to September 1, 1953.

Inspections were made and samples of material were collected and analyzed.

INSPECTIONS

| Type | Number Made | Acres Represented | Samples Analyzed |
|---|---|---|---|
| Imported Nursery Stock | 68 | 49.5 | 143 |
| Industries Handling Burlap Material | 10 | ... | 53 |
| Central Potato Graders | 8 | 280 | 55 |
| Fields Which Receive Burlap Material as a Soil Conditioner | 5 | 10.5 | 175 |
| Special Investigations | 4 | 6.5 | 21 |
| Totals | 95 | 346.5 | 447 |

The work was conducted in 17 counties so that a large part of the State was involved in one type or another of the investigations.

### *Investigation of Imported Nursery Stock*

The main objective of this survey was to obtain samplings from foreign importations of plant material. Addresses of private individuals and nurseries which received nursery stock were furnished by the Plant Quarantine Branch of the U. S. Department of Agriculture. Many of the establishments visited had received a number of shipments in recent years. This was one of the factors taken into consideration when selecting which sites to visit. Other factors considered were (1) proximity of potato areas, (2) type of stock imported and (3) source.

During the inspections it was found impractical by present methods to get samplings of the soil from imported bulbs. To sample bulbs effectively an inspector would have to lift a bulb from the soil and take scrapings. However, soil samples could be obtained effectively from azaleas, rhododendrons and holly by lifting out of the bed dead plants and shaking roots into a bag. Hair roots were also pulled from such plants and put in the container. Only those bulb plots which had for many years received shipments were deemed suitable for sampling.

The source from which shipments originated was another factor considered. Shipments, for instance, which originated from a known infested area of England would be more significant than shipments from an area considered generally free of infestation. Sixty-eight establishments located throughout New Jersey were sampled during this phase of the survey. Many others were visited but material for sampling was not available.

### *Industries Receiving Used Burlap*

Burlap has long been recognized as a prime agent for the spread of the nematode. Industries which receive used burlap were visited, among them thread and linen manufacturers, bag reconditioning companies, mattress manufacturers, carpet manufacturers, hair and felt supply houses, roofing concerns, asbestos shingle manufacturers and paper manufacturers. One company received burlap which had been used solely for the transporting of sugar. On entering an establishment four factors were usually considered.

1. Source—imported or domestic. Burlap bags from varied foreign as well as domestic sources were encountered. One establishment had on hand several thousand Spanish potato bags and 18 samples were obtained from 275 of them.

2. Purpose—reconditioning or manufacturing. Many companies merely clean and recondition bags while others grind the bags up and use the jute for the manufacture of shingles, mattresses, paper and carpets. In both reconditioning and manufacturing concerns excellent samples were obtained.

3. Method of Processing—would the processing render non-viable nematode cysts; i.e., some concerns use chemicals in the manufacturing processes.

4. Disposal—is the waste material properly and safely disposed of. In two instances disposal companies were contacted and dumps where material was taken were visited. In certain cases it has been found that the waste material has been used for soil conditioning and as fill for roofing paper.

During the survey it became apparent that there are a number of uses for old burlap as well as many concerns dealing in this product. Because of this it is recommended that periodic checks be made of such establishments in the future.

It was found that excellent samples can be obtained from burlap through the use of a vacuum or suction machine. This process was employed to secure samples from the Spanish potato bags.

Eight inspections were made in the Newark and Camden industrial areas, one in Mercer County and one in Warren County.

*Sampling of Central Potato Graders*

Grader samples were obtained at central grading and shipping establishments in the Hightstown-Freehold area, except for one inspection and sampling in Shiloh.

*Fields Which Had Received Burlap Material as Soil Conditioner*

The five inspections made were on two fields, one near Rahway and the other near Matawan, which had received dust and waste from a carpet mat manufacturer and importer of waste burlap.

*Special Investigations*

On information received from research scientists formerly of the Rockefeller Foundation in Princeton, an inspection was made at the site of a field formerly used for experiments in tobacco virus research. Objects resembling nematode cysts were observed in 1947 on tobacco plants so soil samples were taken from the field during the survey.

Information from a tractor supply firm in Singac indicated that in 1947 an English type roto-tiller was used for farm demonstration in Nassau County, Long Island, and then transported to a nursery in Deerfield. Investigation revealed that this equipment was demonstrated by the Malvese Implement Company of New Hyde Park on a non-infested field in Nassau County. Samples were obtained from the New Jersey nursery during the course of the survey.

In spite of the widespread sampling of hazardous materials and the survey and resurvey of potato fields conducted during the past nine years only one nematode infestation has been found in the State, near Matawan, and that was heavily and apparently successfully treated. It seems unlikely that a nematode-free status can be maintained indefinitely as more and more fields on Long Island have become infested and the organism is found in more and more places in the world.

As a result of the 1953 survey there are now on file in the Division of Plant Industry extensive lists of operators of various businesses that might be considered hazardous from the standpoint of bringing golden nematode cysts into New Jersey. This list will be most useful in planning future surveys.

In May plans were again made for a survey of tomato and potato lands and equipment so that it might be determined whether or not the nematode has invaded the State.

## RODENT ECTOPARASITE SURVEY

During the summer months of 1953 one temporary employee was assigned to assist Dr. Elton J. Hansens, entomologist of the New Jersey Agricultural Experiment Station, in capturing small mammals for a study of their ectoparasites. This work was necessary for completion of the study first reported in the 36th Annual Report of the Department.

Collection of specimens was achieved primarily by trapping and locations were selected as close as possible to Trenton and New Brunswick. The following specimens were trapped and submitted for study:

| Specimens | Number Taken |
|---|---|
| Deer Mice | 55 |
| Pine Mice | 3 |
| Meadow Mice | 9 |
| House Mice | 29 |
| Common Short-Tailed Shrew | 19 |
| Total | 115 |

The material furnished to the Agricultural Experiment Station since the inception of this project has been responsible for the publication of several contributions to the literature of the New Jersey insect fauna.

## A SURVEY OF WEEDS

During the summer months of 1953 a survey of weeds was undertaken which would be of interest in the State from the standpoint of public health and agriculture. Prime interest lay with the two ragweeds and with poison ivy but of the 15 weeds selected for observation most would be recognized as troublesome species to agriculture.

A graduate student in botany, John M. Keller, hired for a temporary period to make the survey, began the work in June and completed it by early September. Planning and guidance was extended by Dr. G. H. Ahlgren, research specialist in farm crops at the Agricultural Experiment Station. Representatives of the State Department of Health and of the Agricultural Extension Service also assisted in the planning.

As a result of this survey information on the occurrence and distribution of the following weeds and a series of map illustrations were published as New Jersey Department of Agriculture Circular No. 392, November 1953: *Ambrosia artemisiifolia, Ambrosia trifida, Rhus radicans, Cirsium arvense, Allium vineale, Agropyron repens, Cirsium* sp., *Euphorbia cyparissias, Solanum carolinense, Galium* sp., *Rumex crispus, Polygonum cuspidatum, Cuscuta* sp., *Convolvulus sepium.*

## COOPERATIVE ECONOMIC INSECT SURVEY

For many years the Department has conducted surveys to determine the presence or status of insects of importance to agriculture. Information derived from these surveys has helped the farmer to keep at a minimum his losses to such pests. In the fall of 1953 consideration was given to participation in an expanded survey program sponsored by the U. S. Department of Agriculture and calling for employment of one survey technician who would supervise a survey coordinated with the national program. Plans were made to initiate a survey best suited to New Jersey conditions and in harmony with the national program.

A plan was devised whereby inspectors of the Department would gather survey data which would be prepared for proper distribution with the help of the Agricultural Extension Service entomologist and through channels provided by that service. The pests to be surveyed would be selected by agreement between the Department, the Extension Service and the specialists of the Agricultural Experiment Station. It was agreed that the survey could and should be accomplished by State agencies with the help of county and local agencies and growers and that the help of the USDA would not be needed in New Jersey.

The broad aim of the program would be to assist growers to make their operations more profitable through a more efficient pest control program. The Department project would be under the direct supervision of L. D. DeBlois, Plant Industry inspector.

As a first step a master chart was prepared listing principal crops and the major production areas for them. The important pests and their seasonal activity also were shown. The chart is used as a guide in the planning of the various survey programs. As the survey proceeded information was released to the growers through various channels including the Newsletter of the Extension Specialist in Entomology, press releases, radio, television and the official weekly "Cooperative Economic Insect Report" issued by the USDA Agricultural Research Service.

### *European Corn Borer Surveys*

A survey to determine the fall population and distribution of the European corn borer was undertaken as the first project of the Economic Insect Survey. The work was started October 20 and completed on November 12. In the 12 major corn producing counties of the State a total of 110 fields were surveyed. Ten fields were examined in each of the 12 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 1953 | 1952 |
|---|---|---|
| Burlington | 97 | 105 |
| Camden | 128 | 60 |
| Cumberland | 79 | 98 |
| Gloucester | 74 | 97 |
| Hunterdon | 28 | 99 |
| Mercer | 39 | 87 |
| Middlesex | 105 | 61 |
| Monmouth | 83 | 22 |
| Salem | 35 | 71 |
| Somerset | 11 | 60 |
| Sussex | 12 | 16 |
| Warren | 14 | 29 |
| State mean comparable counties (12) | 59 | 67 |

A comparison of last year's figures with those of the current year indicates that there has been a reduction in the over-all population this year. Camden, Middlesex and Monmouth were the only counties showing increases in the number of borer larvae present. The average number of borers per 100 plants is approximately twice as large from Burlington County south as it is in the northern counties that were surveyed.

On the basis of information gathered from the survey an estimate of damage by the European corn borer was developed by the Crops Regulatory Programs of the U. S. Department of Agriculture. In the 12 counties surveyed approximately 85 per cent of the New Jersey corn crop is produced. Assuming that a 1 per cent loss of crop occurs when a population of one borer per every three plants is found, then 114,453 bushels of corn were lost because of European corn borer.

ESTIMATED LOSS FROM CORN BORERS

| County | Estimated Production* (Bushels) | Borers per 100 Plants (Number) | Loss (Per Cent) | (Bushels) |
|---|---|---|---|---|
| Burlington | 1,202,311 | 97 | 2.91 | 36,036 |
| Camden | 210,613 | 128 | 3.84 | 8,411 |
| Cape May | 189,400 | 79 | 2.37 | 4,598 |
| Gloucester | 543,957 | 74 | 2.22 | 12,350 |
| Hunterdon | 624,262 | 28 | .84 | 5,288 |
| Mercer | 485,243 | 39 | 1.17 | 5,745 |
| Middlesex | 222,734 | 105 | 3.15 | 7,244 |
| Monmouth | 730,326 | 83 | 2.49 | 18,649 |
| Salem | 1,137,915 | 35 | 1.05 | 12,075 |
| Somerset | 310,616 | 11 | .33 | 1,028 |
| Sussex | 93,942 | 12 | .36 | 339 |
| Warren | 637,899 | 14 | .42 | 2,690 |
| Totals | 6,389,218 | | | 114,453 |

Dollar value at $1.52 per bushel—$173,969

* Based on B. A. E. estimate of 7,576,000 bushels.

To check the effect of the winter on the population and distribution of European corn borers in the State a survey was made from April 26 to May 7. In the course of this study development and pupation of the insect were noted as well as mortality of the larvae due to weather, parasites, predators and diseases. Wherever possible the same fields which had been surveyed in the fall were examined in the spring. Two infested plants in each field were dissected and the number of borers by stage and instar were recorded.

The results of this survey showed a decrease of 20.2 per cent in population on the basis of borers per infested plant. In those cases where the death of the larvae could be ascertained it was found that 45.2 per cent were caused by insect parasites, 33.3 per cent by birds, 11.9 per cent by mechanical injury (stalk breakage, etc.) and 9.6 per cent by fungi.

### *Survey of Insects on Alfalfa and Forage Crops*

Most insect pests of alfalfa are also pests of other hay and forage crops. A survey to determine the occurrence, distribution and abundance of the economically important insects of alfalfa was designed to aid in providing timely and accurate insect control information to farmers and to serve as a basis for long range pest forecasting and research in the future.

Insects which were surveyed included the pea aphid, *Macrosiphum pisi,* and spittlebug, *Philaenus leucopthalmus,* two of the 10 most serious insect pests of New Jersey; the clover leaf weevil, *Hypera punctata,* a serious pest of alfalfa and clovers and the alfalfa weevil; also *Hypera postica,* an insect which is ranked the number one alfalfa pest in some areas of the United States and which was recently introduced into New Jersey.

The 14 counties and number of fields per county were surveyed according to the relative value of forage crops. Marks were placed on a State map in the forage crop producing areas of the counties selected and the survey personnel selected fields as close as possible to these marks.

At each of five separate locations in the field to be surveyed the inspector made one 180 degree sweep with the insect net and counted the number of pea aphid nymphs and adults collected. Five alfalfa stems for a pea aphid egg count and three red clover plants for a spittlebug egg mass egg count were then collected. A square foot area was examined for clover leaf weevil. The area was swept 20 times with the insect net to obtain a count of alfalfa weevil adults and larvae. The same technique was employed in the spring survey except for spittlebug where nymphs were counted on five weed plants, each at a different location in the field.

FALL SURVEY OF INSECTS ON FORAGE CROPS

NOVEMBER 2, 1953 TO JANUARY 6, 1954

| County | Locations | County Average: Spittlebug Egg Masses per 15 Red Clover Plants | Pea Aphid Adults and Nymphs per 5 Sweeps | Pea Aphid Eggs per 25 Alfalfa Stems | Clover Leaf Weevil Larvae per 5 sq. ft. | Alfalfa Weevil Larvae and Adults per 100 Sweeps |
|---|---|---|---|---|---|---|
| Sussex | 5 | 1.8 | 23.4 | 1.0 | 2.2 | 0 |
| Warren | 5 | 7.0 | 48.8 | 11.2 | 7.4 | 0 |
| Hunterdon | 5 | 14.0 | 119.0 | 1.4 | 3.8 | 0 |
| Morris | 3 | 7.7 | .3 | 14.7 | 1.7 | 0 |
| Somerset | 3 | 7.7 | 1.0 | .7 | 5.7 | 0 |
| Middlesex | 3 | .3 | 160.7 | 0 | 1.3 | 0 |
| Mercer | 3 | 2.0 | 112.7 | 0 | 10.7 | 0 |
| Monmouth | 3 | 0 | 78.3 | .7 | .3 | 0 |
| Burlington | 5 | 1.4 | 137.4 | .8 | 1.2 | 0 |
| Camden | 3 | .7 | 7.3 | 0 | 2.3 | 0 |
| Gloucester | 3 | 4.0 | 187.0 | .3 | 3.3 | 0 |
| Salem | 5 | 1.6 | 64.8 | .4 | 4.6 | 0 |
| Cumberland | 3 | .7 | 16.0 | .3 | .7 | 0 |
| Cape May | 3 | 1.0 | 4.0 | 0 | 1.7 | 0 |

The alfalfa weevil was first found in New Jersey on June 17, 1952 during a cooperative survey made by the Department and the State Agricultural Experiment Station. The work was initiated after the presence of the insect was reported in Maryland and Delaware in the spring of 1952. The pest is as yet of unknown potential in New Jersey but it is known to infest alfalfa in Cumberland, Cape May, Golucester, Camden, Salem and Burlington counties. However, 5,200 sweeps made in 14 counties at the time of the survey revealed no adults or larvae of this insect.

Several factors may account for not collecting this pest at the time of the survey: (1) Most of the study in the heavily infested areas was carried out after December 1. By this time the majority were in the adult or overwintering stage and had entered the soil or other hibernating quarters. (2) Extremely dry fall weather had reduced the number of adults present in known infested fields before the survey was started. (3) Only six of the 14 counties are known to be infested with the weevil. (4) The infestation was first discovered in 1952 and the population is still generally low.

The clover leaf weevil, an insect of occasional economic importance, winters as a larva. The heaviest populations were found in areas of Mercer, Hunterdon, Somerset and Warren counties. From the results of the fall survey it was predicted that if dry weather predominated in the spring of 1954 damage to alfalfa and clover could become of economic value. Warren and Hunterdon counties were areas of heavy egg deposition by spittlebugs and farmers in those areas were urged to treat forage since a single applica-

tion of recommended insecticides is effective against both spittlebug and clover leaf weevil. In Salem County, where considerable clover leaf weevil and pea aphids were found, the potential for infestation and necessity for treatment were present and emphasized.

Hunterdon, Warren, Morris and Somerset counties showed the highest spittlebug egg populations. Past experience and experimental work in 1953 indicated that the egg counts were highest where damage had been most severe in the past years. In Hunterdon County, which had the greatest number of egg masses, experiments in 1953 showed that an 85 per cent increase in forage yields was possible with a single spray treatment. An apparent correlation between egg mass counts, injury and nymphal counts was indicated. Efforts were made to encourage spring treatment of forage in those four counties. Sussex County did not have as many egg masses as the other North Jersey counties. Monmouth, Middlesex and Burlington had low egg counts. In South Jersey only Gloucester County had an egg mass count approaching the northern New Jersey count. If pea aphid populations did not build up in the spring it was felt that treatments in South and Central Jersey might not be worthwhile except locally where nymphs of spittlebugs might be found in numbers exceeding 25 per square foot.

The regional abundance of pea aphid adults and nymphs before the cold snap of December 17 was apparently correlated with the damage of the 1953 season when injury occurred to a greater extent than usual in central New Jersey and in parts of Hunterdon and Warren counties. Populations there were approximately equal to those in the southern counties. Normally pea aphids are a problem in counties south of Camden and are a problem only one year in five in the central and northern areas.

Overwintering pea aphid egg counts appeared consistent with past scattered observations. Few eggs were found in the southern counties whereas in central and northern New Jersey aphids overwinter almost entirely in the egg stage. Considerable numbers of eggs were found in the northern counties and despite predictions of heavy infestations in central New Jersey relatively few eggs were found at the time of the survey. Hence, it was felt that the overwintering population would not necessarily be large nor prospects for a heavy aphid infestation great in 1954 in central New Jersey unless conditions were exceptionally favorable. Since these were first year results it was important to check damage sustained the following season with the overwintering abundance, as altered by weather conditions in the winter and early spring.

1954 SPRING SURVEY INSECTS OF ALFALFA

APRIL 8 TO APRIL 23, 1954

| County | Locations | Spittlebug Nymphs on 5 Weed Plants | Pea Aphid Adults and Nymphs per 5 Sweeps | County Average Clover Leaf Weevil Larvae per 5 sq. ft. | Alfalfa Weevil per 100 Sweeps | |
|---|---|---|---|---|---|---|
| | | | | | Larvae | Adults |
| Sussex | 5 | 11.8 | 48.6 | 4.0 | ... | ... |
| Warren | 5 | 55.4 | 83.2 | 5.8 | ... | ... |
| Hunterdon | 4 | 61.0 | 138.3 | 4.3 | ... | ... |
| Morris | 3 | 34.7 | .7 | 1.3 | ... | ... |
| Somerset | 3 | 109.3 | 20.0 | 14.7 | ... | ... |
| Middlesex | 3 | 20.3 | 135.3 | 8.6 | ... | ... |
| Mercer | 3 | 78.3 | 78.3 | 9.3 | ... | ... |
| Monmouth | 3 | 15.3 | 406.7 | 5.0 | ... | ... |
| Burlington | 5 | 6.0 | 424.6 | 11.8 | .4 | ... |
| Camden | 3 | 14.0 | 603.0 | 15.5 | ... | 2.5 |
| Gloucester | 2 | 9.0 | 1,120.0 | 3.0 | 4.0 | 19.5 |
| Salem | 2 | 11.5 | 2,372.0 | 8.0 | .5 | 5.0 |
| Cumberland | 3 | 22.0 | 274.0 | 12.3 | 23.0 | 7.7 |
| Cape May | 3 | 2.3 | 229.6 | 6.3 | 4.2 | 1.7 |

The alfalfa weevil was not found in any additional counties. Of 18 fields from Burlington County south, 12 were infested with alfalfa weevil. Research personnel of the New Jersey Agricultural Experiment Station reported that alfalfa weevil populations in some of the fields examined in this survey were much higher than those previously reported. This indicates that it may not be possible to secure an accurate picture of alfalfa weevil population at the time this survey was conducted.

Clover leaf weevil populations were not found to be great enough to cause commercial damage to alfalfa anywhere in the State. Where clover was observed populations were much higher and possibly commercial damage was sustained in clover fields. In southern New Jersey many more larvae were found in the spring than in the fall. This may be due to the biology of the insect, eggs being laid later in the year.

Fairly good correlation was obtained where fall egg abundance and spring abundance of spittlebug nymphs on weed plants in alfalfa fields were compared. Hunterdon, Morris, Somerset and Warren counties had the highest egg populations in the fall of 1953 and correspondingly high nymph populations in the spring of 1954. The correlation was good between fall and spring results in over two-thirds of the counties surveyed.

Since the survey required considerable time to complete the rise and fall of the pea aphid population tended to obscure possible correlations of fall and spring results. However, the survey did show that pea aphid populations were high in most fields from Monmouth and Warren counties south and in fields in Middlesex, Mercer, Hunterdon and Warren coun-

ties. Also, the appearance of scattered high pea aphid populations in northern New Jersey indicated the need for research to determine the causes of such phenomena.

### *Peach Pest Survey*

Insects and diseases are serious limiting factors in the production of peaches. A survey of insects and diseases during the dormant season was designed to give information on occurrence, distribution and abundance of some of the major peach pests.

