

STATE OF NEW JERSEY
DEPARTMENT OF AGRICULTURE
WILLIAM B. DURYEE, *Secretary*

Thirteenth Annual Report

OF THE

New Jersey
State Department of Agriculture
1927-1928

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November 20, 1928.

HON. A. HARRY MOORE,
GOVERNOR OF NEW JERSEY,
STATE HOUSE.

Sir:

I have the honor to submit herewith the report of the New Jersey Department of Agriculture for the fiscal year ended June 30, 1928.

Respectfully,

(Signed) WILLIAM B. DURYEE.

Thirteenth Annual Report of the **New Jersey State Department** **of Agriculture**

REPORT OF THE SECRETARY

WILLIAM B. DURYEE

The continued development of the New Jersey Department of Agriculture is recorded in this thirteenth annual report. The following report consists of three main divisions, each relating to special fields coming within the province of the Department; namely, first the condition of agriculture in New Jersey; second, the results of activities for the promotion of better rural conditions in the state; and third, some outstanding developments in the department functions laid down by law. This is followed by a complete report from each of the bureaus, covering in detail the progress made during the last fiscal year.

The Condition of Agriculture

Since the fiscal year ends in the middle of the growing season, the general agricultural situation is given for the growing season to September 1, 1928.

Most crops show an increase in acreage planted this year compared with 1927. White potatoes, sweet potatoes, sweet corn and strawberries show large increases ranging from 400 acres to 1,000 acres, while hay, tomatoes for manufacture, snap beans and asparagus were considerably increased in acreage. Of the major crops, oats and cantaloupes are the only ones showing a decrease as compared with 1927.

Despite increased acreages, the production of several crops shows no increased yields over last year and in many cases is below the figure for 1927 season. This condition is largely due to unfavorable weather conditions. Among the grains, both corn and oats show a decrease of approximately one-half million bushels.

Hay also shows a decrease of 50,000 tons. Among the fruits, apples show an increase over 1927 but the peach crop was slightly below that of last year. Very poor weather during the ripening season caused a decrease in the production of both market and canhouse tomatoes. Sweet corn, peppers, snap beans, lima beans, strawberries and cantaloupes show a materially increased yield over 1927, with cabbage and asparagus showing slight decrease.

The price received per unit of production is of equal importance to yield in arriving at a general result of the farmer's income. Grain prices are higher than last year, while hay is slightly below that of 1927. White potato prices are the lowest for thirteen years, being approximately 25 cents per bushel below last year. Early apples moved at good figures but peaches were considerably lower than in 1927. Market tomatoes, sweet corn, peppers, lima beans, strawberries and cantaloupes were sold at better prices than last year, while string beans and onions are lower, with cabbage at approximately the same price as in 1927. Comparing egg and milk prices to date, we find that eggs averaged 35 cents per dozen in 1927 and 39 cents in 1928. Milk prices averaged \$2.75 per hundred pounds last year, while this season they have averaged \$2.73.

The following table shows the estimated acreage, production and farm prices of farm products in New Jersey as of September 1, 1928, compared with the final estimate of 1927:

	<i>Acreage</i>		<i>Production</i>		<i>Price</i>	
	<i>1927</i>	<i>1928</i>	<i>1927</i>	<i>1928</i>	<i>1927</i>	<i>1928</i>
Corn for Grain (bu.).....	179,000	183,000	7,160,000	6,939,000	\$0.85	\$1.09
Oats (bu.)	49,000	46,000	1,764,000	1,381,000	0.53	0.63
White Potatoes (bu.).....	57,000	58,000	9,177,000	8,978,000	1.10	0.83
Sweet Potatoes (bu.).....	15,000	16,000	1,890,000	2,227,000	1.20	1.79
Hay (ton)	257,000	265,000	461,000	414,000	17.50	16.74
Apples, total (bu.).....	.....	.....	2,697,000	2,914,000	1.45	2.06
Peaches (bu.) .....	.....	.....	2,304,000	1,690,000	1.50	1.02
Tomatoes for mfr. (tons)..	28,000	33,000	156,000	150,150	18.00	...
Tomatoes for mkt. (bu.)..	11,400	11,600	2,508,000	2,030,000	1.10	2.88
Sweet Corn (100 ears)....	18,000	18,500	954,000	1,151,625	2.15	2.63
Peppers (bu.)	7,000	7,140	1,680,000	1,713,600	0.75	1.13
Snap Beans (bu.).....	11,300	12,000	1,469,000	1,566,000	1.45	1.31
Lima Beans (bu.).....	3,000	3,100	285,000	294,500	1.70	2.42
Strawberries (crt. 32 qts.).	6,600	7,000	462,000	476,000	3.80	3.94
Asparagus (crt. 24 bchs.)..	10,500	11,000	441,000	429,000	5.60	3.03
Cantaloupes (crates).....	4,000	3,600	440,000	596,160	0.75	1.07
Cabbage (bu.)	6,600	6,800	1,848,000	1,632,000	0.73	0.72
Onions (bu.)	2,900	2,750	696,000	710,875	1.25	1.06
Milk (per 100 lbs.).....	.....	.....	.....	.....	2.75*	2.73
Eggs (per dozen).....	.....	.....	.....	.....	.35*	.39

*Average to September 1, only.

Two factors have been especially prominent this year in bringing about the present conditions. One of these has been decidedly unfavorable weather conditions, with the very backward spring due to cold and rainy weather, and continued excessive rains throughout the growing season. Another important factor has been the great increase in production of important commodities throughout the country, which has caused severe competition in eastern markets and has depressed prices far below normal. For example, the estimated production of peaches in the country as a whole was placed at 66,752,000 bushels, compared with 45,463,000 bushels last year.

Georgia, always famous for its production of peaches, had approximately double the yield of last year; North Carolina showed an increase of nearly 1,000,000 bushels; with both New York and Pennsylvania showing considerable increases. New Jersey growers suffered severely from this large crop, due to the fact that it was late in being shipped from the southern states and a large portion of the crop was moved in competition with shipments from these states. The weather also made the condition and quality of the crop poor, which, combined with increased competition, caused a decline in the average price for the season of approximately fifty cents per bushel.

In the case of white potatoes, we find a similar condition. Considerable loss was occasioned by rotting in fields as a result of prolonged rains, and although the production was below that of last year and for the five-year average in New Jersey, prices have been the lowest since 1915. This situation was caused to a large extent by the enormous crop reported over the country as a whole, the total production being the largest crop ever produced. Furthermore, the wet and cold spring weather handicapped the potato grower further by delaying shipments from the southern Atlantic seaboard. Coupled with late shipments, the situation was further complicated by an increased production of potatoes in Florida and South and North Carolina by approximately 3,500,000 bushels. Virginia showed practically no increase but suffered in much the same manner as New Jersey. These conditions applied to many other crops and have been factors in a disappointing season for New Jersey farmers.

Our farmers buy large quantities of raw materials for application to the soil and for feeding purposes. Here again the New

Jersey farmer was penalized by higher costs. The average price of all fertilizer materials was 5 per cent higher in 1928 than in the same period of 1927. Since New Jersey farmers used approximately \$8,500,000 worth of fertilizing materials, this increase in cost per unit was an unfavorable factor.

The dairymen, poultrymen and general farmers in the state buy approximately \$14,000,000 worth of feeds during the year. The average price of all feed stuffs was 11 per cent higher than the corresponding period of 1927. The average price of all brans was 10 per cent higher than in 1927; middlings 8 per cent higher, and cottonseed meal 28 per cent higher than last year.

One factor which has contributed to slightly lower costs of production is the fact that the wages of a farm laborer were on the whole about 5 per cent lower during this year as compared with the same period of 1927.

Practically all branches of our widely diversified agriculture were adversely affected by lower prices for the finished product and higher average costs of production.

The Results of Activities For the Promotion of Better Rural Conditions in the State

The great industrial growth of the state during the past few years and the coming era of much greater development should be beneficial to agriculture in the state rather than detrimental. Stress should be laid upon making our farms desirable places upon which to live, utilizing the combined resources of the state for improving the lot of all classes of our citizenship.

A program of rural electrification was initiated by the Department last year, using as a basis the light and power lines that reach from one industrial center to another. Progress has been made in that project this year by the employment of a qualified electrical engineer and by increased interest on the part of all utility companies in the rural field. At the suggestion of the Department, the engineer, experienced in similar work in the west, was stationed at the Agricultural College in New Brunswick, where contact could be had with extension forces and engineering laboratories. This project is financed in large part by the utility companies and is directed by a committee composed predominantly of farm leaders. Farms have been selected in all parts of the state where demon-

strations are conducted in the use of electricity as applied to farm operations. This project has served to bring together the utility companies and farmers who need electric power and light and the sound development of rural electrification is assured.

Township Roads

The great increase in the number of automobiles and trucks on farms has brought with it the problem of improving the township road. In a large majority of townships, the roads under the supervision of the local committee are being given the same treatment that they received when horses comprised the motive power for both passengers and farm products. It is now recognized that these methods are antiquated and there is an insistent demand for some better method of township road maintenance so that these may serve as feeders to the main stem highway system. Investigation in this matter by the Department has shown that there are 891 miles of state highways, 3,340 miles of county highways, 3,708 miles of borough roads and 11,597 miles of township roads, of which 8,576 miles are unimproved.

It was shown further that of the 29,671 farms in the state, 10,310 are on unimproved dirt roads, a large percentage of which are impassable for motor vehicles during certain seasons of the year. It was also shown that the imposing sum of approximately \$4,000,000 is being expended annually on these township roads from township funds alone. With this heavy expenditure annually and the general dissatisfaction existing in regard to their condition, it is evident that present methods of maintenance are inadequate. The Department sees this as a rural problem and has endeavored to secure the interest and assistance of agencies already existing which could help in its solution.

An informal committee was organized to take this matter under consideration and endeavor to evolve some constructive plan and a definite program of improvement. The committee, which is still at work, comprises a representative of the State Highway Department, the Bureau of Public Roads of the United States Department of Agriculture, the Association of County Boards of Freeholders, the farm organizations and several township committee men interested in the problem. A great deal of work has been done by the committee in session and by individuals between the sessions.

The problem has two principal phases, one being that of proper organization to consistently develop a program of secondary road improvement; and second, the financing of such improvement. Many suggestions have been made relative to both phases but as yet no definite procedure has received general acceptance by the committee.

The federal department has recognized the work of this committee by offering to contribute a considerable sum of money to be used in making a survey of our township roads and in laying out a long time program for their improvement, such as is now being applied to the main stem highway problem. It is expected that the committee will soon present definite recommendations which will then be placed before the legislature and the citizens of the state for their consideration and action.

The Business Men's Conference

An important step was taken on June 5, when a conference of business men of the state was called by Governor Moore for the purpose of considering the agricultural situation in New Jersey. This conference was attended by some thirty representatives of outstanding industrial and urban organizations, including the New Jersey State Chamber of Commerce, the New Jersey State Bankers Association, the New Jersey Federation of Women's Clubs, the State Association of Real Estate Boards, Rotary and Kiwanis Clubs and farm organizations. The program was prepared by the Department at Governor Moore's request.

The purpose of the conference was stated by the Governor as a desire to place before business, industrial and general urban interests the importance of agriculture as a state asset and to secure their interest in every means of aiding agriculture in the state. With the predominance of such interests in New Jersey, their cooperation is essential in certain phases of the farm problem. Among the subjects discussed were rural electrification, township roads, rural taxation, the problem of our abandoned farms, the establishment of public markets, and acquainting the urban population with the state's food production activities and problems.

The Governor was requested by the Conference to appoint an executive committee to work on these projects with the Secretary and to report to the general conference later as to their recommendations. This conference, so far as we know, is the first of its

kind in the country and resulted in a practical interest and helpful attitude, as well as a better understanding of the farmer's situation by those in other lines of endeavor.

Activities of Commodity Groups

The Department has sponsored the formation of commodity groups of councils which have been concerned with the problems of production and distribution of important state products. These groups have met under the general supervision of the Bureau of Markets and have functioned successfully during the year.

About two years ago, a number of representatives of the dairy industry were invited to form an advisory council. These comprised leading producers, important distributors in the metropolitan area, representatives of the College of Agriculture and of producers' organizations, who proceeded to tackle the very difficult problem of better milk production and marketing within the state. A detailed statement is given in the report of the Bureau of Markets. Great interest has been shown in this work and the committee is now known as the New Jersey Milk Conference Board. With an enlarged field of service it is destined to make important contributions to this highly important industry.

Somewhat the same history applies to the Poultry Advisory Committee, which also was representative of all phases of the poultry industry in the state, and which has been a great factor in developing sentiment toward a better and more stable poultry industry. The work of this committee in New Jersey has received national recognition and similar committees in other states have been formed. This committee is now known as the New Jersey Poultry Council, with an enlarged program and offering a point of concentration for all interests concerned with poultry husbandry.

The Potato Improvement Committee, representing producers and dealers, as well as scientists in potato production and marketing, has had many activities, one of which included the recommendation for the establishment of a branch office of the Bureau of Markets at Hightstown, whence daily reports of potato prices and general market conditions were sent to all important potato producing sections of the state during the past season.

Agricultural Week

This annual event was held in Trenton the second week in

January and attracted a greater number of visitors than at any time since its inception. By actual count, over ten thousand people visited the Farm Products and Equipment Show at the armory, and fourteen organizations held well attended meetings in all parts of the city. Thirty-five outstanding firms exhibited the latest labor-saving machinery and standard devices for the farm and farm home in conjunction with an excellent farm products show, which the delegates from every county in New Jersey voted the best show ever held during Agricultural Week. This annual agricultural event seems destined to assume an even larger place in the agricultural life of the state and the problem of securing sufficient housing facilities for the meetings and exhibits is becoming apparent.

Licensing and Bonding of Milk Dealers

Under Chapter 74, Laws of 1917, it is provided that all dealers who purchase milk or cream from producers are required to make application to the Secretary of Agriculture on or before June 1 of each fiscal year for a license. During the last fiscal year, licenses were issued to 256 milk dealers and surety bonds were filed to the amount of \$157,000.

In addition to enforcement of the provisions of the Act, the Department has used its good offices in effecting a number of settlements without recourse to law. This method of procedure has not only protected milk producers and buyers from dishonest competition but has also helped to stabilize the milk industry in the state. Existence of the Act and its purposes are now better known than ever before and consequently compliance with it is much more complete. A record of the necessary court actions during the year are on file in the Department offices.

Attention is directed to the reports of the bureau chiefs which follow. Certain developments are mentioned here as deserving of special attention.

Tuberculosis Eradication

Outstanding progress has been made during the past fiscal year in the campaign against bovine tuberculosis. At the close of the fiscal year ended June 30, 1927, there were 4,074 herds, comprising 45,974 animals, under supervision. At the close of the fiscal year ended June 30, 1928, there were 8,179 herds, comprising

66,851 animals, an increase of 100.76 per cent in the number of herds and 45.41 per cent in the number of animals.

This doubling of the number of herds under supervision has added to the problem of making tests regularly and maintaining the herds on a healthy basis. It should be pointed out that this great increase in the number of tests has been carried on by the Bureau of Animal Industry with but slight increase in the cost of operation through increased efficiency.

During the past year, 83,778 cattle were tested, with 7,026 reactors. The total amount paid to herd owners for reactors subject to indemnity was \$658,982.76, or an average of \$99.32 per head. This is the largest amount, in total and per animal, paid in the history of the Department, and is accounted for largely by the increased receipts from the salvaged reactors, which are slaughtered under regular federal inspection.

Insect Control

The three insects infestations which are causing greatest concern are the Japanese beetle, the gipsy moth and the corn borer. The last-named is now established in small colonies within the state. Quarantine and control are being directed and financed by the United States Department of Agriculture, and strong efforts are being made to keep it from getting established in the corn growing areas of the state.

Noteworthy progress has been made in the extermination of the gipsy moth. After careful scouting of the areas where the insect has been in existence, only 70 egg masses were found during the year, as compared with approximately 3,000,000 eight years ago. As a result of the effectiveness of this work, the area under quarantine has been materially reduced and a smaller appropriation requested for its control during the coming year. The infested area will be carefully watched and spraying operations continued where deemed necessary. The importations of products from points in New England which may be infested are being carefully inspected by Department representatives to prevent new infestations. During the fiscal year, for example, 9,478 Christmas trees were inspected for gipsy moth in 33 localities as a part of this inspection program.

The Japanese beetle continues to menace the vegetation of nearly all kinds in the state. Several areas previously lightly in-

festes were visited by swarms of the insects this year, and control by spraying was necessary to save trees and plants from their depredations. Two phases of the work should be mentioned as especially important. Five species of parasites are now well established and from these colonies transplantations are being made from established colonies to other points in the area. The fact that the Japanese beetle is of minor importance in its native haunts, due to the activities of its parasites, demonstrates that eventual control in this country must come largely from this source. In order to protect the shade trees and ornamental plants in cities and towns in the heavily infested areas, a campaign of suppression was carried on this year with the cooperation of municipal authorities in eleven cities and towns. The vegetation was thoroughly sprayed by experienced crews of men with the result of complete protection to the foliage and the destruction of thousands of the insects, thus reducing the number of breeders. Quarantine measures have been in effect as during the previous year and inspection and certification of products for shipment outside the area has been continued. Some idea of the extent of this work is gained from the knowledge that in this state more than 25,000,000 plants, about 6,700 carloads of sand and soil, 41,575 bales of hay and approximately 1,800,000 packages of farm products have been shipped under such certification. All of this work is made possible by appropriations by the state, together with federal funds, in the campaign against the Japanese beetle.

Public Markets

The establishment of public auction markets and the continued growth of city markets has been noted during the year. Auction markets established in centers of production attract large numbers of buyers from nearby consuming centers, thus affording direct contact between the producers and the distributors of all classes of commodities. This feature of the work in marketing is proving highly successful, bringing better net returns to the growers and benefiting the consumers by shortening the road to the table, resulting in greater freshness and economy. This phase of the work is gaining wide recognition and support and its further development is certain in the immediate future with increasing benefit to all our citizens.

Cooperation

There is increasing evidence of cooperation among the state agricultural agencies, including the state-supported College and Experiment Station, and the farmer-supported organizations, the State Grange and the State Federation of County Boards of Agriculture, all of which have important fields of work in New Jersey. We acknowledge the cooperation and assistance of all of these agencies and pledge the continued assistance on our part in a broad program of development. The interest and support of the Governor and the legislature have been far more than perfunctory and acknowledgment is made to the executive and legislative branches of the state government for their interest in the welfare of agriculture and the development of the agricultural resources of New Jersey.

The cooperative spirit of county agricultural agents is noteworthy as an essential factor in progress. County Boards of Agriculture and the Granges have welcomed opportunities for the discussion of agricultural topics relating to the Department's work.

Tribute is due to the Chiefs of Bureaus and all the Department personnel who have worked constructively to the end that the whole organization might contribute to our service to the state. The State Board of Agriculture has met at stated intervals, developing policies for the guidance of our efforts.

Publications

The following circulars were issued during the year:

115. What Is This Standardization?
116. Facts About Bovine Tuberculosis.
117. Tomatoes: Acreage, Production, Carlot Shipments, etc., in New Jersey and Nearby Competing States.
118. Lettuce: Acreage, Production, etc.
119. Spinach: Acreage, Production, etc.
120. Celery: Acreage, Production, etc.
121. Onions: Acreage, Production, etc.
122. Sweet Potatoes: Acreage, Production, etc.
123. String or Snap Beans: Acreage, Production, etc.
124. Asparagus: Acreage, Production, etc.
125. Cucumbers: Acreage, Production, etc.
126. Cantaloupes: Acreage, Production, etc.

127. Results of Seventh Year's Work Against the Gipsy Moth in New Jersey.
128. Standardization as an Aid to Better Marketing in New Jersey.
129. Department of Agriculture Laws.
130. The Poultry and Egg Industry in New Jersey.
131. Bovine Tuberculosis: Progress in Its Eradication.
132. Prices of New Jersey Farm Products.
133. Some Ornamental Trees and Shrubs Practically Free from Japanese Beetle Attacks.
134. Some Garden Ornamentals Practically Unharmed by Japanese Beetle Attacks.
135. Official List of N. J. Certified, Certified-Accredited, Certified Record of Performance of Breeding Flocks.
136. Some Farm Crops Practically Free from Japanese Beetle Attacks.
137. Insects Captured in Five New Jersey Lookout Stations in 1927.
138. A Revised Annotated List of Dermaptera and Orthoptera of New Jersey.
139. County Boards of Agriculture, Granges, and State Agricultural Organizations.
140. Questions and Answers on the Japanese Beetle.
141. A Study of Permanent Dairy Pastures in New Jersey.
142. A Silicated of Pyrethrum Soap.
143. Green Lead Arsenate (Spray for Japanese Beetles).
144. Population, Industry and Agriculture in New Jersey.
145. Phyllophaga (Scarabaeidae) of the United States and Canada.
146. Information Concerning Japanese Beetle Traps.
147. Requirements and Rules for the Inspection and Certification of New Jersey Second Crop Seed Potatoes as Adopted by the New Jersey State Potato Association and the New Jersey State Department of Agriculture for 1928.
148. A Statistical Study of Egg Marketing.
149. Proceedings of New Jersey Business Men's Conference on Agriculture.

REPORT OF THE BUREAU OF ANIMAL INDUSTRY

DR. J. H. McNEIL, *Chief*

SWINE DISEASE CONTROL

Few changes have been made in the method of control of swine diseases. The accepted plan of vaccinating all animals within a given area with serum and virus acts as an efficient preventative measure. However, it is not always possible to have hog owners carry out this plan twice a year. If outbreaks of cholera occur, the owners then become very active but many times it is too late to avoid losses.

The practice of using both serum and virus even in outbreaks is recommended. The dose of serum should be increased about fifty per cent, over the present quantity. By this method a lasting immunity is conferred on those surviving the double treatment and even in badly infected herds from seventy to eighty per cent will survive. If serum alone is used in outbreaks a low grade immunity is conferred and the animals may die later if exposed to infection or because of the existence of the disease in a chronic form be unprofitable feeders.