The peach insects and diseases which were surveyed included the peach canker, *Fusicoccum amygdali,* a disease problem of increasingly serious importance; peach tree borer, *Conopia exitiosa,* a perennial pest of peaches throughout the State which is capable of hitting entire plantings; lesser peach tree borer, *Synanthedon pictipes,* a secondary pest, more recently recognized as causing much damage to peach trees; European red mite, *Paratetranychus pilosus,* which has been serious in orchards; the scale insects, including the San Jose scale, *Aspidiotus perniciosus*; Forbes scale, *Aspidiotus forbesi;* oyster shell scale, *Lepidosaphes ulmi;* scurfy scale, *Chionaspis furfura,* and various fruit lecaniums probably *Lecanium corni* and others, which have recently appeared in certain southern New Jersey orchards in some numbers, and aphids, including the black peach aphid, *Anuraphis persicae-niger* and the green peach aphid, *Myzus persicae.*

The areas to be surveyed were weighted according to the available agricultural statistics. Accordingly, the following counties were selected and the number of blocks of peaches surveyed is indicated.

| County | Orchards Surveyed |
|---|---|
| Cape May | 2 |
| Cumberland | 7 |
| Salem | 3 |
| Gloucester | 10 |
| Atlantic | 10 |
| Camden | 7 |
| Burlington | 14 |
| Monmouth | 7 |
| Middlesex | 5 |
| Somerset | 5 |
| Hunterdon | 5 |
| Morris | 5 |
| Warren | 5 |
| Bergen | 5 |
| Total | 90 |

The peach growing areas of a county were noted on a map and marks were spaced approximately evenly over the peach area to designate a survey orchard. A bearing orchard five years or more old (and preferably pruned)

was selected as close as possible to the mark on the map. Abandoned orchards or those with many missing trees were avoided.

The following technique was followed by the inspectors in making the survey in each orchard. Ten trees at regular distances apart were examined in each orchard. The butt of the tree was examined for gumming. If borer frass was found in the gum peach tree borer was scored as present. However, if soil had been mounded up around the trunk indicating treatment with paradichlorobenzene the tree was considered free of peach tree borer infestation. The tree was then examined at the crotch and above for gumming. If frass was seen in the gum lesser peach tree borer was scored as present. The parts of the tree that could be seen from the ground were examined for peach canker and then at each of four locations on the tree three twigs were examined. One foot of each twig, to include the junction of 1952 and 1953 growth, was examined for aphid eggs, scales and mite eggs.

Between December 17, 1953 and March 12, 1954 inspectors surveyed 900 trees in 90 peach orchards in 14 counties representing approximately 1,000 acres of peaches. Two hundred eighty of the 900 trees examined were infested by peach tree borer. The infestation seems to be quite evenly spread throughout the entire State. Since effective means are available for control of this insect it would seem that peach tree borer control has been haphazard and the need for control will be emphasized by educational means in the future.

Of the 900 trees examined 298 were infested by lesser peach tree borer. The infestation was heaviest in the southern counties and in central New Jersey the population was heavier than in the northern counties. Apparently there is a correlation between peach canker and lesser peach tree borer abundance. Only a very few peach aphid eggs were found at scattered localities throughout the entire State.

Forty-two of the 90 orchards, or 203 out of the 900 trees, showed evidence of scale insects. In general, infestation of the scale insects found were light and scattered. Most of the scales were dead upon examination but an inoculum of several species of scale insects does exist throughout the State.

Viable European red mite eggs were found in practically every orchard. Although the extent of infestation was general the populations were most dense in Gloucester, Atlantic, Camden and Burlington counties. The potential for infestation was great throughout the entire State.

Peach canker was present in all counties surveyed except Salem (three orchards). The infection was most intense in Cumberland, Atlantic and Camden counties. In northern New Jersey Hunterdon County showed the heaviest infection. Four hundred ninety-seven of the 900 trees examined were infected by peach canker and laboratory examination confirmed the presence in each case.

*Strawberry Pest Survey*

A survey was designed to give the occurrence, distribution and abundance of several insects and diseases of New Jersey's strawberry industry. Inspectors engaged in red stele disease inspections in the regular strawberry certification program collected plants from each field examined. Upon completion of the certification work the inspectors checked additional strawberry plantings throughout the State.

Ten plants per field were chosen at random and dug up and placed in plastic bags. Care was taken to look for soil inhabiting grubs and wireworms. The plants were forwarded to Rutgers University College of Agriculture for microscopic examination and then to the Beltsville, Maryland laboratories of the U. S. Department of Agriculture for nematode examination.

1954 SPRING STRAWBERRY PEST SURVEY

| County | Fields Surveyed | Fields With Red Stele Present | Fields With Root-Knot Nematode Present | Average per 10 Plants: White Fly | Aphid Eggs | Capitophorus aphids | Myzus porosus aphids | Root aphids | Two Spotted Mites* | Other Spider Mites |
|---|---|---|---|---|---|---|---|---|---|---|
| Cape May | 3 | 0 | 0 | 7 | 0 | 4.3 | 0 | 2.1 | 277 | 74 |
| Cumberland | 9 | 1 | 1 | 64 | 0.3 | 4.7 | 0.9 | 38 | 60 | 2.1 |
| Atlantic | 19 | 8 | 3 | 9.7 | 1.4 | 0.3 | 0 | 2.6 | 5.4 | 2 |
| Salem | 1 | 0 | 1 | 31 | 2 | 3 | 0 | 5 | 2 | 0 |
| Gloucester | 1 | 0 | 0 | 61 | 9 | 0 | 0 | 10 | 4 | 0 |
| Camden | 8 | 0 | 0 | 57 | 2.5 | 1.6 | 1.5 | 3.8 | 5.9 | 0.3 |
| Burlington | 2 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 21 | 0 |
| Monmouth | 5 | 0 | 1 | 170 | 1.4 | 2.2 | 0 | 0.6 | 1 | 15 |
| Mercer | 6 | 0 | 1 | 990 | 5.8 | 1 | 0 | 2.7 | 438 | 0.1 |
| Middlesex | 2 | 0 | 0 | 16 | 140 | 0 | 0 | 33 | 16 | 0 |
| Somerset | 1 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 27 | 0 |
| Hunterdon | 2 | 0 | 1 | 244 | 2 | 0 | 0 | 0 | 198 | 0 |
| Morris | 1 | 0 | 0 | 96 | 0 | 0 | 2 | 51 | 731 | 0 |
| Bergen | 2 | 0 | 0 | 261 | 0 | 0 | 0.5 | 0 | 2.5 | 1.5 |

* Eggs, larvae and adults.

From March 15 to April 8 there were 194 acres in 62 strawberry fields in 14 counties surveyed for the chief pests found on plants at that time. This acreage represents approximately 9 per cent of the total strawberry acreage of the State. Red stele disease was found in nine fields, emphasizing the importance of growers' obtaining certified planting stock and planting in disease-free fields.

Root-knot nematode, *Heterodera marioni* was found in eight fields while the meadow nematode, *Pratylenchus penetrans* was found in 33 of the 62 fields surveyed. It is probable that more instances of infestation by the

meadow nematode would have been found if the collections had been made in early June rather than during March and April. The survey revealed the presence of nematodes throughout the State and as a result research on the problem has been initiated and growers have been advised by the research specialists to consider soil fumigation prior to setting out nematode-free stock.

White fly, *Aleyrodidae* was found throughout the State. The heavy populations of these insects indicated that the build-up of white fly would become much greater later in the season. Since white flies are controlled by ordinary contact sprays the heavily infested plantings indicated the probable absence of spraying or dusting programs.

The aphids *Capitophorus* spp., *Myzus porosus* and the eggs of these and other species were found all over the State. These aphids are proven vectors of western yellows and other virus diseases of strawberries. The two groups are the most important aphids in number and damage to strawberry fields in New Jersey. *Capitophorus* spp. aphids were more numerous in the southern counties than in the northern counties while the strawberry root aphid was found in most counties.

Two-spotted mite, *Tetranychus bimaculatus* populations were considered to be much higher than usual due to hot, dry weather in the late summer and fall of 1953. The presence of this pest in relatively large numbers at the time of the survey pointed to the probability of trouble in 1954. Growers were advised to inspect their fields for mites and treat for them before populations increased to high levels since once a high population is reached repeated insecticide applications are usually necessary for control. Other spider mites were found in small numbers.

Insects found in small numbers are the strawberry crown borer, strawberry root weevil, wireworms, white grubs and collembola.

### *Survey of Insects on Cabbage and Other Crucifers*

In 1953 a serious problem developed in controlling the various cabbage worms, chiefly the cabbage looper which attack broccoli, cabbage and cauliflower. In order to learn details of time of appearance, number of generations, relative abundance and other biological facts the survey of crucifer pests was established. Information was used for the issuance of timely warnings, as news articles and circular letters, to growers and field agents, of measures needed for protection of the crop.

Agricultural statistics were consulted for the counties producing the most crucifers. Survey personnel selected fields at random within those counties and then examined 25 plants per field.

1954 SPRING SURVEY OF INSECTS ON CRUCIFERS

May 11 to May 28, 1954

Average Number of Insects per 25 Plants Examined

| County | Locations | Maggot Eggs | Maggot Larvae | Aphids | Springtails | Flea Beetles | Cutworms | Diamondback Moth Larvae | Cabbage Looper | Thrips | Imported Cabbage Worm Larvae |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cumberland | 6 | .... | .... | 98 | 13.1 | 64.7 | .... | .... | 0.7 | 14.7 | 2.6 |
| Atlantic | 5 | .... | .... | 22.2 | 6 | 0.4 | .... | .... | 0.6 | 18 | 0.2 |
| Gloucester | 2 | .... | .... | 183.5 | .... | 7 | .... | .... | 1 | .... | .... |
| Camden | 5 | .... | .... | 40.6 | .... | 62 | .... | .... | 0.2 | 7.2 | 4 |
| Burlington | 5 | .... | 0.4 | 85.6 | 8.4 | 11.6 | .... | 4 | 0.2 | 112 | 4.2 |
| Mercer | 3 | .... | .... | 42.7 | .... | 245.7 | .... | 1.7 | 0.6 | 75.7 | .... |
| Monmouth | 5 | .... | 0.6 | 21.4 | 6.8 | 59 | .... | 0.25 | .... | 192 | 1.2 |
| Middlesex | 4 | .... | 5 | 40.5 | 31.7 | 47.2 | .... | .... | 0.25 | 151 | 1.7 |
| Warren | 4 | 0.25 | .... | 13.5 | 0.25 | 5.6 | .... | .... | 0.75 | 2.5 | .... |
| Morris | 4 | 3 | .... | 3 | 6.5 | 2.7 | .... | .... | 0.25 | 0.75 | .... |
| Passaic | 1 | .... | .... | .... | 1 | 6 | .... | .... | .... | .... | .... |
| Bergen | 3 | 0.3 | .... | 1.1 | 1.1 | 38.3 | .... | .... | 0.3 | 1 | .... |

The most numerous serious pests encountered were the cabbage aphid and the flea beetles. The cabbage aphids were not present in large enough numbers to cause damage but the flea beetles caused severe damage in some places. It was quite apparent that in South Jersey more foliar applications of insecticides were made for flea beetle and aphid control than in the central and northern counties.

Of the three cabbage worm species the imported cabbage worm was most numerous. In no location had damage yet appeared. Some cabbage loopers were seen and the diamondback moth larva was found in small numbers. In 1953 the cabbage looper was the most numerous, destructive and troublesome pest. This appeared later in the season. Thrips were found in some numbers but no particular damage noted. The survey was begun at a date after most cabbage maggot activity had ceased. Scattered fields showed injury from springtails. These insects are generally considered to be pests in the spring months or when moist conditions predominate.

*Survey of Variegation and Shoestring Diseases on Blueberry Plants*

The inspectors engaged in the regular blueberry certification work during June also noted the incidence of the virus diseases, Variegation and Shoestring, in the fields which were inspected for stunt disease.

In the 290.75 acres inspected 341 plants exhibited symptoms of Variegation, while 111 plants showed symptoms of Shoestring.

### *Hollyhock Survey*

Observations were made to determine the present area of infestation of the hollyhock leaf miner, *Trachys pygmaea* (Fab.) which was reported in the Rutherford area in 1948. A total of 105 inspections was made in the central and northern areas of the State and the insect was found in an area bounded by Ridgewood in the North and Cranford in the South and from Hackensack westward to Verona.

In the course of the work on hollyhock leaf miner the inspectors also examined the flower buds of the hollyhock plants for the presence of the cotton stem moth *Platyedra vilella* (Zell.), a foreign insect which was found on Long Island last year. The larval stage of the insect was found in Plainfield on June 29.

## MISCELLANEOUS ACTIVITIES

In September 1953 Entomology Chief Frank A. Soraci was elected chairman of the National Plant Board, the organization of plant inspection and quarantine officials of the 48 States. In that capacity he has devoted considerable time to the securing of adequate Federal financial support for the cooperative Federal-State insect control and quarantine programs. The efforts, for the present at least, have been successful but there is evidence that the Federal government would be desirous of withdrawing their support from these programs. That withdrawal would seriously affect such programs as those concerned with Japanese beetle, gypsy moth, golden nematode, foreign plant quarantines and others upon which agriculture is dependent for reasonable protection from within and without the State and the country. Most of these projects continue to receive the consideration and support of the Congress.

## JAPANESE BEETLE QUARANTINE PROJECT

### *Plant Quarantine Enforcement*

Nursery shipments made under Japanese Beetle Quarantine regulations for the period ending June 30 continued at a high rate. Shortage of stock of landscape planting size appears to be the factor preventing this industry from doing a larger volume of business. Extensive housing projects and other building activity in this area have made it possible to dispose of a large volume of nursery stock in nearby markets, thus eliminating much of the packing and long distance shipping.

Chemical treatments for the certification of plants have been improved and research is continuing in order that shipments may be made with as little delay and inconvenience as possible. The ethylene-dibromide-chlor-

dane treatment released last year is an example of the progress made to expedite the handling of nursery stock. No post-treatment holding period is required with this chemical so the shipper can handle rush orders without delay. The approval of this method is evidenced by an increase of approximately 80,000 treated plants during the year. To date, there have been no complaints of damage as a result of treatment.

The treatment of field plants with the use of DDT has increased to some extent and continues to be the most satisfactory method of handling stock of this type. There are approximately 200 individual areas containing 6,993,693 square feet presently in a certified status throughout the State. Soil samples are taken in the spring in each of these plots to determine the amount of DDT present. If the amounts are sufficiently below the required 25 pounds per acre retreatments are made to restore them to the proper dosage. Plants may be dug and shipped from any of the certified areas during the proper seasons without further processing.

Potting soil also may be treated by the grower for use in greenhouse pots and flats. There are various methods of treating such soil, any one of which the grower may choose to suit his particular needs. One of the most recent agents released for use in the treatment of potting soil is a combination of chloropicrin and methyl bromide. This material is becoming popular because it also will kill weed seeds. The soil is treated in air tight boxes or bins and covered with a tarp or otherwise to insure against gas leakage. The fumigant comes in one pound cans under pressure and is released under the cover by use of a special applicator. The dosage is determined by the temperature of the soil and surrounding air. This treatment may also be used for seed beds and frames.

### *Farm Produce Quarantine Enforcement*

Activities in New Jersey connected with the movement of products regulated under the Japanese beetle quarantine during the summer of 1954 were certification of fresh fruits and vegetables, namely, corn on the cob, beans in the pod, cabbage, apples and peaches; survey of beetle abundance in growing and shipping areas to determine procedure necessary prior to actual certification; supervision of refrigerator car bunker-dusting with DDT; checking for vent screens on trucks; application of DDT aerosol and residual treatments to interiors of airplanes; DDT foliage treatments with mist blowers to vegetation at airports; operation and maintenance of traps at airports to reduce beetle population in plane loading areas and as an aid in current survey. Other activities consisted of advance distribution of quarantine information to railroads, truckers, airfields, and fruit and vegetable growers and shippers.

The quarantine regulations were revised effective July 24, 1954, requiring airplane operators to furnish and apply specified aerosols to planes destined to points outside the regulated area. The residual treatment was carried on experimentally during this summer and probably will be continued until the needed equipment and formulas are available commercially.

1. NURSERY STOCK SHIPPED UNDER CERTIFICATION

| 1953 | Outside Area | Inside Area | Totals |
|---|---|---|---|
| July | 157,966 | 37,784 | 195,750 |
| August | 74,478 | 19,830 | 94,308 |
| September | 274,297 | 49,522 | 323,819 |
| October | 304,566 | 60,196 | 364,762 |
| November | 209,319 | 12,787 | 222,106 |
| December | 278,013 | 40,583 | 318,596 |
| 1954 | | | |
| January | 258,772 | 36,582 | 295,354 |
| February | 264,589 | 14,353 | 278,942 |
| March | 670,609 | 97,809 | 768,418 |
| April | 587,776 | 237,802 | 825,578 |
| May | 326,666 | 32,450 | 359,116 |
| June | 180,644 | 90,705 | 271,349 |
| Totals | 3,587,695 | 730,403 | 4,318,098 |

Valued by shippers at $1,544,938

2. METHODS USED FOR CERTIFICATION AND NUMBER OF PLANTS CERTIFIED

(a) Plants treated "after digging" with methyl bromide, ethylene dichloride, ethylene dichloride-dibromide and ethylene dibromide-chlordane 550,429

(b) Plants treated in the field "before digging" with DDT, chlordane, lead arsenate and ethylene dib-chlordane 3,874,575

(c) Plants manually and visually inspected 1,200,191

3. SUMMARY OF PLANT TREATMENTS

| "Before Digging" Insecticide or Fumigant | Plants | Square Feet |
|---|---|---|
| DDT (includes initial treatment, retreatment and areas previously treated that did not require additional DDT) | 3,870,388 | 5,060,801 |
| Chlordane and ethy. dibromide dich. (initial only) | 4,187 | 113,191 |
| Totals | 3,874,575 | 5,173,992 |

| "After Digging" | Plants |
|---|---|
| Ethylene dichloride | 60,944 |
| Ethylene dichloride-dibromide | 328,638 |
| Ethylene dibromide-chlordane | 117,579 |
| Methyl bromide | 43,268 |
| Total | 550,429 |

4. 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) | 299,780 |
| Chlordane, ethy. dichloride-dibromide (initial only) | 1,912 |
| Lead arsenate (includes initial treatment, retreatment and areas previously treated that did not require additional lead arsenate) | 30,579 |
| Total | 332.271 |

5. POTTING SOIL TREATED

| Agent | Cubic Yards |
|---|---|
| Carbon Disulphide | 95.64 |
| Methyl Bromide | 27.12 |
| Chlordane | 100.00 |
| DDT | 174.52 |
| Heat | 338.91 |
| Total | 736.19 |

6. PERSONAL CALLS MADE

| | |
|---|---|
| Plant material and soil | 4,023 |
| Farm produce | 83 |
| Total | 4,106 |

7. MEN EMPLOYED

| | Farm Produce | | Nursery and Greenhouse | | Totals | |
|---|---|---|---|---|---|---|
| 1953 | Federal | State | Federal | State | Federal | State |
| July | 4 | 6 | 2 | 2 | 6 | 8 |
| August | 4 | 6 | 2 | 2 | 6 | 8 |
| September | .. | .. | 6 | 3 | 6 | 3 |
| October | .. | .. | 6 | 3 | 6 | 3 |
| November | .. | .. | 6 | 3 | 6 | 3 |
| December | .. | .. | 6 | 3 | 6 | 3 |
| 1954 | | | | | | |
| January | .. | .. | 6 | 3 | 6 | 3 |
| February | .. | .. | 6 | 3 | 6 | 3 |
| March | .. | .. | 6 | 3 | 6 | 3 |
| April | .. | .. | 6 | 3 | 6 | 3 |
| May | .. | .. | 6 | 3 | 6 | 3 |
| June | .. | .. | 6 | 3 | 6 | 3 |

8. NUMBER OF AUTOMOBILES OPERATED EACH MONTH DURING THE YEAR

| 1953 | Federal | State |
|---|---|---|
| July | .. | 13 |
| August | .. | 13 |
| September | .. | 9 |
| October | .. | 9 |
| November | .. | 9 |
| December | .. | 9 |
| 1954 | | |
| January | .. | 9 |
| February | .. | 9 |
| March | .. | 9 |
| April | .. | 9 |
| May | .. | 9 |
| June | .. | 9 |

9. COMPARISON OF 1952-53 AND 1953-54 OF PLANTS CERTIFIED, SURFACE AREAS AND BULK SOIL TREATED

(a) Nursery stock shipped under certification

| 1952-53 | 1953-54 |
|---|---|
| 4,475,947 | 4,318,098 |

(b) Plants treated "after digging" with methyl bromide, ethylene dichloride, ethylene dichloride-dibromide, ethylene dibromide-chlordane

| 1952-53 | 1953-54 |
|---|---|
| 660,065 | 550,429 |

(c) Plants treated in the field "before digging" with DDT, chlordane, lead arsenate and ethylene dibromide-chlordane

| 1952-53 | 1953-54 |
|---|---|
| 3,123,408 | 3,874,575 |

(d) Plants manually and visually inspected

| 1952-53 | 1953-54 |
|---|---|
| 1,001,379 | 1,200,191 |

(e) Square feet of surface soil treated with:

| | 1952-53 | 1953-54 |
|---|---|---|
| DDT | 498,573 | 299,780 |
| Lead Arsenate | 116,204 | 30,579 |
| Ethy. dichloride dib. | 14,852 | 1,912 |
| Totals | 629,629 | 332,271 |

(f) Potting soil treated in cubic yards

| 1952-53 | 1953-54 |
|---|---|
| 1,008.45 | 736.19 |

FARM PRODUCTS

| 1953 | Commodity: Trucks | Apples (bu.) | Beans (bu.) | Cabbage (bu.) | Corn (crt.) | Peaches (bu.) | Method of Certification: Inspection | Fumigation |
|---|---|---|---|---|---|---|---|---|
| July | 26 | 9,600 | 1,487 | 300 | ... | 925 | Insp. | |
| August | 35 | 500 | ... | ... | ... | 16,921 | " | |
| 1954 | | | | | | | | |
| June | 30 | ... | 9,142 | 6,580 | 328 | ... | " | Methyl Bromide* |
| Totals | 91 | 10,100 | 10,629 | 6,880 | 328 | 17,846 | | |

* One truck load containing 328 crates of corn and 202 bushels of beans was fumigated with methyl bromide during June. Other truck loads were inspected.

## BEE CULTURE

The volume of apiary inspection work was seriously curtailed this year because of the illness and resultant absence of the supervisor from April to June. Through the spring months, therefore, his assistant made all inspections. In spite of the handicap a total of 5,992 colonies in 625 apiaries in all counties of the State were serviced.