We recommend that all previously treated animals be subjected to treatment at least once annually and that the untreated pigs should be inoculated in the Spring and Fall. This work is carried out by Bureau representatives either upon application made by the owner direct to the Bureau or through the agency of the county boards of agriculture.

During the past year there has been considerable activity on the part of farmers to move animals to areas outside of the state. For such shipments the double treatment is required before the animals are moved inter-state. We have advised owners not to purchase animals from sale yards unless they have certificates indicating that they have been properly double treated.

Hog owners are also advised to practice sanitation and quarantine all recently purchased animals for a reasonable length of time in order to insure against the introduction of contagious or infectious diseases.

STATE DEPARTMENT OF AGRICULTURE

HOG CHOLERA INOCULATION

Summary by Months

Treated by Bureau and Private Veterinarians—July, 1927-June, 1928

	<i>Bureau Veterinarians</i>		<i>Private Veterinarians</i>	
	<i>Single</i>	<i>Double</i>	<i>Single</i>	<i>Double</i>
July .....	...	729	...	987
August .....	...	278	31	3226
September	308	2135	261	1587
October .....	...	400	278	3332
November .....	...	842	149	2930
December .....	...	494	175	696
January	6	15	18	1305
February .....	...	255	61	879
March	11	224	100	584
April	4	1025	83	609
May	58	1397	119	1056
June .....	...	1781	11	1525
Totals	387	9575	1286	18716
Total Single		1,673		
Total Double		28,291		
GRAND TOTAL		29,964		

HOG CHOLERA INOCULATION

Summary by Counties

Treated by Bureau and Private Veterinarians—July, 1927-June, 1928

	<i>Bureau Veterinarians</i>		<i>Private Veterinarians</i>	
	<i>Single</i>	<i>Double</i>	<i>Single</i>	<i>Double</i>
Atlantic	291	2164	...	...
Bergen .....	...	...	...	...
Burlington	8	371	...	48
Camden .....	...	237	12	3098
Cape May	4	1086	6	497
Cumberland .....	...	601	14	248
Essex .....	...	194	5	72
Gloucester .....	...	829	439	9893
Hudson .....	...	...	...	...
Hunterdon .....	...	305	1	578
Mercer	10	599	248	423
Middlesex .....	...	60	5	163
Monmouth .....	...	1993	152	450
Morris .....	...	61	67	228
Ocean	7	584	...	...
Passaic .....	...	...	56	278
Salem	67	400	247	690
Somerset .....	...	...	4	97
Sussex .....	...	...	...	1037
Union .....	...	91	...	360
Warren .....	...	...	30	56
Totals	387	9575	1286	18716
Total Single		1,673		
Total Double		28,291		
GRAND TOTAL		29,964		

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HOG CHOLERA INOCULATION

Comparison of Summaries 1923-1928

<i>Treated by Bureau Veterinarians</i>	<i>1923-1924</i>	<i>1924-1925</i>	<i>1925-1926</i>	<i>1926-1927</i>	<i>1927-1928</i>
Double	3,461	3,468	4,503	8,931	9,575
Single	215	121	527	624	387
	<u>3,676</u>	<u>3,589</u>	<u>5,030</u>	<u>9,555</u>	<u>9,962</u>
 <i>Treated by Private Veterinarians</i>					
Double	7,236	6,138	7,324	13,305	18,716
Single	810	604	561	1,392	1,286
	<u>8,046</u>	<u>6,742</u>	<u>7,885</u>	<u>14,697</u>	<u>20,002</u>
 <i>Totals</i>					
Double	10,697	9,606	11,827	22,236	28,291
Single	1,025	725	1,088	2,016	1,673
	<u>11,722</u>	<u>10,331</u>	<u>12,915</u>	<u>24,252</u>	<u>29,964</u>

STALLION REGISTRATION

The number of stallions eligible for registration in the state is gradually decreasing. Aside from those in service at the several farms where trotting and running horses are bred there are very few in service. The total number registered during this fiscal year was ten.

The increased mileage of hard roads and the large number of trucks and tractors available now makes it unprofitable to maintain a large number of horses or mules on the ordinary New Jersey farm and we are advised that they are able to purchase a sufficient number of western horses at a price far below what it would cost them to breed and raise them on the farm.

STALLION REGISTRATION

<i>Breed</i>	<i>1924</i>	<i>1925</i>	<i>1926</i>	<i>1927</i>	<i>1928</i>
Percheron (Registered)	18	11	11	8	6
Standardbred (Registered)	5	2	2	2	2
Clydesdale (Registered)	2	1	1	..	..
Belgian (Registered) .....	..	..	..	..	..
Suffolk (Registered)	1	..	..	..	..
Thoroughbred (Registered)	3	2	3	2	..
German Coach (Registered)	1	..	..	..	..
Arabian (Registered) .....	..	1	..	1	1
Jacks (Registered)	2	1	1	1	..
Standardbred (Non-registered)	3	..	..	..	..
Suffolk (Non-registered)	1	..	..	..	..
German Coach (Non-registered) .....	..	..	..	..	..
Jacks (Non-registered)	2	..	2	2	..
*Grade Drafts	12	7	8	6	1
Totals	50	25	28	22	10

*Includes grade Percherons, Belgians and Clydesdales.

STALLION REGISTRATION BY COUNTIES

<i>County</i>	<i>1924</i>	<i>1925</i>	<i>1926</i>	<i>1927</i>	<i>1928</i>
Burlington	4	2	3	5	1
Camden	2	..	..	..	2
Cumberland	3	2	2	1	..
Hunterdon	12	8	9	7	2
Mercer	1	1	..	..	1
Middlesex	3	2	1	2	2
Monmouth	5	3	2	2	..
Morris	4	..	..	1	..
Salem	3	2	2	..	..
Somerset	3	2	3	2	1
Sussex	3	..	..	..	..
Warren	7	3	5	2	1
Totals	50	25	28	22	10

GLANDERS

We have received report of but one positive case of glanders during the fiscal year. The animal was immediately removed from the premises and destroyed by incineration.

The horses used in traffic between New Jersey and New York were tested this year as usual in order to comply with New York City regulations. This work is done by private practitioners under Bureau authorization.

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GLANDERS—1927-1928

	<i>Negative</i>	<i>Positive</i>
July	47	..
August	7	..
September	12	..
October	20	..
November	6	..
December	17	..
January	26	..
February	4	..
March	52	..
April	88	..
May	37	..
June	250	1
Totals	566	1

GLANDERS—1927-1928

Comparison of Summaries—1923-1928

	1923-1924	1924-1925	1925-1926	1926-1927	1927-1928
Negative	454	174	169	131	566
Positive	2	1	..	..	1
Totals	456	175	169	131	567

Following is a comparison of the number of horses tested for glanders, used in traffic between Jersey City and New York for the past five years:

	1923-1924	1924-1925	1925-1926	1926-1927	1927-1928
Negative	2,754	2,435	3,414	3,822	2,785
Positive .....	....	....	....	....	....
Totals	2,754	2,435	3,414	3,822	2,785

ANTHRAX

There is a slight decrease in the total number of cattle and horses given protective inoculation against anthrax during the fiscal year. As no outbreaks were reported previous to nor since this work was conducted no special interest was manifest as indicated by a slight falling off in the number of dairymen submitting their herds to protective inoculation.

ANTHRAX—1927-1928

	<i>Cattle</i>	<i>Horses</i>	<i>Total</i>
1927-1928	1265	74	1339
1926-1927	1413	119	1532
1925-1926	2214	379	2593
1924-1925	726	102	828
1923-1924	497	46	543

POULTRY

The results of the year's poultry inspection of car lots at terminal stations and the field inspections including local poultry establishments, demonstrate the advisability and value of the continuance of this most important work.

The inspection of car lots of poultry at the terminals prevents the release of diseased poultry unless consigned and delivered to recognized slaughtering establishments where they will be slaughtered under supervision. This inspection has a direct influence in discouraging the shipment of diseased poultry from the western and southern states to eastern markets. This protects not only the consumer of poultry in New Jersey but the poultrymen and their flocks in the state where a great many of the rejects were previously disposed of, carrying contagious and parasitic diseases to the native poultry.

If upon inspection, cars are found to contain diseased birds, proper disposition is made of these birds, and the cars, upon being unloaded, are placarded by a representative of the Federal Bureau of Animal Industry and sent to designated stations for cleaning and disinfection before being used again.

During the fall, winter and spring months there is quite a heavy loss of poultry from roup and its complications. When these losses occur, the shippers and the state veterinarian of the state of origin, together with the Federal Bureau of Animal Industry are notified of existing conditions in order that any irregularities at point of origin may be corrected.

During the winter months dealers also ship a large number of geese to Boonton. They are moved to Pine Brook for fattening and later marketed in New York City. Special attention must be given by Bureau representatives to such consignments and later inspection made with regard to sanitation in order to guard against outbreaks of goose septicemia, a very fatal disease which may cause great losses.

During the fiscal year just closing, 8,424 cars were inspected at the terminals representing an average of 4,000 birds to a car or a total of 33,696,000 birds. On the basis of the appropriation made and the number of cars inspected, the cost of inspection per car is less than \$1.

The poultry flocks and hatcheries are inspected by field veterinarians when conducting tuberculin tests of herds of cattle under co-operative state and federal supervision and their investigation has revealed a number of very interesting conditions and demonstrated that avian tuberculosis does exist to a slight extent in the western dairy and grain section of the state, while the poultry raised along the eastern and southern coast sections of New Jersey which are devoted almost exclusively to the raising of poultry on a commercial basis, are, as far as we can determine, free from this disease. This is probably due to the fact that the poultry is marketed at an earlier age than those raised on the grain farms in the dairy section and the disease has not advanced to a point where it can be diagnosed.

Avian tuberculosis is a very serious menace to the poultry industry in the middle, northern and central western states and we hope that the warning given our poultrymen will induce them to pay especial attention to the condition and prevent the further extension of the disease to the flocks of our state, by refraining from importing birds for breeding purposes from affected sections.

There are other diseases both contagious and parasitic that are reported as result of examinations by Bureau representatives. When contagious diseases are suspected and it is possible to do so, affected birds are sent to the New Jersey Bureau of Animal Industry Laboratory for diagnosis and following examination the veterinarians and owners are advised as to the best methods to pursue and control the infection and to correct the sanitary conditions, which may have a direct influence on the spread of the disease in the flock.

Bureau representatives carry out frequent inspections of local poultry establishments in the different sections of the state where live poultry are handled and if the premises are found in an unsanitary condition thorough cleaning and disinfection is ordered and carried out under supervision.

A brief summary of the work accomplished is herewith submitted:

CAR LOTS OF POULTRY RELEASED FROM VARIOUS STATES—JUNE, 1927-JULY, 1928

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Alabama .....	..	..	..	..	14	1	..	4	32	31	27	8	117
Arkansas	21	30	18	1	19	18	22	27	66	32	24	21	299
Colorado	6	3	3	1	1	5	4	8	7	3	3	4	48
Delaware .....	..	..	..	..	..	..	..	..	..	..	..	..	..
Florida .....	..	..	..	..	..	1	..	..	..	..	..	..	1
Georgia	2	6	..	..	1	2	5	10	30	31	33	21	141
Illinois	24	69	103	91	113	70	56	35	31	24	27	40	683
Indiana	62	96	179	158	202	146	95	57	63	46	58	67	1229
Iowa	61	93	83	67	45	30	21	3	6	..	4	24	437
Kansas	21	25	54	24	26	19	45	27	20	13	17	28	319
Kentucky	1	3	5	2	8	8	10	15	38	47	28	10	175
Louisiana .....	..	..	..	..	..	..	..	..	1	..	1	..	2
Manitoba, Canada .....	..	..	..	..	..	..	..	..	..	..	..	..	..
Maryland .....	..	..	1	..	..	..	..	..	..	..	..	..	1
Michigan .....	..	..	5	..	..	..	..	..	..	1	..	..	6
Minnesota .....	..	12	17	27	23	12	10	1	1	..	1	4	117
Mississippi	1	5	1	..	..	4	3	11	20	9	9	4	67
Missouri	102	152	171	90	124	107	99	59	86	74	70	87	1221
Montana .....	..	..	1	..	..	..	..	..	..	..	..	..	1
Nebraska	49	56	76	66	65	54	52	36	42	15	27	39	577
Nevada .....	..	..	1	1	..	..	..	..	..	..	..	..	2
New Jersey .....	..	1	..	1	..	1	..	..	..	1	1	..	5
New Mexico .....	..	..	..	1	..	..	..	..	..	..	..	..	1
New York	1	..	3	1	3	3	1	..	..	..	1	..	13
North Carolina .....	..	4	3	1	5	5	4	10	21	26	37	16	132
North Dakota	1	..	1	3	5	2	1	..	..	..	..	..	13
Ohio	25	25	40	46	87	79	44	14	13	11	13	22	419
Oklahoma	14	33	52	18	27	42	121	99	113	86	45	48	698
Pennsylvania	8	9	23	18	16	15	7	14	8	6	6	2	132
South Carolina .....	..	..	..	..	3	3	..	2	1	4	9	8	30
South Dakota	6	8	18	33	31	22	14	9	11	3	3	10	168
Tennessee	30	50	43	18	44	29	69	104	134	196	135	51	903
Texas	2	2	2	1	..	1	39	51	83	27	22	18	248
Virginia	3	6	5	3	7	2	3	3	3	8	10	5	58
Wisconsin	14	19	26	28	45	17	2	7	158
Wyoming	1	1	1	3
Totals	463	708	934	700	914	698	728	599	830	694	611	545	8424

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Following is a comparison of the number of birds and their approximate weight condemned, commencing August, 1927:

	<i>No. Cars</i>	<i>No. Birds</i>	<i>No. Lbs.</i>
August	3	301	1,204
September	15	2,310	7,103
October	17	1,980	7,457
November	25	3,364	13,201
December	38	9,119	28,028
January	37	9,468	31,633
February	11	2,172	8,470
March	3	261	1,091
April .....	..	...	...
May .....	..	...	...
June	1	735	2,867
Totals	150	29,710	101,054

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

	<i>July</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>June</i>	<i>Total</i>
New Jersey	463	708	934	700	914	698	728	599	830	694	611	545	8,424
New York City	263	806	510	503	479	477	407	338	390	298	296	311	4,578

Following is the number of car lots of poultry released at the various railroad terminals in New Jersey during the past three years:

<i>July 1, 1925—June 30, 1926.</i>	<i>July 1, 1926—June 30, 1927</i>	<i>June 30, 1927—July 1, 1928</i>
8,394	8,569	8,424

The number of car lots of poultry received at the New York City terminals during the past three years follow:

<i>July 1, 1925—June 30, 1926.</i>	<i>July 1, 1926—June 30, 1927</i>	<i>June 30, 1927—July 1, 1928</i>
3,528	4,245	4,578

CAR LOTS OF POULTRY RELEASED AT THE VARIOUS RAILROAD TERMINALS IN NEW JERSEY

July 1, 1927—June 30, 1928

Month	Asb. Pk.	Long Branch	D.L.&W. Newark	C.R.R. N.J.	D.L.&W. J.City	D.L.&W. Passaic	Erie Whkn	Erie Newark	Pa. Eliz.	Pa. J.City	Pa. Newark	D.L.&W. Boonton	Total
July .....	..	..	..	1	183	6	177	26	7	46	17	..	463
August .....	..	..	6	5	274	3	264	22	9	102	23	..	708
September .....	..	..	10	6	341	2	369	36	13	113	44	..	934
October .....	..	..	2	7	267	..	285	24	8	65	42	..	700
November	6	8	4	11	329	..	314	49	11	112	59	11	914
December .....	..	..	4	14	226	..	292	22	9	76	50	5	698
January .....	..	..	7	7	174	..	384	21	10	82	42	1	728
February .....	..	..	1	29	141	..	281	14	8	95	30	..	599
March .....	..	..	4	81	178	..	329	57	9	131	41	..	830
April .....	..	..	2	145	160	..	267	23	8	54	35	..	694
May .....	..	..	4	157	140	..	233	15	8	13	41	..	611
June	1	..	7	83	152	..	228	23	8	12	31	..	545
Totals	7	8	51	546	2,565	11	3,423	332	108	901	455	17	8,424

CAR LOTS OF POULTRY RELEASED AT THE VARIOUS RAILROAD TERMINALS IN NEW JERSEY

July 1, 1926—June 30, 1927

Month	Asb. Pk.	C.R.R. N.J.	D.L.&W. J.City	D.L.&W. Newark	Pa. Eliz.	Erie Whkn	Pa. Newark	Pa. J.City	D.L.&W. Boonton	W.S. Whkn.	J.C. Eliz.	Erie Newark	Pa. L.B.	Pa. A.P.	Total
July.....	4	2	173	38	4	260	19	59	..	..	..	..	..	..	559
August....	5	5	267	53	5	327	25	47	..	..	..	..	..	..	734
September .	9	..	346	77	8	374	36	63	..	..	..	..	..	..	913
October ...	..	4	222	35	5	257	21	29	..	..	..	..	..	..	573
November..	..	10	347	43	9	362	45	119	..	..	..	..	..	..	935
December..	..	14	228	35	7	315	33	101	3	1	..	..	..	..	737
January... ..	..	9	236	36	9	316	27	86	2	..	..	..	..	..	721
February... ..	..	3	190	26	7	276	31	80	..	..	..	..	..	..	613
March....	..	6	178	23	7	239	28	95	..	..	1	..	..	..	577
April.....	..	10	216	31	7	266	39	225	..	..	..	..	..	..	794
May.....	..	2	108	15	6	161	21	104	..	..	..	1	..	..	418
June.....	..	9	339	5	14	390	42	164	..	..	..	28	3	1	995
Totals.	18	74	2,850	417	88	3,543	367	1,172	5	1	1	29	3	1	8,569

TUBERCULOSIS CONTROL AND ERADICATION

The scourge of bovine tuberculosis has been estimated to cause an annual loss of forty million dollars to the live stock and allied industries and will, until eradicated, continue to be a serious menace not only to the industry but to human health.

Since the adoption of the co-operative accredited herd plan in 1917, solid and substantial progress has been made and the work is now advanced to a point where those who were doubtful as to the advisability of the movement and its ultimate outcome, admit that the disease can be controlled and finally eradicated.

The records of public health authorities indicate that in the rural districts there has been a decided decrease in the number of cases of human tuberculosis directly attributable to bovine infection.

The records submitted by the Federal Bureau of Animal Industry indicate that practically 36 per cent of the entire cattle population of the nation have been tuberculin tested under co-operative federal and state supervision. Several of the states have practically eliminated the disease from their borders through tuberculin testing and the enforcement of strict sanitary laws prohibiting the entrance of diseased cattle to re-infect their herds and clean territories.

Our records show that 42.80 per cent of the cattle in New Jersey are now under state and federal supervision and are regularly tested.

The regulations of the Federal Bureau of Animal Industry impose certain restrictions on the interstate movement of dairy and breeding cattle and while comprehensive in their scope, they do not embody sufficient detail to meet all conditions as applied to the individual state.

The New Jersey Board of Agriculture early recognized the need of additional state requirements and promulgated and made operative through its Bureau of Animal Industry regulations which prevent the entrance of any dairy or breeding cattle into the state unless they have been previously tuberculin tested under state and federal cooperative supervision, and certification to this fact made by the live stock sanitary official and the veterinarian representing the Federal Bureau of Animal Industry at point of origin, indicating that each animal in the consignment had met all the requirements.

This regulation has the approval of the sanitary officials, dairymen and dealers, as well as others interested in the building up of a better animal industry.

Herd owners have co-operated with Bureau representatives in the enforcement of the provisions of Chapter 233 of the Laws of 1927, known as the "Raw Milk Bill" which requires the tuberculin testing of all cattle, the milk from which is sold in the raw state for human consumption, and which became operative January 1, 1928.

The tuberculin testing of cattle in areas under survey has been continued and the following named counties and townships in adjacent counties have been ordered under quarantine by the Board of Agriculture.

The counties of Atlantic and Cape May.

In Burlington County the townships of Bass River, Washington and Woodland.

In Cumberland County, the townships of Lawrence, Downe, Maurice River and Commercial.

In Ocean County the townships of Little Egg Harbor, Eagleswood, Stafford, Union, Lacy and Ocean.

The retesting of the cattle in these areas has demonstrated the advisability of continuing under this plan in other areas where there is urgent demand for testing and the control of the movement of cattle within the area and the maintenance of a quarantine can be accomplished at a minimum cost to the state.

Early in the year four of the large milk companies maintaining receiving stations in the southern part of New Jersey, issued an order requiring the tuberculin testing of all cattle supplying such stations. This involved the testing of over five hundred herds comprising approximately six thousand animals, of which practically 60 per cent reacted, were appraised and removed to slaughter.

One of the largest milk companies assisted their patrons by awarding a bonus of \$15 a head for reactors found in the original herd on initial test and also for animals reacting on a second test which were a part of the original herd. They also paid a bonus of ten cents per hundred pounds for milk produced by such tuberculin tested cattle.

Other milk companies having receiving stations in the north central section of the state will make operative regulations that will require the tuberculin testing of all cattle supplying their stations.

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This will involve the testing of practically three hundred herds and will be taken up as soon as final arrangements have been completed.

The regular annual appropriation made by the legislature was not sufficient to take care of the volume of reactors disclosed by the tuberculin testing and the \$100,000 appropriated had been expended before January first. When the legislature convened in January, the State Board of Agriculture made a request for a supplemental appropriation of \$50,000 to meet this emergency. This was included in the supplemental appropriation bill and granted but this sum proved insufficient to finance the work through the entire year and a further emergency appropriation of \$50,000 was granted by the Appropriations Committee at a special session which enabled us to carry on the work as originally planned.

The following tabulation will indicate the total amount of money received by the owners for reacting cattle during the year:

<i>Appraisal Made</i>	<i>Average per head</i> \$132.18	<i>Total for 6,634</i>
Net Proceeds from Salvage.....	\$ 45.43	\$301,444.27
State Indemnity Paid	28.89	191,688.49
Federal Indemnity Paid	25.00	165,850.00
Totals	\$ 99.32	\$658,982.76

The average estimated value of the 161,000 cattle in the State of New Jersey is \$106.80 per head. Therefore, the owners received an appraisal of \$25.38 above the estimated valuation, and a total return of \$99.32 per head for the diseased animals or within \$7.48 of the estimated valuation.