It has been the aim of this project to inspect at least once in every three years each established bee yard in the State. Discovery of bee diseases before they have had opportunity to cause serious losses to the apiarist is the main objective. The second aim of the project is to locate abandoned or neglected beehives so that reservoirs of disease can be destroyed.

## REGULAR INSPECTIONS

July 1, 1953 to June 30, 1954

| 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.* | Microscopic Determination E.F.B.† | Neg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlantic | 5 | 34 | .. | .. | 2 | 4 | .. | .. | .. | .. | .. | .. |
| Bergen | 27 | 138 | .. | .. | 5 | 7 | .. | .. | .. | 1 | .. | .. |
| Burlington | 46 | 745 | .. | 3 | 7 | 25 | 9 | 83 | .. | 9 | 18 | 13 |
| Camden | 15 | 118 | .. | .. | 4 | 6 | 1 | 5 | .. | .. | .. | .. |
| Cape May | 2 | 228 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Cumberland | 14 | 90 | .. | 2 | 4 | 11 | 4 | 10 | .. | .. | 3 | 1 |
| Essex | 8 | 73 | .. | .. | 3 | 10 | .. | .. | .. | 4 | .. | .. |
| Gloucester | 41 | 260 | 3 | 8 | 8 | 21 | 2 | 2 | .. | .. | .. | 1 |
| Hudson | 2 | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hunterdon | 34 | 842 | 530 | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Mercer | 39 | 302 | .. | 3 | 6 | 17 | .. | .. | .. | 1 | .. | .. |
| Middlesex | 10 | 121 | .. | .. | 2 | 7 | 1 | 1 | .. | .. | 2 | 8 |
| Monmouth | 6 | 144 | .. | .. | 2 | 4 | .. | .. | .. | .. | .. | 1 |
| Morris | 158 | 1,218 | .. | 5 | 25 | 82 | .. | .. | 3 | 5 | .. | 1 |
| Ocean | 3 | 14 | .. | .. | .. | .. | 1 | 4 | .. | .. | .. | .. |
| Passaic | 23 | 207 | 21 | 11 | 4 | 15 | .. | .. | .. | .. | .. | 1 |
| Salem | 1 | 7 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Somerset | 8 | 59 | .. | .. | 1 | 2 | .. | .. | .. | 1 | 1 | .. |
| Sussex | 9 | 159 | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | 1 |
| Union | 9 | 95 | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. |
| Warren | 44 | 537 | 1 | 37 | 6 | 21 | .. | .. | .. | .. | .. | .. |
| Totals | 504 | 5,395 | 555 | 69 | 81 | 234 | 18 | 105 | 3 | 21 | 24 | 29 |

* American Foul Brood.
† European Foul Brood.

Also, 11 queen-rearing certificates and 20 transfer certificates were issued to established beekeepers.

Of the 504 established apiaries inspected 81, or 16 per cent, were found infected with American foul brood. However, only 234 colonies of the 5,395 contained in the apiaries were found infected. The incidence of disease in the colonies in established apiaries was 4.3 per cent. European foul brood was found in 3.5 per cent of the apiaries and approximately 2 per cent of the colonies inspected.

No neglected or abandoned colonies were found, by survey, in Cape May, Hudson, Monmouth or Ocean counties.

NEGLECTED AND ABANDONED COLONIES SURVEYED

| County | Apiaries Found Initially | Colonies Inspected Initially | Diseases Found | | | |
|---|---|---|---|---|---|---|
| | | | American Foul Brood | | European Foul Brood | |
| | | | Apiaries | Colonies | Apiaries | Colonies |
| Atlantic | 1 | 3 | .. | .. | .. | .. |
| Bergen | 5 | 16 | 1 | 1 | .. | .. |
| Burlington | 12 | 70 | 1 | 1 | .. | .. |
| Camden | 2 | 17 | .. | .. | .. | .. |
| Cumberland | 6 | 14 | .. | .. | .. | .. |
| Essex | 3 | 4 | 1 | 2 | .. | .. |
| Gloucester | 8 | 25 | .. | .. | 1 | 1 |
| Hunterdon | 3 | 15 | .. | .. | .. | .. |
| Mercer | 9 | 41 | 1 | 1 | .. | .. |
| Middlesex | 5 | 23 | 1 | 1 | 1 | 2 |
| Morris | 33 | 107 | 2 | 5 | .. | .. |
| Passaic | 5 | 25 | .. | .. | .. | .. |
| Salem | 3 | 82 | 1 | 2 | .. | .. |
| Somerset | 10 | 31 | 2 | 3 | .. | .. |
| Sussex | 1 | 2 | .. | .. | .. | .. |
| Union | 5 | 19 | 2 | 9 | .. | .. |
| Warren | 10 | 103 | 1 | 5 | .. | .. |
| Totals | 121 | 597 | 13 | 30 | 2 | 3 |

American foul brood was discovered in almost 11 per cent of the apiaries with about 5 per cent of the colonies infected. Negligible European foul brood was found in these neglected and abandoned hives.

Since the spring of 1949, 4,758 colonies of bees neglected, abandoned or unknown have been examined at 373 locations in the State. The incidence of American foul brood was over 10 per cent in the early finds, down to 6 per cent during the previous year and 5 per cent during the current year, almost at the level of the regularly inspected apiaries.

European foul brood continues to present a problem in the low lying areas in southern New Jersey. Beekeepers who supply bees for pollination of blueberries and cranberries have suffered heavy losses because of this disease. Observations indicate that a good percentage of the colonies permanently located in that area remain disease-free. Apparently a resistance

to European foul brood has developed over the years. It would be good practice, therefore, to requeen with apparently resistant stock those infected colonies which still have a reasonable number of field bees.

Crossed comb colonies are still being found. However, when the disadvantages of this comb are made known the beekeeper has usually applied corrective measures.

### *Microscopic Diagnosis*

The identification of bee diseases by microscopic examination of dead brood continues to be an important function. The samples of suspected material customarily are mailed to the Department. Although only about 7 per cent of the American foul brood and 18 per cent of the European foul brood reported for this year was found by this method the service is valuable because it is available continually; the beekeeper does not need to wait for the inspector and in many cases disease is found and controlled before it creates a serious problem in the general area.

### *Observations*

At the start of the fiscal year normal colonies seemed to be well supplied with honey. The crop was considerably heavier than the previous year. Hot, dry weather prevailed thereafter interfering with the normal activities of the colonies, lowering somewhat the outlook for an exceptionally heavy honey crop. Mild weather in the fall months permitted a good degree of activity to the extent that small amounts of brood in various stages of development were seen in the hives, even as late as December. During the early winter months the mild weather gave promise of early brood rearing but a setback was experienced as the weather turned cold and windy in March. Spring brood rearing, therefore, was somewhat delayed compared with the previous year. However, there was extremely low winter loss of bees. By May swarming of bees was occurring throughout the State. By June bee activity had returned to normal with weather generally favorable for nectar secretion and with the bees storing normal amounts of surplus honey.

## GYPSY MOTH PROJECT

In early July 600 traps used to detect the presence of gypsy moths were put out in five counties. One temporary employee was added to the regular crew of three men since each inspector is not able to service more than 150 traps. The traps, provided by the Gypsy Moth Project of the U. S. Department of Agriculture, are baited with a sexual attractant, capable of luring and capturing moths within a radius of about one-fourth of a mile. The traps are used here not only as an independent scouting aid but also as a

check on the woodland, visual scouting work, which is performed by the regular inspection force during the months when the deciduous trees are devoid of foliage.

The trapped areas were carefully selected as those presenting particular danger with respect to this pest. Various factors, such as woodland composition and road pattern in relation to the nearest out-of-State infestations, are considered in the selection of trap sites.

### GYPSY MOTH TRAPS

#### Bergen County

| Township or Borough | Number of Traps |
|---|---|
| Alpine | 35 |
| Closter | 14 |
| Creskill | 7 |
| Demarest | 6 |
| Fort Lee | 9 |
| Englewood | 16 |
| Englewood Cliffs | 14 |
| Leonia | 2 |
| Northvale | 4 |
| Norwood | 4 |
| Old Tappan | 13 |
| Rivervale | 8 |
| Rockleigh | 5 |
| Tenafly | 13 |
| | 150 |

#### Burlington County

| Township or Borough | Number of Traps |
|---|---|
| Bordentown | 6 |
| Burlington | 5 |
| Florence | 5 |
| Mansfield | 6 |
| | 22 |

#### Hunterdon County

| Township or Borough | Number of Traps |
|---|---|
| Delaware | 27 |
| East Amwell | 12 |
| Franklin | 13 |
| Kingwood | 48 |
| Raritan | 19 |
| West Amwell | 12 |
| | 131 |

Mercer County

| Township or Borough | Number of Traps |
|---|---|
| Ewing | 18 |
| East Windsor | 17 |
| Hamilton | 16 |
| Hopewell | 25 |
| Lawrence | 14 |
| Princeton | 18 |
| Washington | 19 |
| West Windsor | 20 |
| | 147 |

Morris County

| Township or Borough | Number of Traps |
|---|---|
| Denville | 16 |
| Hanover | 6 |
| Mendham | 32 |
| Morris | 37 |
| Parsippany-Troy Hills | 18 |
| Randolph | 41 |
| | 150 |
| State Total | 600 |

Each trap was visited and serviced at seven- to 10-day intervals. On August 11 a trap in Englewood Cliffs captured one gypsy moth. This was the first such moth taken in New Jersey since 1944. The captures in that year and one of a single moth in 1939 were from traps within two miles of the August 1953 catch. No further specimens were taken during the rest of the trapping season and in early September all traps were removed.

Scouting revealed that it is most unlikely that an infestation of gypsy moth exists in the area where the moth was taken. It is rather likely that the specimen was transported by man or by wind from an infested area, possibly in Westchester County, New York, or from some point in New England. In 1953 gypsy moth populations were at a peak in almost all the infested areas of New England and New York. Catches were made in many previously uninfested areas outside the "barrier zone" in New York State and at isolated points in Pennsylvania, near Milford and Dingmans Ferry, within a few miles of the New Jersey boundary.

Upon completion of the season's trapping program visual scouting of woodland and other dangerous areas was begun.

## VISUAL SCOUTING OF DANGEROUS AREAS

September 1953 to June 1954

| County | Municipality | Acres Scouted Woodland | Open | Road | "Strip" |
|---|---|---|---|---|---|
| Bergen | Englewood | 149 | 164 | ... | 129 |
| | Englewood Cliffs | 955 | 170 | ... | 149 |
| | Palisades Interstate Park | 148 | 94 | ... | 151 |
| | Rockleigh | 312 | 65 | ... | ... |
| | | 1,564 | 493 | ... | 429 |
| Hunterdon | Delaware | 365 | ... | ... | ... |
| | Kingwood | 280 | ... | ... | ... |
| | West Amwell | 70 | ... | ... | ... |
| | | 715 | ... | ... | ... |
| Somerset | Bridgewater | 110 | ... | ... | ... |
| | Hillsboro | 255 | ... | ... | ... |
| | | 365 | ... | ... | ... |
| Sussex | Montague | 118 | ... | 2 | ... |
| | Sandyston | 120 | ... | ... | ... |
| | Wallpack | 45 | ... | ... | ... |
| | | 283 | ... | 2 | ... |
| | Totals | 2,927 | 493 | 2 | 429 |

Total Acreage Scouted 3,851

# BUREAU OF PLANT PATHOLOGY

## CANKER STAIN DISEASE CONTROL

(Calendar Year 1953)

During the calendar year 1953 four field men spent a total of 340 man days on canker stain disease control. One man devoted 90 per cent of his time to this project, working in the southern half of the State, the area of highest incidence. A total of 115 political units in 16 counties was scouted; 108,560 plane trees were inspected and 591 cases of canker stain disease were detected and tagged for removal.

There was nearly a 30 per cent increase over last year in the number of diseased trees found. However, the increase was expected since they all occurred in municipalities that did not remove diseased trees promptly in accordance with State recommendations.

Although considerable time was spent with the shade tree officials in the concerned municipalities in an effort to induce them to eradicate their diseased trees promptly, no significant change is anticipated. The reasons given for not complying with the recommendations are (1) shortage of funds, (2) lack of trained personnel and (3) pressure of other work.

The longer the diseased trees stand the more difficult and costly they become to remove and they serve as a source of additional disease spread. Unless some practical means can be found to compel the municipalities to promptly and efficiently eradicate the condemned trees it probably will be impossible to effectively control this disease. At present it is still confined to a comparatively small area but if affected trees are allowed to stand for long periods of time the disease rate will increase.

Other problems in the control of this disease are the presence of the American plum borer *Euzophera semifuneralis* and evidence of rosy canker in a large number of plane trees showing symptoms of canker stain disease. This condition makes correct diagnosis in the field extremely difficult in some cases and will necessitate culturing in many instances. It was first encountered to any noticeable degree in 1952 but during 1953 the increase was so great that it was recognized as a problem that would require well planned field and laboratory research. Continuation of the present control procedure is planned for 1954.

CANKER STAIN DISEASE CONTROL

| County | Total Number of Trees | Tagged Trees to January 1, 1953 Total | Tagged Trees to January 1, 1953 Total Removed | Tagged Trees to January 1, 1953 Standing | Trees Tagged in 1953 | Total Tagged Trees Standing Jan. 1, 1954 |
|---|---|---|---|---|---|---|
| Atlantic | 500 | ... | ... | ... | ... | ... |
| Bergen | 550 | ... | ... | ... | ... | ... |
| Burlington | 20,150 | 136 | 134 | 2 | 16 | 18 |
| Camden | 58,700 | 2,710 | 2,602 | 108 | 458 | 566 |
| Cape May | 9,500 | ... | ... | ... | ... | ... |
| Gloucester | 7,100 | 31 | 29 | 2 | 5 | 7 |
| Hudson | 2,500 | 2 | 2 | ... | ... | ... |
| Hunterdon | 125 | ... | ... | ... | ... | ... |
| Mercer | 7,150 | ... | ... | ... | ... | ... |
| Middlesex | 200 | ... | ... | ... | ... | ... |
| Monmouth | 500 | ... | ... | ... | ... | ... |
| Morris | 165 | ... | ... | ... | ... | ... |
| Ocean | 1,500 | ... | . . | ... | ... | ... |
| Somerset | 90 | ... | ... | ... | ... | ... |
| Sussex | 35 | ... | ... | ... | ... | ... |
| Warren | 40 | ... | ... | ... | ... | ... |
| Totals | 108,805 | 2,879 | 2,767 | 112 | 479 | 591 |

## DUTCH ELM DISEASE CONTROL

(Calendar Year 1953)

The March 1950 issue of "The Shade Tree" presented a Dutch elm disease control program for New Jersey which has been followed since that date. Field experiences realized in the past three summers have added further information on this subject. For the purpose of this discussion the analysis of the control program in New Jersey will be considered in the following divisions: (1) the acceptability of the recommendations, (2) the effectiveness of the recommendations and (3) the employment of the recommendations.

As the most intensive Dutch elm disease control work in the State is conducted in the northeastern counties a survey questionnaire was submitted to the shade tree officials of 35 municipal and county shade tree commissions to obtain information and opinions regarding the operation of a program based on the 1950 recommendations.

### *The Acceptability of the Recommendations*

Except for minor objections the 1950 control program was generally acceptable. With a considerable increase in the mite population following the application of the DDT sprays the wisdom of using this insecticide was questioned, particularly after having witnessed the russeting of the foliage. Because of mite infestation the leaves russeted early in July, leaving the trees unsightly for the balance of the foliar year. However, the inclusion of miticides with the DDT spray apparently alleviated this condition.

Some men reported dissatisfaction with the performance of DDT as a defoliator-control material and substituted, or added, lead arsenate. Of the 35 men questioned 34 had no aversion to the use of DDT but one did. Twenty-three men reported the use of DDT, six a mixture of DDT and lead arsenate and four lead arsenate alone.

The recommended prefoliar spray of approximately three pounds of DDT per average size tree has not been adopted generally because of the cost. Twenty-six men reported no application of prefoliar spray while nine reported having applied it.

### *The Effectiveness of the Control Program*

Five years of observation and investigation of the performance of the Dutch elm disease control recommendations in New Jersey indicate that the basic principles of the control program are sound. In the cycle of the transmission of the Dutch elm disease fungus from infected beetle breeding material to healthy trees the protection of valuable trees is the best procedure. The establishment on a tree of a veneer of DDT which will incapacitate bark beetles before infective feeding is initiated is the best weapon. Trees experimentally sprayed in the prefoliar season for elm bark beetle control displayed a very low incidence of the disease even though a considerable number of diseased and infested trees were in the immediate environs. However, removal of symptomatic and dying trees is equally important.

The increase in the mite population on DDT sprayed trees has been arrested by the addition of a miticide to the DDT. The effectiveness of control recommendations is based primarily on the deposition of DDT on most, if not all, of the bark surface of a tree. This may be difficult to attain, particularly when confronted with early spring winds. However, the spraying season might possibly be extended into the winter months immediately preceding the usual early spring spray period.

The current version of the March 1950 recommendations is the application of DDT at the rate of three pounds per average size tree to:

1. Dead elm trees with tight bark. Spray immediately before April 15 and 60 days later if tree is still standing.
2. Dutch elm disease symptomatic trees of 1953. Spray immediately before April 15 and 60 days later if tree is still standing.
3. Dutch elm disease symptomatic trees of 1954. Spray immediately upon the appearance of wilting and yellow symptoms.

Likewise the destruction by burning or proper spraying with DDT of wood piles is considered an important phase of the control work.

*Employment of the Recommendations*

Of the 35 men reporting nine stated that they had made DDT prefoliar sprays to the trees while 26 reported they had not. The 26 blamed lack of money or man power or both. The spraying of elm trees in New Jersey for defoliators is almost a necessity if the health of the tree is to be maintained. Only two men reported no spray application for defoliators stating that the elm leaf beetle and cankerworms were not sufficiently serious to warrant the expense. The elm leaf beetle again seriously defoliated, with few local exceptions, the elm trees throughout the entire State.

Most of the men reported that standing, diseased private property trees greatly jeopardized municipal Dutch elm disease control programs. The diseased municipal trees left standing in many places contributed considerably to this problem.

The questionnaire asked the men about the use of municipal employees and equipment for the spraying of symptomatic trees on private property. Twenty-five men reported that no substantial progress had been made toward making harmless such trees on private property. Some of the comments which accompanied this question are:

City employees cannot work on private property.
Considered illegal.
Sprayed if trees can be reached from the street.
No spraying, but trees removed if owner signs release.
Spray if near street and owner requests.
Does and can go on private property for spraying only.

The examination of the New Jersey shade tree laws by the Rutgers School of Law in Newark should clarify uncertainties now confusing to municipal officials concerned with shade tree maintenance. This project is again in operation after an interruption last spring.

The final question submitted was "Have you any suggestions for the strengthening of the New Jersey Dutch elm disease control program?" The replies included:

| | |
|---|---|
| No | 19 |
| Federal aid | 5 |
| Removal of diseased trees in the custody of the State Highway Commission | 1 |
| More publicity | 5 |
| Compel private property owners to remove trees | 1 |
| Encourage chemotherapeutic research | 1 |

With the urban and suburban extension of real estate developments burning sites for diseased elm wood are becoming fewer in number and less

accessible. The Department during the forthcoming winter months will conduct a survey in the northeastern counties to ascertain the location of available burning sites for the disposition of elm wood. Another problem is the brittleness of the wood of some of the standing, dead elm trees. Experienced tree men are reluctant to accept the responsibility of such tree removal work because of the danger involved.

### *Summary*

Dutch elm disease control research information available for the 1953 season did not significantly change the procedure followed during the previous four years. The addition of a miticide chemical to the DDT spray alleviated the recent red spider annoyance.

Almost unanimously the reporting shade tree officials branded the standing diseased private property trees as the principal source of beetles carrying the Dutch elm disease fungus. Spraying of such trees by municipal men reportedly is seldom practiced because of legal barriers. The existence of these barriers in only some municipalities suggests local ordinance restrictions rather than legislation of State origin. The current study of New Jersey Shade tree laws and several municipal ordinances should contribute considerable information.

The expense of the recommended prefoliar spray is incompatible with the available funds of many shade tree commissions. A conference of Dutch elm disease research workers of the United States and Canada is tentatively scheduled for early 1954. Research findings of sufficient merit and dependability will be promptly incorporated in the Dutch Elm Disease Control Recommendations for 1954.

## OAK WILT SURVEY

(Calendar Year 1953)

The Department again cooperated with the Division of Forest Pathology, Bureau of Plant Industry, U. S. Department of Agriculture, in aerial scouting the oak timbered areas in New Jersey for the detection of trees suspected to be infected with oak wilt. Airplane service was hired for 17 flight hours in northern New Jersey and for eight and one-half flight hours in southern New Jersey. The plane was manned by three USDA employees and the airports supplied the pilots. Two of the Federal employees served as observers, the third as a map man.

The aerial scouting detected two suspect locations: (1) the north slope of the first Watchung Range, about one mile west of Chimney Rock in Somerset County and (2) a wooded area near Berlin in Camden County. A ground examination of the trees in these two areas did not reveal any

typically diseased trees so no twig samples were taken. The protracted period of subnormal rainfall may have been responsible for the appearance of the trees in these suspect areas. However, both these areas will be thoroughly examined in early summer of 1954.

Division of Plant Industry personnel and several foresters assisted in the ground scouting for oak wilt which resulted in the collection of samples from nine suspect trees. After having been handled in a manner so as to retain the viability of the organism, if present, the samples were submitted to Rutgers University Department of Plant Pathology for culturing. The laboratory report for each of the samples submitted was negative.

On the basis of aerial and ground scouting for oak wilt during 1953 and the laboratory reports representing the cultured suspects it can be assumed that there is no oak wilt disease in New Jersey.

## TOMATO SEED CERTIFICATION

Field conditions for the inspection of tomato seed for certification were excellent compared with the two years immediately preceding. Weeds were a minor obstacle. Mosquito annoyance in the southern part of Cumberland County was negligible.