The marketing of reactors in order that the owner may receive the highest remuneration is a problem that has been given very careful consideration and we believe is handled in a manner highly satisfactory to all agencies interested.

Practically all of the reacting animals are shipped by train or moved by truck to the Baltimore, Philadelphia and Jersey City markets. A few are disposed of locally when full market valuation can be obtained. When shipped the animals are consigned to reputable commission firms designated by the Board of Agriculture. On arrival at the stock yards they are graded under the direction of a representative of the Bureau of Animal Industry and

disposed of by the consignee through competitive bidding thus insuring the owner the highest market value for the animals sold.

They are then moved to slaughter under the supervision of a representative of the State or Federal Bureau of Animal Industry and the carcasses examined as to their fitness for food and report of each autopsy forwarded promptly to the office of the State Bureau of Animal Industry.

Organs or carcasses condemned are rendered into inedible grease and fertilizer.

One of the most vital factors concerned in the maintenance of herds in a healthy condition is the purchase of additions, the health status of which is unquestionable. The native cattle available for this purpose are not adequate to supply the demand and it is necessary to go beyond the limits of the state in order to obtain a sufficient number to make normal replacements and they are permitted to enter the state only when they comply with the requirements prescribed by the statutes and the regulations of the Board of Agriculture.

During the past year there were imported into the state 23,623 cattle which is an increase of 3,733 over the number imported during the previous year, which was 19,890.

The replacement problem in herds will, within the next few years be partially met through the action of the dairymen in building up their herds and making the necessary replacements with young stock raised on their own farms. A number of the dairymen are now working toward this end as they believe the plan to be economically sound and a further guarantee of the health of their cattle.

Following is a brief summary of the work accomplished during the last fiscal year:

At the close of the fiscal year ending June 30, 1927, there were under supervision in New Jersey 4,074 herds comprising 45,974 animals. At the close of the fiscal year, June 30, 1928, there were 8,179 herds comprising 66,851 animals, or an increase of 100.76 per cent in the number of herds and 45.41 per cent in the number of animals.

During the past twelve months the Bureau tested 83,778 cattle with 7,026 reactors or a percentage of 8.39 per cent of the total number of animals tuberculin tested in herds under state and federal supervision.

The annual appropriation for the payment of indemnities for the year was \$100,000. A supplemental appropriation of \$50,000 was also granted in April when the annual appropriation had been exhausted. It was also necessary for the Board of Agriculture to request a further emergency appropriation of \$50,000 to carry work through for the fiscal year, making a total of \$200,000 for the entire year.

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During the year 1926-27 indemnity was paid for 2,764 reactors, 252 being purebreds and 2,512 grades. During the year 1927-28 indemnity was paid on 6,634 reactors, 290 purebreds and 6,344 grades.

During the year 1926-27 the percentage of reactors on initial tests was 28.77 per cent with 7,632 tested and 2,196 reactors. During the year 1927-28 the percentage of reactors on initial tests amounted to 26.54 per cent with 21,995 tested and 5,837 reactors.

The percentage of reactors from imported cattle added to herds under supervision during the fiscal year 1926-27 was 7.63 or 4,897 tested with 374 reactors. For the year 1927-28, 1,507 cattle were tested with 73 reactors or 4.84 per cent.

Other tests include second or third retests of herds already under supervision. During the fiscal year 1926-27, 45,836 animals were tested with 613 reactors, or a percentage of 1.31 per cent. During the fiscal year 1927-28, 60,246 animals were tested with 1,116 reactors or 1.85 per cent.

Following is the total amount received by the dairymen and breeders for 6,634 reactors condemned as a result of tuberculin testing during the fiscal year 1927-28:

Amount received for salvage of reactors.....	\$301,444.27
Amount paid by the State of New Jersey.....	191,688.49
Amount paid by the United States Government.....	<u>165,850.00</u>
Total	\$658,982.76

This is an average of \$99.32 per head.

TOTAL INDEMNITY PAID BY COUNTIES—JULY 1, 1927, TO JUNE 30, 1928

Atlantic	\$ 2,192.52
Bergen	4,996.02
Burlington	32,829.22
Camden	1,316.45
Cape May	1,134.33
Cumberland	11,522.82
Essex	2,811.74
Gloucester	10,985.29
Hudson	12,130.39
Hunterdon	17,437.66
Mercer	12,507.70
Middlesex	4,460.48
Monmouth	8,177.28
Morris	7,215.45
Ocean	6,400.13
Passaic	2,930.03
Salem	57,098.21
Somerset	4,998.94
Sussex	3,841.62
Union	310.72
Warren	<u>6,391.49</u>
Total	\$191,688.49

Following is a comparison of the average net proceeds received from the sale of reactors during the past five fiscal years:

1923-1924	1924-1925	1925-1926	1926-1927	1927-1928
\$20.95	\$20.96	\$26.05	\$32.10	\$45.43

STATE DEPARTMENT OF AGRICULTURE

STATE INSTITUTION HERDS—FULLY ACCREDITED

	<i>P. B.</i>	<i>Gr.</i>	<i>Total</i>
N. J. Agricultural Experiment Station, New Brunswick.....	110	18	128
N. J. Manual Training and Industrial School, Bordentown farm No. 1	12	37	49
N. J. Reformatory, Rahway	2	40	42
N. J. State Prison, Leesburg	1	36	37
N. J. State Colony for Feeble Minded Males, New Lisbon.....	..	34	34
N. J. State Home for Boys, Jamesburg.....	25	68	93
N. J. State Hospital, Trenton Junction.....	28	194	222
N. J. State Hospital, Morris Plains	39	179	218
N. J. State Reformatory for Boys, Annandale .....	..	21	21
N. J. State Institution for Feeble Minded, Vineland.....	27	63	90
N. J. State Reformatory for Women, Clinton.....	..	35	35
Totals	244	725	969
Percentage of pure-bred animals in State Institution herds	25.18%		
Percentage of grade animals in State Institution herds	74.82%		

STATE INSTITUTION HERDS—UNDER SUPERVISION

N. J. State Manual Training and Industrial School, Bordentown, Farm No. 2	2	10	12
N. J. Sanatorium for Tuberculosis, Glen Gardner.....	..	86	86
N. J. State Village for Epileptics, Skillman.....	39	57	96
Totals	41	153	194
Percentage of pure-bred animals in State Institution herds under supervision	21.13%		
Percentage of grade animals in State Institution herds under supervision	78.87%		

COUNTY HERDS—FULLY ACCREDITED

Cape May County Farm, Cape May Court House.....	1	12	13
Cumberland County Almshouse, Bridgeton	1	18	19
Morris County Almshouse, Morris Plains.....	..	15	15
Warren County Farm, Oxford .....	..	37	37
Essex County Hospital, Cedar Grove.....	161	6	167
Totals	163	88	251
Percentage of pure-bred animals in County Herds fully accredited	64.94%		
Percentage of grade animals in County Herds fully accredited	35.06%		

COUNTY HERDS—UNDER SUPERVISION

Atlantic County Almshouse, Pleasantville.....	..	11	11
Camden County Almshouse, Grenloch	24	59	83
Gloucester County Institution, Clarksboro.....	..	7	7
Mercer County Workhouse, Lambertville.....	1	7	8
Burlington County Almshouse, New Lisbon.....	6	31	37
Totals	31	115	146

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	<i>P. B.</i>	<i>Gr.</i>	<i>Total</i>
Percentage of pure-bred animals in County Herds under supervision	21.23%		
Percentage of grade animals in County Herds under supervision	78.77%		
CITY HERDS—FULLY ACCREDITED			
Newark City Boys' Home, Verona .....	..	10	10
Percentage of grade animals in City Herds fully accredited	100%		
TOWNSHIP HERDS—FULLY ACCREDITED			
Hopewell Township Farm, Pennington (Mercer County) .....	..	14	14
Percentage of grade animals in Township Herds fully accredited	100%		
TOWNSHIP HERDS—UNDER SUPERVISION			
Raritan Township Farm, Flemington .....	..	3	3
Percentage of grade animals in Township Herds under supervision	100%		
Grand Totals	479	1,108	1,587
Percentage of pure-bred animals in State, County, City and Township Herds	30.18%		
Percentage of grade animals in State, County, City and Township Herds	69.82%		
CERTIFIED DAIRIES—FULLY ACCREDITED			
Joseph W. Miller, Princeton	13	49	62
Raritan Valley Farms, Somerville .....	..	220	220
Walker-Gordon Laboratories, Plainsboro	36	1,843	1,879
Totals	49	2,112	2,161
Percentage of pure-bred animals in Certified Dairies Accredited	2.27%		
Percentage of grade animals in Certified Dairies Accredited	97.73%		
CERTIFIED DAIRIES—UNDER SUPERVISION			
Noe Farms, Madison .....	..	163	163
Purity Farm, Pennington .....	..	505	505
Sheffield Farm, Pompton Plains .....	..	226	226
Walker-Gordon Laboratories, Juliustown	10	498	508
Woodbrook Farm, Metuchen	4	238	242
Totals	14	1,630	1,644
Percentage of pure-bred animals in Certified Dairies under supervision .....	.85%		
Percentage of grade animals in Certified Dairies under supervision	99.15%		
Grand Totals	27	3,594	3,621
Percentage of pure-bred animals in Certified Dairies Accredited and Under Supervision .....	.75%		
Percentage of grade animals in Certified Dairies Accredited and Under Supervision	99.25%		

STATE DEPARTMENT OF AGRICULTURE

COMPARISON OF TOTAL NUMBER OF CATTLE TESTED UNDER
ACCREDITED HERD PLAN

Fiscal years 1926-1927 and 1927-1928

<i>Initial—</i>	<i>Pure-Bred</i>		<i>Grades</i>		<i>Total Animals</i>	
	<i>1926-27</i>	<i>1927-28</i>	<i>1926-27</i>	<i>1927-28</i>	<i>1926-27</i>	<i>1927-28</i>
Tested	815	965	6,817	21,030	7,632	21,995
Reacted	130	173	2,066	5,664	2,196	5,837
					<i>Percentage of Reactors</i>	
					28.77%	26.54%
<i>Additions—</i>						
Tested	361	112	4,536	1,395	4,897	1,507
Reacted	16	10	358	63	374	73
					<i>Percentage of Reactors</i>	
					7.63%	4.18%
<i>Other Tests—</i>						
Tested	12,143	14,762	33,693	45,514	45,836	60,276
Reacted	132	133	481	983	613	1,116
					<i>Percentage of Reactors</i>	
					1.31%	1.85%
<i>Totals—</i>						
Tested	13,319	15,839	45,046	67,939	58,365	83,778
Reacted	278	316	2,905	6,710	3,183	7,026
					<i>Percentage of Reactors</i>	
					5.45%	8.39%

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The following chart will give the number of herds under supervision and those fully accredited by counties, together with a percentage of the number of cattle in each county under supervision as indicated by the 1925 Federal Census:

<i>County</i>	<i>No. Herds Under Supervision</i>	<i>Herds Fully Accredited</i>	<i>No. Cattle Under Supervision June 30, 1928</i>	<i>Percentage Cattle Under Supervision 6/30/28 as Taken from 1925 Fed. Census</i>
Atlantic	548	190	852	99.63%
Bergen	128	11	1,973	70.31%
Burlington	451	119	7,652	42.99%
Camden	201	8	724	50.70%
Cape May	438	205	1,176	99.74%
Cumberland	910	110	4,015	57.51%
Essex	49	8	1,981	55.56%
Gloucester	922	92	3,090	52.59%
Hudson	18	...	186	92.00%
Hunterdon	530	199	4,927	27.36%
Mercer	572	163	5,354	67.84%
Middlesex	374	183	4,039	67.84%
Monmouth	405	75	2,675	31.71%
Morris	417	144	4,851	74.87%
Ocean	263	29	824	68.83%
Passaic	157	22	2,302	96.78%
Salem	539	81	4,604	30.28%
Somerset	320	141	3,963	46.12%
Sussex	248	62	3,001	12.31%
Union	27	10	1,532	61.42%
Warren	662	369	7,130	47.85%
	<hr/> 8,179	<hr/> 2,221	<hr/> 66,851	<hr/> 42.80%

*Animals in herds
under supervision*

13,257 PB
53,594 Gr.

66,851

*Animals in herds
Accredited*

8,551 PB
19,146 Gr.

27,697

HERDS UNDER SUPERVISION

HERDS FULLY ACCREDITED

	1924-25	1925-26	1926-27	1927-28	1924-25	1925-26	1926-27	1927-28
Atlantic	2	130	222	548	..	..	82	190
Bergen	37	33	48	128	4	5	6	11
Burlington	173	209	274	451	49	66	104	119
Camden	8	13	41	201	2	3	6	8
Cape May	45	95	349	438	12	19	71	205
Cumberland	131	174	227	910	67	75	101	110
Essex	39	40	35	49	2	4	7	8
Gloucester	99	133	259	922	48	68	82	92
Hudson .....	..	..	..	18	..	..	..	..
Hunterdon	216	248	337	530	85	105	168	199
Mercer	150	190	363	572	49	83	127	163
Middlesex	65	257	297	374	17	77	152	183
Monmouth	95	103	135	405	47	30	52	75
Morris	161	238	259	417	40	80	116	144
Ocean	43	49	70	263	8	9	27	29
Passaic	85	81	78	157	2	7	21	22
Salem	94	130	156	539	26	32	73	81
Somerset	191	198	215	320	95	108	142	141
Sussex	40	87	101	248	6	16	50	62
Union	18	24	21	27	2	1	8	10
Warren	522	563	587	662	139	250	368	369
	<u>2,214</u>	<u>2,996</u>	<u>4,074</u>	<u>8,179</u>	<u>700</u>	<u>1,038</u>	<u>1,763</u>	<u>2,221</u>
	10,411 PB	10,758 PB	11,574 PB	13,357 PB	5,615 PB	6,307 PB	7,686 PB	8,551 PB
	<u>22,157 Gr.</u>	<u>28,554 Gr.</u>	<u>34,400 Gr.</u>	<u>53,594 Gr.</u>	<u>4,740 Gr.</u>	<u>11,090 Gr.</u>	<u>14,682 Gr.</u>	<u>19,146 Gr.</u>
	<u>32,568</u>	<u>39,312</u>	<u>45,974</u>	<u>66,851</u>	<u>10,355</u>	<u>17,397</u>	<u>22,368</u>	<u>27,697</u>

TOTAL PERCENTAGE OF INITIAL TESTS BY COUNTIES

July 1, 1927, to June 30, 1928

Counties	Number Herds	Number Tested		Number Reacted		Percentage Reactors		Total Tested	Total Reacted	Total Percent Reactors
		Pure-bred	Grade	Pure-bred	Grade	Pure-bred	Grade			
Atlantic ...	328	1	472	..	53	..	11.22%	473	53	11.20%
Bergen	79	7	1,105	3	208	42.85%	18.82%	1,112	211	18.97%
Burlington..	181	51	1,578	26	678	50.98%	42.96%	1,629	704	43.21%
Camden ...	160	16	358	..	49	..	13.68%	374	49	13.10%
Cape May..	93	2	138	..	4	..	2.89%	140	4	2.85%
Cumberland.	696	77	2,393	15	405	19.48%	16.92%	2,470	420	17%
Essex	14	6	470	1	84	16.66%	17.87%	476	85	17.85%
Gloucester .	663	48	1,596	12	352	25 %	22.05%	1,644	364	22.14%
Hudson. ...	18	..	277	..	91	..	32.85%	277	91	32.85%
Hunterdon .	204	127	1,216	18	368	14.17%	30.26%	1,343	386	28.74%
Mercer	227	74	1,081	13	351	17.56%	32.46%	1,155	364	31.51%
Middlesex .	96	38	462	2	130	5.26%	28.13%	500	132	26.40%
Monmouth .	282	103	1,281	8	244	7.76%	19.04%	1,384	252	18.21%
Morris	177	98	1,180	5	209	5.10%	17.71%	1,278	214	16.74%
Ocean	205	19	589	4	120	21.05%	20.37%	608	124	20.39%
Passaic	77	..	858	..	101	..	11.77%	858	101	11.77%
Salem	390	144	3,982	40	1,913	27.77%	48.04%	4,126	1,953	47.33%
Somerset ...	122	17	467	2	99	11.76%	21.19%	484	101	20.87%
Sussex	147	101	944	13	96	12.87%	10.16%	1,045	109	10.43%
Union	5	15	129	1	34	6.66%	26.35%	144	35	24.30%
Warren	85	21	454	10	75	47.61%	16.51%	475	85	17.89%
	4,249	965	21,030	173	5,664	17.92%	26.93%	21,995	5,837	26.54%

ACCREDITED HERD WORK

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STATE DEPARTMENT OF AGRICULTURE

Tested by N. J. B. A. I. Veterinarians	Initial					Additions					Other Tests				
	Tested			Reactors		Tested			Reactors		Tested			Reactors	
	Lots	P. B.	Gr.	P. B.	Gr.	Lots	P. B.	Gr.	P. B.	Gr.	Lots	P. B.	Gr.	P. B.	Gr.
1927—															
July	887	53	1,837	8	272	9	13	311	7	14	140	180	1,675	.....	39
August	429	90	1,500	23	222	13	23	127	.....	5	168	523	1,387	.....	35
September	859	90	1,904	28	464	9	2	149	.....	4	186	699	2,031	14	50
October	175	80	992	5	281	19	29	114	.....	1	264	916	2,693	5	48
November	249	83	1,289	1	226	8	.....	81	.....	6	212	871	4,951	9	58
December	226	70	1,478	4	801	13	3	109	.....	7	250	2,327	3,044	14	62
1928—															
January	391	109	1,113	15	174	3	4	16	.....	.....	159	976	2,762	6	30
February	343	59	1,189	5	246	5	.....	7	.....	1	281	876	3,692	14	70
March	123	27	863	1	41	5	.....	14	.....	.....	555	1,811	7,129	9	150
April	226	65	1,197	19	277	8	.....	3	.....	1	510	1,139	3,263	15	69
May	271	61	2,313	12	858	5	1	9	1	1	257	1,010	5,704	12	204
June	273	135	2,291	25	970	10	3	27	.....	3	284	464	1,879	4	27
Totals	3,452	822	16,966	146	4,332	102	78	917	8	43	3,266	11,792	40,180	104	842
Percentage of Reactors .....	.....	.....	.....	17.76	25.53	.....	.....	.....	10.26	4.68	.....	.....	.....	.88	2.10
Average Percentage .....	.....	.....	.....	25.11	.....	.....	.....	.....	5.13	.....	.....	.....	.....	.....	1.82

Tested by U. S. B. A. I. Veterinarians	Initial					Additions					Other Tests				
	Tested			Reactors		Tested			Reactors		Tested			Reactors	
	Lots	P. B.	Gr.	P. B.	Gr.	Lots	P. B.	Gr.	P. B.	Gr.	Lots	P. B.	Gr.	P. B.	Gr.
1927—															
July .....	.....	.....	.....	.....	.....	8	.....	9	.....	.....	8	14	106	.....	1
August	2	1	6	1	.....	.....	.....	.....	.....	.....	5	2	81	1	.....
September	1	.....	41	.....	.....	1	.....	3	.....	.....	10	41	65	.....	.....
October	1	.....	9	.....	.....	3	1	13	.....	.....	7	233	93	.....	1
November	4	.....	25	.....	1	7	.....	23	.....	1	9	67	94	.....	.....
December	2	.....	35	.....	5	6	.....	23	.....	1	5	39	32	.....	1
1928—															
January	1	.....	6	.....	6	8	.....	17	.....	1	2	.....	15	.....	1
February	4	23	5	1	2	4	.....	26	.....	4	10	59	147	1	9
March	6	.....	10	.....	4	5	.....	13	.....	2	7	257	63	1	1
April .....	.....	.....	.....	.....	.....	5	.....	11	.....	.....	8	490	146	2	1
May	15	3	123	3	86	2	.....	3	.....	.....	3	62	26	.....	.....
June	2	1	9	.....	.....	2	.....	2	.....	.....	9	183	62	.....	2
Totals	38	28	269	5	104	46	1	148	.....	9	83	1,447	930	5	15
Percentage of Reactors .....	.....	.....	.....	17.86	38.66	.....	.....	.....	.....	6.08	.....	.....	.....	.34	1.61
Average Percentage .....	.....	.....	.....	36.70	.....	.....	.....	.....	.....	6.04	.....	.....	.....	.....	1.31

ACCREDITED HERD WORK

Tested by Accredited Veterinarians	Initial					Additions					Other Tests				
	Tested			Reactors		Tested			Reactors		Tested			Reactors	
	Lots	P. B.	Gr.	P. B.	Gr.	Lots	P. B.	Gr.	P. B.	Gr.	Lots	P. B.	Gr.	P. B.	Gr.
1927—															
July	118	4	290	3	65	2	6	32	1	4	18	56	205	1	10
August	118	4	331	3	74	4	2	54	.....	.....	14	38	467	.....	23
September	86	9	223	3	52	3	2	33	.....	.....	12	19	67	.....	1
October	14	5	121	1	52	10	16	40	1	.....	57	140	422	2	4
November	123	16	476	7	109	7	4	48	.....	2	43	208	312	3	10
December	72	5	315	.....	111	7	.....	15	.....	.....	53	130	355	.....	5
1928—															
January	41	1	300	.....	96	3	.....	5	.....	1	49	29	543	.....	12
February	50	3	309	.....	75	15	3	28	.....	1	24	113	354	2	12
March	16	22	201	.....	96	9	.....	18	.....	2	28	281	376	1	12
April	36	2	360	.....	141	2	.....	3	.....	.....	14	75	182	.....	9
May	60	31	634	2	252	4	.....	24	.....	1	70	295	739	15	21
June	25	13	235	4	104	3	.....	30	.....	.....	60	139	352	.....	7
Totals	759	115	3,795	23	1,227	69	33	330	2	11	442	1,523	4,374	24	126
Percentage of Reactors...	.....	.....	.....	20	32.33	.....	.....	.....	6.06	3.33	.....	.....	.....	1.58	2.89
Average Percentage .....	.....	.....	.....	31.97	.....	.....	.....	.....	3.58	.....	.....	.....	.....	2.54	.....

STATE DEPARTMENT OF AGRICULTURE
CATTLE SLAUGHTERED—ACCREDITED

	<i>Reactors Slaughtered</i>
<i>1927</i>	
July	680
August	310
September	446
October	384
November	526
December	459
<i>1928</i>	
January	360
February	322
March	423
April	494
May	1,328
June	916
Total	<hr/> 6,648

NATIVE CATTLE

Tested by Private Veterinarians

	HERD TESTS				OTHER TESTS				TESTS FOR EXPORT			
	Number Lots	Number Tested	Number Reacted	Per cent Reacted	Number Lots	Number Tested	Number Reacted	Per cent Reacted	Number Lots	Number Tested	Number Reacted	Per cent Reacted
1927—												
July	13	98	4	4.08					2	13		
August	16	95	3	3.16	1	10						
September	21	121	14	11.57	3	6			2	3		
October	19	182	12	6.15	1	1			2	2		
November	39	398	15	3.75	2	3			2	2		
December	56	563	48	8.70					2	11		
1928—												
January	56	129	80	23.26					3	6		
February	34	164	14	8.54					2	2		
March	34	185	6	3.24								
April	27	429	18	4.10								
May	29	134	8	5.97	2	140	2	1.43	2	3		
June	18	41	2	4.87								
Totals	362	2,539	174	6.85	9	160	2	1.25	17	42		

Tested by Bureau Veterinarians

	HERD TESTS				OTHER TESTS				TESTS FOR EXPORT			
	Number Lots	Number Tested	Number Reacted	Per cent Reacted	Number Lots	Number Tested	Number Reacted	Per cent Reacted	Number Lots	Number Tested	Number Reacted	Per cent Reacted
1927—												
July												
August												
September												
October												
November												
December												
1928—												
January												
February												
March												
April												
May												
June												
Totals												

STATE DEPARTMENT OF AGRICULTURE

IMPORT CATTLE

<i>Tested Before Entering by Private Veterinarians</i>	<i>Number Lots</i>	<i>Animals Tested</i>	<i>Number Reactors</i>	<i>Percentage Reactors</i>
1927—July	73	1,372	2	.15%
August	72	1,853	3	.16%
September	112	2,684	2	.07%
October	76	1,748	2	.11%
November	96	2,307	2	.08%
December	53	1,214	2	.16%
1928—January	32	663	2	.30%
February	73	1,578	2	.12%
March	64	1,429	..	..
April	67	1,164	3	.25%
May	102	2,674	4	.14%
June	112	2,790	1	.03%
Totals	932	21,476	25	.11%

<i>Tested Before Entering by U. S. B. A. I. Veterinarians</i>	<i>Number Lots</i>	<i>Animals Tested</i>	<i>Number Reactors</i>	<i>Percentage Reactors</i>
1927—July	8	81	..	..
August	2	4	..	..
September	10	212	..	..
October	8	55	..	..
November	11	87	..	..
December	6	78	..	..
1928—January	1	7
February	6	19
March	4	35
April	5	57
May	1	79
June	1	87
Totals	67	801

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IMPORT CATTLE

<i>Tested After Entering by Private Veterinarians</i>	<i>Number Lots</i>	<i>Animals Tested</i>	<i>Number Reactors</i>	<i>Percentage Reactors</i>
1927—July	3	57	3	14.03%
August	2	66	..	..
September	15	419	1	.23%
October	6	126	1	.79%
November	15	474	6	1.26%
December	6	85	..	..
1928—January	7	178	2	1.12%
February	5	122	8	6.55%
March	9	120	1	.83%
April	3	24	..	..
May	1	25	..	..
June	5	54	1	1.85%
Totals	77	1,750	23	1.31%

<i>Tested After Entering by Bureau Veterinarians</i>	<i>Number Lots</i>	<i>Animals Tested</i>	<i>Number Reactors</i>	<i>Percentage Reactors</i>
1927—July
August
September
October
November
December
1928—January
February
March
April
May
June
Totals

MONTHLY COMPARISON OF IMPORT ANIMALS RECEIVED FROM THE FOLLOWING STATES
FOR DAIRY AND BREEDING PURPOSES 1927-1928

<i>Points of Origin</i>	<i>July</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>April</i>	<i>May</i>	<i>June</i>	<i>Total</i>
Arkansas				2	34								36
Athenia (Quarantine) ..	65					1				47	79	37	229
Canada						136		115	169	37	333	317	1,107
Connecticut	3				1								4
Delaware	15	2	9	2	2		14	4	12	2	12	41	115
Indiana			17	25									42
Iowa	1			2					1				4
Kentucky	87		3		72				30				192
Lancaster (Yds.)			75	47	50	95			31				198
Maine			22					1			56	115	194
Maryland	1	13			4			9	19	25	28	59	158
Massachusetts	13		2	3	16			2	1				37
Michigan	235	554	615	376	336	40	60	94	192	214	291	335	3,342
Minnesota			87		62		56			9	37		251
Mississippi												90	90
New Hampshire	15			28				1					44
New York	118	197	240	53	155	39		30	85	52	110	54	1,133
North Carolina	20	24	3	23		22		22	10				124
Ohio	215	333	372	85	114	20		108	85	44	252	181	1,809
Pennsylvania	201	147	297	214	228	55	108	154	172	112	129	142	1,954
South Carolina											86		86
Tennessee		118	80	78	16		22	52		41	39	102	5,481
Vermont	37		85	1	20		56	35	1	35	45	19	334
Virginia	142	83	73	49	132		24	45	66	51	88	298	1,051
Washington, D. C.	2												2
Wisconsin	317	439	1,315	923	1,598	937	486	988	670	549	1,142	1,070	104,34
	1,487	1,910	3,295	1,911	2,840	1,345	826	1,660	1,544	1,218	2,727	2,860	23,623

CONTAGIOUS ABORTION

Abortion-free herds can be established and maintained by systematic testing and retesting of animals in herds infected with contagious abortion providing the reactors are isolated, the premises thoroughly disinfected and the principles of sanitation practiced.

The establishment of a laboratory and the appropriation of sufficient funds to maintain the service has enabled the Bureau to take care of all the requests of herd owners who have desired to place their herds under supervision for the eradication of this disease. The results obtained have fully justified the expenditure of the funds appropriated. Through the work, we have been enabled to establish abortion-free herds and have a large number now under supervision.

One of several plans may be followed, depending upon the size of the herd and the equipment at hand for the isolation and maintenance of both the infected and clean herds on the same premises. In order to obtain satisfactory results much will depend on the attitude assumed by the owner but if careful supervision is given to the details necessary for the enforcement of the quarantine, the plan is practical in its application.

However, the ideal plan and that which has been carried out, is to maintain quarantine farms on separate premises where nothing but reactors are held. In the two years that this plan has been in operation, it has proven practical and affords owners of purebred reactors a place to hold them so that valuable breeding lines may be preserved without the danger of infecting abortion-free animals in their own herds, as the case might be if reactors were kept on the same premises.

Following is a resume of the work conducted during the year:

Total number of herds under supervision.....	39
Total number of animals under supervision.....	3,977
Total number of animals showing positive reaction to agglutination test	1,005—25%
Total number of animals showing suspicious reaction to agglutination test	428—11%
Total number of animals showing negative reaction to agglutination test	2,544—64%
Total	3,977

The following herds, having passed the required number of tests and the owners having complied with the requirements pre-

scribed by the New Jersey Department of Agriculture, Bureau of Animal Industry, for the maintenance of the herd for the prevention and eradication of bovine infectious abortion, were issued Accredited Herd Certificates:

<i>Certificate Number</i>	<i>Owner's Name</i>	<i>Address</i>
1	R. L. Benson.....	Coventry Farm, Princeton
2	William T. White.....	Hill-Top Farm, Princeton
3	Clarence Dillon	Dunwalke Farm, Far Hills
4	E. W. Wadley.....	Sunnyside Farm, Red Bank
5	Dr. J. E. Russell.....	R. D. No. 4, Trenton

There are five quarantine farms in the state where reactors are held in quarantine until such time as they become unprofitable, when they are sent to slaughter on written order from the Chief of the Bureau of Animal Industry.

Following is a list of such farms:

<i>Owner's Name</i>	<i>Address</i>
Mr. Jacob Cohen.....	Jamesburg
Mr. Edward Harding.....	Eatontown
Mr. South Hathaway	Burlington
Mr. Walter Wright.....	Columbus
*Mr. J. Leslie Young.....	Washington

*Farm was sold out on May 10, 1928.

Following is a report of the work completed in the laboratory of the Bureau of Animal Industry during the year 1927-1928:

CONTAGIOUS ABORTION

Total number of agglutination tests conducted.....	6,455
Total number of positive reactions.....	1,249—19%
Total number of highly suspicious reactions.....	256—4%
Total number of slightly suspicious reactions.....	531—8%
Total number of negative reactions	4,395—68%
Total number of samples hemolyzed	24—1%
Total	6,455

MICROSCOPIC EXAMINATIONS—PATHOLOGICAL AND BACTERIOLOGICAL

<i>Material</i>	<i>Number</i>	<i>Condition Suspected</i>	<i>Finding</i>
Tissue-lymph	3	Tuberculosis	Mycobacterium Tuberculosis
Tissue-lymph	4	Tuberculosis	Negative
Liver	1	Tuberculosis	Leukemia
Spleen	1	Anthrax	Negative
Kidney and spleen	1	Hemorrhagic septicemia	Negative
Feces	3	Parasitic Ova	Positive
Intestine	1	Johne's Disease	Negative

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POSTMORTEN EXAMINATIONS MADE

<i>Condition</i>	<i>Cattle</i>	<i>Swine</i>	<i>Sheep</i>	<i>Poultry</i>
Bronchitis, Infectious	3
Cholera .....	..	3	..	1
Coccidiosis .....	..	..	..	1
Emphysema and Atelectasia	1	..	..	..
Entero-hepatitis .....	..	..	..	2
Impaction of Oviduct .....	..	..	..	1
Parasitism .....	..	..	2	7
Pericarditis (Fibrino-purulent) .....	..	..	..	1
Pneumonia (Verminous) .....	..	2	2	..
Poisoning (Forage)	2	..	..	..
" (Phosphorous) .....	..	..	..	1
" (Ptomain) .....	..	..	..	2
Pyemia	1	..	..	..
Roup .....	..	..	..	2
Tracheitis .....	..	..	..	2
Tuberculosis	8	..	..	4

SPECIAL INVESTIGATIONS MADE

<i>Number</i>	<i>Species</i>	<i>Condition Suspected</i>	<i>Finding</i>
2	Bovine	Pregnancy	Positive
3	Porcine	Hog Cholera	Positive
2	Porcine	Hog Cholera	Enteritis
2	Bovine	Bang Bacillus Disease	Positive
1	Avain	Cholera	Roup
1	Bovine	Vesicular Stomatitis	Food poisoning

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REPORT OF THE BUREAU OF MARKETS

WARREN W. OLEY, *Chief*

There has been much discussion during the past few years over the troubles of agriculture and the remedy for its ills. Much has been said and any number of articles written concerning this question. Economists over the country have come forth with their theories. Educators have added their cures. Political factions have used the question to further their own interests. So many remedies have been advanced that the best minds of the country are more confused as to the needs of agriculture than ever before.

To us in the Bureau of Markets our problem is to aid in getting the greatest return to the producer for the crops harvested in the state and to obtain for the consumer quality in farm products. It is also to so influence conditions within the state and in competing areas that our farmers have a fair chance to use the advantages afforded by their location to their own end. We feel that if we can assist farmers with timely information as to acreage and conditions in competing areas, to advise them as to surplus or shortage in various markets at shipping seasons, that our nearness to the consuming public is a real asset. Studies of what the consumers want, how the distributors want it, all help to line out a series of recommendations to aid marketing.

We feel that production over the entire country is unbalanced. We do not believe that over-production is the only cause for the agricultural depression and low prices. It is evident that some commodities are over-produced, and it is also evident that harvesting dates are also so concentrated as to cause serious gluts of many commodities. This is a problem of proper distribution; distribution not only of food to consuming markets but distribution of production over the calendar insofar as possible to relieve an unbalanced condition.

None of us realize all of the possibilities of the future, of better transportation facilities, increased storage and refrigeration opportunities, of more advanced methods of food preservation, of changes in diet of the nation, of the possibilities of cooperatives. Our state highway system with its network of hard surface roads leading from country districts to our large consuming centers, tied in with improved country roads from the farmer's door to concen-

tration points, has revolutionized the collection of farm produce. Rapid changes are taking place in the marketing methods employed in the state. Nearby redistributing points such as New York and Philadelphia are not setting the price for New Jersey produce as in years past. The smaller market within the state, our summer seashore population, and our nearby secondary markets of Pennsylvania, New York and New England are a factor in setting a price for New Jersey produce.

Standardization of all farm commodities produced in the state, standardization of the pack and package used for shipment make distribution to these secondary markets and sale in large primary markets at higher prices possible. New Jersey has nearly lost its hold on nearby markets because of the little attention given to the orderly marketing methods used by far-distant competing states. These facts must be visualized by marketing agencies in order that New Jersey may hold the enviable position it had in the past and be able to profit by its geographic location.

It is with these market agency needs that our Bureau of Markets has been reorganized. Continuing the constructive work of last year, our Bureau has been advised and guided in much of our work by commodity committees. These committees made up of practical men interested in each phase of the given commodity are of the greatest value in steering our activities where we as a Bureau can be of most good.

MILK MARKETING

The Bureau has not included a milk marketing specialist in its personnel since the resignation of Mr. Paul B. Bennetch in the spring of 1927. All work in milk marketing has been that carried out under the direction of the executive committee of the Milk Marketing Council. Mr. Henry W. Jeffers is chairman of this committee. This committee held four meetings during the year with an exceptionally good average attendance of fifteen at all meetings. During the year the committee carried on several pieces of work as follows:

1. Made a survey of the milk ordinances of thirty average towns and cities of the state, charted them, showing similar and dissimilar points.
2. Made a chart recommending grades for milk sold in New Jersey.
3. Made a study of fat differentials and made through a sub-committee suggestions to the executive committee.
4. Made a study of all factors tending to improve the production of quality milk.

Much of this material has been compiled and is now in the hands of all members of the executive committee for their study. It is the aim of the Council to publish much of this material in the near future.

There are five important phases of milk marketing brought out in these reports. It is hoped that future work may coordinate these into a constructive milk marketing plan for the state. These five points are:

1. Our municipalities within the state by virtue of the Home Rule Act have prescribed ordinances governing the quality and sanitary conditions at the source.
2. The large markets at our borders, Philadelphia and New York, operate each on a different basis. In Philadelphia butter fat or cream has a definite value. In New York the value is not recognized beyond a prescribed minimum.
3. We have no uniform established grades for milk in New Jersey. The Department of Agriculture since the spring of 1928 has power to promulgate such grades.
4. The marketing of milk is tied up definitely with the Bureau of Animal Industry work of disease eradication in herds.
5. Marketing of milk must conform to sanitary requirements of the State Board of Health.

Mr. Bennetch, who has been secretary of this committee, resigned in April and W. W. Oley was appointed by the chairman as secretary.

At the May meeting the name of the committee was changed to "The New Jersey Milk Conference Board." This was in order to conform to existing boards in other states and to cooperate more freely with these other boards.

Legislative work sponsored by this committee included Assembly Bill No. 178 which amended Chapter 83, Laws of 1921, and made milk and eggs and their derived products recognized by law as agricultural products. This act makes it possible for the Department of Agriculture to promulgate grades of milk and milk products, and of eggs and baby chicks. This act was passed by the legislature and became a law.

POULTRY STANDARDIZATION AND MARKETING

The work of the Bureau has been materially assisted by an active advisory committee organized on the policy previously outlined that practical men in each line of work could guide our Bureau

into constructive lines of work and make that work of real value. Mention of the work of this committee is made later in the report.

Each year we publish for the information of baby chick purchasers a list of breeding flocks and hatcheries operating under state supervision together with the rules and regulations governing this work. This is required to protect the standard grades of baby chicks which are produced from these flocks and hatcheries. Only those listed in the publications are entitled to use standard grades and terms in advertising and sale of their products. This Circular 135 was issued in February, 1928, and will be superseded by a similar circular issued about February, 1929. In cooperation with the Bureau of Statistics and Inspection we also published Circular 130, "The Poultry Industry of New Jersey," and Circular 148, "A Statistical Study of Egg Marketing," the latter containing egg prices by the month for the past five years and other valuable data on storage stocks, price changes, etc.

In addition to the printed materials referred to we placed during the year several educational exhibits on poultry standardization and egg marketing on the Agricultural Train referred to later in this report. The baby chick exhibit at the Trenton Armory during Agricultural Week was possibly the outstanding exhibit in point of interest as much favorable comment was received concerning it. This feature will again be shown in January, 1929, at the request of many breeders.

This Bureau sent a representative to the World Poultry Congress and Poultry Science Convention to further the interests of the state industry and accepted chairmanship of several national committees for the same purpose.

The poultry specialist also gave several talks and lectures on poultry standardization and egg marketing within the state at the request of other agencies and associations and two outside the state at the request of poultry associations.

Poultry Standardization

Our poultry standardization program is progressing nicely. Distribution has increased and excellent breeding flocks have been established in 19 counties of the state, Hudson and Cape May counties are the only ones not being represented at this time. The quality of the chicks has improved noticeably and despite the poor

chick year most of the certified producers closely sold. There was a slight decrease in number of birds inspected from last year, but this decrease was due almost entirely to the 21,389 Meat production or Cross-bred class which are being done by the breeders themselves, and 17,450 Rhode Island Reds which are being handled in the same manner. Taken as a whole there has been a decided and satisfactory increase as shown by the tables. There were 113 applications for certification and approval for the 1927-28 season. These applications covered 165 flocks, having a total of 117,278 birds, of which 26,561 or 22.6 percent of total were rejected at time of inspection for standard disqualifications or production defects. A total of 86,379 birds passed inspection and testing of which 74,325 were Certified, 9,210 Certified-Accredited and 2,844 Approved Meat Production. Four thousand three hundred thirty-eight or 3.7 per cent of the birds passing inspection were bacillary white diarrhea reactors and were removed from the flock. This shows an increase of 5,594 birds in the Certified class and 1,278 in the Certified-Accredited class over 1927, and an increase of applicants from 87 to 113, which is highly satisfactory.

Of the 140 flocks Certified and blood-tested, 33 were under 200; 27 between 200 and 500; 11 from 500 to 1,000; 20 from 1,000 to 5,000 (including 16 hatchery outflocks listed as one flock); 1 over 10,000 (including 32 hatchery out-flocks listed as one flock). The 7 Certified-Accredited flocks are classified as follows as to size: 5 from 200 to 500; 1 from 1,000 to 5,000; 1 from 5,000 to 10,000. There were 19 Meat Production flocks distributed between Burlington and Salem counties. All but one were under 200 and under hatchery control.

Single Comb White Leghorns led the single breed total of birds inspected with 100,558 followed by Approved Meat Production class with 4,378; Black Giants, 4,132; Barred Plymouth Rocks, 3,548; Rhode Island Reds, 2,521; White Plymouth Rocks, 1,047; White Wyandottes, 894; S. C. Black Minorcas, 125; and White Orpingtons, 75.

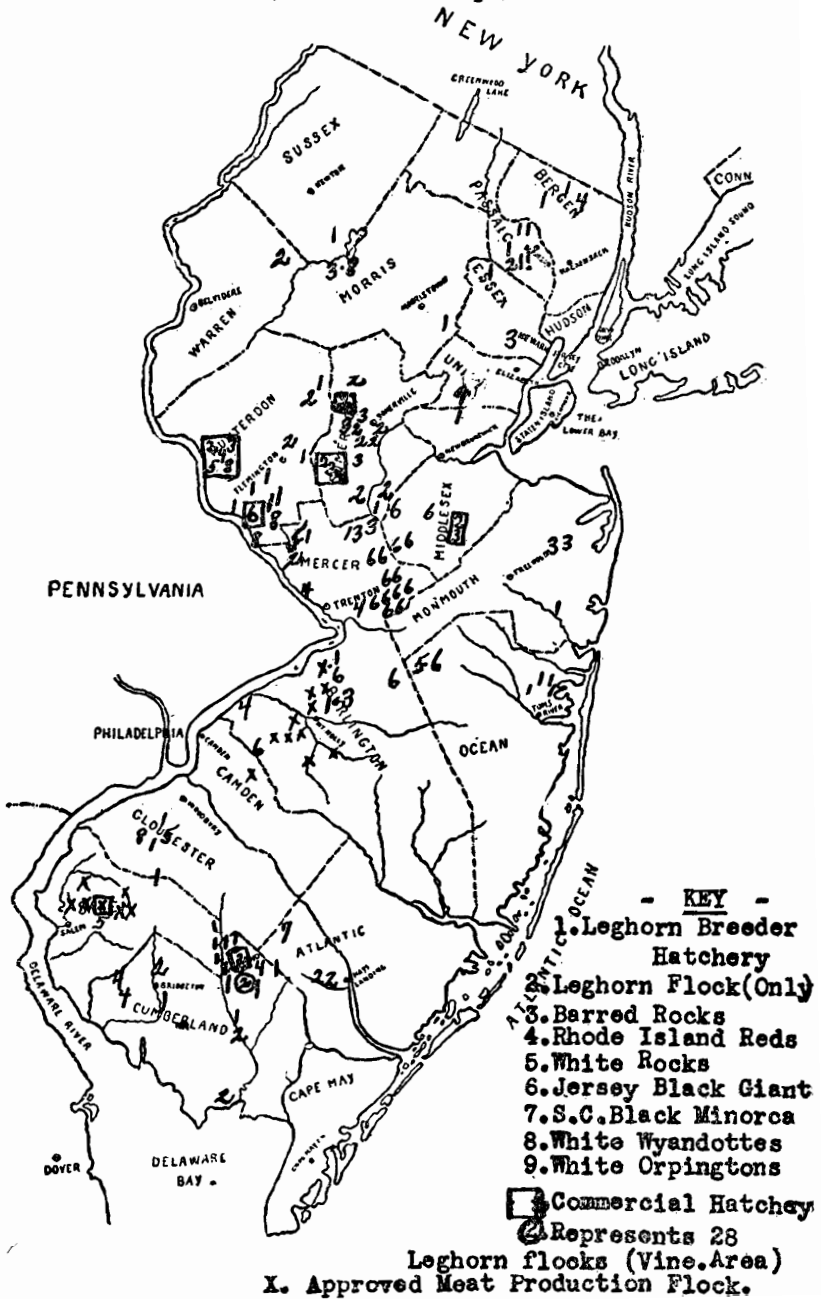
The flocks were distributed over 19 counties, Cumberland leading with 46 followed by Mercer with 21; Somerset, 20; Burlington, 16; Hunterdon, 10; Salem, 8; Passaic, Ocean, Middlesex, Gloucester with 6 each; Monmouth, 4; Morris, Bergen, Atlantic, 3 each; Union, Essex, 2 each; and Warren, Sussex, Camden with 1 each. Rated numerically on the basis of number of birds inspected

the ranking of counties is radically changed as follows: Cumberland leading with 34,894; Middlesex, 12,467; Hunterdon, 11,852; Somerset, 10,151; Gloucester, 9,617; Passaic, 9,362; Burlington, 4,677; Mercer, 4,448; Ocean, 4,395; Bergen, 3,907; Union, 2,963; Morris, 2,364; Salem, 2,322; Monmouth, 1,872; Atlantic, 705; Essex, 599; Sussex, 330; Camden, 292; Warren, 61.