Little disease was present in the fields inspected. The leaf spots were practically absent and late blight was encountered in only one field. Internal browning, an unsolved virus disease, was not seen in any fields. Streak mosaic which in 1951 was quite common was encountered in only two fields, but to a minor degree. Insect damage to the foliage likewise was at a low level. However, a few fields contained a russeting mite which congregates on the underside of the foliage. These infestations frequently impart a bronze-like appearance to the foliage.

One new variety was added to the list of those accepted for certification. The Ritter Seed Company of Bridgetion, after several years of refinement growing, offered a new hybrid called Century. Nine acres were grown and certified. Experimental lots of seed of this new variety, sent to various foreign customers of the company, performed very satisfactorily. Advance orders for seed of this new variety greatly exceeded the production in 1953.

### CERTIFICATES ISSUED

| | |
|---|---|
| Combined seed treatment declarations and seed certification declarations | 29 |
| Seed treatment declarations | 13 |
| Phytosanitary certificates | 7 |
| Total certificates issued | 49 |

## ACREAGE CERTIFIED, 1953

| Seedsman | Rutgers | Marglobe | Pritchard | Improved Garden State | Stokesdale | Valiant | Queens | Century | Total |
|---|---|---|---|---|---|---|---|---|---|
| California Packing Corp. | 30 | ... | ... | 6 | ... | ... | 5 | ... | 41 |
| Campbell Soup Company | 822 | ... | ... | 314 | ... | ... | ... | ... | 1,136 |
| H. J. Heinz Company | 83 | ... | ... | ... | ... | ... | ... | ... | 83 |
| Ritter Seed Company | 938 | 49 | ... | ... | 30 | ... | 24 | 9 | 1,050 |
| Francis C. Stokes Company | 77 | 133 | ... | ... | ... | 52 | ... | ... | 262 |
| Swedesboro Seed Company | 85 | 61 | 15 | ... | ... | ... | 9 | ... | 170 |
| Totals | 2,035 | 243 | 15 | 320 | 30 | 52 | 38 | 9 | 2,742 |

## POUNDS OF SEED SAVED, 1953

| Seedsman | Rutgers | Marglobe | Pritchard | Improved Garden State | Stokesdale | Valiant | Queens | Century | Total |
|---|---|---|---|---|---|---|---|---|---|
| California Packing Corp. | 332 | ... | ... | 51 | ... | ... | 93 | ... | 476 |
| Campbell Soup Company | 32,530 | ... | ... | 11,400 | ... | ... | ... | ... | 43,930 |
| H. J. Heinz Company | 647 | ... | ... | ... | ... | ... | ... | ... | 647 |
| Ritter Seed Company | 32,668 | 2,435 | ... | ... | 1,559 | ... | 707 | 675 | 38,044 |
| Francis C. Stokes Company | 5,060 | 9,319 | ... | ... | ... | 4,100 | ... | ... | 18,479 |
| Swedesboro Seed Company | 1,905 | 1,680 | 375 | ... | ... | ... | 110 | ... | 4,070 |
| Totals | 73,142 | 13,434 | 375 | 11,451 | 1,559 | 4,100 | 910 | 675 | 105,646 |

## TOMATO SEED CERTIFICATION 1921-53
### VARIETAL DISTRIBUTION CERTIFIED TOMATO SEED ACREAGES

| | Bonny Best | J.T.D. | Baltimore | Marglobe | Valiant | Break O'Day | Stokesdale | Rutgers | Pritchard | Garden State | Improved Garden State | Ontario | 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 | ... | 18 | ... | ... | ... | ... | ... | ... | ... | ... | 1,413 |
| 1931 | 219 | 292 | 106 | 689 | ... | 127 | ... | ... | ... | ... | ... | ... | ... | ... | 1,433 |
| 1932 | 34 | 61 | 18 | 562 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 675 |
| 1933 | 12 | ... | 15 | 543 | ... | ... | ... | ... | 99 | ... | ... | ... | ... | ... | 669 |
| 1934 | 28 | 155 | 91 | 2,046 | ... | 2 | ... | ... | 182 | ... | ... | ... | ... | ... | 2,504 |
| 1935 | 5 | 247 | 61 | 1,520 | ... | 8 | ... | 730 | 192 | ... | ... | ... | ... | ... | 2,763 |
| 1936 | 5 | 109 | 40 | 1,576 | 1 | 21 | ... | 1,001 | 208 | ... | ... | ... | ... | ... | 2,960 |
| 1937 | 94 | 100 | ... | 1,365 | 17 | ... | 67 | 936 | 136 | ... | ... | ... | ... | ... | 2,715 |
| 1938 | 10 | 48 | ... | 1,113 | 2 | 5 | 2 | 755 | 146 | ... | ... | ... | ... | ... | 2,081 |
| 1939 | 18 | ... | ... | 1,658 | ... | 3 | ... | 1,331 | 84 | ... | ... | ... | ... | ... | 3,094 |
| 1940 | 13 | ... | ... | 1,182 | 1 | 5 | 493 | 1,847 | 39 | ... | ... | ... | ... | ... | 3,580 |
| 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 | ... | 24 | ... | ... | 8,198 |
| 1948 | ... | ... | 25 | 481 | 25 | ... | 36 | 4,041 | 6 | 316 | ... | 16 | ... | ... | 4,946 |
| 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 | 2 | ... | ... | 3,476 |
| 1952 | ... | ... | ... | 258 | 31 | ... | 79 | 2,658 | 13 | ... | 252 | 4 | 6 | ... | 3,301 |
| 1953 | ... | ... | ... | 243 | 52 | ... | 30 | 2,035 | 15 | ... | 320 | ... | 38 | 9 | 2,742 |

POUNDS OF NEW JERSEY CERTIFIED TOMATO SEED VALIDATED FOR EXPORT SHIPMENT JULY 1, 1953 TO JUNE 30, 1954

| 1953 | Cuba | Ceylon | Puerto Rico | So. Rhodesia | Mocambique | Johannesburg | Portugal | Pretoria | Totals |
|---|---|---|---|---|---|---|---|---|---|
| July | 1,055 | 96 | ... | ... | ... | ... | ... | ... | 1,151 |
| August | 3.25 | 15 | 50 | 30 | ... | ... | ... | ... | 98.25 |
| September | 236 | ... | 50 | ... | 3 | 50 | ... | ... | 339 |
| October | ... | 15 | ... | ... | ... | ... | ... | ... | 15 |
| November | ... | ... | ... | 25 | ... | ... | ... | ... | 25 |
| December | ... | ... | ... | ... | ... | 730 | ... | ... | 730 |
| 1954 | | | | | | | | | |
| January | ... | 20 | ... | 50 | ... | ... | ... | ... | 70 |
| February | 4 | 60 | ... | 85 | ... | ... | 44.50 | ... | 193.50 |
| March | 6 | 11 | ... | ... | ... | ... | 30 | ... | 47 |
| April | ... | 60 | ... | 100 | ... | ... | ... | ... | 160 |
| May | 1.50 | ... | ... | ... | ... | ... | ... | 50 | 51.50 |
| June | 11 | 5 | ... | ... | ... | ... | ... | ... | 16 |
| Totals | 1,316.75 | 282 | 100 | 290 | 3 | 780 | 74.50 | 50 | 2,896.25 |

POUNDS OF NEW JERSEY TOMATO AND OTHER VEGETABLE SEED EXPORTED FOR WHICH PHYTOSANITARY CERTIFICATES WERE ISSUED JULY 1, 1953 TO JUNE 30, 1954

| | Cuba | | Johannesburg | | Cape Town | | Totals | |
|---|---|---|---|---|---|---|---|---|
| 1953 | Tomato Seed | Vegetable Seed | Tomato Seed | Vegetable Seed | Tomato Seed | Vegetable Seed | Tomato Seed | Vegetable Seed |
| July | ... | ... | 10 | ... | ... | ... | 10 | ... |
| 1954 | | | | | | | | |
| January | ... | 16 | ... | ... | ... | ... | ... | 16 |
| February | ... | 29 | ... | ... | ... | ... | ... | 29 |
| March | ... | 11 | ... | ... | ... | ... | ... | 11 |
| May | ... | 20 | ... | ... | 10 | ... | 10 | 20 |
| June | ... | 39.875 | ... | ... | ... | ... | ... | 39.875 |
| Totals | ... | 115.875 | 10 | ... | 10 | ... | 20 | 115.875 |

## LABORATORY ACTIVITIES

### AIRPLANE SPRAYING FOR FOREST PEST CONTROL

Between April 26 and May 14 DDT solution was applied by airplane to 765 acres of pine plantings to control the European pine sawfly *Neodiprion sertifer*. The pines were located on 14 properties in eight northern counties. The largest were on two watersheds while the others were of relatively small plantings on private property.

The material was applied from a Piper Cub plane, equipped for spraying, by personnel of Lehava Air Services of Philadelphia. The material used was an oil solution of DDT containing one pound of DDT per gallon applied at the rate of one gallon per acre.

Because of the reduction in acreage to be sprayed which has occurred since the early years of the program and also because of the relatively large number of small acreage plots involved it was necessary to increase the charge for the service this year, especially on small acreages. The new rate was $3.76 per acre, including materials, on all acreages up to 25 acres. The minimum charge was 35 dollars. A sliding scale of rates was used on larger acreages.

In this program the business transactions were directly between the property owner and the airplane spraying company. State personnel assisted by supplying maps, charts and other aids in locating the plots from the air. The material to be used and the time of application also were determined and the results of the spraying checked by Department employees.

This year an attempt was made to check the distribution of insecticide by placing cards treated with oil soluble dye at intervals in the plantings to be sprayed. They are more convenient to handle than the glass plates previously employed but they were less informative especially in failing to indicate the presence of very fine droplets produced in this method of spraying. Complete kill of a heavy sawfly infestation was obtained at many locations where the cards indicated little or no insecticide deposits.

Each of the plots sprayed was examined after spraying and the infestations were controlled excellently in all these areas.

The 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 |
| Cuse, Robert | Somerset | 47 |
| Gamble, M. G. | Sussex | 25 |
| Hackensack Water Company | Bergen | 200 |
| Harman, Dr. J. R. | Mercer | 18 |
| Kimball, R. G. | Warren | 30 |
| Kuhn, Otto E. | Sussex | 10 |
| Lechner, Robert | Hunterdon | 30 |
| Newark Watershed | Passaic | 314 |
| O'Brien, Mrs. D. H. | Warren | 12 |
| Schley, Reeve, Jr. | Hunterdon | 10 |
| Serles, Frank | Somerset | 18 |
| Tillison, R. G. | Warren | 5 |
| | Total | 765 |

### *Recovery of Japanese Beetle Parasite* Neoaplectana glaseri *From Plot Treated May 1940*

On June 7 soil was examined at Harker's Hollow Golf Club, Harmony. This is the location at which beetle larvae infected with the nematode parasite *Neoaplectana glaseri* were found in 1952 and 1953. The recovery location is about one-fourth mile from the section of the course where the parasite was applied to the turf on May 28, 1940. The treated area is downgrade and downstream from the recovery location so spread must have been through the flight of parasitized adults or migration through the soil, the former seeming more likely.

In the June examination 22 larvae were found which were dead and appeared typical of *Neoaplectana glaseri* infection. These larvae were submitted to the White Horse laboratory for examination and 12 positive cases of *Neoaplectana glaseri* infection were found. This find extends to 14 years the period during which this parasite has survived under field conditions at this location.

### *Observations in Plots Treated With Virus Disease of the Pine Sawfly* Neodiprion sertifer

During 1951-53 an organism which causes a virus disease in larvae of the pine sawfly *Neodiprion sertifer* was applied to pines at locations scattered over the northern half of New Jersey. The plots, date of establishment, method of application and location are:

| Year | Application Method | Location |
|---|---|---|
| 1951 | Knapsack sprayer | Stephens State Park, Hackettstown |
| 1952 | Airplane spraying | Alfred Baylor Farm, Delaware |
| 1953 | Airplane spraying | Dean Mathey, Princeton |
| 1953 | Airplane spraying | John Hardin, Jr., Chester |
| 1953 | Airplane spraying | Andrew MacLauren, Little York |
| 1953 | Airplane spraying | Dairy Research Farm, Beemerville |
| 1953 | Airplane spraying | Newark Watershed, Newfoundland |

During the spring observations were made in these plots in an attempt to determine the influence of the disease organism. The sawfly population in all these areas has been greatly reduced in the years following the introduction of the disease. All the plots had heavy infestations at the time the spray was applied. However, this spring it was difficult to find 50 colonies of newly hatched larvae to observe in most of the areas. To actually find the infected larvae is difficult because they apparently become infected while they are small and are washed from the trees by the rains which usually occur during the period when the observations are being made.

This year typical colonies of flaccid dead larvae were found at the Baylor Farm, Delaware, which was treated two years ago and at the Dairy Research Farm, Beemerville, treated last year. Scattered larvae having an appearance typical of the disease were found at several other plots but positive identification has not been obtained. Even though the importance of this disease is difficult to evaluate it appears to be exerting a suppressing effect on sawfly populations wherever it is introduced and there is some evidence that it is spreading from the places where it was applied to adjacent plantings.

### *Parasites of the European Corn Borer*

The results of the rearing of the corn borers collected last fall were received recently from the U. S. Department of Agriculture Corn Borer Laboratory in Moorestown. The borers were collected and reared to provide information concerning the distribution and importance of the various corn borer parasites liberated in New Jersey.

The results are based on samples of 50 borers each collected from 89 to 94 areas of 100 square miles each into which the State has been divided. No borers were found in five of the 94 areas.

COMPARATIVE RESULTS
EUROPEAN CORN BORER PARASITE SURVEY
1947-53

| | 1953 | 1952 | 1951 | 1950 | 1949 | 1948 | 1947 |
|---|---|---|---|---|---|---|---|
| *Lydella grisescens* | | | | | | | |
| Areas from which recovered ..... | 74 | 89 | 86 | 90 | 75 | 88 | 82 |
| Per cent of total borers infested .... | 6.4 | 17.5 | 18.5 | 19.8 | 15.4 | 26.4 | 14.8 |
| *Macrocentrus gifuensis* | | | | | | | |
| Areas from which recovered ..... | 44 | 48 | 38 | 24 | 24 | 48 | 23 |
| Per cent of total borers infested .... | 3.4 | 5.6 | 3.7 | 2.8 | 1.8 | 6.1 | 2.3 |
| *Horogenes punctorius* | | | | | | | |
| Areas from which recovered ..... | 15 | 18 | 19 | 14 | 14 | 21 | 12 |
| Per cent of total borers infested .... | 1.0 | 0.6 | 1.3 | 1.1 | 0.8 | 1.4 | 0.5 |

Generally, the figures indicate the parasites affected a smaller portion of the host population than had previously been the case. It is entirely likely that the hot, dry weather experienced last summer in New Jersey reduced the parasite population.

### *Adult Japanese Beetle Damage Survey Discontinued*

Because the Japanese beetle has declined in economic importance in New Jersey the annual survey of adult feeding damage was not conducted this year.

*Observations Concerning Cankerworm Abundance*

At the conclusion of the cankerworm feeding season observations were made at the same stations used last year to accumulate data concerning the relative abundance of cankerworms and the nature of the variations at a given location from year to year. Generally, the infestation was less severe this year (1954) in the northeastern section of the State than last year (1953). However, heavier damage did occur this year in the central part of the State (Mercer, Somerset and Hunterdon counties).

Two estimates were used as indices of the damage. They were (1) the percentage of the leaves having one or more holes due to cankerworm feeding and (2) the percentage of the total leaf surface of the tree removed by cankerworm feeding. Because elms are available in nearly all parts of the State and also because they are one of the favored host trees they were used as a basis for scoring at all the stations so the results would be comparable from station to station.

The five stations exhibiting the most severe defoliation were:

| Town | County | Per Cent Leaves With One or More Holes | Per Cent Leaf Surface Removed |
|---|---|---|---|
| Mount Rose | Mercer | 100 | 75 |
| Reaville | Hunterdon | 98 | 50 |
| Annandale | Hunterdon | 80 | 40 |
| Yardville | Mercer | 95 | 30 |
| Watchung | Somerset | 90 | 30 |

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

Each year since 1950 observations have been made in 20 evergreen plantings in the northern half of the State to determine the importance of the pests which attack them. This year's observations were made in September 1953.

GENERAL SURVEY OF PESTS AFFECTING EVERGREENS

| Observation Point | Red Pine | | Scotch Pine | | White Pine | | Norway Spruce | |
|---|---|---|---|---|---|---|---|---|
| | Pine Shoot Moth *Rhyacionia buoliana* Per Cent Buds Attacked | Sawfly *Neodiprion sertifer* Per Cent Needles Removed | Pine Shoot Moth *Rhyacionia buoliana* Per Cent Buds Attacked | Sawfly *Neodiprion sertifer* Per Cent Needles Removed | Weevil *Pissodes strobi* Per Cent Trees Attacked | Twig Borer *Eucosma gloriola* Per Cent Trees Attacked | Weevil *Pissodes strobi* Per Cent Trees Attacked | Gall Aphid *Chermes abietis* Per Cent Trees Attacked |
| No. 1. Stokes State Forest (Sussex Co.) | 0.4 | ... | ... | 2.0 | 8.0 | ... | 4.0 | 10.0 |
| No. 2. Dairy Research Farm (Sussex Co.) | 0.8 | 1.0 | 0.8 | ... | 14.0 | 8.0 | ... | 16.0 |
| No. 3. Green Engineering Camp (Passaic Co.) | ... | 12.0 | 1.6 | 16.0 | 6.0 | ... | 12.0 | 16.0 |
| No. 4. Bloomfield Girl Scout Camp | 13.6 | 1.0 | 10.4 | 8.0 | 8.0 | 4.0 | 28.0 | 20.0 |
| No. 5. Stephens State Park (Warren Co.) | 4.0 | 12.0 | 0.4 | ... | ... | 8.0 | ... | 4.0 |
| No. 6. Oak Ridge Reservoir (Morris Co.) | ... | ... | ... | ... | 4.0 | ... | ... | 34.0 |
| No. 7. Newark Watershed (Passaic Co.) | ... | 10.0 | 0.4 | 8.0 | 8.0 | 4.0 | 4.0 | 28.0 |
| No. 8. Hackensack Watershed | 4.0 | 16.0 | 0.4 | ... | ... | ... | ... | 36.0 |
| No. 9. Ingersoll Rand Watershed (Warren Co.) | 21.6 | ... | 14.0 | ... | ... | 6.0 | ... | 16.0 |
| No. 10. Voorhees State Park (Hunterdon Co.) | 27.2 | ... | 14.0 | 1.0 | 4.0 | 10.0 | 2.0 | 18.0 |
| No. 11. Robert Cuse (Somerset Co.) | 11.6 | ... | 4.8 | 3.0 | ... | 16.0 | ... | 16.0 |
| No. 12. East Orange Watershed | 16.0 | ... | 4.0 | ... | ... | 18.0 | ... | 40.0 |
| No. 13. Fred Riehle (Hunterdon Co.) | 38.8 | ... | 32.4 | ... | ... | 10.0 | ... | 48.0 |

| Observation Point | Red Pine | | Scotch Pine | | White Pine | | Norway Spruce | |
|---|---|---|---|---|---|---|---|---|
| | Pine Shoot Moth *Rhyacionia buoliana* Per Cent Buds Attacked | Sawfly *Neodiprion sertifer* Per Cent Needles Removed | Pine Shoot Moth *Rhyacionia buoliana* Per Cent Buds Attacked | Sawfly *Neodiprion sertifer* Per Cent Needles Removed | Weevil *Pissodes strobi* Per Cent Trees Attacked | Twig Borer *Eucosma gloriola* Per Cent Trees Attacked | Weevil *Pissodes strobi* Per Cent Trees Attacked | Gall Aphid *Chermes abietis* Per Cent Trees Attacked |
| No. 14. No suitable location available | ... | ... | ... | ... | ... | ... | ... | ... |
| No. 15. Lechner's Boy Scout Camp (Hunterdon Co.) | 57.6 | ... | 6.8 | ... | ... | 28.0 | ... | 8.0 |
| No. 16. Middlesex Sewage Plant | 8.4 | 50.0 | 5.6 | 8.0 | ... | 74.0 | ... | ... |
| No. 17. Duhernal Water Co. (Middlesex Co.) | ... | ... | 0.8 | 2.0 | ... | ... | ... | ... |
| No. 18. Washington Crossing Park | 13.6 | ... | 0.8 | ... | ... | 6.0 | ... | 8.0 |
| No. 19. RCA Laboratories (Mercer Co.) | 30.0 | 6.0 | 18.8 | 5.0 | 4.9 | 4.3 | ... | 8.0 |
| No. 20. Jamesburg State Home for Boys | 1.2 | 4.0 | 2.0 | ... | ... | ... | ... | ... |
| No. 21. J. M. Ellis (Monmouth Co.) | 9.6 | ... | 4.8 | 2.0 | ... | 28.0 | ... | 12.0 |

## Conclusions

(1) Except for locations in the extreme northern parts of the State the European pine shoot moth, *Rhyacionia buoliania,* is present throughout the State and is a serious pest. In several places it has rendered red pine useless, although at most locations it is less severe this year than last year.

(2) Sawfly damage, *Neodiprion sertifer,* is not severe except at one location (No. 16) and at this planting it could easily be controlled by spraying.

(3) The white pine weevil, *Pissodes strobi,* is less serious this year than than for several years. The heaviest infestations occur at the northernmost locations.

(4) The pine twig borer, *Eucosma gloriola,* is more important this year than previously. This insect tunnels the shoots for six to eight inches and causes wilting similar to that caused by white pine weevil but usually affects the lateral branches. Occasionally the leader is damaged.

(5) The spruce gall aphid, *Chermes abietis,* is generally distributed over the State but the population is spotty. Even in one small planting some trees will be heavily infested while others will have no galls.

## Study Plots on European Pine Shoot Moth, *Rhyacionia buoliania*

These plots were established in 1951 to determine the importance of the European pine shoot moth in various parts of the State and its variation from year to year. Each year 50 buds have been examined on each of 25 marked trees.