The certification work for the 1927-28 season was divided into two groups according to size of flocks as follows: Flocks with less than 200 birds and those with more than 200. The inspection on the small flocks required a total of 18 days work by inspectors of this Department who inspected 4,755 birds, rejected 497, Certified 2,472 and passed 1,250 for Approved Meat Production—(536 reactors). This work was on a flat rate basis of eight cents per bird handled and four cents laboratory cost for each blood sample sent in for testing. The inspection of flocks of 200 birds and up required a total of 226 days work in which 112,523 birds were inspected, 26,064 rejected, 71,853 Certified, 9,210 Certified-Accredited, and 1,594 passed for Approved Meat Production—(3,802 reactors).

The chart showing distribution of hatcheries indicates that 48 breeder hatcheries, having a total egg capacity of 559,550 eggs, were receiving their total egg supply from flocks under state supervision, and 7 commercial hatcheries with capacities of 2,209,920 were receiving eggs from at least one breed under supervision. The total capacity of this group alone is 2,769,470 eggs. Other charts and a map follow showing the distribution and location of the flocks, and the rejections in each breed by inspection and reaction to the agglutination test.

Map Showing Distribution of Flocks and Hatcheries
Under State Supervision.



CAPACITY OF HATCHERIES UNDER STATE SUPERVISION

Counties	Breeder Hatcheries Under 5000	Breeder Hatcheries 5000 to 12,000	Breeder Hatcheries 15,000 to 47,000	Breeder Hatcheries over 50,000 Capacity	Total Capacity of Breeder Hatcheries	Commercial Hatcheries Number of Hatcheries	Capacity	Total Hatchery Capacities
Atlantic	1	..	..	..	4,000	..	..	4,000
Bergen	1	..	1	..	18,000	..	..	18,000
Burlington	1	2	..	..	12,750	1	*94,000	106,750
Camden .....	..	..	..	..	..	..	..	..
Cumberland	2	4	2	1	119,400	1	L220,000	339,400
Essex .....	..	..	..	..	..	..	..	..
Gloucester	1	2	2	..	49,200	..	..	49,200
							X1,000,000	
Hunterdon	1	2	2	..	51,300	2	J 800,000	1,851,300
Mercer	1	2	..	..	18,800	..	..	18,800
Middlesex .....	..	2	1	1	150,500	..	..	150,500
Monmouth	1	..	1	..	26,800	..	..	26,800
Morris	1	1	..	..	12,400	..	..	12,400
Ocean	2	..	1	..	21,120	..	..	21,120
Passaic	1	2	2	..	46,000	..	..	46,000
Salem .....	..	..	..	..	..	1	*8,640	8,640
Somerset	2	..	..	..	6,480	2	87,280	93,760
Sussex	1	..	..	..	2,800	..	..	2,800
Union .....	..	..	1	..	20,000	..	..	20,000
Warren .....	..	..	..	..	..	..	..	..
	16	17	13	2	559,550	7	2,209,920	2,769,470

*—Approved Meat Production, only.
L—Leghorns only Certified.

J—Jersey Black Giants only Certified.
X—Breeding Farm Only.

NUMBER OF BIRDS INSPECTED 1927-28

<i>Counties</i>	<i>Flocks applied for and inspected</i>	<i>S. C. White Leghorns</i>	<i>White Wyandottes</i>	<i>R. I. Reds</i>	<i>Barred Rocks</i>	<i>White Rocks</i>	<i>White Orpingtons</i>	<i>Black Giants</i>	<i>Black Minorcas</i>	<i>Approved Meat Production</i>	<i>Total Birds</i>
Atlantic	3	580	..	..	..	..	..	..	125	..	705
Bergen	3	3,827	..	80	..	..	..	..	..	..	3,907
Burlington ...	16	1,609	..	520	138	..	..	646	..	1,764	4,677
Camden	1	..	..	..	..	..	..	..	..	292	292
Cumberland .	46	34,223	..	671	..	..	..	..	..	..	34,894
Essex	2	591	..	..	8	..	..	..	..	..	599
Gloucester ...	6	8,925	240	..	..	452	..	..	..	..	9,617
Hunterdon ...	10	10,686	495	409	262	..	..	..	..	..	11,852
Mercer	21	935	..	445	446	120	..	2,502	..	..	4,448
Middlesex ...	6	10,830	..	..	747	..	..	890	..	..	12,467
Monmouth ...	4	1,325	..	..	334	213	..	..	..	..	1,872
Morris	3	2,088	159	..	117	..	..	..	..	..	2,364
Ocean	6	4,039	..	..	..	262	..	94	..	..	4,395
Passaic	6	9,066	..	296	..	..	..	..	..	..	9,362
Salem	8	..	..	..	..	..	..	..	..	2,322	2,322
Somerset	20	8,555	..	100	1,496	..	..	..	..	..	10,151
Sussex	1	330	..	..	..	..	..	..	..	..	330
Union	2	2,888	..	..	..	..	75	..	..	..	2,963
Warren	1	61	..	..	..	..	..	..	..	..	61
	165	100,558	894	2,521	3,548	1,047	75	4,132	125	4,378	117,278

NUMBER OF BIRDS REJECTED 1927-28

<i>Counties</i>	<i>S. C. White Leghorns</i>	<i>White Wyandottes</i>	<i>R. I. Reds</i>	<i>Barred Rocks</i>	<i>White Rocks</i>	<i>White Orpingtons</i>	<i>Black Giants</i>	<i>Black Minorcas</i>	<i>Approved Meat Production</i>	<i>Total Culls</i>
Atlantic	159	..	..	..	..	..	..	26	..	185
Bergen	1,388	..	16	..	..	..	..	..	..	1,404
Burlington	285	..	125	9	..	..	97	..	201	717
Camden .....	..	..	..	..	..	..	..	..	50	50
Cumberland	6,655	..	136	..	..	..	..	..	..	6,791
Essex	103	..	..	..	..	..	..	..	..	103
Gloucester	2,246	44	..	..	85	..	..	..	..	2,375
Hunterdon	2,474	94	129	65	..	..	..	..	..	2,762
Mercer	238	..	99	41	20	..	445	..	..	843
Middlesex	3,321	..	..	163	..	..	105	..	..	3,589
Monmouth	110	..	..	25	8	..	..	..	..	143
Morris	619	43	..	9	..	..	..	..	..	671
Ocean	806	..	..	..	45	..	13	..	..	864
Passaic	2,243	..	43	..	..	..	..	..	..	2,286
Salem .....	..	..	..	..	..	..	..	..	445	445
Somerset	2,326	..	59	340	..	..	..	..	..	2,725
Sussex	75	..	..	..	..	..	..	..	..	75
Union	529	..	..	..	..	1	..	..	..	530
Warren	3	..	..	..	..	..	..	..	..	3
	23,580	181	607	652	158	1	660	26	696	26,561

NUMBER OF B. W. D. REACTORS 1927-28

Counties	S. C. White Leghorns	White Wyandottes	R. I. Reds	Barred Rocks	White Rocks	White Orpingtons	Black Giants	Black Minorcas	Approved Meat Production	Total Reactors	Total Certified	Total Accredited	Total Approved Meat Production
Atlantic	4	..	..	..	..	..	..	38	..	42	478	..	..
Bergen	254	..	6	..	..	..	..	..	..	260	2,243	..	..
Burlington ...	6	..	26	33	..	..	45	..	156	269	2,284	..	1,407
Camden .....	..	..	..	..	..	..	..	..	53	53	..	..	189
Cumberland ..	248	..	2	..	..	..	..	..	..	250	19,272	8,581	..
Essex	6	..	..	..	..	..	..	..	..	6	490	..	..
Gloucester ...	115	29	..	..	8	..	..	..	..	152	7,090	..	..
Hunterdon ...	447	85	29	8	..	..	..	..	..	569	8,225	296	..
Mercer	24	..	96	56	10	..	329	..	..	515	3,090	..	..
Middlesex	108	..	..	16	..	..	143	..	..	267	8,611	..	..
Monmouth ...	18	..	..	7	13	..	..	..	..	38	1,691	..	..
Morris	68	5	..	18	..	..	..	..	..	91	1,602	..	..
Ocean	136	..	..	..	40	..	17	..	..	193	3,338	..	..
Passaic	174	..	71	..	..	..	..	..	..	245	6,831	..	..
Salem .....	..	..	..	..	..	..	..	..	243	243	386	..	1,248
Somerset	204	..	20	244	..	..	..	..	..	468	6,625	333	..
Sussex .....	..	..	..	..	..	..	..	..	..	..	255	..	..
Union	662	..	..	..	..	15	..	..	..	677	1,756	..	..
Warren .....	..	..	..	..	..	..	..	..	..	..	58	..	..
	2,474	119	250	382	71	15	537	38	452	4,338	74,325	9,210	2,844

The cost of the flock inspection work as in former years has been charged directly to the poultrymen and hatcheries on a straight cost basis. Seven dollars per day for the inspector hire, maintenance of inspectors, actual cost of leg bands used, mileage at ten cents per mile to and from established bases to the owner's farm, and four cents per tube for each blood sample tested at the laboratory. The latter is collected for and transferred to the Agricultural Experiment Station at New Brunswick under whose direction the samples are tested.

Supervision of this work and monthly inspections of flocks and hatcheries are required by law to protect the certificates issued by the Department of Agriculture and, consequently, are done by permanent authorized agents of the Department of Agriculture.

Record of Performance

The Record of Performance trapnest project has been transferred to the Contest Management at the Agricultural Experiment Station since the work was so similar in character. This transfer was made effective November 1, 1927, and all future development in the line will be made from that agency.

The Record of Performance breeding flock, however, for the production of individual pedigreed R. O. P. chicks, which was instituted for the first time during the past year and listed as such in Circular No. 135, is still supervised by this Department. Flock inspections are made on the fee basis as in all other grades and supervision of chick production extended by this Department during the hatching season. These flocks are made up entirely from females whose production has been certified by the Contest Management from either Contest or Home R. O. P. trapnest projects, mated to wing-banded pedigreed males whose dams produced more than 225 eggs during their pullet year. Eggs from each female in this class must weigh at least two ounces each and average twenty-five ounces to the dozen.

Twenty-three breeders entered 68 flocks in this class of which 65 were Leghorns, 2 Barred Plymouth Rocks, and 1 Rhode Island Red. Fifty-five were Certified and 13 Certified-Accredited distributed by counties as follows:

Burlington 2, Cumberland 21, Essex 2, Gloucester 8,
Hunterdon 11, Middlesex 11, Monmouth 1, Ocean 1,
Passaic 5, Salem 1, and Somerset 5.

Male birds from this source will be used for all certified flocks under the new classification.

The classifications listed in the Department of Agriculture, Circular No. 114, dated June, 1927, and sent to producers in July, 1927, will become fully effective with the coming hatching season. The intervening period of time was allowed to permit flock owners to provide pedigree males for their flocks if they were desirous of remaining in the Certified class. The rule on official record males becomes fully effective January 1, 1929. After this date all flock owners will be listed according to class as Supervised, Certified or Record of Performance; or Supervised-Accredited, Certified-Accredited and Accredited Record of Performance, in accordance with the legal terms governing the sale of standardized hatching eggs, baby chicks and breeding stocks. Rules and regulations are available in Circular No. 135 and will be reprinted with the list of breeders in January, 1929.

Marketing

The survey of commercial poultry farms which began in 1927 has been completed and we are now in close contact with approximately 2,200 poultry farms in New Jersey. We have made further studies of egg qualities and grading practices in several areas and found that in most cases eggs have not been uniformly graded. To remedy this we are attempting to have producers grade more closely.

We have also found that where white eggs have been closely graded the producers are receiving from one cent to four cents premium per dozen over top New York quotations, whereas, cuts of from one cent to four cents have been general where the grading is poor. We have exhibited materials during the year to show the advantage of both egg grading and careful breeding on a dollar and cents basis. Our Circular No. 148 shows quite clearly the disadvantage of shipping poor quality. We have had splendid cooperation from the egg trade in general and from several producers' organizations in our educational work. It is realized by the industry as a whole that standardization of poultry products must be a slow process. We feel that we have made remarkable progress and that we will have established a sound definite policy within the near future.

Members of this Bureau took an active part in "National Egg

Week'' to further the consumption of poultry products. We expect the cooperation of every poultryman to this and other consumption campaigns that may be launched in the future.

National Representation

During the past year we took part in a program to secure the soundest possible national program of poultry standardization, believing as we do that a sound national program will help correlate the industry and make general poultry improvement and the transfer of quality products much easier. We see in this program an easy method of curtailing false advertising, particularly of baby chicks and high record breeding stock. We cannot, however, subscribe to the present plan as offered by the United States Department of Agriculture since it does not definitely identify the various grades in simple terms that can be easily understood nor recognize the value of some of our most important poultry improvement work.

We have attempted, therefore, to have this terminology changed by agreement with all, but so far have been unable to do so. A committee representing several states whose problems are similar have, therefore, tried to have the federal government accept a program similar in nature to the one proposed but having simpler terminology and clearer methods of supervision.

Mr. Jones has served as chairman of a committee consisting of Prof. James E. Rice of New York; S. B. Shaw of Maryland; Elmer Wene of Vineland, and E. J. Lawless, Jr., of Pennsylvania, which has as its aim the formation of a national organization of state representatives from state councils governing the poultry industry in their respective states—the organization to be known as the Official Poultry Breeders and Hatchers. In this way we believe it will be possible to forget terminology for the present and to establish a trading basis through the organization, later settling the terminology problem within the organization. If this is possible we will then be able to present a united industry to the federal government and request its supervision. This should be by both the Bureau of Agricultural Economics on grades and standards of hatching eggs and baby chicks and the Bureau of Animal Industry on breeding and registration. This organization has received favorable support from leading officials and poultry breeders all over the United States.

We are indebted to the Poultry Advisory Committee for the splendid service they gave to the poultry industry during the past year. This committee composed of Elmer H. Wene, Vineland, President State Poultry Association, chairman; Herman Demme, President Record of Performance Association, Sewell, poultryman; Paul Smith, Vineland, poultryman; C. T. Darby, North Branch, poultryman; J. C. Weisel, Frenchtown, hatcheryman; Louis Novins, Toms River, poultryman; and J. P. Vreeland, Little Falls, poultryman, assisted materially in administering our work to the best interest of the poultry industry of the entire state. Each section of the state and each phase of the industry was represented on this committee. Mention has been made elsewhere of the splendid cooperation of other state agencies, but we are appreciative of the assistance given by Prof. W. C. Thompson, Poultry Husbandman; Dr. F. R. Beaudette, Poultry Pathologist; and Leslie Black, Extension Specialist, to the Poultry Advisory Committee at their various meetings. This group met monthly at Trenton to consider all phases of the work.

FRUIT AND VEGETABLE GRADING AND STANDARDIZATION

The most practical and successful efforts in the fruit and vegetable project have been the continuation and expansion of the inspection and certification work at shipping point. Allied with this type of service the work along educational and investigational lines has been promoted to include a number of commodities in the fruit and vegetable industry of New Jersey. A few new lines of work for which there has been a demand have also been developed, particularly in the investigational field.

The Shipping Point Inspection Service

Shipping point inspection on fruits and vegetables was carried on during the 1927-28 season under the usual cooperative agreement between the United States Bureau of Agricultural Economics and the New Jersey Department of Agriculture, representing the sixth year in which this service has been available to growers and shippers. The principal inspection work on potatoes was at Bradevelt, Cranbury, Cranbury Neck, East Freehold, Englishtown, Hightstown and Marlboro, with a few cars at Dayton, Freehold, Pros-

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pect Plains and Yardville. Practically all the peach inspections were made at Seabrook, only four being made at Hammonton. A few apple inspections were made at Glassboro, Hopewell, Merchantville, Moorestown, Mount Holly, Riverton and Westville.

The total number of inspections for the year beginning July 1, 1927, amounted to 936 cars, three-fourths of which inspections were made in August. Comparisons of the numbers of inspections since the beginning of the service in 1922 are shown below:

	1922-23	1923-24	1924-25	1925-26	1926-27	1927-28
Apples .....	...	250	147	124	...	25
Peaches	240	380	443	245	188	154
Pears .....	...	...	2	...	...	...
Potatoes	1,259	89	77	27	423	757
NEW JERSEY	1,499	719	669	396	611	936
UNITED STATES ...	72,466	130,959	131,087	165,544	193,220	210,832

Potato Inspection

The white potato industry of the state has been helped in a constructive way by a potato committee. This committee, of which Mr. Lynn is secretary, is headed by Dr. William H. Martin, State Plant Pathologist. Several meetings were held through the year to discuss problems confronting potato growers and make suggestions for the improvement of the industry in general. Probably the most important discussion brought before this group was the suggestion from some growers for compulsory inspection, as presented in detail in this report. The committee endorsed the voluntary shipping point inspection work as carried out by the Department, and was active in sponsoring "Potato Day", a summer gathering of growers and dealers.

Contacts were made with various shippers in both Central and South Jersey in the interests of shipping point inspection. However, these failed to add any new business. The same principal shippers using the service in 1926 contracted for the 1927 season. Contracts with the two largest shippers were on the basis of \$50.00 per week per inspector, fees payable in advance, and in addition fifty cents for each certificate issued to cover federal surcharge and overhead expense. All other work was done on the basis of \$4.50 per car.

The service was started on July 26 with one inspector and increased to five men in a week or ten days. These men, all licensed

as inspectors by the Federal Bureau, were transferred from the Eastern Shore of Virginia where similar potato work was about at an end. The quality of the New Jersey stock was good during most of the season. About 90 per cent of the cars inspected during the first three weeks graded U. S. No. 1, and the proportion continued reasonably high until the end of August. As an instance of this, the first 97 consecutive cars inspected for one applicant graded U. S. No. 1; the 98th car failed to meet grade requirements on account of defects 3 per cent in excess of the 6 per cent tolerance. The first two weeks in September, which were the last two weeks of the inspection season, saw a considerable decline in quality. Most of the trouble consisted of deep scab, sunburn and mud-caked potatoes. Several heavy washing rains after the middle of the season accounted for the sunburn, and the mud-caked stock, which sometimes concealed the two other principal defects, resulted of course from early digging after wet weather. In a considerable number of cars which failed grade, most of the stock met grade requirements, but the car as a whole failed to grade U. S. No. 1 on account of relatively high amount of defects in a few sacks. The number of cars inspected weekly, the proportion grading U. S. No. 1, and comparisons with the previous season, are shown in the following table:

<i>Week of</i>	<i>Total Cars Inspected</i>	<i>Cars Grading U. S. No. 1</i>	<i>Per Cent Grading U. S. No. 1</i>
July 25-30	10	9	90%
Aug. 1- 6	89	84	94%
“ 8-13	179	154	86%
“ 15-20	176	140	80%
“ 22-27	139	109	78%
“ 29- 3	109	59	54%
Sept. 5-10	54	21	39%
Later	1	1	100%
Season 1927-28	757	577	76%
Season 1926-27	423	233	55%

Rejections were the exception during the 1927 season, not only in the case of those shippers using inspection, but also with other shippers. There were times, however, when the certificates served in forcing acceptance. One firm reported six cars of U. S. No. 1's in trouble in several different markets in one day, with 50 cent allowances requested, but full drafts were finally paid on all cars. Had these cars not been protected by certificates, allowances of at

least half of the amount requested would have been made. This incident alone effected a saving of several hundred dollars which was equal to half the cost of the inspection service for the entire season. A complete check was also made of the f. o. b. sales on 1,250 cars, of which 441 were inspected. Practically no difference was found in the season average for stock inspected and passed, compared with stock failing to grade or stock not inspected. The value of the service, therefore, lay in the opportunity it offered for more intelligent distribution of shipments.

Several items of interest in connection with the inspection work are as follows:

- (1) Potato inspection increased 79 per cent over the 1926 business.
- (2) Carlot shipments from New Jersey as a whole were 41 per cent greater than in 1926, and from Central Jersey (the area in which the inspection service operated) were 46 per cent heavier than from the same section the previous year.
- (3) Fourteen per cent of the cars shipped from Central Jersey were inspected compared with 12 per cent in 1926, which difference is magnified when the large increase in shipments is taken into consideration.
- (4) Estimated f. o. b. value of the 757 cars of potatoes inspected was around \$400,000.
- (5) F. o. b. prices opened the last week in July at \$2.00-2.25, increased to \$3.00-3.25 during the first week in August, dropped as low as \$2.00-2.25 in the second week under heavy haulings, increased 75 cents-\$1.00 in the third week following heavy rains, and then maintained a fairly steady range of \$2.50-2.75 until the last of the season (second week of September) when the high level of the season of \$3.50-3.75 was reached.
- (6) Distribution was heavy to the West compared with 1926. Outstanding markets were Chicago and Detroit, which received 151 and 223 cars respectively, compared with 8 and 26 cars in 1926, with a heavy decrease in competitive Kansas stock in those markets.