EUROPEAN PINE SHOOT MOTH STUDY

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

The data accumulated shows little variation from year to year at most locations. However, at the Bradley plot (No. 5) there has been a marked reduction in the infestation since the first survey in 1951. The infestation is probably controlled by cold weather at locations No. 1 and No. 2. At location No. 7 the low level of infestation is probably due to the rarity of susceptible species in this area. It is somewhat surprising that the shoot moth is more abundant in the Ingersoll Rand Plot (No. 4) which is on a rather cold ridge than it is at the Bradley (No. 5) and East Orange (No. 3) plots which are at the same latitude and lower elevations.

## 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 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. Depending on the planting distance and the seedling survival, the plots contain from 185 to 400 trees. Each tree is examined every year to determine whether it was weeviled or not attacked.

WHITE PINE WEEVIL STUDY

| Plot and Locality | Number of Newly Weeviled Trees Found 1953 | 1952 | 1951 |
|---|---|---|---|
| 1. Stokes State Forest, Sandystone Township, Sussex County | 15 | 27 | 30 |
| 2. Newark Watershed, Oak Ridge, Passaic County | 0* | 5 | 5 |
| 3. Stephens State Park, Allamuchy Township, Warren County | 5 | 8 | 19 |
| 4. Hackettstown Watershed, Mount Olive Township, Morris County | 5 | 5 | 10 |
| 5A. Ingersoll Rand Watershed, Harmony Township, Warren County | 0 | 0 | 0 |
| 5B. Ingersoll Rand Watershed, Harmony Township, Warren County | 1 | 1 | 0 |
| 6. Samuel D. Kerr, Hopewell Township, Mercer County | 0 | 17 | ... |
| 7. Dr. Leslie Myatt, Fairfield Township, Cumberland County | 0 | 3 | ... |
| 8. RCA Laboratories, Princeton, Mercer County | 8 | 2 | 3 |

* Weeviled leaders were removed by pruning before the plot was surveyed.

The information shows that the white pine weevil is most severe in the northernmost part of the State (see plot No. 1) where the European pine shoot moth is least severe. This is, therefore, a section in which it seems wiser to plant red pine than white pine, whereas white pine would probably be preferable in other parts of the State. Generally, damage by the white pine weevil was less severe in 1953 than in 1951 or 1952.

## White Pine Weevil Control Experiment

Between August 21 and 24 leaders of the white pines were examined in the experimental plot on the property of Rolfe Shellenberger near Oxford. This plot was treated on March 21, 1950 with a concentrated lead arsenate spray applied to the leaders of approximately 5,000 trees in the treated area. A control area of 525 trees was left unsprayed. At the time of treatment approximately 40 per cent of all trees showed evidence of having been infested during the summer of 1949. Counts of weeviled leaders were made prior to the treatment (1949 infestation) and in each of the four summers following treatment.

WHITE PINE WEEVIL CONTROL EXPERIMENT
1949 TO 1953

| | Number of Trees | Infestation 1953 (Per Cent) | Infestation 1952 (Per Cent) | Infestation 1951 (Per Cent) | Infestation 1950 (Per Cent) | Infestation 1949* (Per Cent) |
|---|---|---|---|---|---|---|
| Treated Areas | 5,000 | 2.6 | 3.7 | 1.3 | 0.2 | 40.0 |
| Control Area | 525 | 8.5 | 19.5 | 12.8 | 20.0 | 40.0 |

* Before treatment.

These counts show that the percentage of infestation in the treated area three full years after treatment is still less than one-third that in the untreated area. It is quite likely that the control would have been better had it not been necessary to leave an untreated control area in the immediate vicinity. This serves to reinfest the treated area from which the infestation was practically eliminated (0.2 per cent) in 1950.

## Scouting for Incidental or Potential Pests

*Matsucoccus* sp.—Scale on red pine.—This insect, which has killed large acreages of red pine in Connecticut and has been known to exist in New York for several years, has not yet been found in New Jersey. Since this scale has been found along the Merritt Parkway in Connecticut and the Hutchinson River Parkway in New York it seems most likely that it might be introduced into New Jersey through vehicles entering via the George Washington Bridge.

Municipalities in the vicinity of the bridge were scouted this year and though many red pines were located no *Matsucoccus* infestation was found. The nursery inspectors whose territories lie in this part of the State have been assisting in scouting for the pest in the nurseries which they visit.

*Cairoa* sp.—Pin Oak Sawfly.—This pest was quite abundant during 1947 in the northeastern part of the State and it appeared likely that it

might become a serious pest of pin oak. However, the size and severity of the infestation decreased the following year and has remained relatively unimportant since 1948. This year infested trees were observed near Pine Brook, Livingston, Roseland and Millburn but the affected trees were usually widely separated and only the tops of the trees were involved.

### *Pine Needle Miner Infestation in Scotch Pine*

At the request of John Heilman, forester for the Newark Watershed, Newfoundland, a stand of Scotch pine was examined. The pines had a yellow color and closer examination revealed that the outer half of each needle had been mined by a small insect. Small pupae were found inside some of the needles.

A sample of the material was sent to the USDA Division of Forest Entomology in New Haven, Connecticut. The insect was identified as the pine needle miner, *Exoteleia pinifoliella.* Only one of the many stands of Scotch pine on the watershed was heavily infested and the damage was confined to last year's needles, the new growth being unaffected. It, therefore, is unlikely that any serious damage to the trees will result.

### *Bagworm Infestations on Deciduous Trees*

Infestations of bagworms in roadside trees were numerous again this year (1953). Heavy defoliation was observed at many spots along the principal highways.

### *Elm Leaf Beetle Abundance*

The elm leaf beetle caused especially severe defoliation of elms in nearly all sections of northern New Jersey this summer (1953). Many trees were almost completely defoliated in woodland as well as urban areas.

### *Hemlock Looper*

The hemlock looper, *Lambdina fiscellaria* (Guen.), is known to be in New York, Pennsylvania, Massachusetts and Maine. Although the hemlock stands in New Jersey are not extensive some are highly valued and this insect should be detected if present.

During August 23 of the larger hemlock stands in northern New Jersey were examined. No defoliation, characteristic of this insect, was found. The location of the various stands was plotted on maps so they can be more easily located another year.

*Tree Nutrition*

The problems of tree nutrition, particularly of the American elm, have been the primary concern of the laboratory for the past several years. The studies on elm nutrition were begun in 1947, the first several years' work being only part time and exploratory in character. However, as interest in the biological control of insects began to wane due to the widespread use of the new organic insecticides, the final project on Oriental fruit moth parasites was dropped. The major emphasis was shifted to determining the reason for the frequently unsatisfactory results obtained in the commercial fertilization of shade trees, particularly elms.

The earlier work consisted of a sampling of elms on as widespread a basis as was practicable and an analysis of the leaves of such trees to gain a knowledge of their nutritional status. Leaf analysis is known to be the most rapid and reliable method for solving plant nutritional problems. However, it has not been used much on shade trees because special laboratory facilities and personnel are required and the operations are expensive and time consuming. Analyses were made for nitrogen, phosphorus, potassium, calcium, magnesium, iron, copper, zinc, manganese, boron and aluminum. The analysis for aluminum (made as a possible indicator of toxic soil conditions) was dropped as useless. During the current year the analyses for copper and boron were discontinued and the analysis for iron may be dropped because little practical significance in this particular problem has been discovered. The findings have indicated that most large elms are seriously in need of fertilization to supply nitrogen and potassium while many are either deficient or on the border line of deficiency with respect to the essential micronutrients, manganese and zinc.

In order to avoid complications in interpretation the first attempts at corrective measures were made applying only manganese and zinc, the chemicals being introduced by the punch bar method on large trees located in Branch Brook Park, Newark. The results were somewhat confusing.

A nursery of 847 small elms was started in Groveville but rodent damage and other complications led to its abandonment as impractical for use. In 1949 a nursery of 61 small elms was established in White Horse and a series of fertilization schedules applied for several years. An apparent heterogeneity in the soil and an obvious genetic variation in the stock largely invalidated this work. In 1950 the studies in Branch Brook Park were expanded in scope. In 1952 a plot in Mercerville known as the Van Nest plot, was planted with 200 budded stock of the Princeton elm to secure more uniform soil and tree characters than existed in White Horse. The results of the Van Nest plot were so revealing that an expansion was made in the spring of 1953, an additional 200 trees being planted. Throughout the period covered by these investigations several collateral lines were pursued.

such as the changes in leaf analysis as the growing season progresses and the year-to-year fluctuations occurring in particular trees. Some exploratory work has been done on London planes and on a problem of some seriousness involving iron chlorosis of the pin oak.

## Studies on the Van Nest Plots

Two hundred budded elms of the horticultural selection known as the Princeton elm were obtained and planted in March 1952 on a portion of the Van Nest Game Preserve. Use of the property is through the courtesy of the New Jersey Fish and Game Commission. Fertilizer materials were intimately mixed in the planting holes at the time of planting. No treatments subsequent to the initial one have been made up to the present.

TABLE 1

FERTILIZATION SCHEDULE FOR 200 ELMS PLANTED AT THE VAN NEST LOCATION

SPRING 1952

| Group | Trees | Fertilization Formula (per tree) |
|---|---|---|
| 1 | 20 | No treatment—controls |
| 2 | 10 | 2 lbs. 10-10-10 |
| 3 | 10 | 1 bucket leaf mold |
| 4 | 10 | Leaf mold + 2 lbs. 10-10-10 |
| 5 | 20 | 1 bucket hyper humus |
| 6 | 10 | 40 gm. $ZnSO_4$ |
| 7 | 10 | 40 gm. "Zn38" |
| 8 | 10 | 40 gm. $ZnSO_4$ + 2 lbs. 10-10-10 |
| 9 | 10 | 40 gm. "Zn38" + 2 lbs. 10-10-10 |
| 10 | 10 | 40 gm. $MnSO_4$ |
| 11 | 10 | 120 gm. "Mangano" |
| 12 | 10 | 40 gm. $MnSO_4$ + 2 lbs. 10-10-10 |
| 13 | 10 | 120 gm. "Mangano" + 2 lbs. 10-10-10 |
| 14 | 10 | 20 gm. "Esminel" + 2 lbs. 10-10-10 |
| 15 | 10 | 40 gm. $ZnSO_4$ + 40 gm. $MnSO_4$ |
| 16 | 10 | 120 gm. "Mangano" + 40 gm. "Zn38" |
| 17 | 10 | 40 gm. $ZnSO_4$ + 40 gm. $MnSO_4$ + 2 lbs. 10-10-10 |
| 18 | 10 | 120 gm. "Mangano" + 40 gm. "Zn38" + 2 lbs. 10-10-10 |

TABLE 2
COMPOSITION OF LEAF SAMPLES, 1952 VAN NEST PLOT, SAMPLED MID-SEPTEMBER 1952 AND 1953, MAJOR ELEMENTS, OVEN-DRY BASIS

| Group | Fertilization | Fall 1952 N Per Cent | P Per Cent | K Per Cent | Ca Per Cent | Mg Per Cent | Fall 1953 N Per Cent | P Per Cent | K Per Cent | Ca Per Cent | Mg Per Cent |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | None | 2.48 | 0.25 | 1.36 | 1.62 | 0.28 | 2.17 | 0.24 | 0.74 | 2.23 | 0.35 |
| 2 | 10-10-10 | 3.24 | 0.34 | 1.71 | 1.58 | 0.22 | 2.23 | 0.24 | 1.18 | 2.16 | 0.34 |
| 3 | Leaf mold | 2.01 | 0.20 | 1.22 | 1.81 | 0.38 | 1.38 | 0.24 | 0.68 | 1.89 | 0.37 |
| 4 | Leaf mold + 10-10-10 | 3.40 | 0.34 | 1.66 | 1.53 | 0.25 | 2.21 | 0.24 | 0.90 | 2.28 | 0.44 |
| 5 | Hyper humus | 1.41 | 0.20 | 1.29 | 1.98 | 0.35 | 1.53 | 0.22 | 0.74 | 1.89 | 0.31 |
| 6 | $ZnSO_4$ | 2.04 | 0.24 | 1.28 | 1.50 | 0.28 | 1.71 | 0.22 | 0.69 | 2.04 | 0.37 |
| 7 | "Zn38" | 1.77 | 0.21 | 1.34 | 1.62 | 0.27 | 1.65 | 0.24 | 0.67 | 1.84 | 0.23 |
| 8 | $ZnSO_4$ + 10-10-10 | 2.39 | 0.23 | 1.63 | 0.55 | 0.24 | 2.26 | 0.22 | 0.97 | 1.89 | 0.27 |
| 9 | "Zn38" + 10-10-10 | 2.11 | 0.19 | 1.45 | 1.58 | 0.22 | 1.42 | 0.20 | 0.81 | 1.78 | 0.20 |
| 10 | $MnSO_4$ | 1.82 | 0.19 | 1.29 | 1.65 | 0.58 | 1.08 | 0.21 | 0.86 | 1.71 | 0.34 |
| 11 | "Mangano" | 0.82 | 0.19 | 1.21 | 1.71 | 0.35 | 0.96 | 0.21 | 0.81 | 1.56 | 0.27 |
| 12 | $MnSO_4$ + 10-10-10 | 1.80 | 0.22 | 1.56 | 1.93 | 0.42 | 1.10 | 0.18 | 1.02 | 1.93 | 0.20 |
| 13 | "Mangano" + 10-10-10 | 1.47 | 0.19 | 1.51 | 1.73 | 0.31 | 0.94 | 0.20 | 1.14 | 1.69 | 0.24 |
| 14 | "Esminel" + 10-10-10 | 1.54 | 0.21 | 1.57 | 1.92 | 0.41 | 1.26 | 0.29 | 1.06 | 1.86 | 0.27 |
| 15 | $ZnSO_4$ + $MnSO_4$ | 1.69 | 0.19 | 1.31 | 1.62 | 0.35 | 1.11 | 0.20 | 0.74 | 1.58 | 0.28 |
| 16 | "Mangano" + "Zn38" | 1.79 | 0.23 | 1.27 | 1.73 | 0.33 | 1.41 | 0.24 | 0.61 | 1.82 | 0.34 |
| 17 | $ZnSO_4$ + $MnSO_4$ + 10-10-10 | 1.71 | 0.20 | 1.36 | 1.67 | 0.25 | 1.26 | 0.18 | 0.90 | 1.86 | 0.25 |
| 18 | "Mangano" + "Zn38" + 10-10-10 | 2.03 | 0.20 | 1.64 | 1.47 | 0.27 | 2.04 | 0.24 | 1.09 | 1.39 | 0.25 |

TABLE 3
COMPOSITION OF LEAF SAMPLES, 1952 VAN NEST PLOT, SAMPLED MID-SEPTEMBER 1952 AND 1953
MICRONUTRIENT ELEMENTS, OVEN-DRY BASIS

| Group | Fertilization | Fall 1952 Cu ppm | Fe ppm | Mn ppm | Zn ppm | B ppm | Fall 1953 Cu ppm | Fe ppm | Mn ppm | Zn ppm | B ppm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | None | 12 | 282 | 258 | 69 | 58 | | 248 | 115 | 34 | |
| 2 | 10-10-10 | 17 | 320 | 386 | 70 | 110 | | 236 | 240 | 44 | |
| 3 | Leaf mold | 13 | 242 | 454 | 66 | 84 | | 256 | 171 | 39 | |
| 4 | Leaf mold + 10-10-10 | 16 | 283 | 309 | 69 | 101 | | 274 | 238 | 41 | |
| 5 | Hyper humus | 14 | 250 | 328 | 69 | 86 | N | 284 | 124 | 39 | N |
| 6 | $ZnSO_4$ | 15 | 256 | 260 | 109 | 72 | O | 282 | 144 | 66 | O |
| 7 | "Zn38" | 14 | 252 | 354 | 80 | 60 | T | 295 | 94 | 41 | T |
| 8 | $ZnSO_4$ + 10-10-10 | 14 | 309 | 297 | 99 | 109 | | 284 | 173 | 76 | |
| 9 | "Zn38" + 10-10-10 | 10 | 265 | 461 | 110 | 137 | | 308 | 197 | 94 | |
| 10 | $MnSO_4$ | 18 | 236 | 2,650 | 78 | 83 | | 242 | 880 | 44 | |
| 11 | "Mangano" | 10 | 238 | 741 | 72 | 88 | D | 216 | 236 | 56 | D |
| 12 | $MnSO_4$ + 10-10-10 | 20 | 264 | 2,105 | 73 | 152 | O | 266 | 989 | 57 | O |
| 13 | "Mangano" + 10-10-10 | 14 | 297 | 982 | 63 | 141 | N | 256 | 725 | 48 | N |
| 14 | "Esminel" + 10-10-10 | 25 | 281 | 1,080 | 72 | 112 | E | 312 | 422 | 56 | E |
| 15 | $ZnSO_4$ + $MnSO_4$ | 15 | 304 | 586 | 116 | 67 | | 275 | 251 | 160+ | |
| 16 | "Mangano" + "Zn38" | 18 | 276 | 549 | 111 | 67 | | 295 | 501 | 160 | |
| 17 | $ZnSO_4$ + $MnSO_4$ + 10-10-10 | 17 | 345 | 955 | 125 | 97 | | 256 | 203 | 48 | |
| 18 | "Mangano" + "Zn38" + 10-10-10 | 17 | 351 | 552 | 112 | 97 | | 282 | 316 | 68 | |

Relatively low nitrogen assimilation occurred in groups 3 and 5 where a large quantity of organic matter was used as the only additive at the time of planting. This effect is noted for both years. The reason for this is that the microorganisms active in the break down of these materials are utilizing a considerable portion of the available nitrogen. The obvious remedy would be to add sufficient commercial fertilizer to prevent this "robbing" of the tree, as was done in Group 4. It is further apparent from the first few groups that the beneficial effects of the nitrogen from the 10-10-10 fertilizer extended into the second year. The soil of this plot is very sandy and leaching losses may be expected to be large. Further down in Table 2 it will be noted that the nitrogen content is reduced. The explanation offered is that these groups are on a lower portion of the plot, with a higher corresponding water table, and that leaching loss has been greater in this portion of the plot.

The particular interest in this plot concerns the zinc and manganese assimilation in these trees and the relative quantities absorbed from the several compounds employed in the fertilization schedules. To assist in this interpretation, Tables 4 and 5 were prepared from the data in Table 3, showing the assimilation of these essential micronutrients.

TABLE 4

COMPARISON OF ZINC ASSIMILATION IN ELMS 1952 PLANTING ON THE VAN NEST PROPERTY

| General Treatment | Trees | Foliage Zn, P.P.M. Fall 1952 | Fall 1953 |
|---|---|---|---|
| No zinc applied | 120 | 70 | 46 |
| Zn as $ZnSO_4$ | 40 | 112 | 88 |
| Zn as "Zn38" | 40 | 103 | 91 |

TABLE 5

COMPARISON OF MANGANESE ASSIMILATION IN ELMS 1952 PLANTING ON THE VAN NEST PROPERTY

| General Treatment | Trees | Foliage, Mn, P.P.M Fall 1952 | Fall 1953 |
|---|---|---|---|
| No Mn applied | 110 | 346 | 166 |
| Mn as $MnSO_4$ | 50 | 1,475 | 550 |
| Mn as "Mangano" | 40 | 708 | 445 |

The assimilation of both of these micronutrients was less in 1953 than in 1952 for the controls as well as where the microelements were applied. The assimilation of zinc and manganese alike is greater in all cases for both years when the microelements were part of the initial treatment. Further, the assimilation generally exceeded quite substantially the quantity considered necessary for good nutritional health.

If Table 3 is examined in more detail with respect to these micronutrients it is seen that groups 11 and 17 are close to other individual groups where no manganese was applied. Similarly, groups 7 and 17 show the same effect for zinc. The reason for this lessened assimilation in certain groups may be that the feeding zones of the roots of these trees are expanding beyond the soil zones influenced by the initial application of the fertilizing elements. If this is true the feeding zones should have expanded almost entirely out of the initial planting holes by 1954 and the trees will not absorb these nutrients even though they remain in a utilizable form and adequate quantity at the original site of placement. Negative results will not mean that the nutrients are exhausted or have lost their efficacy but only that they are not in a zone of physical availability.

This work at Van Nest is considered the most definitive yet undertaken. It has shown definitely that the elms will absorb the micronutrients manganese and zinc, so frequently deficient in the older trees, when they are in an area of availability. The treatments are effective for at least two years. "Soluble" or "insoluble" sources are equally effective from the practical standpoint. Either type of compound may be safely admixed with commercial NPK fertilizer. The use of NPK fertilizers does not invalidate experimentation with the minor elements. From a practical standpoint the repression of absorption of these amendments by the action of commercial NPK fertilizers can be ignored. The virtue of using the insoluble sources of manganese and zinc lies in reduction of the initial phytotoxicity attendant to the use of these elements when in the soluble form. Thus, there is no turf injury or injury to the roots of trees initially close to the point of introduction.

## Studies on the 1953 Van Nest Planting

In April 1953 an additional 200 Princeton elms were planted on a section of the Van Nest Game Preserve. The purpose of this planting was to corroborate the initial findings on the 1952 plot and to investigate the effects of the minor element additions when made at a reduced rate of application since the initial results indicated that more than adequate amounts were being absorbed. The workers further wanted to gather some preliminary data on the behavior of the heavy metal chelates and to test the responses obtained when organic nutritional sources were used.

As before, the trees were planted 15 feet apart in rows that were 15 feet apart. The planting holes were dug approximately two feet in diameter and 18 inches deep so that the roots of the trees were easily contained without crowding or distortion. The fertilizing material was applied by placing about two-thirds of it in the bottom of the hole and thoroughly stirring it into the earth. After the tree was placed the roots were covered and the remaining fertilizer applied as an annular ring at the periphery of

the hole. The remaining soil was then replaced and firmed to support the tree. The fertilizer materials, therefore, were inescapably placed in the area of initial root activity. The 1952 planting had shown that it is desirable to use a NPK fertilizer at the time of planting and that this could be done without complicating the interpretation of the results. Therefore, one pound of 10-10-10 formulation was used in all cases except the control, several special mixes and where the organic materials were added.