Peach Inspection

Del-Bay Farms, Inc., at Bridgeton, was the only firm which contracted for peach work in 1927, and this was on a weekly basis similar to that offered on potatoes. The Jersey Fruit Growers Cooperative Association, which in earlier years of the inspection service furnished most of the fruit business, operated but one house in 1927, and no interest was manifested in contracting for the season. The Hammonton Fruit Growers, a ring of growers who operated independently with inspection in 1926, but who were prior to that a unit of the Jersey Fruit Growers, could not furnish sufficient tonnage in 1927 to promise much in the way of carlot shipments. Mr. T. A. Cole, shipping point inspector in various

states, and market master of the Hammonton farmers' market in 1927, made a few peach inspections at Hammonton upon request.

Quality as to grade was generally good, and proportion of U. S. No. 1's ran high. Only nine cars failed to grade U. S. No. 1 during the season. These were one car of bushels because of undersize, and eight cars because of soft stock. Seven of these eight cars averaged 7 per cent soft, which was only 2 per cent in excess of the tolerance, and one car averaged 25 per cent soft. This last car consisted of stock graded and packed, placed in storage, and inspected later at time of shipment. Injury from Oriental Peach Moth, which in 1926 accounted for a large number of cars failing to grade U. S. No. 1, was not present on the peaches in 1927; feeding occurred largely on twig growth which continued succulent over a long period, rather than on the fruit itself. The following table shows weekly inspections, together with the percentage of U. S. No. 1 cars:

<i>Week of</i>	<i>Total Cars Inspected</i>	<i>Cars Grading U. S. No. 1</i>	<i>Per Cent Grading U. S. No. 1</i>
Aug. 7-13	20	20	100%
" 14-20	24	24	100%
" 21-27	16	16	100%
" 28- 3	30	29	97%
Sept. 4-10	64	56	88%
Season 1927	154	145	94%
Season 1926	188	115	61%

Apple Inspection

Work on this commodity consisted of a few cars for a number of applicants. Request for the largest of these, a ten-car job, came from an export buyer and most of the other requests came indirectly from the buyers. The ten cars inspected at Glassboro were handled by the supervising inspector because the work was not considered sufficient to employ an inspector, and also because it was new territory in which future business might be developed. The fruit was packed in barrels, which was an unfamiliar package in that section. The inspector was, therefore, in position to render considerable service in instructing in facing, racking, ring-tailing and in the general handling of barrels, as well as in proper loading of cars. In this section heavy infestation of second brood codling moth complicated grading, and the first several cars failed to meet grade requirements. More rigid grading later resulted in U. S.

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No. 1 cars, but the deal was unprofitable to the growers because of the severe culling necessary, and to the buyer on account of consequent high labor overhead and loss of volume originally anticipated.

Several growers in the vicinity of Moorestown, and one at Hopewell, also applied for inspection on a few cars, and a regular inspector was obtained for the time necessary. All this stock graded U. S. No. 1 without much more than the usual grading. The following table indicates the proportion of U. S. No. 1 cars on the apple work:

Total cars inspected.....	25
Cars grading U. S. No. 1.....	18
Per cent grading U. S. No. 1.....	72 per cent.

The inspection work in all three products involved the temporary employment of seven licensed inspectors. These men were paid salaries as specified by the U. S. Bureau, ranging from \$35 to \$45 per week, and in addition their traveling expenses incurred in reporting to this state. The service was furnished on a strict cost basis, and refunds of surplus monies were made at the end of the season proportionate to the amount of business done. The following is the financial statement of the shipping point inspection work for the 1927-28 season as administered under the fruit and vegetable project:

Fees Assessed	\$2,147.83
Expenses	
Salaries	\$1,339.16
Reporting and travel expenses.....	253.62
Federal fees	93.60
Unpaid bills	20.00
Refunds	363.60
Reserve (new equipment, supplied).....	77.85
	<hr/> \$2,147.83

As far as volume is concerned there is a considerable opportunity for increasing the amount of shipping point inspection work in this state, as indicated by the usual shipments of 6,000 or more cars of potatoes, 1,000 or more cars of peaches and 500 or more of apples. Many growers and shippers of various fruits and vegetables have not accepted the service as readily as in some other sections, but the 50 per cent increase over 1926 indicates a steady growth at present.

Special Inspections

In addition to the shipping point inspection work, 11 cars of potatoes were inspected at terminal markets, principally Trenton, through cooperative agreement with the U. S. Bureau. These were straight federal inspections made at the request of receivers to settle differences of opinion between receivers and shippers as to the quality and condition of certain shipments.

A number of inspections of potatoes were made for the 300-Bushel Club applicants in order to determine the quality of their production. This is in accordance with the club regulations which provide that the potatoes must be of U. S. No. 1 quality and pass inspection of this Bureau.

Investigations

Through the courtesy of officials of the Pennsylvania, Reading, Central of New Jersey, Erie and Lackawanna Railroads, figures were obtained from their records for the first time on carlot receipts of fruits and vegetables in Atlantic City, Elizabeth, New Brunswick, Paterson and Trenton. For some years such figures have been obtained by the New York office of the U. S. Bureau from the markets of Newark and Jersey City, and have proved of considerable interest and value to the trade and agricultural agencies. In the first five markets named, origins and month of arrival of 3,573 cars of fruits and vegetables were obtained. The value of such figures would be greatly augmented by some accurate knowledge of the vast quantities moving into those centers by motor truck, but at any rate the carlot figures themselves furnish a foundation for an insight into the perishable business, especially on quantities from more distant producing areas.

At the request of Gloucester County agencies, investigations were made in that county with a view to perfecting a uniform set of recommendations for the grading of asparagus. The principal lines of investigation dealt with the number of spears per bunch, length and weight of bunches, and general quality. The work indicated a considerable variation in grading and grade terminology, and also the need for uniformity as has been successfully developed in other producing sections.

The drafting of grades for the growers of cultivated blueberries was an initial step in promoting standardization in this new industry. The grades as drafted, known as New Jersey standards,

carry out uniformity by being similar in character to U. S. grades on other berries, and will require several seasons of investigation and minor revision to become recognized standards.

Another new type of investigational work consisted of the inspection of various lots of graded and orchard run apples in storage to determine the principal grade defects present in a respective area and to determine the amount of grading necessary to meet U. S. requirements. The initial results of this work were helpful to growers, extension representatives interested in production of better quality, and to this Bureau. Enlargement of this type of work and the intelligent use of the results secured should benefit many growers.

Exhibits

Exhibits and demonstrations formed an essential part of the fruit and vegetable standardization work during the 1927-28 season. Probably the most important of these was the exhibit arranged on the 1927 Marketing Train which toured South Jersey for a period of four weeks. Grading, packing and standard packages were the central theme of the exhibit, and these were demonstrated on a number of commodities with special emphasis on products of most importance at the respective stops.

Other exhibits consisted of a continuation of the Marketing Train exhibit for the Trenton Fair; a standardization booth and management of the apple and sweet potato displays at the State Farm Products Show; a potato and apple grades exhibit at the Mercer County Show at Hightstown; and a potato marketing exhibit at Allentown on "Potato Day."

Legislation

Outstanding legislation of interest to the fruit and vegetable project was the proposed act known as the "Honest Pack Bill" which provided for uniform packing, and prohibiting the facing of any package or load with goods superior in quality to the contents. The measure received the endorsement of all agricultural agencies and many of the growers, but was withheld from legislative approval.

Further legislation of importance to fruit and vegetable producers was the passage of the Federal Standard Hamper and Basket Act, which upon protest of some New Jersey, Delaware

and Maryland producers and canning interests, was amended before final passage to include the five-eighths bushel basket.

An additional matter legislative in character was the proposal from a group of growers to institute compulsory inspection of potatoes from this state in an effort to alleviate the questionable practice of field grading and sacking, and bring about greater uniformity of product, and establish a sounder reputation. Thorough investigation of this matter in other states indicated that a wiser policy, especially in view of the extensive truck movement here, would be that of compulsory grading with voluntary inspection. Such a step was not considered timely at present; however, it is being considered in some other important potato states as the only sound policy for establishing and maintaining a good reputation. The compulsory inspection has been successful in only one or two instances, and these were under circumstances in which the motor truck was a more or less negligible factor.

Publications

Two circulars were written and published during the year, primarily for distribution on the Marketing Train, as follows:

Circular 115—"What Is This Standardization?"

Circular 128—"Standardization as an Aid to Better Marketing in New Jersey."

MARKET NEWS

Gathering Market Information—The gathering of market news, consisting of prices, supply, demand and other market conditions, was carried on cooperatively with the federal department last year as in the past. In this way a maximum amount of information at a minimum cost has enabled us to cover the field much more thoroughly than we could otherwise. In Philadelphia this includes one-third of the man's salary for six months, in New York \$500 a year, and in Newark \$1,000 a year and a clerk's salary. During the year the Newark office was established as a federal-state cooperative market news and inspection office with Mr. H. L. Harrington in charge. In the large markets such as New York, Philadelphia and Newark, men employed jointly by the New Jersey and United States Departments of Agriculture were used to obtain as early a report in the morning as possible of the fruit and vegetable markets. In Trenton and Atlantic City

the marketing directors, cooperative state-municipal employees, have been picking up the necessary information which has been used by their local papers as well as by the Camden Post-Telegram. In addition we have been obtaining a report once a week giving the daily prices of commodities sold on the Hammonton, Cedarville and Rosenhayn markets, the former two being f. o. b. auction markets. Reports were also received daily from Wilkes-Barre and Scranton. (See report by projects below.) Some special information was obtained daily for a limited period through the cooperation of the Pennsylvania Bureau of Markets and the United States Department of Agriculture.

Distribution

The distribution of marketing information, the most important problem after the material is obtained, has made good progress during the past year due to the support being given the project by all members of the Bureau coordinating their work with the market news project.

Distribution by Newspapers—The policy of this Bureau, that of relying on the newspapers for daily distribution rather than by the expensive method of daily mimeographed reports, was carried on last year. The use of our daily market reports by newspapers has spread and, during the past year, they not only included fifteen newspapers of the state but the leading daily newspapers of Philadelphia have added our Newark and New York report to their financial page. Some of the Sunday newspapers, including the Philadelphia Ledger, have also included the report of the Newark and New York markets as well as the Philadelphia market. The Ledger, Sunday and Daily, (according to 1924 Census, the latest in the State Public Library) has a circulation of over 535,000. The New Jersey editions of other Philadelphia papers also use our reports on New Jersey produce so that it is safe to say that the daily circulation of newspapers within the state carrying our market reports is well over 500,000. The daily circulation of the Philadelphia papers carrying our report of the Newark and New York markets, recent addition to their financial page, is about 570,000; and the Ledger, Sunday circulation, is nearly 250,000, making a total newspaper circulation carrying our market reports of over a million. (This does not include the Philadelphia papers,

Bulletin and Record, which have carried just the Philadelphia market and which have an additional circulation of 750,000.) The following papers carry one or more official market reports:

Paterson Morning Call
 Paterson Press Guardian
 Bergen Evening Record
 Jersey Journal
 Asbury Park Press (2 or 3 times a week)
 Atlantic City Evening Union
 Atlantic City Press
 Trenton Evening Times
 State Gazette, Trenton
 Burlington Enterprise (Now discontinued)

Newark Evening News
 Newark Star-Eagle
 Camden Post-Telegram
 Bridgeton Evening News
 Elizabeth Journal
 Philadelphia Inquirer
 Philadelphia Ledger
 Philadelphia Record
 Philadelphia Bulletin.

The distribution by newspapers now covers the ground very well, the service now being rendered by the Bridgeton News, a paper of about 8,000 circulation, situated in the heart of our produce shipping area, pretty well rounds out our program in this direction.

Distribution by Radio—Radio distribution of daily reports on fruits and vegetables has not changed very much during the past year, although there were some interruptions. Radio broadcasting is unsettled in that many broadcasting stations are not sure of being able to retain their place on the air due to the activities of the Federal Radio Commission.

Our first report is broadcast daily at 10:00 a. m., excepting Friday and Saturday, by WNJ, a small station located in Newark, and covers the Newark and New York fruit and vegetable markets. The next report of the day is 10:15 a. m. from WFI (Strawbridge & Clothier, Philadelphia), covering the New York and Philadelphia fruit and vegetable markets. This is in cooperation with the Philadelphia office, but this early service was originally established by the New Jersey Bureau of Markets. WAAT of Jersey City, broadcast a report daily, except Saturday, at 6.00 p. m., covering the Newark and New York fruit and vegetable markets on New Jersey produce. Several large stations, such as WJZ, WEAf, WNYC, all of New York, and WIP of Philadelphia, broadcast for the Federal and various State Departments of Agriculture the local fruit and vegetable, livestock, meats and dairy products markets. (WEAF also includes for the New York State Department, poultry, eggs, hay and straw in addition.) WEAf goes on about 12:30 p. m. and the other stations in the early evening.

Distribution by Telephone and Telegraph—

1. CUMBERLAND COUNTY

In cooperation with the Cumberland County Board of Agriculture market information covering principal fruits and vegetables shipped from that county were given to the county agent, who in turn relayed them to the Cedarville and Rosenhayn auction markets and to the Bridgeton Evening News. This included information covering the New York and Philadelphia markets and the information was posted on a blackboard for all to see before the opening of the market for business.

2. ATLANTIC COUNTY

Special service was rendered to the Hammonton market again this year. Through federal cooperation the berry market (strawberry, raspberry, blackberry) was obtained from Pittsburgh and Boston daily as well as supplying the Philadelphia, Newark and New York markets on the same commodities. The information was obtained by telephone daily by the cooperatively employed marketing director, Mr. J. A. Burroughs, and posted on a blackboard before the opening of the market.

3. BURLINGTON COUNTY

Due to the number of requests received by the county agent's office for market information concerning eastern Pennsylvania markets a trip was made through Sunbury, Williamsport and Shamokin, Pennsylvania, and contacts established making it possible to obtain by telephone whenever wanted the conditions of these markets. Arrangements were made with the Pennsylvania Department of Agriculture for their reporter to furnish us daily by telephone the Wilkes-Barre and Scranton markets on beans, corn, apples and peaches. This service was just going into effect at the end of the fiscal year, the Williamsport market being supplied about twice a week. The Pennsylvania Bureau of Markets made it possible for us to obtain through local dealers and brokers in the Harrisburg and Hazleton markets market information, if such requests were made of us.

Weekly Market Reports

Weekly Market Review—The Weekly Market Review's mailing list was becoming cumbersome and as it had not been fully circularized for two years this was done, cutting the mailing list down to about 900 copies a week. This report includes grain and feed prices and market trends; prices covering the New York and Philadelphia hay and straw markets; the New York, Newark and Philadelphia fruit and vegetable markets; the New York live and dressed poultry, egg, livestock and dressed meat markets; as well as some special features from time to time. From January through the hatching season a special report covering the monthly surplus and prices asked for baby chicks and for hatching eggs from certified flocks was added. After the hatching season a table covering estimates and prices of the available supply of Certified and Certified-Accredited pullets and cockerels was included in the report.

Market Conditions—Reports covering market conditions of apples, early and late; asparagus; lettuce, spring and fall; onions;

peaches; potatoes; spinach, early and late; strawberries; sweet potatoes; tomatoes, and under miscellaneous, cabbage, beets and a few other commodities were mentioned. The object of these reports was to keep the grower informed as to what was going on in competing areas as well as in the various markets. It was a combined concentrated report covering market conditions and prices in terminal markets and at shipping points, carlot shipments, weather and crop conditions in competing areas, approximate opening and closing dates of the movement of specified commodities originating in other states but competing with New Jersey produce, also storage holdings. It also included news of foreign apple markets and estimates of the amount of any one commodity expected to be shipped from a given territory. These reports were sent only on a definite request, mostly written, by an individual and included at the end of the fiscal year 3,391 names, an increase of 220 during the year, entirely without solicitation. These reports were generally issued weekly through the season and at irregular intervals between seasons as conditions warranted. A total of 190 reports were issued, including 42 on apples, 35 on sweet potatoes, 23 on white potatoes, 17 on peaches, and from 10 to 15 on lettuce, tomatoes, spinach and miscellaneous (cabbage, beets, peas, beans, carrots, celery, cauliflower, turnips), while 7 reports each were issued on strawberries, onions and asparagus. The gathering of such information entailed considerable correspondence with shippers, county agents, state and federal officials in this and other states, and close contact with receivers in terminal markets.

Weekly Radio Talks—Weekly talks by radio were instituted during the year for the purpose of pushing whenever possible the use of New Jersey agricultural products. Arrangements for a program of this nature were made with the Bamberger's Broadcasting Station, WOR, the talks to be of ten minutes duration, free of charge. A working agreement was made with the Extension Service of the New Jersey College of Agriculture whereby Miss Doermann, Food Specialist, would furnish one-half of each talk and take charge of the actual broadcasting 50 per cent of the time. We furnished the marketing part of the program while food values and recipes were supplied by Miss Doermann. This has been working well for about ten months. After one talk on apples about 150 requests were received for a bulletin giving recipes for the use of apples. Practically all the fruits and vegetables grown

in New Jersey were mentioned in their season and special talks were put out on milk, eggs and poultry, potatoes, apples, peaches, sweet potatoes and honey.

Miscellaneous

Roadside Markets—In accordance with the policy of the Bureau, work with the New Jersey Farmers' Roadside Market Association has been confined largely to the inspection of the members' markets. This inspection covered many points concerning origin of produce, care of market, proper marking and grading; but special stress was placed on honest packing. From July to January (the end of the Association's year) 24 markets were inspected and a total of 81 inspections were made during that time. However, all of the 24 markets were not in operation all of the time, and after January 1 only 9 roadside markets carried the official sign and were inspected regularly. Total inspections made from January to July were 43, as only two or three markets were open during the winter and spring months. From time to time a report was made to the secretary of the Association as to the conditions of the markets. An occasional meeting was attended upon special request of the secretary and assistance was given by the Bureau in formulating a program and securing a speaker for the annual meeting in January.

Farm Prices—In cooperation with Mr. Morgan of the Federal Crop Reporting Service, farm prices were obtained semi-monthly covering throughout the year about fifteen fruits and vegetables. These prices were obtained through the questionnaire method and an average price was obtained on each commodity.

Newark Office—During the fiscal year ending June 30, 1928, the Newark office was put on a permanent basis. A cooperative agreement with the federal department was made whereby we paid part-time salary of a market reporter-inspector and the salary of a clerk. The federal department furnished the office and paid the rent. Telephone charges were split between the Federal and State Departments. Mr. H. L. Harrington was put in charge of the office. Mr. Harrington has been reporting the Newark farmer and jobbing fruit and vegetable markets, and has been handling the New York market, delivering and mailing copies of these reports to the Associated Press, radio stations and local newspapers. In addition Mr. Harrington has made a large number of receiving point inspections of produce shipped by freight

and express. The demand for this type of work has taken all of his time and has amounted to from 50 to 70 carloads of produce inspected monthly. Fees for this work, which go to the United States treasury, amounted to \$1,328.29 for the six months ending June 30, 1928.

Special Trips—Mr. Sherburne has made several trips outside the state for the purpose of obtaining direct information for individuals, cooperatives and general use within the state. By these trips he has met men well informed in the locality from which information was desired and by the personal contact made has assured the Bureau of accurate information of the nature desired. For this purpose Mr. Sherburne has visited Eastern Pennsylvania cities, New England cities from Stamford to Boston, and points in the peach belt of Georgia (made while on vacation). Detailed reports showing contacts made and information obtained are on file in the Bureau office.

TRANSPORTATION

Transportation needs within the state have undergone a change within the past few years. More farm produce has been shipped into consuming centers and beyond the borders of the state than ever before. The method of transportation used by the shippers has changed according to the nearness to market and the hard surface road situation at the source. It has been conservatively estimated that today less than 20 per cent of the production of New Jersey farms moves by railroad. And still the volume of railroad business from farmers is no mean item of their total revenue. The year 1927 showed an increase of railroad tonnage of fruits and vegetables over 1926. The following table gives the story by counties of rail shipment from the state. It will be noted that counties farthest from their commodity market stand first in rail shipments.

At the request of the State Horticultural Society, work was started at the close of this year to show the volume of motor truck receipts in the metropolitan area. This work is being carried out jointly by the Bureau of Statistics and Inspection of this Department, the College of Agriculture, and the New York Port Authority, and the information gathered is being tabulated and sent out by the New York office of the Bureau of Agricultural Economics. A better comparison of methods of transportation may be made after the survey is completed.

Mr. Bamford has cooperated closely with shippers and railroad agents in obtaining the best schedule of produce trains possible and has followed this work up at terminal markets in order that the schedule be maintained. This has taken him into New York on many occasions. He was instrumental in having the South Jersey produce trains leave at an earlier hour in order to have early arrivals at the New York markets. In this work he had the hearty support of county agents, shippers and farmers alike. This early produce train enabled railroad shipments to compete in New York with Long Island and nearby point truck shipments.

The specialist has cooperated closely with local weights and measures superintendents and thereby assisted greatly in improving packages, proper marking, and car loading. He has also acted as a mediator in many adjustments of small nature such as losses by late trains, bad loading of cars, errors in charges, overweight in shipments, delivery charges by truck from railroad stations, rough handling by train crews, and overcharges of a petty nature by commission houses.

One important piece of work started in the spring of 1928 has been a drive by our specialist to see that truckmen carried proper insurance to protect shippers. The truck hauling method of transportation of farm produce is relatively new. Large numbers of truckmen with no capital and not even owners of their trucks solicited this business. Few of them carried insurance for fire, damage to load in transit from any cause, lateness of arrival. This matter was handled by Mr. Bamford to the great satisfaction of shippers.