TABLE 6

COMPOSITION OF LEAF SAMPLES, 1953 VAN NEST PLOT, SAMPLED MID-SEPTEMBER 1953
MAJOR ELEMENTS, OVEN-DRY BASIS

| Group | Trees | Condensed Statement of Treatment | Element, Per Cent N | P | K | Ca | Mg |
|---|---|---|---|---|---|---|---|
| 1 | 10 | Control—no fertilizer | 1.38 | 0.20 | 0.88 | 1.88 | 0.34 |
| 2 | 10 | 1 pound 10-10-10 only | 1.73 | 0.18 | 1.38 | 1.73 | 0.31 |
| 3 | 5 | NPK + 40 gm. "Zn38" | 1.62 | 0.15 | 1.16 | 1.80 | 0.41 |
| 4 | 5 | NPK + 20 gm. "Zn38" | 1.75 | 0.17 | 1.26 | 1.73 | 0.34 |
| 5 | 5 | NPK + 10 gm. "Zn38" | 2.01 | 0.21 | 1.26 | 1.45 | 0.32 |
| 6 | 5 | NPK + 40 gm. $ZnSO_4$ | 2.13 | 0.21 | 1.30 | 1.52 | 0.44 |
| 7 | 5 | NPK + 20 gm. $ZnSO_4$ | 2.13 | 0.24 | 1.29 | 1.43 | 0.38 |
| 8 | 5 | NPK + 10 gm. $ZnSO_4$ | 1.97 | 0.20 | 1.20 | 1.19 | 0.28 |
| 9 | 5 | NPK + 20 gm. Zn chelate | 2.19 | 0.18 | 1.09 | 1.63 | 0.32 |
| 10 | 5 | NPK + 10 gm. Zn chelate | 2.19 | 0.18 | 1.46 | 1.41 | 0.18 |
| 11 | 5 | NPK + 2 gm. Zn chelate | 2.06 | 0.21 | 1.30 | 1.71 | 0.26 |
| 12 | 5 | NPK + 120 gm. "Mangano" | 2.13 | 0.23 | 1.06 | 1.67 | 0.33 |
| 13 | 5 | NPK + 60 gm. "Mangano" | 2.16 | 0.21 | 1.14 | 1.65 | 0.38 |
| 14 | 5 | NPK + 10 gm. "Mangano" | 2.30 | 0.20 | 1.54 | 1.45 | 0.33 |
| 15 | 5 | NPK + 40 gm. $ZnSO_4$ + 40 gm. $MnSO_4$ | 2.34 | 0.20 | 1.09 | 1.78 | 0.58 |
| 16 | 5 | NPK + 20 gm. $ZnSO_4$ + 20 gm. $MnSO_4$ | 2.60 | 0.25 | 1.09 | 1.65 | 0.34 |
| 17 | 5 | NPK + 10 gm. $ZnSO_4$ + 10 gm. $MnSO_4$ | 1.96 | 0.18 | 1.52 | 1.58 | 0.28 |
| 18 | 5 | NPK + 20 gm. Mn chelate | 2.07 | 0.20 | 1.32 | 1.41 | 0.32 |
| 19 | 5 | NPK + 10 gm. Mn chelate | 1.84 | 0.21 | 1.06 | 1.67 | 0.33 |
| 20 | 5 | NPK + 2 gm. Mn chelate | 1.60 | 0.18 | 1.06 | 1.91 | 0.25 |
| 21 | 5 | NPK + 40 gm. $MnSO_4$ | 1.65 | 0.20 | 1.22 | 2.10 | 0.42 |
| 22 | 5 | NPK + 20 gm. $MnSO_4$ | 1.56 | 0.16 | 1.44 | 1.28 | 0.40 |
| 23 | 5 | NPK + 10 gm. $MnSO_4$ | 1.84 | 0.21 | 1.30 | 1.80 | 0.42 |
| 24 | 5 | NPK + 40 gm. "Zn38" + 120 gm. "Mangano" | 1.99 | 0.16 | 1.12 | 1.67 | 0.36 |
| 25 | 5 | NPK + 20 gm. "Zn38" + 60 gm. "Mangano" | 1.80 | 0.20 | 1.38 | 1.41 | 0.37 |
| 26 | 5 | NPK + 10 gm. "Zn38" + 10 gm. "Mangano" | 1.60 | 0.17 | 1.06 | 1.71 | 0.28 |
| 27 | 5 | NPK + 20 gm., ea., Mn, Zn chelates | 1.93 | 0.25 | 1.35 | 1.99 | 0.32 |
| 28 | 5 | NPK + 10 gm., ea., Mn, Zn chelates | 1.93 | 0.20 | 1.32 | 1.86 | 0.32 |
| 29 | 5 | NPK + 2 gm., ea., Mn, Zn chelates | 1.75 | 0.17 | 1.20 | 1.99 | 0.32 |
| 30 | 5 | Special mix, 10-0-10 | 1.71 | 0.14 | 1.34 | 1.32 | 0.27 |
| 31 | 5 | Special, 10-10-10, N. from Urea | 1.97 | 0.17 | 1.23 | 1.60 | 0.28 |
| 32 | 5 | Bone meal, 3 pounds per tree | 1.88 | 0.21 | 0.51 | 2.28 | 0.49 |
| 33 | 5 | King crab meal, 1 pound per tree | 1.58 | 0.15 | 0.55 | 1.86 | 0.53 |
| 34 | 5 | Castor bean pomace, 2 pounds per tree | 1.78 | 0.17 | 0.77 | 1.88 | 0.47 |
| 35 | 5 | Alfalfa meal, 3 pounds per tree | 1.97 | 0.22 | 1.38 | 1.99 | 0.53 |
| 36 | 10 | Control—no fertilizer | 0.97 | 0.17 | 0.55 | 2.42 | 0.50 |

Table 6 shows the desirability of using at least one pound of a 10-10-10 fertilizer per tree to give a more satisfactory nitrogen and potassium assimilation. The amount of "organics" used in groups 32, 33, 34 and 35 was calculated to be equivalent in nitrogen content to one pound of the commercial NPK fertilizer used elsewhere. These materials, all of which are much higher in nitrogen content than the raw leaf mold and hyper humus used in the 1952 planting, seem to have supplied reasonable amounts of nitrogen. The potassium assimilation from the bone meal, king crab meal and castor bean pomace was far too low and, therefore, such sources should be fortified in available potassium, especially on poor and sandy soils where potassium is always deficient. The phosphorus absorption in Group 30, a special mix, is the lowest in the series. It appears that the sodium nitrate, ammonium sulfate and potassium chloride in this mixture repressed the phosphorus assimilation below the normal level, even when compared with the control groups.

TABLE 7

COMPOSITION OF LEAF SAMPLES, 1953 VAN NEST PLOT, SAMPLED MID-SEPTEMBER 1953
MICRONUTRIENT ELEMENTS, OVEN-DRY BASIS

| Group | Trees | Condensed Statement of Treatment | Element, P.P.M. Fe | Mn | Zn |
|---|---|---|---|---|---|
| 1 | 10 | Control—no fertilizer | 238 | 238 | 40 |
| 2 | 10 | 1 pound 10-10-10 only | 299 | 292 | 42 |
| 3 | 5 | NPK + 40 gm. "Zn38" | 260 | 265 | 127 |
| 4 | 5 | NPK + 20 gm. "Zn38" | 264 | 316 | 104 |
| 5 | 5 | NPK + 10 gm. "Zn38" | 243 | 266 | 79 |
| 6 | 5 | NPK + 40 gm. $ZnSO_4$ | 299 | 211 | 160+ |
| 7 | 5 | NPK + 20 gm. $ZnSO_4$ | 290 | 282 | 158 |
| 8 | 5 | NPK + 10 gm. $ZnSO_4$ | 260 | 318 | 160 |
| 9 | 5 | NPK + 20 gm. Zn chelate | 322 | 288 | 134 |
| 10 | 5 | NPK + 10 gm. Zn chelate | 334 | 280 | 162 |
| 11 | 5 | NPK + 2 gm. Zn chelate | 282 | 296 | 62 |
| 12 | 5 | NPK + 120 gm. "Mangano" | 247 | 610 | 72 |
| 13 | 5 | NPK + 60 gm. "Mangano" | 314 | 466 | 83 |
| 14 | 5 | NPK + 10 gm. "Mangano" | 304 | 321 | 81 |
| 15 | 5 | NPK + 40 gm. $ZnSO_4$ + 40 gm. $MnSO_4$ | 236 | 530 | 162 |
| 16 | 5 | NPK + 20 gm. $ZnSO_4$ + 20 gm. $MnSO_4$ | 286 | 288 | 146 |
| 17 | 5 | NPK + 10 gm. $ZnSO_4$ + 10 gm. $MnSO_4$ | 342 | 540 | 153 |
| 18 | 5 | NPK + 20 gm. Mn chelate | 398 | 470 | 89 |
| 19 | 5 | NPK + 10 gm. Mn chelate | 330 | 495 | 40 |
| 20 | 5 | NPK + 2 gm. Mn chelate | 368 | 429 | 60 |
| 21 | 5 | NPK + 40 gm. $MnSO_4$ | 320 | 1,209 | 64 |
| 22 | 5 | NPK + 20 gm. $MnSO_4$ | 364 | 542 | 64 |
| 23 | 5 | NPK + 10 gm. $MnSO_4$ | 304 | 370 | 43 |
| 24 | 5 | NPK + 40 gm. "Zn38" + 120 gm. "Mangano" | 396 | 370 | 160+ |
| 25 | 5 | NPK + 20 gm. "Zn38" + 60 gm. "Mangano" | 381 | 366 | 119 |
| 26 | 5 | NPK + 10 gm. "Zn38" + 10 gm. "Mangano" | 340 | 349 | 43 |
| 27 | 5 | NPK + 20 gm. ea., Mn, Zn chelates | 453 | 392 | 76 |
| 28 | 5 | NPK + 10 gm. ea., Mn, Zn chelates | 314 | 245 | 40 |
| 29 | 5 | NPK + 2 gm. ea., Mn, Zn chelates | 381 | 363 | 27 |
| 30 | 5 | Special mix, 10-0-10 | 490 | 248 | 66 |
| 31 | 5 | Special, 10-10-10, N. from Urea | 364 | 285 | 60 |
| 32 | 5 | Bone meal, 3 pounds per tree | 292 | 275 | 77 |
| 33 | 5 | King crab meal, 1 pound per tree | 360 | 263 | 73 |
| 34 | 5 | Castor bean pomace, 2 pounds per tree | 336 | 225 | 81 |
| 35 | 5 | Alfalfa meal, 3 pounds per tree | 303 | 225 | 94 |
| 36 | 10 | Control—no fertilizer | 351 | 266 | 45 |

In Table 7 the average foliage manganese in all groups where no manganese and no organics were intentionally applied is 276 ppm. Groups 12, 13 and 14 received graduated dosages of "Mangano" and all exceed the base assimilation by a reasonable amount. Groups 15, 16 and 17 generally show increased assimilation from graduated dosages of manganese sulfate. Groups 18, 19 and 20 show increased manganese assimilation from the application of manganese chelate. Groups 21, 22 and 23 again show an increased manganese assimilation from manganese sulfate application. Increased manganese assimilation resulting from the application of "Mangano" is seen in groups 24, 25 and 26. Generally, groups 27, 28 and 29 once more show an increase in manganese where the element was applied in the chelate form. The organics and several other groups were excluded from the "no manganese added" average because there was no way of knowing their effects. However, examination of groups 30, 31, 32, 33, 34 and 35 does not show any effect on manganese assimilation.

All of the results are greatly in excess of the tentative figure for adequacy, namely $\pm 80$ ppm of manganese. In general, Table 7 shows that manganese is assimilated in greater quantities from the sulfate form than is the case when the element is supplied in the oxide form. Since the absorption is distinctly greater than the controls when the oxide form is used this distinction is of more academic than practical importance.

It is evident that the higher dosages of zinc, in whatever form, are materially increasing the quantity of this element assimilated. All concentrations of zinc over 100 ppm are considered excessive, and possibly damaging, while $\pm 60$ ppm is considered adequate for good nutritional health with respect to this element. On this basis, and remembering that this is but the first year, the admixture of 10 gms. of zinc sulfate per pound of fertilizer is more than adequate. The use of 10 to 20 gms. of "Zn38" would appear to be sufficient. The general tendency shows the sulfate to be more available than the hydrated carbonate, as was also true in the 1952 planting. It will be noted that the data relative to zinc chelate is conflicting. In groups 9, 10 and 11 the 10 gm. dosage gives high zinc assimilation, while in groups 27, 28 and 29 only the 20 gm. dosage is clearly effective. It seems that the organic materials listed under groups 32 to 35 are supplying adequate to more than adequate amounts of this micronutrient.

This newer planting at Van Nest is corroborating the findings of the 1952 plantings quite consistently. The data being accumulated on the effects of reducing the quantity of micronutrient to be admixed with the NPK fertilizer is invaluable in formulating future work on fertilization.

## Other Experimental Elm Fertilization Studies

Starting in 1948 and expanded in 1950 a total of 47 large elms in Branch Brook Park, Newark, have been studied continuously and a number have been the subject of experimentation in an effort to improve their nutritional status, especially with respect to a very common deficiency in manganese and zinc. During the past year nothing new has been uncovered.

Sampling and analysis of the 61 trees planted in White Horse in 1949 was continued. Genetic variance and an apparent non-uniformity in the soil has largely invalidated the results obtained on this plot. The present year's data therefore is not given.

The seasonal sampling of the two "Sherry" elms in White Horse also was extended into the current year. These studies were begun in 1949. The indication is that the rather heavy fertilization initially applied to one of these trees has had some, although an at present declining, influence on the superior growth and appearance of this tree over a five-year period. The accumulated information is of importance in assessing the significance of leaf analysis data for sampling periods other than mid-September.

## Foliage Zinc Content and Anthracnose in the London Plane

An investigation was requested to determine the possibility of a relationship between the incidence and severity of anthracnose disease in London planes and the zinc content of the foliage. Ten trees along the streets of Trenton were sampled, five having been severely attacked by the fungus and five relatively free of the disease. The average foliage zinc content of the healthy group was 35 ppm, while that of the diseased group was 44 ppm. In addition a series of soil injections of several zinc compounds was made in Moorestown underneath the canopy of seven trees. Even where leaf analysis showed a definite increase in foliage zinc content following the treatment no evidence of an increased resistance to fungus attack could be found. It was concluded that no relationship exists between anthracnose susceptibility and foliage zinc content over the range of 20 to 60 ppm of zinc.

## Iron Chlorosis in Pin Oaks

For the past several years the Bureau has been investigating the problem of iron chlorosis in the pin oak, conducting the experiments on trees at Washington Crossing State Park, the Annandale Reformatory and in Phillipsburg. Most of the attempted remedial measures have involved the soil application of several iron chelates, a procedure found particularly effective on citrus in Florida. Results have not been definitive up to the present time, the response being too erratic to warrant drawing any definite conclusions.

*Recapitulation of Past Work on Elm Fertilization*

The study of elm nutritional problems, started in 1947, has shown that in a general way these trees are deficient in nitrogen, potassium, manganese and zinc. Deficiency of the first two elements leads to a thin leaf canopy, poor terminal growth and an unattractive foliage color. Deficiency in manganese and zinc also contributes to a poor leaf crop of unhealthy colored leaves. In addition, twig die-back and even the death of sizable limbs is associated with the continued lack of these two micronutrients. Work at Branch Brook Park, extending over six years, has shown that cyclic changes occur in the assimilation of manganese and zinc. However, when either or both of the elements is very low the chances of self-rectification are poor, while trees with higher than average content of these minerals tend to remain in a satisfactory state of nutritional health.

An improvement in leaf crop and color and a distinct improvement in twig die-back was found whenever the status of any given tree became more satisfactory with respect to zinc and manganese assimilation. Application of the minor elements to a number of these trees by the punch bar method apparently resulted in some improvement for the first year or two but the effects were not as long lasting as had been hoped. A few of the trees were also treated in the spring of 1953 by hydraulic soil injection of the required fertilizer elements but it is too soon to draw definite conclusions.

The applications of fertilizer materials by the broadcast method and also the punch bar method to the trees in the nursery in White Horse were not followed by a definite response pattern. It is felt that conditions in this plot are in part responsible for failure to get definite results.

The response of the one "Sherry" tree in White Horse treated by the punch bar application of a heavy dosage of NPK fertilizer plus the minor elements zinc and manganese appeared to be quite definite and some residual benefit appears to remain five years after the treatment. The dosage of 80 pounds of 10-10-10 fertilizer was much heavier than usually applied to a tree of this size (14 inches DBH at time of treatment) and the work was done more thoroughly than is customary.

The results obtained from both plantings on the Van Nest Game Preserve have shown that the micronutrients manganese and zinc are readily and immediately assimilated when they are placed so that they are unquestionably available for absorption. It was further determined that the effects last at least through the second year. The effects of several compounds of each micronutrient were found to be equal from a practical standpoint and that all were compatible with commercial NPK fertilizers. It was shown that organic matter should be amended, especially with respect to nitrogen and potassium, when used in transplanting trees. The results both at Van

Nest and White Horse show that fertilization with a NPK fertilizer is highly desirable in establishing transplanted trees, especially on poor and sandy soils. These experiments further indicate that failure to get response comes from an inadequate distribution of the fertilizing materials and not from an inherent fundamental difficulty. A circular of a technical nature was prepared during the year, setting forth in detail the main lines followed in these investigations.

## Proposals for Future Work in This Field

The continued study of the one unfertilized roadside tree in Princeton and the two "Sherry" trees in White Horse has resulted in the accumulation of much data on the composition of elm leaves at various times in the growing season and also on successive yearly variations. The data collected over the years at Branch Brook Park on annual variation is likewise substantial. It is not thought that further work along these lines will yield additional information commensurate with the labor involved and it is proposed to largely abandon this work. The nursery in White Horse is not now yielding information adequate to justify a further maintenance of the plot and further work does not seem justified.

Work on the Van Nest plots should be continued and as these trees become thoroughly established (which requires three or four years) some of them should be used for further experimentation on the method of application of fertilizing materials to establish trees. There are now 450 trees established on this tract.

The commonly used practice of punch bar tree feeding is believed to be inadequate in many cases because a sufficiently uniform dispersal of the nutrients in the active zone of root development is not achieved. The method of hydraulic injection of aqueous solution of the nutrients would seem to offer considerable promise in yielding consistent results. It is believed that hydraulic injection is no more laborious or time consuming than is the punch bar method. In order to fit the findings of these studies to practical use it would be advantageous to work in close cooperation with practical tree men. The enlistment of the support and assistance of the practical arborists could best be brought about through a preparation of data in a factual yet readily comprehensible fashion for presentation to them at their official meetings.

Attempts have been made to devise analytical procedures which would be sufficiently accurate for diagnostic use, but not as exacting and time consuming as those used in the prosecution of the investigative work. Successful practical procedures have been developed for all of the presumed necessary analyses except zinc. In the case of zinc, preliminary explorations indicate that the Spectranal can be utilized for the approximate analysis of the leaves. Further work will be required to assure the reliability of this procedure.

# SEED CERTIFICATION

## GRAIN SEED CERTIFICATION

Certifying grain crops is part of a national and even international program which is helping to provide farmers in many parts of the country and world with varietal pure seed of improved varieties. Seed certification contributes to the benefit of millions of farmers.

### *Corn*

The acreage of hybrid seed corn grown under the certification program was increased by 12.5 acres in 1953. In 1951 474 acres were entered for certification, increased in 1952 to 505 acres and in 1953 to 517.5 acres. The acreage of N. J. No. 7 increased slightly. N. J. No. 2 which was developed in the 1930's is no longer recommended by the New Jersey Agricultural Experiment Station so its production is being discontinued.

Two new hybrids are being grown for the first time in New Jersey and promise to have a great future in seed production. Fifty-three acres of N. J. No. 8 were raised, producing a total of 2,530 bushels of seed. N. J. No. 8 is a full season corn that will possibly some day replace N. J. No. 4. Connecticut No. 554 also is being produced for the first time in the country. Although Dr. Donald F. Jones of the Connecticut Agricultural Experiment Station developed the cross, production has never been attempted. Connecticut No. 554 is a mid-season hybrid, maturing approximately 10 days before N. J. No. 7. A total of 53 bushels of certified seed was produced on the two-acre pilot planting of Connecticut No. 554.

SEED CORN ACREAGE

| Hybrid | Acres Entered | Acres Rejected | Acres Passed |
|---|---|---|---|
| N. J. No. 7 | 435 | 13 | 422 |
| N. J. No. 8 | 53 | 1 | 52 |
| N. J. No. 4 | 25 | .. | 25 |
| Connecticut No. 554 | 2 | .. | 2 |
| J47 X B42 | 2.5 | .. | 2.5 |
| Totals | 517.5 | 14 | 503.5 |

When the hybrid seed corn was inspected and detasseled 14 acres were rejected for improper detasseling and planting. Weather conditions were favorable in most seed fields through the critical period of the ear formation. Drought and hot weather extended until pollination but during this time there were several rains throughout the State. For the first time male sterile plants were used in New Jersey in making double crosses, thus eliminating the detasseling. Five one-acre tests were distributed and observed. In all these tests no pollen was shed in the male sterile seed; therefore it was recommended for the following year.

Nest and White Horse show that fertilization with a NPK fertilizer is highly desirable in establishing transplanted trees, especially on poor and sandy soils. These experiments further indicate that failure to get response comes from an inadequate distribution of the fertilizing materials and not from an inherent fundamental difficulty. A circular of a technical nature was prepared during the year, setting forth in detail the main lines followed in these investigations.

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WF9 X 38-11 male sterile may be used up to 50 per cent in the production of N. J. No. 7. The male sterile factor is being crossed and backcrossed in the ear parent of N. J. No. 8 and eventually will be used in making this cross. By the use of male sterile seed the seed producer can reduce his detasseling costs to one-half since only half of the normal amount of detasseling is necessary. This eventually should reduce the cost of hybrid seed corn and also improve the genetic purity of the commercial seed. During the first year of commercial seed production of N. J. No. 8 single cross was detasseled with difficulty, the tassels often breaking instead of pulling.

N. J. No. 8 should pollinate the seed parent well under all weather conditions. A single cross field of J47 X B42 was planted on light, sandy soil in Gloucester County. It was necessary to irrigate and save this important single cross. With the help of the irrigation a satisfactory crop was produced.

During September seed inspectors assisted seed producers in harvesting and hand-picking their seed. Hand-picking is the only method that will completely eliminate moldy and off-type seed. In order for New Jersey certified seed to maintain its reputation as a quality seed each grower must completely eliminate all moldy kernels from shelled seed before processing. Shelled seed arrived at the Kingston plant of the New Jersey Field Crop Improvement Association in a satisfactory condition. The processing of N. J. No. 7 seed started in November with new grade sizes which appear to be good and well adapted for planting with the popular corn planters. The new grade sizes are large flats-through 24/64 and over a 22/64; medium flats-through 22/64 and over a 19/64; narrow flats-through a 19/64 and over a 17/64.

Average yields are the highest ever reported in the seed program. The N. J. No. 8 seed production was extremely good and produced 2,303 bushels of flat grades, an average of 43.4 bushels of flat grades per acre. Also, all available rounds of N. J. No. 8 were certified, a total of 227 bushels. A carry-over of 1,817 bushels of the 1952 seed corn crop proved eligible for certification. This seed was retested for germination and all lots showing 90 per cent or over were retreated, processed and sealed.

SEALING OF SEED CORN

| | Carry-Over 1952 | New Crop—1953 | | Flats Eligible for Certification But Not Sealed | Total |
|---|---|---|---|---|---|
| | | Flats | Rounds | | |
| N. J. No. 7 | 1,318 | 12,803 | 415 | 1,735 | 16,271 |
| N. J. No. 4 | 395 | 394 | 47 | ... | 836 |
| N. J. No. 2 | 104 | ... | ... | ... | 104 |
| N. J. No. 8 | ... | 2,303 | 227 | ... | 2,530 |
| Connecticut No. 554 | ... | 47 | 6 | ... | 53 |
| Totals | 1,817 | 15,547 | 695 | 1,735 | 19,794 |

In the following study of the cleaning and grading of New Jersey hybrids it can be noted that N. J. No. 7 producers increased their bushels of rough corn harvested per acre from 38.4 in 1952 to 41.2 in 1953 and also an average of 30.6 bushels of flat grades. The highest yield on record was recorded for this year. In the past few years medium flat grades have been averaging approximately 45 per cent whereas this year they increased to 71.4 per cent. This is due principally to a change in screen sizes.

A total of 19,794 bushels of hybrid seed corn was certified by the Department as compared with 14,593 bushels in 1952. The 1953 crop far exceeded any previous sealing record.

COMPARISON STUDY OF NEW JERSEY HYBRID SEED CORN
CLEANING AND GRADING RECORDS
1949 TO 1953

N. J. No. 7

| | 1953 | 1952 | 1951 | 1950 | 1949 |
|---|---|---|---|---|---|
| Number of growers' records used | 17 | 13 | 11 | 12 | 12 |
| Acreage involved | 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 | 11,895 | 9,247 | 8,096 | 8,996 | 4,548 |
| Average bushels of flats per acre | 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) | 815 | 624 | 598 | 1,180 | 506 |
| (per cent) | 6.9 | 6.8 | 7 | 13 | 11 |
| Medium flats (bushels) | 8,494 | 4,166 | 3,717 | 4,517 | 1,979 |
| (per cent) | 71.4 | 45 | 46 | 50 | 44 |
| Narrow flats (bushels) | 2,586 | 4,457 | 3,781 | 3,299 | 2,009 |
| (per cent) | 21.7 | 48.2 | 47 | 37 | 45 |

N. J. No. 4

| | 1953 | 1952 | 1951 | 1950 | 1949 |
|---|---|---|---|---|---|
| Number of growers' records used | 1 | 3 | 5 | 8 | 7 |
| Acreage involved | 25 | 50 | 94 | 88.5 | 112 |
| Rough corn received at mill (bushels) | 689 | 2,031 | 3,698 | 3,435 | 3,620 |
| Bushels rough corn (ear parent) harvested per acre | 27.5 | 40.6 | 39.3 | 38.8 | 32 |
| Total bushels of flat grades certified | 394 | 1,274 | 1,942 | 1,922 | 1,989 |
| Average bushels of flats per acre | 15.7 | 25.5 | 20.3 | 21.7 | 17.7 |
| Average percentage of flat grades harvested per acre | 58.1 | 62.7 | 51.7 | 56 | 55 |
| Large flats (bushels) | 331 | 1,164 | 1,677 | 1,736 | 1,647 |
| (per cent) | 84 | 91.3 | 86 | 90 | 83 |
| Medium flats (bushels) | 63 | 110 | 261 | 186 | 302 |
| (per cent) | 16 | 8.7 | 14 | 10 | 15 |
| Narrow flats (bushels) | ... | ... | 4 | ... | 40 |
| (per cent) | ... | ... | 0.2 | ... | 2 |

N. J. No. 8

| | 1953 |
|---|---|
| Number of growers' records used | 5 |
| Acreage involved | 53 |
| Rough corn received at mill (bushels) | 2,871 |
| Bushels rough corn (ear parent) harvested per acre | 54.2 |
| Total bushels of flat grades certified | 2,303 |
| Average bushels of flats per acre | 43.5 |
| Average percentage of flat grades harvested per acre | 80.3 |
| Large flats (bushels) | 163 |
| (per cent) | 7.1 |
| Medium flats (bushels) | 1,555 |
| (per cent) | 67.5 |
| Narrow flats (bushels) | 585 |
| (per cent) | 25.4 |

*Wheat*

This year 46 growers entered 125 fields totaling 1,798 acres of wheat. During the past five years the acreage entered for certification has been steadily increasing. Again this year the acreage increased approximately 40 per cent or 514 acres. It appears that the seed wheat program is basically sound and as long as varietal pureness is kept at a maximum together with disease and weed free seed, this program should continue to increase.

This year for the first time the Seneca variety of wheat has been approved for certification by the New Jersey Agricultural Experiment Station. Seneca, a strain similar to Thorne, is high yielding, stiff straw, medium height, beardless, brown chaff variety of a soft red winter wheat. It has a slightly higher test weight than Thorne and on an average will outyield Thorne by a bushel or two per acre. Being a sister strain of Thorne, Seneca has the same genetic lines and does not give New Jersey farmers additional protection against disease or possible insect attack.

This year 268 acres of Seneca were entered; 48 acres were rejected in the field and 50 rejected during bin inspection, leaving 170 acres certified. This acreage produced 4,507 bushels of certified seed.

Loose smut again was evident in various degrees. Seneca does not appear to have more resistance to loose smut than Thorne. All seed fields possessing a high count of loose smut were rejected. On fields with low counts the seed will be used for reseeding purposes. Two fields, one containing four acres of Seneca and the other seven acres of Thorne, were hot water treated by the Experiment Station for the control of loose smut and had practically no smut infection.

Seven acres of Thorne were not isolated and had to be rejected from the registered class of seed. This seed was recommended as a source for certified seed growers. The certifying agency recommends the continuation of the program of hot water treating registered fields of seed wheat in an

effort to control loose smut. Approximately 24 per cent of the applied acreage was rejected during field inspection because of excessive amounts of loose smut, a mixture of other grains, varietal mixtures and inseparable weeds. Wild onion and garlic are the most troublesome weeds.

Weather during the harvest of the seed was excellent in all parts of the State. The seed was bagged or binned in good condition with moisture content well below 14 per cent. In some cases excessive cracking was done by improper combining. All lots possessing more than 2 per cent inert material were rejected for seed use. During July a representative sample was drawn on all lots of seed. Germinations and seed analyses were made from this seed and germinations generally were above the required 90 per cent.

The Seneca variety had an especially good appearance with a test weight averaging 59 pounds. The Seneca seed averaged approximately 28 bushels of clean seed per acre. A total of 20,172 bushels of wheat was tagged and sealed by the Department. An additional five to six thousand bushels of seed were eligible for sealing but were not processed because of the lack of a market. Of the 20,172 bushels sealed approximately 4,800 bushels did not move to the seed dealers because of the surplus in the northeast. The surplus seed was mainly a result of the Federal regulations restricting the acreage of wheat planted.

In forming the seed program for the next year considerable thought will be given to the government requirements. This is the first time in the history of the wheat program that a surplus of certified seed has been available.

WHEAT CERTIFICATION

| Variety | Acres Entered | Acres Rejected Field Inspected | Acres Rejected Bin Inspected | Acres Certified | Acres Registered | Bushels Sealed |
|---|---|---|---|---|---|---|
| Thorne | 1,530 | 374 | 139 | 1,017 | ... | 15,665 |
| Seneca | 268 | 48 | 50 | 166 | 4 | 4,507 |
| Totals | 1,798 | 422 | 189 | 1,183 | 4 | 20,172 |

*Barley*

A total of 364 acres of Wong barley was entered for certification, 51 acres less than last year. The planting season was extremely dry which accounted for the failure of many fields to grow properly. These fields were severely winter killed by freezing and thawing.

During May a special field inspection was made to observe and to calculate the control of loose smut. In registered fields where the seed was hot water treated prior to planting not a single smut head was found. In

certified fields conditions of loose smut ranged from 20 to 55 plants per acre which is considered excellent control for this disease. The hot water treating equipment and facilities were made available to the New Jersey Field Crop Improvement Association by Francis C. Stokes of Vincentown and contributed much to the success of this control.

Of the 364 acres entered for certification 297 acres were for certified seed, 65 acres for registered seed and two acres for foundation seed. The two acres of foundation seed were rogued row by row by personnel of the New Jersey Agricultural Experiment Station and the Department of Agriculture. This seed was of excellent quality.

During bin inspection it was necessary to reject 35 acres of barley that was in the registered class. It is the seed from this registered class that is used for planting certified seed the following year and therefore it is necessary to have this important seed grown by men who are seed quality conscious. The rejection of 35 acres limits the amount of seed eligible for certification the following year. It is felt that additional supervision will be required by the New Jersey Field Crop Improvement Association and the certifying agency to prevent such a large rejection in the future. Not one field grown for registration completely met all the requirements needed for this quality seed. Of the four lots grown under contract by the Field Crop Improvement Association two did not meet the isolation requirement; one had a high moisture content, molded and discarded, and one lot possessed such a mixture of wild radish that it was impossible to separate.

The weather during the harvest period was excellent. The dry conditions provided light colored seed with high germination. The entire seed crop was harvested by the first of July. This year's barley crop averaged approximately 42 bushels of clean seed per acre. A total of 10,438 bushels was certified, 4,827 bushels less than in 1952. The largest reduction occurred in the certified class where 4,022 less bushels of barley were sealed. The entire barley crop was marketed easily. The New Jersey Field Crop Improvement Association had under contract 1,444 bushels of registered seed which is 788 bushels less than last year. With proper management this should plant slightly over 700 acres of seed.

In 1954 and for the first time the New Jersey Field Crop Improvement Association owns all the registered seed. The Association can sell the registered seed to only those farmers intending to have their crops certified.

BARLEY CERTIFICATION

| Variety | Acres Entered | Acres Rejected | | Acres Passed | Bushels Sealed |
|---|---|---|---|---|---|
| | | Field Inspected | Bin Inspected | | |
| Wong (foundation) | 2 | ... | ... | 2 | 98 |
| Wong (registered) | 65 | ... | 35 | 30 | 1,444 |
| Wong (certified) | 297 | 69 | 14 | 214 | 8,896 |
| Totals | 364 | 69 | 49 | 246 | 10,438 |

### *Soybeans*

There were 282 more acres of soybeans certified than last year but 2,261 fewer bushels were sealed. A new variety, Blackhawk, was recommended for certification by the Agricultural Experiment Station. Blackhawk has been tested in New Jersey and is a short season bean. It will be used principally to plant after grain or for early harvest so that wheat or rye can be planted.

The field inspections of soybeans were completed with the least possible acreage being rejected. Soybeans in the field generally were in excellent condition with a minimum amount of varietal mixture or disease. The low rate of field rejections in part was due to the foundation seed program in which small acreages are rogued by the plant breeders and to the certifying agency in providing growers with varietal pure seed. Row planting again gained popularity over drill planting. From the inspection standpoint row planting is almost essential for the control of weeds and diseases. Also, by row planting the seed producer is able to harvest closer to the time when the beans are mature because there will be no weeds to restrict this operation.

Through the years soybean seed production has proved to be one of the most hazardous operations in New Jersey. There seems to be many factors affecting the quality of soybean seed that are not controllable. In many years considerable soybean seed is lost by wet, humid conditions at harvest time. This year, however, the dry condition during August prematurely killed the plants resulting in partially developed seed. It was necessary to reject 420 acres from certification during the bin inspection because of poor quality seed either due to low germination or poor appearance. Also, as a result of the drought much seed was harvested with a low moisture content. Some lots possessed no more than 8½ per cent moisture. When soybeans possess such a low moisture content it is difficult for the farmers as well as the seed processors to handle the seed without splitting and injuring the germ. During harvest all soybean growers were urged to handle and regulate their seed threshing equipment to minimize the amount of seed damaged. Regardless of these precautions many fields were rejected because of the high inert material. Dry weather reduced yields in many fields as much as 50 per cent.

SOYBEAN SEED PROGRAM

| Variety | Acres Entered | Acres Rejected Field | Acres Rejected Bin | Acres Passed | Bushels Registered | Bushels Certified | Total Bushels Sealed |
|---|---|---|---|---|---|---|---|
| Chief | 68 | ... | 61 | 7 | ... | 135 | 135 |
| Lincoln | 71 | ... | 62 | 9 | 28.5 | 130.5 | 159 |
| Hawkeye | 666 | 51 | 218 | 397 | 60 | 8,026 | 8,086 |
| Blackhawk | 106 | ... | 79 | 27 | ... | 283.5 | 283.5 |
| Totals | 911 | 51 | 420 | 440 | 88.5 | 8,575.0 | 8,663.5 |

## *Oats*

After many years of trial and selection the New Jersey Agricultural Experiment Station had recommended a winter oat for New Jersey. Plant breeders of the Station have approved LeConte oats as being winter hardy enough to resist the winters in New Jersey in areas south of New Brunswick. The acreage certified this year, although small, provides a beginning and the emphasis on the small acreage is being placed for pure seed. Unfortunately, there are many impurities such as other small grains and off-type varieties. A strict roguing program was immediately inaugurated to improve the quality and provide sufficient quantity of seed for all seed growers for next year.

A total of 882 bushels of LeConte oats was sealed. Of this total 762 bushels were of the certified class and 120 bushels registered. The quality of the seed was extremely high with test weights averaging 38 pounds. Demand for the seed was strong. The registered seed had a small percentage of wild onion and had to be handled specially to make the separation. To make the separation a new indent cylinder was required for the cylinder separators. A very satisfactory job was performed.

One hundred bushels of Pennsylvania certified LeConte oats were purchased by the New Jersey Certified Seed Growers' Association and they requested repacking privileges which was accomplished by the interagency program. Interagency tags indicating the repacking plus the original Pennsylvania tag were sealed on each bag.

WINTER OAT PROGRAM

| Variety | Acres Entered | Acres Rejected Field | Acres Rejected Bin | Acres Passed | Bushels Sealed |
|---|---|---|---|---|---|
| LeConte (certified) | 25 | 10 | ... | 15 | 762 |
| LeConte (registered) | 2 | ... | ... | 2 | 120 |
| Totals | 27 | 10 | ... | 17 | 882 |

The public acceptance of a New Jersey spring oat has not improved and will not until a more satisfactory variety of oats is developed for New Jersey's hot, humid growing conditions. Applications were received from two growers with a total of 20 acres of the Clinton variety. A wet spring reduced the oat acreage to a minimum and also retarded seed oat production. Field inspection revealed that both of these lots were of a quality to pass certification requirements. A total of 1,233 bushels of Clinton oats was certified. New Jersey certified seed oats were of high quality averaging 33½ pounds per bushel and germinating approximately 97 per cent.

SPRING OAT PROGRAM

| Variety | Acres Entered | Acres Rejected | Acres Passed | Bushels Sealed |
|---|---|---|---|---|
| Clinton | 20 | ... | 20 | 603 |
| Clinton (carry-over) | ... | ... | ... | 630 |
| Totals | 20 | ... | 20 | 1,233 |

SUMMARY OF GRAIN CERTIFICATION SEALINGS OF 1941-53
(Bushels)

| | Total | Corn | Oats | Wheat | Barley | Soy-beans |
|---|---|---|---|---|---|---|
| 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

Applications were received from 12 seed potato growers requesting certification of 127.50 acres. This acreage is approximately the same as was entered the previous year. Nine per cent of the acreage was planted from New Jersey seed and 67 per cent from Maine seed. The source of planting stock for seed potatoes has always been important in retaining disease-free and high quality strains. Efforts had been made by the certifying agency to seed growers to annually purchase foundation or tuber unit seed stock. This past year 72 per cent of the total acreage of seed potatoes entered for certification in New Jersey was planted from recommended foundation or tuber unit source. The rather low rate, 18 per cent, of field rejections is directly correlated with planting stock.

Favorable weather conditions prevailed during the planting period and good stands were experienced in all parts of the State. However, the balance of the growing season was dry and in fields that contained light-textured soils, low organic content and no irrigation yields were drastically damaged. Approximately 30 per cent of the New Jersey seed potato acreage was irrigated and in these fields excellent yields were obtained.

Insect control was observed carefully by Department seed inspectors and most seed fields were sprayed weekly with insecticide and fungicide

throughout the entire growing season. As soon as insect infestations were observed the producer was notified and fields were placed under control at once. One five-acre field of Katahdin variety was damaged rather extensively by leafhoppers and the certification of this field was restricted until a satisfactory report was received from Florida.

The testing of seed in Florida during the winter months has given strength to the New Jersey seed certification program by detecting the presence of any virus disease which may be spread late in the growing season when visible detection is impossible. This test consists of growing in Florida a representative sample of seed that has been selected by the seed producer. By growing this representative sample a field reading can be made in six to eight weeks to determine the virus disease content of the seed potatoes. All certified seed fields are not required to be tested in Florida but growers are urged to cooperate for their own protection. Certified seed grown in New Jersey that has disputable disease symptoms must be tested in Florida before certification is granted.

Seed potato markets, nationally as well as in New Jersey, have been depressed because of surplus during the entire marketing season. In some cases certified seed moved into table stock or live stock feed channels.

INSPECTION AND CERTIFICATION OF NEW JERSEY LATE CROP WHITE POTATO SEED IN 1953

| Seed Source | 100-lb. Bags | Per Cent |
|---|---|---|
| Maine | 1,275 | 67 |
| Prince Edward Isle | 270 | 14 |
| Wisconsin | 195 | 10 |
| New Jersey | 165 | 9 |
| Totals | 1,905 | 100 |

PRODUCTION OF CERTIFIED WHITE POTATO SEED OF NEW JERSEY

| Variety | 1953 Passed | 1953 Production (Bushels) | 1952 Passed | 1952 Production (Bushels) |
|---|---|---|---|---|
| Cobbler | 19.00 | 2,515 | 7.50 | 975 |
| Katahdin | 55.00 | 11,627 | 51.50 | 8,961 |
| Chippewa | 16.50 | 3,363 | 14.50 | 2,682 |
| Red Skin | 1.00 | 75 | .50 | 75 |
| Red Bliss Triumph | ... | ... | 5.00 | 950 |
| Netta Gem | 1.00 | 120 | ... | ... |
| Kennebec | 11.50 | 1,170 | 11.50 | 1,840 |
| Pungo | .25 | 50 | ... | ... |
| Cherokee | .25 | 45 | ... | ... |
| Totals | 104.50 | 18,965 | 90.50 | 15,483 |

ACREAGE FAILING AND PASSING CERTIFICATION

| | Acres | Per Cent |
|---|---|---|
| Rejected or withdrawn at first inspection | 7.00 | 6 |
| Rejected or withdrawn at second inspection | ... | ... |
| Rejected at third inspection | 13.00 | 10 |
| Rejected resulting from Florida testing | 3.00 | 2 |
| Rejected or withdrawn at fourth inspection | 23.00 | 18 |
| Passing fourth inspection (certified) | 104.50 | 82 |

VARIETAL DISTRIBUTION OF REJECTIONS AND WITHDRAWALS

| Variety | Acres Entered | Acres Rejected and Withdrawn by Inspections | | | | Acres Certified |
|---|---|---|---|---|---|---|
| | | First | Second | Third | Florida | |
| Katahdin | 73.00 | 5.00 | ... | 10.00 | 3.00 | 55.00 |
| Cobbler | 19.00 | ... | ... | ... | ... | 19.00 |
| Chippewa | 21.50 | 2.00 | ... | 3.00 | ... | 16.50 |
| Kennebec | 11.50 | ... | ... | ... | ... | 11.50 |
| Pungo | .25 | ... | ... | ... | ... | .25 |
| Cherokee | .25 | ... | ... | ... | ... | .25 |
| Red Skin | 1.00 | ... | ... | ... | ... | 1.00 |
| Netta Gem | 1.00 | ... | ... | ... | ... | 1.00 |
| Totals | 127.50 | 7.00 | ... | 13.00 | 3.00 | 104.50 |

## WHITE POTATO SEED CERTIFICATION INDUSTRY OF NEW JERSEY

| | Growers | Acres Entered | Percentage Rejection | Varietal Distribution | |
|---|---|---|---|---|---|
| 1948 | 17 | 184.50 | 10.07 | Katahdin | 105.00 |
| | | | | Chippewa | 31.20 |
| | | | | Pawnee | 21.50 |
| | | | | Cobbler | 2.50 |
| | | | | Green Mountain | 2.00 |
| | | | | Sebago | 1.50 |
| | | | | Mohawk | 1.50 |
| | | | | Sequoia | .50 |
| 1949 | 13 | 153.50 | 8.47 | Katahdin | 89.50 |
| | | | | Chippewa | 27.00 |
| | | | | Red Skin | 9.00 |
| | | | | Pawnee | 5.50 |
| | | | | Sequoia | 5.50 |
| | | | | Cobbler | 4.00 |
| 1950 | 21 | 268.50 | 5.80 | Katahdin | 162.33 |
| | | | | Chippewa | 42.67 |
| | | | | Cobbler | 36.25 |
| | | | | Red Skin | 9.00 |
| | | | | Sequoia | 2.50 |
| | | | | Red Bliss Triumph | .25 |
| 1951 | 14 | 154.00 | 12.30 | Katahdin | 85.40 |
| | | | | Chippewa | 22.10 |
| | | | | Cobbler | 15.00 |
| | | | | Kennebec | 8.50 |
| | | | | Essex | 2.00 |
| | | | | Netta Gem | 1.00 |
| | | | | Sequoia | 1.00 |
| 1952 | 10 | 131.00 | 30.60 | Katahdin | 78.50 |
| | | | | Kennebec | 17.50 |
| | | | | Red Skin | .50 |
| | | | | Chippewa | 14.50 |
| | | | | Idaho | 1.50 |
| | | | | Cobbler | 7.50 |
| | | | | Red Bliss Triumph | 10.00 |
| | | | | Ontario | 1.00 |
| 1953 | 12 | 127.50 | 18.00 | Katahdin | 73.00 |
| | | | | Chippewa | 21.50 |
| | | | | Cobbler | 19.00 |
| | | | | Kennebec | 11.50 |
| | | | | Red Skin | 1.00 |
| | | | | Pungo | .25 |
| | | | | Cherokee | .25 |
| | | | | Netta Gem | 1.00 |

# *Official Proceedings of the Thirty-ninth Annual State Agricultural Convention*

The thirty-ninth annual State Agricultural Convention was held in the Assembly Chamber of the State Capitol in Trenton on Tuesday, January 26, 1954. The meeting was called to order at 10:00 A. M. by J. Cresswell Stuart, president of the State Board of Agriculture. The invocation was offered by the Rev. Paul W. Kapp, former chaplain of the New Jersey State Grange.