Mr. Bamford assisted the Cumberland County agent materially in planning and carrying out a trip of 158 vegetable growers from Cumberland County to the New York markets. At this time several members of the Bureau force acted as guides throughout the night and showed the growers many things that happened to their produce before it was sold. Much was learned on this trip of the need of better packing and grading of New Jersey's produce.

We were of considerable assistance in establishing an equitable adjustment of freight rates on peaches, asparagus and strawberries from South Jersey points to Elizabeth, Newark and Jersey City. These reductions ranged from nothing to as much as 30 per cent from some points, and means a saving of thousands of dollars to the grower. The reductions put the rail rates in favorable competition with truck hauling rates.

CARLOT SHIPMENTS OF NEW JERSEY FRUITS AND VEGETABLES BY COUNTIES—1927

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STATE DEPARTMENT OF AGRICULTURE

<i>Product</i>	<i>Atlantic</i>	<i>Bergen</i>	<i>Burlington</i>	<i>Camden</i>	<i>Cape May</i>	<i>Cumberland</i>	<i>Gloucester</i>	<i>Hunterdon</i>	<i>Mercer</i>	<i>Middlesex</i>	<i>Monmouth</i>	<i>Ocean</i>	<i>Salem</i>	<i>Sussex</i>	<i>Warren</i>	<i>Total 1927</i>	<i>Total 1926</i>
Apples .....	..	..	298	32	1	68	257	1	5	3	25	..	17	1	..	708	332
Asparagus .....	..	..	..	..	..	65	91	..	..	..	..	..	..	..	..	156	221
Beans	3	..	2	..	..	198	..	..	..	..	..	..	..	..	..	203	61
Cabbage .....	..	..	..	..	..	46	3	..	..	..	..	..	6	..	..	55	57
Cantaloupes .....	..	..	..	..	..	..	12	..	..	..	..	..	..	..	..	12	15
Carrots .....	..	..	..	..	..	74	..	..	1	..	9	..	..	..	..	84	48
Celery .....	..	14	..	..	..	44	..	..	..	..	..	..	..	..	48	106	137
Cranberries	15	..	232	3	5	1	..	..	..	1	1	78	..	..	..	336	746
Cucumbers	301	..	..	..	..	59	..	..	..	..	4	4	..	..	..	368	259
Eggplant	1	..	..	..	..	..	3	..	..	..	..	..	7	..	..	11	1
Lettuce .....	..	..	..	..	..	302	2	..	..	..	..	..	..	..	4	308	303
Mixed Fruit .....	..	..	6	3	..	..	..	..	..	..	..	..	..	..	..	9	22
Mxd. Vegetables.....	482	..	..	..	..	2844	971	..	..	..	98	..	257	..	..	4652	4464
Onions .....	..	..	..	..	..	272	20	..	..	..	..	..	..	2	2	296	254
Peaches	373	..	240	26	..	190	234	..	..	..	..	..	25	..	..	1088	1135
Pears	3	..	2	14	..	..	5	..	..	..	..	..	..	..	..	24	45
Peas .....	..	..	..	..	..	39	..	..	..	..	..	..	1	..	..	40	25
Peppers	414	..	..	..	..	309	73	..	..	..	..	..	15	..	..	811	1002
Potatoes	6	..	7	..	..	542	1	..	1836	1102	2366	9	777	..	2	6648	4728
Spinach .....	..	..	..	..	..	14	2	..	..	..	..	..	..	..	..	16	28
Strawberries .....	..	..	..	..	..	134	..	..	..	..	..	..	..	..	..	134	207
Sweets	261	..	..	..	..	255	829	..	..	..	..	..	87	..	..	1432	1586
Tomatoes .....	..	..	..	..	..	44	241	100	299	..	493	142	24	..	..	1343	2006
Turnips .....	..	..	5	..	..	22	2	..	..	..	..	..	..	..	..	29	52
Melons .....	..	..	..	..	..	..	1	..	..	..	..	..	13	..	..	14	21
Total 1927	1859	14	792	78	6	5522	2747	101	2141	1106	2996	233	1229	3	56	18883	..
Total 1926	2097	16	583	286	30	4609	3334	84	1559	697	2862	291	1151	9	147	..	17755

MARKET ORGANIZATION AND SUPERVISION

Wholesale and retail farmers' markets were established on a cooperative basis while Mr. A. L. Clark was chief of the Bureau. This work was pushed even further under Mr. A. E. Mercker's supervision during the summer of 1927. Work was established in the producing territory where farmers can bring their fruits or vegetables to central loading points and sell direct to buyers. The buyers in turn distribute the farm produce direct to consuming sections where in their opinion an opportunity for profit to themselves may be found. The two outstanding lines of work organized in the summer of 1927 were the Hammonton and the Swedesboro markets. The city market and farmers' organization project was turned over to Mr. Oley in the early fall of 1927. Upon the resignation of Mr. A. E. Mercker in January, 1928, as chief of the Bureau, Mr. Oley was appointed chief by the State Board of Agriculture.

In January David H. Agans was added to the Bureau force on a part-time basis. The important Grange work of which Mr. Agans is State Master has brought valuable contacts to the Department. Because of the intimate knowledge he has had of agricultural conditions over the state his advice has been sought on various lines of work. He has given considerable time to milk marketing, but his chief work, and for the past months his real responsibility, has been market supervision.

Markets Established This Year

The work started by Mr. Mercker was continued and an endeavor was made to follow his policies in the markets already established. In addition to the two markets organized last year we have assisted growers in establishing three more markets in the state. These are the Orange market, the Cedarville and the Rosenhayn markets. A report of the markets established in the fiscal year just passed and of the markets in which we cooperate in supervision follows:

SWEDESBORO—The Swedesboro section of Gloucester County is famous as the center of an important sweet potato, tomato and truck-producing area. The value of these products in northern Gloucester County has reached several million dollars yearly. Swedesboro itself has been an important buying and shipping sta-

tion. Many of the shippers from this territory have felt that there was room for a great deal of work on the part of someone to educate growers to better methods of packing and grading. Under the leadership of Mr. George E. Lamb, the county agent, several meetings were held in Swedesboro and the aid of the Bureau of Markets sought. As the result of these meetings it was decided that a cooperative fruit and vegetable inspector, who had specialized in tomato inspection work, would be engaged by the Bureau to make daily examinations of offerings on the market and endeavor to improve through teaching the grade and pack of produce. Mr. R. A. Fleming was engaged and began work July 25 and continued until October 1. The expense of this work was borne in part by five shippers who contributed \$40 each and by a \$20 contribution from a local man, and by a \$230 appropriation of the State Department of Agriculture.

Mr. Fleming began his work on tomatoes and inspected approximately 60 different growers' lots daily over a period of the first three weeks. It was found that the tomatoes were irregularly graded and rarely met the requirements of U. S. No. 1. The Marglobe variety was in much better condition and of far better quality than Earliana or Acmes.

In cantaloupe inspection practically all offerings graded U. S. No. 1.

Peppers started off very poorly graded, but improved rapidly with approximately 85 per cent of later shipments grading U. S. No. 1.

Sweet potatoes were found to be put out in a good pack of U. S. No. 1. The Swedesboro section is noted for an exceptionally good grade of chunky, bright, clean stock. The chief defect in the sweet potato grading was the prevalence of scurf. Nearly 30 per cent of the growers offered ungraded sweet potatoes, due to undersize and stock too badly stained by scurf.

There are a good many growers trying to do their best to put out a good grade and pack, but there are many others that lack the proper interest in putting out a quality pack.

There were many instances reported by Mr. Fleming where, after his careful inspection and dumping, the dealer would pay more money for the goods delivered than he originally offered. These increases ran from 10 to 25 cents a package. Such growers welcomed inspection and endeavored to have it when buyers were

present. The work done was purely permissive and instructive. The inspector had no authority to enforce any grading rules or regulations, or require the packing of a standard grade of produce. Mr. Carl S. Crispin, cashier of the Swedesboro National Bank, has given this project his whole-hearted support and has shown many courtesies to the Department's men on the market.

In summing up, the following number of loads of commodities were inspected:

<i>Commodity</i>	<i>No. of Loads</i>
Tomatoes	1,400
Sweet potatoes	840
Cantaloupes	80
Peppers	200
Total	2,520

Plans are under way to continue the work at Swedesboro another year with the same inspector, Mr. Fleming, again in charge. This work will commence early in July, 1928.

HAMMONTON—In the spring of 1927 Hammonton passed an ordinance creating a municipal market and certain rules and regulations for the conducting of such a market. Twenty-five hundred dollars was appropriated for this purpose for the improvement of the market site (grading, etc.), rent, building, salary of director, etc. The cooperation of the Bureau of Markets of the New Jersey State Department of Agriculture was requested by the Market Commission. The Bureau of Markets employed Mr. T. A. Cole, formerly connected with the North Carolina State and Federal Inspection Service to act as director and inspector. Among other things the ordinance called for honest pack, and one of the chief duties of the director was to inspect all loads arriving on the market. This ordinance was rigidly enforced, a prosecution made, and the chaotic conditions existing previous to the ordinance were largely straightened out through the splendid work of the market director with the cooperation of the commission.

Considerable assistance was rendered the director by frequent unheralded visits to the market by members of the Bureau who assisted the director in inspecting the markets. The Bureau of Markets made it possible to have posted each day at the Hammonton market the Boston, Pittsburgh, Philadelphia, New York and Newark berry markets before the opening of the selling hour.

During the 1927 season over 82,000 packages were sold valued at nearly \$400,000. The average number of vehicles attending the market daily was nearly 200; maximum, 365, the growers within a radius of about fifteen miles patronizing the market. A total of 78 licenses were sold to the buyers at a dollar a piece.

The market was again opened in June, 1928, with the cooperation as before of the Bureau of Markets. The Market Commission was so well pleased with the work of Mr. T. A. Cole the previous summer that the Bureau of Markets was requested to obtain him again. We found this was not possible and engaged Mr. J. A. Burroughs, an inspector of the Federal Bureau, for the season of 1928. Mr. Burroughs commenced work June 18 this year and the work is progressing nicely. Our cooperation on this market consists of a \$250 contribution to the salary of the inspector and supervision of his work. We also assist in obtaining the daily prices to be posted on the market office bulletin board.

Mention should be made of the splendid cooperation of Mr. Arthur R. Eldred,* County Agent, and the Market Commission, who worked very closely with Mr. Cole and the Bureau of Markets. The commission appointed by the mayor consisted of W. J. Slack, chairman; P. H. Lucas, L. M. Parkhurst, H. P. Motola and John Machise.

ORANGE—In northeastern New Jersey we have a section termed the metropolitan area where some farming is carried on in a very intensive manner, and where the farmers have a consuming population at their very door. These farmers, of whom there are many hundred, have to compete with producing areas from a distance where land is relatively cheap and labor low. The money invested in these high priced acres makes it necessary for these farmers to get high prices for their produce to exist. These farmers sell on local markets, such as the New Brunswick, Freehold, Asbury Park, and Newark markets.

In December a request came to the Bureau from Mr. R. E. Harman, County Agent of Essex County, for help to establish the farmers' market in Orange on a firmer basis. The city council desired the Orange market farmers off the street. Following several trips to this territory, visits to farmers, and calls on commissioners and bankers, we assisted a group of these people to

*Resigned during the year.

incorporate and purchase a site and establish a private-owned market in the heart of Orange. A lot was bought for \$9,000. At a meeting in Mr Harman's office we assisted the directors to draw up a set of rules and regulations. The new market site is being graded and prepared for the farmers' use. For the present they are conducting their market on Canfield street under the supervision of the local superintendent of Weights and Measures.

CEDARVILLE—Cumberland County has been by far the heaviest rail shipper of fruits and vegetables in the state. It is also conservatively estimated that less than 50 per cent of Cumberland County produce is hauled by rail. In 1927 Cumberland County shipped 5,522 carloads of fruits and vegetables or nearly one-third of the entire state's shipments. Of this amount the four stations within an eight mile radius from Cedarville supplied 3,754 cars. The important items shipped in this circle were 1,895 cars of mixed vegetables, 180 cars of beans, 276 cars of lettuce, 262 cars of onions, 116 cars of strawberries, and 182 cars of peaches.

By far the greater part of this produce has in the past been consigned to New York or bought at private sale at the stations by dealers. The method of marketing has been very unsatisfactory to most of the farmers of this territory. For two years we have discussed the possibility of improving the marketing methods of this district and made some investigations in other states, notably in Maryland. In February of this year a series of meetings were held by the county agent, D. M. Babbitt, and ourselves, and a committee formed to investigate the possibility of an auction market for Cedarville. This committee together with Mr. Babbitt and Mr. Oley held several meetings, visited auction markets in Maryland and recommended that the farmers interested form a market growers' association and incorporate. All this was done. In order to obtain weekly reports and to cooperate and assist in supervision, the Bureau of Markets promised to contribute \$100 toward the salary of a market master or auctioneer. The Bureau also promised to supply daily telephone market reports giving prices in New York and Philadelphia to the Cumberland County markets. The association bought a piece of land adjacent to the railway station and erected an open market building, consisting of two driveways, a center platform, auction block and office.

The market was opened June 1 of this year. The method of sale consists of offering each load in line as it arrives at the auc-

tion block. The auctioneer calls the bids as received, and knocks the sale down to the highest bidder. He also is market master and enforces the rules and regulations of the association. On heavy days the auctioneer is assisted by one or two clerks as the amount of business requires.

The first month's work has been very successful. Prices have been as good or better than the top prices paid in New York City. Growers have saved commission and transportation charges, and often much more. The great feature of the market has been the wide distribution of the produce bought by the shippers. Where produce is bought by competitive bidding the weaknesses of the individual's pack and produce are brought out. Honest packs have been favored greatly. These features have been of great educational value.

The business transacted for this first month is as follows : Total packages of produce sold 35,234; total value of all sales \$121,185.72. Of this business 25,031 packages were strawberries. In order to draw some conclusion as to the value to Cumberland County Farmers, we have taken the actual sales price and compared it with the average sales price of an equal number of crates as sold daily on the New York market. We deducted freight, cartage and the usual commission. We chose New York as it was the most used market previous to the establishment of the auction market. The figures are as follows:

Number of crates sold.....	25,031
Total value of sales at auction less the 2c package charge.....	\$98,702.24
Total value of sales, New York, less freight, etc. Average prices..	\$71,223.68
Showing a possible profit to local growers of.....	\$27,478.56

ROSENHAYN—This market is located about eight miles north-east of Bridgeton in Cumberland County. Our figures show that more than 600 carloads of vegetables were shipped by rail from the immediate neighborhood in 1927. Probably more than this amount moved by truck. The growers and shippers of Rosenhayn requested assistance from the Bureau of Markets and from Mr. Babbitt early in 1928. The same procedure was followed as in the organization of the Cedarville market and the growers incorporated. The Rosenhayn growers bought a property adjacent to the railroad station and erected a shed with three platforms and two driveways.

The market was opened June 1, 1928. The Rosenhayn market differed from the Cedarville market in that no auctioneer was employed. In selling, the loads were handled in lines. As each load came to the auction stand the buyers quickly made their bids and signified when done bidding. The high bid took the load. The association hired a market master who saw that bidding was fair and that the rules of the association were carried out. He also kept account of all sales and the high bid, and made a weekly report to our Bureau.

We have cooperated in this market by paying \$5.00 weekly as part of the market master's salary. We do not believe that this method of selling is as practical as the auctioneer method. There is not the effort on the part of some disinterested person to increase the bid. It is also somewhat slower. However, with the small number of buyers at Rosenhayn the system is working out very well.

As a comparison we have taken certain facts from the weekly report of June as follows:

Total sales made 1,597, valued at.....	\$38,124.80
Number of crates of strawberries sold.....	8,272
Total value to farmers on auction market.....	\$27,184.61
Value to farmers if sold in New York. Average daily price.....	\$22,969.50
Possible profit by auction.....	\$4,215.11

In establishing these two Cumberland County markets great credit is due the county agent, D. M. Babbitt, and the committees and directors of each market association.

Cooperative Work in Markets Previously Established

BURLINGTON—The market had a successful year. There were 2,700 loads of produce sold during the 1927 season. The work of Mr. C. B. Davenport as market master was appreciated by farmers and satisfactory to the common council and our Bureau. Mr. Oley met with the market committee of the common council in April and was assured that they wished the cooperative work continued for the present summer with Mr. Davenport again in charge. However, politics entered into the scheme and the common council elected a local man as market master. This man was not satisfactory to the Burlington County Board of Agriculture and upon their advice we withdrew our further cooperation.

TRENTON—We continued the pleasant cooperative relations with the City of Trenton and Mr. Charles M. Woolley, Jr., marketing director. The 1927 season has been a satisfactory one on the Trenton markets. During the year 10,436 loads or approximately 222,350 bushels of produce were sold at an estimated value of \$315,000.

The 1928 season began with a large increase over the opening months of 1927. Plans are being considered for the establishment of an auction market in Trenton to supply local retailers produce direct from the grower. It is hoped to have this market operating during the coming season.

The fact that Mr. Woolley has had a desk in our office and has assisted us in obtaining the Philadelphia market and covering the Trenton market has brought our work very close together.

ATLANTIC CITY—The same cooperative plan has been continued at Atlantic City as in force during 1926-27. During Mr. Horace Ireland's absence over the winter months, Mr. Charles Cianciarulo has been acting market master. In the spring of 1928 an evening market was established in Atlantic City and the work divided so that Mr. Ireland supervised the evening market and Mr. Cianciarulo the morning market. The morning market has predominated, but the evening market has greatly increased the business at Atlantic City. Mr. Cianciarulo has contributed regular market news articles to the Atlantic City press.

MARKETING TRAIN

In cooperation with the Reading Company and the Central Railroad of New Jersey, the Department of Agriculture operated a Marketing Car in Southern New Jersey. This Marketing Car was a combination baggage and coach with the seats removed and the necessary tables and racks built in. On the tables there were exhibited educational displays of eggs, fruits and vegetables, and the packages recommended as being most practical for use by New Jersey growers. The kinds of vegetables displayed were changed as the type of farming changed in the various sections visited. As an example, in the Hammonton section special emphasis was laid on a berry and sweet potato, pepper and cucumber exhibit while in the Bridgeton district, potatoes, peaches and general vegetables were featured. In all sections the need of stand-

ardization of pack and package was emphasized and the importance of proper car loading. Bulletins and circulars of the Department were exhibited and a supply on hand to be distributed when requested. An exhibition of Japanese beetles and their destructive work created great interest.

The specialists on board explained the candling of eggs and the need of close grading of eggs in marketing. Three egg cinders were set up for use of any persons interested. The fruit and vegetable specialist had many demands for demonstrations of packing apples, peaches, and tomatoes and occasional requests for packing of peppers, eggplant, corn and other vegetables.

During the year we have heard many favorable comments on lessons learned and profits thereby gained. This was especially true of the packing of tomatoes in the climax and six-basket carrier.

The Department cooperating with the railroads placarded the localities where stops were to be made and employed Mr. Fred Lippincott as an advance agent. Mr. Lippincott canvassed the territory, appointed local committees and turned out a good attendance. The actual control of the car and its operation were placed in the hands of Mr. H. B. Bamford, the Department's specialist in transportation. Mr. Bamford had excellent cooperation from other members of the Bureau force who cared for the exhibits and gave demonstrations.

The train made its first stop at Mullica Hill on July 18 and made 22 stops through Gloucester, Atlantic, Cape May and Cumberland counties, ending at Port Norris on August 13. Evening meetings with speakers were held at all stops of the train. Mention should be made of the fine work of State Grange Master David H. Agans who spoke at five of these stops and did much to assure the success of the work. The total attendance of the 22 stops was 7,389 people. The car was repainted and new exhibit material was placed at the Trenton Fair Grounds for Fair Week and was here visited by 10,000 persons.

Plans are being perfected for a larger exhibit for this summer in which the Agricultural College will cooperate.

Summary

1. While many reasons for the agricultural depression are advanced and remedies recommended, we feel that our contribution

toward relief is orderly marketing through standardization, distribution, and knowledge of the needs of the consumer.

2. Milk marketing activities have been carried on through a commodity committee called "The Executive Committee of the Milk Marketing Council". An attempt to grade milk, to make uniform marketing requirements and to improve the quality of milk has been started.

3. The poultry project guided by an advisory committee has had as its main object the standardization of flocks so that eggs and chicks may be of a standard high quality. Excellent breeding flocks have been established in 19 counties of the state. Tables show an increase in flocks certified and approved. Forty-eight breeder hatcheries were obtaining all, and seven commercial hatcheries part of their eggs from flocks under state supervision. Close grading of eggs for market is essential in order to hold our markets. Our Bureau has taken an active part in the drive for national standards of poultry production of the highest quality.

4. Inspection and certification work for fruits and vegetables has been continued and expanded. This work has been with potatoes, peaches and apples. Nine hundred and thirty-six shipping point inspections were made during the year, which is a 50 per cent increase over 1926. Seventy-six per cent of the 757 cars of potatoes inspected graded U. S. No. 1. Inspection service was furnished on a strict cost basis. Standardization of pack and package is increasing in New Jersey, resulting in better reputation for Jersey-grown produce.

5. Gathering market information was carried on cooperatively with the federal department, supplemented by information gathered by the specialist from cooperators within and outside of the state. Distribution has been through newspapers having more than a million circulation, by radio over several stations, and by telephone to cooperating markets. Weekly market reports have included the "Weekly Market Review", "Market Conditions", and weekly radio talks. Our cooperative work in Newark with the federal department has been quite satisfactory.

6. Transportation needs of the state have changed with the advent of better state roads and motor trucks. The specialist has conformed his work to meet the new requirement. He has assisted in making better train schedules and making motor transportation more dependable.

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7. Additional cooperative marketing facilities have been established at Hammonton, Swedesboro, Orange, Rosenhayn, and Cedarville. Cooperative work was continued in Atlantic City, Burlington and Trenton. Improvement of pack and package, and prices received by the producer have resulted. These markets consist of city wholesale and retail, shipping point, private, and auction buying and selling.