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 |
|---|---|---|---|
| Charles Canale | Pleasantville, R. D. 2 | 2 years | Atlantic |
| Joseph English, Mays Landing, R. D. 1, alternate for *David Rizzotte | Hammonton | 1 year | Atlantic |
| Richard Sylstra | 211 Wycoff Ave., Wycoff | 2 years | Bergen |
| Steffen Olsen | 2 Benson Ave., Westwood | 1 year | Bergen |
| Clement B. Lewis | Riverton | 2 years | Burlington |
| Barclay H. Allen | Mount Holly | 1 year | Burlington |
| J. Evans Jennings | Sicklerville | 2 years | Camden |
| Samuel De Cou | Merchantville | 1 year | Camden |
| Forrest McClain | Green Creek | 2 years | Cape May |
| John Young | Cape May Court House | 1 year | Cape May |
| Louis Pizzo | Rosenhayn | 2 years | Cumberland |
| David T. Sheppard | Cedarville | 1 year | Cumberland |
| Frank Ruzza | 214 Beaufort Ave., Livingston | 1 year | Essex |
| Henry Becker, Jr. | Livingston Ave., Roseland | 1 year | Essex |
| Leslie Richards | Sewell, R. D. | 2 years | Gloucester |
| J. Willard Gardiner | Mullica Hill, R. D. | 1 year | Gloucester |
| Clarence Manziano | 8 Kingswood Road, Weehawken | 3 years | Hudson |
| Albert Schenone | 819 12th Street, Union City | 3 years | Hudson |
| Harold B. Everitt | Flemington, R. D. 1 | 2 years | Hunterdon |
| Charles Burd | Pittstown | 1 year | Hunterdon |
| Charles W. Holman | Dutch Neck | 2 years | Mercer |
| Ernest R. Simpkins | Yardville | 1 year | Mercer |
| George R. Parker, Jr. | Plainsboro | 2 years | Middlesex |
| Thomas Farino | Jamesburg, R. D. 1 | 1 year | Middlesex |
| R. C. Clayton | Freehold, R. D. 3 | 2 years | Monmouth |
| Howard P. Story, Sr., Freehold, R. D. 3, alternate for *Walter W. Lott | Freehold, R. D. | 1 year | Monmouth |

| Name | Address | Term | County |
|---|---|---|---|
| Robert J. Lecher | Wharton, R. D. | 2 years | Morris |
| James B. Stuart | Greystone Park | 1 year | Morris |
| Martin Schubkegel, Sr. | Lakewood, R. D. 4 | 2 years | Ocean |
| Raymond Cook | Lakewood, R. D. 3 | 1 year | Ocean |
| Edward Anthony | Grove St., Clifton, R. D. 1 | 2 years | Passaic |
| Michael Klein | 458 Broad St., Clifton, R. D. 1 | 1 year | Passaic |
| Russell B. Harris | Salem | 2 years | Salem |
| Ralph P. Harris | Monroeville | 1 year | Salem |
| Gilbert I. Runyon | Skillman | 2 years | Somerset |
| David W. Amerman | Neshanic | 1 year | Somerset |
| John Cowling | Newton, R. D. 1 | 2 years | Sussex |
| William Hough | Sussex, R. D. 1 | 1 year | Sussex |
| Charles H. Brewer | Box 799, Rahway, R. D. 1 | 2 years | Union |
| John Koscielny | Rahway Road, Scotch Plains, R. D. 1 | 1 year | Union |
| Edwin Francisco | Allamuchy | 2 years | Warren |
| Alfred Baylor, Columbia, R. D., alternate for *Frank L. Pursell | Alpha, R. D. | 1 year | Warren |

## *From Pomona Granges*

| Name | Address | Term | County |
|---|---|---|---|
| Martin Decker | Hammonton, R. D. 1 | 1 year | Atlantic |
| John Clauss | 15-09 Saddle River, Fairlawn | 1 year | Bergen and Passaic |
| C. Harold Joyce | Medford, R. D. | 2 years | Burlington |
| Reuben H. Dobbs, Marlton, alternate for *Samuel J. McCulley | Franklin Avenue, Berlin | 1 year | Camden |
| Allan McClain | Green Creek | 2 years | Cape May |
| Edward Keilblock | Chatham, R. D. | 1 year | Central District |
| Earl Sheppard | Cedarville, R. D. | 1 year | Cumberland |
| Harry Lentz | Thorofare, R. D. | 1 year | Gloucester |
| John T. Hudnutt | Mine St., Flemington | 2 years | Hunterdon |
| Charles M. Ewart | Yardville | 2 years | Mercer |
| J. V. S. Du Mont | Somerville, R. D. 3 | 1 year | Middlesex and Somerset |
| Howard Clayton, Freehold, alternate for *George C. Probasco | Star Route, Freehold | 1 year | Monmouth |
| Elmer Pettit | Woodstown | 1 year | Salem |
| Harry Vance | Glenwood | 1 year | Sussex |
| Donald Hawk | Phillipsburg, R. D. 1 | 1 year | Warren |

*From Other Organizations*

American Cranberry Growers Association—Vinton N. Thompson, Vincentown, 1 year; Anthony R. DeMarco, 44 Packard St., Hammonton, 1 year.
Jersey Chick Association—C. T. Darby, Rt. 5, Somerville, 1 year; Nello Melini, Vineland Farms Hatchery, Vineland, 1 year.
New Jersey Association of Nurserymen—William H. Wells, Millville, R. D. 1, 1 year; Gerard Grootendorst, Franklin Ave., Oakland, 1 year.
New Jersey Florists' Association—George H. Masson, Jr., Yardville, R. D. 1, 1 year; August Bosenberg, P. O. Box 608, New Brunswick, 1 year.
New Jersey State Grange—Clarence M. Alles, Flemington, R. D., 1 year; Jacob A. Blakeslee, Newton, R. D. 3, 1 year.
New Jersey State Horticultural Society—Clarence H. Steelman, Princeton, R. D. 3, 1 year; Lester Collins, Moorestown, 2 years.
New Jersey State Poultry Association—Herbert Wegner, Newfield, 1 year; *Harold Ibbotson, Forsgate Farms, Jamesburg, 1 year.
United Milk Producers of New Jersey—Thomas L. Lawrence, Hamburg, 1 year; Benjamin Hart, Pennington, R. D. 1, 1 year.
Blueberry Cooperative Association—*W. A. Jarvis, Pemberton, 1 year.
Cooperative Growers' Association, Inc.—Raymond Anderson, Creek Road, Bridgeboro, 1 year.
E. B. Voorhees Agricultural Society—Joseph W. Hoffman, Wilmar Farm, Belle Mead, 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—Earl W. Sutvan, 912 Lakeview Ave., Laurel Springs, 1 year.
New Jersey College of Agriculture—Dr. William H. Martin, New Brunswick, 1 year.
New Jersey Field Crop Improvement Cooperative Association—Lester C. Jones, Medford, 1 year.
New Jersey Guernsey Breeders' Association—Roy C. Patrick, Quinton Stock Farm, Salem, 1 year.
New Jersey State Potato Association—John Probasco, Chesterfield, 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.

* Absent.

## APPOINTMENT OF COMMITTEES

The following committees were appointed by President Stuart:

### NOMINATING COMMITTEE FOR MEMBERS OF THE STATE BOARD OF AGRICULTURE

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|---|---|
| William J. Lauderdale, Chairman | The Cooperative Marketing Associations in New Jersey, Inc. |
| Edwin Francisco | Warren County Board of Agriculture |
| William Hough | Sussex County Board of Agriculture |
| Michael Klein | Passaic County Board of Agriculture |
| Martin Schubkegel, Sr. | Ocean County Board of Agriculture |
| James B. Stuart | Morris County Board of Agriculture |
| Roscoe C. Clayton | Monmouth County Board of Agriculture |
| Thomas Farino | Middlesex County Board of Agriculture |
| John T. Hudnutt | Hunterdon County Pomona Grange |
| J. Willard Gardiner | Gloucester County Board of Agriculture |
| Frank Ruzza | Essex County Board of Agriculture |
| Nello Melini | Jersey Chick Association |
| Gerard Grootendorst | New Jersey Association of Nurserymen |
| Thomas L. Lawrence | United Milk Producers of New Jersey |
| Louis J. Sanguinetti | New Jersey Agricultural Experiment Station |

NOMINATING COMMITTEE FOR MEMBER OF FISH AND GAME COUNCIL

Leslie Richards, Chairman .....Gloucester County Board of Agriculture
Charles Canale .....Atlantic County Board of Agriculture
Clement B. Lewis .....Burlington County Board of Agriculture
Samuel DeCou .....Camden County Board of Agriculture
Forrest McClain .....Cape May County Board of Agriculture
David T. Sheppard .....Cumberland County Board of Agriculture
Ralph P. Harris .....Salem County Board of Agriculture

COMMITTEE ON RESOLUTIONS

Clarence H. Steelman, Chairman ....New Jersey State Horticultural Society
Martin Decker .....Atlantic County Pomona Grange
Harry Lentz .....Gloucester County Pomona Grange
Lester C. Jones .....New Jersey Field Crop Improvement Cooperative Association
Clarence M. Alles .....New Jersey State Grange
August Bosenberg .....New Jersey Florists Association
Harry Vance .....Sussex County Pomona Grange

COMMITTEE ON CREDENTIALS

Howard Clayton, Chairman .....Monmouth County Pomona Grange
Charles W. Holman .....Mercer County Board of Agriculture
David W. Amerman .....Somerset County Board of Agriculture

COMMITTEE TO WAIT ON THE GOVERNOR

Dr. William H. Martin, Chairman ..New Jersey College of Agriculture
Herbert Wegner .....New Jersey State Poultry Association
Donald Hawk .....Warren County Pomona Grange
Lester Collins .....New Jersey State Horticultural Society

## 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 George H. Combs, of Trenton, R. D. 2, and Peter P. Van Nuys, of Belle Mead, in nomiation for membership on the State Board of Agriculture to succeed J. Cresswell Stuart, Beverly, and Gilbert C. Hartung, Phillipsburg, R. D. 2, whose terms would expire on June 30, 1954. Upon motion made and duly seconded it was voted that the nominations be closed and Messrs. Combs and Van Nuys were unanimously selected for recommendation to the Governor for a four-year period beginning July 1, 1954.

### 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 Lawrence Bohm, of Cape May County, for a four-year term, as the representative from the southern New Jersey counties, to succeed Alvin String, whose term will expire April 1, 1954. There being no further nominations, the nominations were closed. Mr. Bohm was unanimously elected for recommendation to the Governor for the four-year term beginning April 1, 1954.

## CITATIONS

Citations for distinguished service to agriculture were awarded to Charles H. Brewer, of Rahway, R. D. 1; Edgar O. Murphy, of Farmingdale; Leslie Richards, of Sewell; and Asher B. Waddington, of Woodstown.

The citations, read by Secretary of Agriculture Willard H. Allen, were as follows:

### CITATION OF CHARLES H. BREWER

Your record of long and faithful service to New Jersey agriculture is unique and unmatched in the annals of our State. Your career spans more than a half century and embraces a broad field of endeavor.

Today for the 42nd year you answered the roll call of this Convention as an official delegate. For over 50 years you have served loyally as Secretary of the Union County Board of Agriculture. For decades you have guided the affairs of other active farm, civic and school associations demonstrating both a rare capacity and loyalty.

In addition, through the seeds and scions of better plants, your name is imprinted upon the agriculture of our State. Your skill and perseverance have made possible improved varieties of vegetables, fruits and flowers that have enriched our harvests and brought renown to you.

We are proud to honor you as an outstanding farmer, mindful of the countless hours you have devoted to the welfare of your fellow citizens, and confident that your enthusiasm will continue undiminished for many years.

We congratulate you and it is fitting that we pause in the proceedings of this Convention to pay tribute to your notable career by presenting this CITATION FOR DISTINGUISHED SERVICE TO NEW JERSEY AGRICULTURE.

### CITATION OF EDGAR O. MURPHY

You have received many well-earned honors from your colleagues in the field of banking. However, your zeal for service has known no boundaries and, fortunately, those engaged in agriculture, particularly in Monmouth County, have enjoyed a rich bounty of your good works.

Recognizing that sound credit facilities are a prime essential in modern agriculture and endowed with a sympathetic understanding of farm people, you have guided many farm families to success and prosperity through prudent husbandry of their resources.

Your faith in your fellow men has been vindicated repeatedly because you always rated high such assets as the character and ability of your clients. Today they count you as a loyal friend, thus refuting the age-old axiom that "lending dulls the edge of husbandry."

Truly an outstanding rural citizen, you have answered countless calls to serve your county and particularly in your home community where for 40 years you were honored with the office of Mayor. With the same enthusiasm you have devoted your talents to advancing the cause of youth, school and welfare organizations.

These are but a few of the valuable contributions you have made to the welfare of so many New Jersey farmers for which the State Board of Agriculture commends you and confers on you this CITATION FOR DISTINGUISHED SERVICE TO NEW JERSEY AGRICULTURE.

### CITATION OF LESLIE RICHARDS

New Jersey is proud to acknowledge you as one of the outstanding sons of her soil. You have combined a long and fruitful career on the land with another of even greater significance, in the more exacting realm of public service.

You have responded to countless calls from fellow farmers and farm agencies seeking your valued counsel and guidance. To such tasks and deliberations you always contributed sound judgment, a genuine affection for all men, an uncompromising zeal for fair play, and blended with these, a full measure of your pleasantries and warm humor.

Agriculture in New Jersey, as well as in Gloucester County, is richer and has attained a fuller measure of proficiency because of your devotion to the betterment of rural life. Mindful of tomorrow, you have spared no effort to rebuild and preserve our soil. Your sympathetic understanding has inspired many young farmers to attain their goals while others have been guided through critical adjustments by your practical and helpful advice.

You have been honored for your performance in many important posts and continue to win commendation for the able administration of your County government.

We pay tribute to you by presenting this CITATION FOR DISTINGUISHED SERVICE TO NEW JERSEY AGRICULTURE pointing with pride to your recent term of service as a member of this Board.

### CITATION OF ASHER B. WADDINGTON

As you relax in your well-earned retirement, New Jersey dairymen, particularly those in the southern counties, acknowledge their indebtedness to you for your lifetime of devoted service to the betterment of that industry.

You were one of the pioneers to whose vision and tireless efforts so much is owed for the recognition New Jersey dairymen enjoy today and the efficient association which now speaks for them.

Besides carrying on your own extensive farm enterprise you devoted countless hours to conferences and weary travel, never shirking any task which might aid in building a stronger voice for those seeking better markets for their milk. You early embraced the cause of cooperative effort; you were one of the first to sponsor the Agricultural Entension Service and to demonstrate newer methods and practices.

Year after year, you have demonstrated the true concepts of your faith as a Friend, ever modest, unassuming and striving always to advance the welfare of others, particularly our rural people. You are respected for having the courage of your convictions, never compromising when a principle is at stake.

In the presence of these official delegates we commend you and award to you this CITATION FOR DISTINGUISHED SERVICE TO NEW JERSEY AGRICULTURE.

## REPORT OF THE COMMITTEE ON RESOLUTIONS

The following resolutions, presented by Clarence H. Steelman and reported favorably by the committee, were adopted by the State Agricultural Convention:

WHEREAS, A new chief executive of the State of New Jersey has this month been inaugurated into his high office; and

WHEREAS, He has publicly expressed his keen interest in our great agricultural industry and his cognizance of its vital relationship to the economy of the State; now therefore, be it

*Resolved*, That this body of official agricultural delegates assembled in 39th annual session, salute His Excellency, Governor Robert B. Meyner, extending cordial best wishes as he assumes the serious and manifold duties encumbent upon the chief executive of this sovereign State, confident that he will lend vital support to the continued progress of the agricultural industry which has brought fame and wealth to the Garden State; and be it further

*Resolved*, That a copy of this felicitation be forwarded to Governor Meyner.

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WHEREAS, Since assuming the post of head of the New Jersey State Police two years ago, Col. Russell A. Snook has not only maintained but further advanced the high esteem with which his organization is regarded, most particularly among the rural people in whose interests and for whose protection it was primarily formed; and

WHEREAS, He has exemplified to all the men of his organization the qualities of leadership, integrity, fidelity and high ideals which make the New Jersey State Police a world-famous police unit of which we especially are justly proud; now therefore, be it

*Resolved*, That this Agricultural Convention pay tribute to Colonel Snook for his able leadership and his willingness at all times to be of service in meeting the needs of the rural communities, recognizing that his cooperation has been freely given in spite of constantly increasing demands on him and his men in other fields of police activity; and be it further

*Resolved*, That we forward a copy of this resolution to our good friend, Colonel Snook, and to Governor Robert B. Meyner.

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*Resolved*, That this delegate body of the annual Agricultural Convention express its deep appreciation to our esteemed and able Secretary of Agriculture, Willard H. Allen, who has given unselfishly of his time and effort to promote the agriculture of this State, and whose example and leadership have inspired all his associates in the Department of Agriculture with an earnest desire to carry to full completion all the many phases of departmental activities, and be it further

*Resolved*, That we extend to him and the General Committee for Farmers Week our sincere thanks for their successful efforts in again developing what has become the most important annual event in agricultural circles; and be it further

*Resolved*, That a copy of our expression of appreciation be forwarded to His Excellency, Governor Robert B. Meyner, in whose cabinet Secretary Allen is a valued member.

*Resolved,* That the 39th Annual Convention of Agricultural Delegates join with the New Jersey State Grange and the New Jersey Farm Bureau in endorsing the requests of the Board of Trustees of Rutgers University, the State University of New Jersey, for sufficient funds to enlarge and modernize the long inadequate facilities of the present Horticulture and Poultry buildings at the Agricultural College; and be it further

*Resolved,* That we formally acquaint the Governor and the Legislature of our strong desire to have these important facilities improved to a state commensurate with the importance of these segments in our agricultural industry by forwarding copies of this resolution to Governor Meyner, to the members of the Legislature, to Dr. Lewis Webster Jones, president of Rutgers University, and to Dr. William H. Martin, dean of the College of Agriculture.

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*Resolved,* That this 39th Annual Agricultural Convention reaffirm the resolution unanimously adopted by the Agricultural Convention of 1953 urging that farmers have equal representation with sportsmen on the New Jersey Fish and Game Council, and that we here join with the New Jersey Farm Bureau and the New Jersey State Grange in support of similar resolutions which these organizations adopted at their annual conventions in November 1953 and December 1953, respectively; and be it further

*Resolved,* That copies of this resolution be forwarded to Gov. Robert B. Meyner and to all members of the New Jersey Legislature.

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WHEREAS, The agricultural interests of New Jersey, Delaware and Maryland united in staging the first New Jersey Mid-Atlantic Farm Show in Atlantic City in December 1953, which met an enthusiastic response on the part of both rural and urban people, and

WHEREAS, We recognize that the continuance of such an exposition will fill a real need in publicizing the importance of agriculture in the tri-state area and in promoting the agricultural welfare of the region; therefore, be it

*Resolved,* That this convention go on record as strongly favoring the continuation of this new Farm Show, confident that its growth and value will increase to the benefit of agriculture and industry and the economy of the area as a whole.

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WHEREAS, Since our last assemblage Providence has taken from our midst Henry W. Jeffers, a true pioneer in progressive agriculture, who was beloved and revered by his host of friends, nationally known for his great achievements, a guiding force in creating the agricultural laws under which our State Board of Agriculture, our Department of Agriculture and this very convention function so efficiently, and who so faithfully served on the State Board for eleven years, from 1916 to 1927, as its vice-president; and

WHEREAS, In the passing of James C. Ewart we have lost a man who for so many years was a leader in the State's potato industry and thus contributed to the great advances made in this field, and who was also a member of the State Board of Agriculture from 1937 to 1941, serving one year as its president; and

WHEREAS, The death of C. N. Warner has also taken another of our early State Board members who, in his four years on the Board from 1921 to 1925, devoted much time along with his colleagues to building toward our present-day accomplishments; and

WHEREAS, The recent demise of Prof. Willard C. Thompson, long the directing head of the poultry department at Rutgers University, has brought to a close a long and successful career as a willing teacher, able administrator and wise counsellor, especially to so many young men who viewed agriculture as a desirable way of life; now therefore, be it

*Resolved,* That we delegates assembled in this 39th Agricultural Convention pause here for a moment of respectful silence to the memory of these associates and others who are no longer among us; and be it further

*Resolved,* That the action of this body and its genuine sympathy be expressed to the bereaved families by forwarding copies of this resolution to them.