8. Through the cooperation of the Reading Company and the Central Railroad of New Jersey a Marketing Car was conducted in South Jersey. Twenty-two stops were made. Total attendance was 7,389 persons. The feature of the exhibits was better grading and packing, better packages, and more cars in marketing methods used.

REPORT OF THE BUREAU OF STATISTICS AND INSPECTION

HARRY B. WEISS, *Chief*

STATISTICAL AND RELATED WORK

Crop Reports

Monthly crop reports have been issued as usual in cooperation with the Bureau of Agricultural Economics of the United States Department of Agriculture and a corps of voluntary crop reporters.

Pasture Survey

This survey, conducted jointly by the Bureau of Statistics and Inspection and the Department of Agronomy of the New Jersey Agricultural Experiment Station, was completed and the results are available in Circular 141 of the State Department of Agriculture by Dr. H. B. Sprague and Mr. H. W. Reuszer.

New Jersey Farm Taxes

A study of the farm taxing situation in New Jersey was started in November, 1927, in cooperation with the New Jersey Agricultural Experiment Station and the Bureau of Agricultural Economics, United States Department of Agriculture. Assessment figures and tax rates were collected in taxing districts from 1900 to the present time and data were secured from rented farms. A study is being made of tax laws, systems of assessments, local school financing, etc.

The Canning Industry

Statistical information relative to fruits and vegetables packed during 1927 was secured from New Jersey canners and a summary of this may be found in our January, 1928, Crop Report.

Index Numbers of Farm Prices

Work was completed on the preparation of index numbers of New Jersey farm prices and a monthly index number has been carried in the Crop Report since December, 1927. A discussion

of the method used in the preparation of the index and index numbers for various New Jersey farm commodity prices since 1910 may be found in our Circular 132, "Prices of New Jersey Farm Products" by R. C. Oley.

Rural Electrification

Work along rural electrification lines involved meetings of the committee referred to in the last annual report, conferences with New Jersey power companies, a survey of farms not using electricity although located along existing transmission lines, the selection of farms suitable for demonstration purposes, sub-committee meetings during which candidates for the position of demonstration specialist in rural electrification were interviewed and finally the selection of Mr. W. C. Krueger as a leader for the project and his location at the New Jersey Agricultural Experiment Station, New Brunswick, New Jersey.

Truck Crop Statistics

Figures were compiled showing acreages, yields per acre, total production, carlot shipments and average season prices of table tomatoes, lettuce, spinach, celery, onions, sweet potatoes, string or snap beans, asparagus, cucumbers and cantaloupes for new and competing states. These were printed as Circulars 117 to 126 of the Department.

Insects Above the Level of Vegetation

This study was continued during the summer of 1927 along the lines of and with the same cooperators of 1926. A complete report was published as Circular 137.

Population, Industry and Agriculture in New Jersey

A study of the trends of population, industry and agriculture in New Jersey was made in cooperation with Mr. A. G. Waller, Agricultural Economist, New Jersey Agricultural Experiment Station and the findings were published as Circular 144.

Auto-Truck Receipts of Fruits and Vegetables

In cooperation with the New Jersey College of Agriculture and the Bureau of Agricultural Economics, United States Department

of Agriculture, work was started on the collection, tabulation and dissemination of information showing the daily arrival of truck loads of fruits and vegetables in the New York Metropolitan Area. Our part consists in collecting the information in the Newark area. Conferences were held with interested parties and on July 1 work was started in the wholesale market section and on the farmer's market.

Program For New Jersey Agriculture

Three complete statistical and economic cooperative reports have been issued by the New Jersey Agricultural Experiment Station. These are "The Peach Industry in New Jersey" (Bulletin 452); "The Potato Industry in New Jersey" (Bulletin 454); and "The Poultry Industry in New Jersey" (Bulletin 457). Work on other phases of New Jersey agriculture is under way.

OTHER ECONOMIC AND STATISTICAL PROJECTS*

Ten major economic and statistical studies were completed during the fiscal year which ended June 30, 1928. Two of these studies were published as Department circulars; three were issued as mimeographed reports; two were prepared for the Long-Time Agricultural Program Committee of New Jersey; three were prepared in cooperation with the Bureau of Markets, and were used as basic information to support some of their projects.

In addition there are two projects well under way as the year closes, and it is expected that one of these will be finished and published as a Department circular during the first part of the fiscal year, 1928-1929.

PROJECT 1—*Tomato Marketing Study.*

An analysis of the economic factors which enter into the cost of producing and marketing tomatoes, was made in conjunction with the Tomato Marketing Committee. This analysis showed that only in transportation charges has the New Jersey farmer any decided advantage. Land values and taxes are generally higher in this state than in most of the other tomato producing regions. The New Jersey farmer, also, paid from \$0.50-1.00 more per day for his labor than did the growers in other states. The con-

*By John M. Fenton.

tainer, used in shipping tomatoes, took approximately 10 per cent of the average New York wholesale price in 1927 for New Jersey tomatoes; 9 per cent for Mississippi; and $7\frac{1}{2}$ per cent for Tennessee.

PROJECT 2—*Analysis of Berry Prices at Hammonton.*

Prices on raspberries, huckleberries and blackberries at Hammonton and six of our largest markets, were studied in connection with the establishment of an auction market at Hammonton. The object of the study was to show whether f. o. b. selling was advantageous to the grower or not. For the 1927 season f. o. b. sales brought much better prices to the farmer than shipping on consignment. The season's average price of huckleberries at Hammonton was \$6.00 per 32-quart crate. This was better by 32 cents per crate than the wholesale price at Baltimore and 28 cents better than at Philadelphia. The f. o. b. price of blackberries was \$4.02 per 32-quart crate, compared with \$3.45 at Philadelphia. Raspberries sold for \$6.05 per 60-pint crate at Hammonton, compared with \$4.75 at Philadelphia and \$6.00 at Baltimore. Better prices were received at Hammonton principally because of a wider distribution of products, through f. o. b. sales.

PROJECT 3—*The Poultry and Egg Industry of New Jersey.*

The field work on the poultry survey was completed during the previous fiscal year (1926-1927) and after the material was analyzed, it was published as Circular 130, in September, 1927. This publication gives facts concerning the economic growth of the poultry industry in New Jersey and competing states; comparative variations in monthly layings; receipts at New York and Philadelphia; the purchasing power of eggs; desirability of grading and other economic and statistical information of value to the poultry industry.

PROJECT 4—*The Dairy Industry.*

Statistics were compiled for the Long-Time Agricultural Program Committee on various phases of the dairy industry. Tables were prepared on the following subjects:—Number of dairy cows in New Jersey and other states; number of young stock on farms; production of fluid milk in the New York and Philadelphia milk

sheds; value of manufactured dairy products in New Jersey; prices of dairy cows over a long period; total value of dairy products in New Jersey, by counties; sources of New York City's milk and cream supply; index numbers of dairy products compared with other farm products; purchasing power of milk; dealers' buying and selling prices of milk in New York and Philadelphia; per capita consumption of milk and cream in several New Jersey municipalities and other statistical and economic data.

PROJECT 5—*Apple Survey.*

Statistics on the apple industry were compiled for the same purpose and in much the same manner, as those collected in connection with the dairy industry study. Some thirty odd tables were prepared showing various economic data on the present status of the industry. The following list shows the general range of topics covered: Total and commercial production of apples in New Jersey and other states, carlot shipments, prices, leading varieties of apples, age distribution of trees, exports, international trade in apples, cold storage holdings, foreign market preferences for apples, freight rates and tariffs.

PROJECT 6—*Carlot Unloads in Five New Jersey Cities.*

In cooperation with Mr. Lynn of the Bureau of Markets, receipts of fresh fruits and vegetables were obtained in Atlantic City, Elizabeth, New Brunswick, Paterson and Trenton. This information was obtained from the records of the railroads operating in each of the cities. Atlantic City received over 1,200 cars. Nearly 1,000 of these were mixed cars, made up in either New York, Newark or Philadelphia. Elizabeth received 260 cars, with potatoes making 144 cars of this total and grapes 93 cars. New Brunswick received 188 cars and approximately 50 per cent of this total was grapes. Paterson received over 1,300 cars, with potatoes equaling 650 cars and grapes 525 cars. Trenton received nearly 600 cars, and potatoes and grapes again equaled approximately 50 per cent of the total number.

The proximity of all these cities to the metropolitan markets accounts for fewer carlot receipts than would ordinarily be expected of cities of such a size. Large quantities of many fruits and vegetables were trucked from New York, Newark and Philadelphia, and from nearby farming sections in season.

PROJECT 7—*A Statistical Study of Egg Marketing.*

The object of this study is to analyze some of the quantitative factors, which affect the price of New Jersey eggs on the New York Market, to show the price margins between several grades on that market and to present tables wherewith the average poultryman can analyze market conditions.

Coefficients of correlation between the price of several grades of New Jersey eggs on the New York market and shell eggs in storage, frozen eggs, current receipts, visible supply and total supply available for sale, are included to stimulate further thought by the individual poultryman as to the relative weights of the various factors which affect price changes of eggs. The statistical tables are included for reference. The work is not one of price forecasting but one of market analysis.

PROJECT 8—*Agricultural Statistics by Counties.*

In answer to requests by county agents, shippers, farm machinery concerns and fertilizer companies for county figures, statistics on the estimated acreage, production, and value of general farm crops, fruits, truck crops and dairy products and eggs were tabulated. The data was obtained by multiplying the state totals by the county weights for each crop.

The total value of farm products raised in New Jersey last year amounted to approximately \$87,000,000. Of this total, Burlington County raised \$10,500,000 and was the leading county. Cumberland was a close second with \$10,000,000, followed by Monmouth, Gloucester and Salem in that order.

PROJECT 9—*Analysis of Tuberculosis Questionnaires.*

Some 1,500 questionnaires covering various angles of the tuberculosis testing question were sent out by Secretary Duryee's office. The object of these questionnaires was to find out from the farmers themselves their attitude and reaction to the work of tubercular testing.

Nearly all believe that T. B. testing has been a benefit to themselves and to the community as a whole. Most of the herd owners would not exchange their present herd for the one they had before testing. In answer to the question asking if their average milk production per head had increased since tested, 47 per cent answered

Yes, 53 per cent No. Seventy-three per cent answered that T. B. testing aided them in holding their market, and 62 per cent said that it had resulted in a better price for their milk.

PROJECT 10—*Analysis of Municipal Milk Ordinances.*

Milk ordinances of twenty New Jersey cities were analyzed to determine the similarities and dissimilarities in their requirements in the sale of milk. The analysis covered the following information: Methods of applying for a license, license fee charged, milk content (fat, solids, water), temperature at which milk may be sold, bacteria count, sanitary restrictions on the sale of milk, milk grades, stable and dairy requirements, and penalties for violation.

PROJECT 11—*Survey of Bee-Keeping Costs.*

Field work on this project was completed in the spring by the nursery inspectors who collected the information during a slack period of their work. Approximately 300 questionnaires were filled out and returned to this office. The material is now being analyzed and being put in shape for publication. A large and very good sample was obtained from which to secure investment figures, receipts and expenses as well as valuable statistical information on yields, number of hours of labor spent on the production of honey, winter loss, races of bees, etc. When this study is completed, it will probably be the first of its kind in connection with the bee industry. At present there are no cost of production and marketing studies in this important "sideline" agricultural industry.

PROJECT 12—*Study of Prices.*

The average weekly, monthly and seasonal wholesale price of twelve important fruits and vegetables are being tabulated for New York, Newark and Philadelphia from 1922 to date. The purpose is to tabulate these prices of representative farm products in order that a permanent record be made of such information, both for reference and for publication. It will take some time to bring this information up to date, but it is hoped that after being tabulated that the figures may be published in permanent form, and that the information will be kept up to date thereafter.

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INSPECTION SERVICE

HARRY B. WEISS, *Chief*THOMAS J. HEADLEE, PH.D., *State Entomologist*WILLIAM H. MARTIN, PH.D., *State Plant Pathologist*

The following statistical report summarizes the inspection activities pursued during the fiscal year ending June 30, 1928.*

FOREIGN STOCK INSPECTION

Fall of 1927

<i>Origin</i>	<i>Cases</i>	<i>Bulbs</i>	<i>Annuals</i>	<i>Shrubs</i>	<i>Orchids</i>	<i>Tree Seeds</i>
Holland	15	10	4	1	..	..
England	4	..	..	..	4	..
Cuba	1	..	..	1	..	..
Belgium	4	..	..	..	4	..
Australia	2	..	..	2	..	..
Germany	1	..	1	..	..	1
Japan	1	..	..	..	..	..
Totals	28	10	5	4	8	1

Spring of 1928

<i>Origin</i>	<i>Cases</i>	<i>Rose</i>	<i>Palm Seed</i>	<i>Tree Seeds</i>	<i>Fruit Stock</i>	<i>Berry Geranium</i>	<i>Plants</i>	<i>Shrubs</i>
Holland	4	4	..	..	..	..	..	..
Trinidad	2	..	2	..	..	..	..	..
China	1	..	..	1	..	..	..	..
Brazil	1	..	1	..	..	..	..	..
Japan	5	..	..	5	..	..	..	..
France	2	..	..	..	..	1	..	1
Germany	1	..	..	..	1	..	..	..
Canada	1	..	..	..	..	..	1	..
Totals	17	4	3	6	1	1	1	1

Nothing was intercepted on either fall or spring importations.

*By R. B. Lott.

STATE DEPARTMENT OF AGRICULTURE

DOMESTIC STOCK INSPECTION

(Ornamental)

Fall of 1927

<i>Origin</i>	<i>Cases</i>	<i>Bales</i>
New Jersey	1	..
Louisiana	1	..
North Carolina	3	..
Missouri	1	..
Delaware	1	1
New York	17	1
Connecticut	10	..
Pennsylvania	1	..
Virginia	13	..
Illinois .....	..	4
Nebraska	1	..
Alabama	2	1
Massachusetts	72	..
California	49	..
Ohio	9	..
Michigan	6	..
Georgia	3	..
Rhode Island	1	..
Totals	191	7

The above stock consisted of roses, vines, shrubs, trees, evergreens, rhododendrons, iris and bulbs.

Spring of 1928

<i>Origin</i>	<i>Cases</i>	<i>Bales</i>	<i>Cars</i>	<i>Bulbs</i>	<i>Orna- mental Plants</i>	<i>Rose</i>	<i>Shrubs</i>	<i>Green- house Plants</i>	<i>Par- nials</i>	<i>Ever- greens</i>	<i>Trees</i>
California	21	1	4	2	2	13	..	6	..	3	..
Texas	87	..	..	87	..	..	..	..	..	..	..
Florida	2	..	..	..	..	..	..	..	2	..	..
Michigan	5	2	..	1	..	..	1	3	2	..	..
Pennsylvania...	5	2	1	..	..	1	..	..	..	5	2
Maryland	1	..	..	..	..	1	..	..	..	..	..
Oregon .....	..	2	..	..	..	1	..	..	1	..	..
Delaware	25	..	..	..	..	25	..	..	..	..	..
Ohio	28	1	..	..	..	1	4	..	24	..	..
New York	14	11	1	3	1	1	13	..	2	..	6
Massachusetts..	8	..	..	..	..	..	..	..	8	..	..
North Carolina	13	25	..	37	1	..	..	..	..	..	..
Connecticut ...	1	..	..	..	..	..	..	..	1	..	..
Indiana .....	..	1	..	1	..	..	..	..	..	..	..
Tennessee	2	1	1
Louisiana	1	1	..
New Jersey....	1	..	1	1	1
	212	47	7								
Totals	266			131	4	43	19	10	40	9	10

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DOMESTIC STOCK INSPECTION

(Fruit)

Fall of 1927

<i>Origin</i>	<i>Bales</i>	<i>Cases</i>	<i>Cars</i>	<i>Shipment Infected with Crown Gall</i>	<i>Trees Destroyed</i>
Ohio .....	..	4	..	..	..
Delaware	2	6	..	..	..
New York .....	..	6	..	..	..
Maryland .....	..	6	..	2	11
Totals	2	22	..	2	11

Spring of 1928

<i>Origin</i>	<i>Bales</i>	<i>Cases</i>	<i>Cars</i>	<i>Shipments Infected with Crown Gall</i>	<i>Trees Destroyed</i>
Maryland	11	..	..	..
Delaware	18	..	..	..
New York	16	..	..	..
Ohio	4	..	..	..
Tennessee	2	..	1	1
New Jersey	3	..	..	56
Missouri	4	..	2	41
Pennsylvania	1	..	..	..
Connecticut	1	..	..	..
Totals	60	..	6	98

Four hundred and five nurseries and dealers' establishments were inspected and certificates were issued as follows:

General	303
Rose	19
Greenhouse	10
Berry	9
Fruit	7
Dahlia	4
Asparagus	1
Orchid	1
Fern	1
Dealers	50
Total	405

Seven hundred florists were written to with the idea of finding out if they dealt in nursery stock. One hundred and twenty of these florists grew or dealt in this stock, therefore their places of business were visited, inspected and certified. One hundred and five of these proved to be dealers and they are now under state

supervision. All dealers who dealt in nursery stock were visited this year and all left-over stock was inspected. Where it was infested with injurious insects it was either burned or destroyed in some other way.

New England Inspection

One thousand seven hundred and twenty-five New England shipments originating in the gipsy moth quarantined areas were inspected. Twenty-four of these were carlots. These shipments varied from a parcel containing only a few trees and shrubs up to shipments containing many thousands of trees, shrubs and evergreens. In each shipment the trees were individually inspected, nothing was intercepted.

Narcissus Bulb Inspection

This work was carried on in accordance with the Federal Horticultural Board Quarantine No. 62. The first or field inspection was made at the end of the flowering period. The object was to locate plants in the field that were infested with bulb flies or nematodes. The second or harvest inspection is made usually during the months of July, August and September. Each variety is separately inspected for each grower. If these two inspections fail to disclose infestations of either the bulb fly or nematode, these bulbs are certified without disinfection. If either nematode or eelworm infestations are found during these inspections, then all bulbs so infested are given the hot water treatment, which consists of submerging the bulbs at a temperature of not less than 110° F., and not more than 111.5° F., for not more than two and one-half hours. The following table shows the number of bulbs inspected, certified and treated during the past year. This table also gives the number of certificates and shipping tags issued.

<i>Grower</i>	<i>Total No. of bulbs</i>	<i>No. bulbs not sterilized</i>	<i>No. bulbs sterilized'</i>	<i>Certificates issued</i>		<i>No. of tags issued</i>	
				<i>White</i>	<i>Red</i>	<i>White</i>	<i>Red</i>
Del-Bay Farms, Inc..	2,430,775	261,475	2,394 bu.	1	1	75	84
Sikking Bros.	465,500	465,500	.....	1	..	37	..
P. N. VanSteyn.....	88,500	.....	.....	1	..	..	..
G. Overdevest	1,635,663	.....	135,000 bu.	1	1	133	..
John VanSteyn	35,000	1	..	10	..
N. P. VanSteyn	80,000	1	..	1	..
Totals	4,735,438	726,975	137,394 bu.	6	2	256	84

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Special Inspection

Fifty-six special inspections were made, following letters of inquiry.

Special Certificates

Forty-two special certificates were issued to persons throughout the state who wished to ship small amounts of nursery stock. These certificates were issued to people who are not in the regular nursery business.

"Peach Yellows" Work

The peach yellows and little peach survey and check up was continued this year, in cooperation with the Cumberland County Board of Agriculture. The work consisted in identifying diseased peach trees and supervising their removal. Fifteen growers had their orchards examined last year. The following table received from the county agent shows the results in the orchards of these growers to whom the service has been given for four consecutive years.

	1924	1925	1926	1927
Total number of trees.....	17,500	23,700	22,200	16,350
Number of diseased trees removed.....	963	495	269	269
Per cent of total number.....	5.5	2.08	1.21	0.64

Christmas Tree Inspection

Nine thousand four hundred and seventy-eight Christmas trees were inspected for gipsy moth. These trees originated in the very slightly infested areas of New England. Inspection took place in thirty-three different towns in New Jersey.

SEED CERTIFICATION AND RELATED WORK***White Potato Certification**

The growing of second crop seed and the inspection and attempted certification thereof presented a most unusual series of circumstances. The very first weak prospects of possible certification finally gave way to an almost complete abandonment of the

*By E. G. Rex.

crop as certified seed. The discouraging features of the work nevertheless carried with them many indelible reminders of the heretofore ignored or partially attended to details of successful seed production. In this report an attempt will be made to consider the various factors that were very evidently in operation during this season.

The 1926 Crop—A reference at this time to the growing season of 1926 will emphasize some of the very important factors incidental to the growing of that crop. During the seasons of 1925 and 1926, aphids were not, with but few exceptions, considered troublesome. During the season of 1926 a light but general infestation appeared about the last week in September. Their presence in such small number did not, at that time, justify the rejection of the affected fields. Early October was without appreciable rainfall. During this period most of the fields showed definite maturity changes, and thereby eliminated the possibility of manifesting the disease which they carried. It can be safely said that the time which elapsed between the appearance of the aphids and the maturity of the vines was, in all but a few cases, too short to have the leaf roll (aphid transmitted) show on the tops of the plants. Had the October rainfall been sufficient to maintain the plants in a growing condition, it is quite certain that a large portion of the acreage would have been rejected because of leaf roll. It can be readily seen that the early maturity of the vines made it impossible for the inspector to make an absolutely reliable final field inspection. Primary (top) leaf roll symptoms appear on the plants about twenty-five to twenty-eight days after aphids have infected the plant.

The very first evidence that the field inspections of 1926 had not detected all the diseased plants was presented in the Central Jersey commercial crop fields of 1927 grown from South Jersey seed. The appearance of ten per cent leaf roll and fifteen per cent total disease was not uncommon. The disease counts in the Certified Seed Test Plot at Elmer made in June, 1927, offered further and quite conclusive testimony that about sixty per cent of the South Jersey seed was unfit for seed production. The Seed Certification Committee graciously decided to accept for certification, fields grown from any of the lots represented in the Elmer test plot, but at the same time confidentially informed each grower of the size of the obstacle he had to face.

The 1927 Crop—Twelve hundred and seventeen acres, grown by 150 farmers, were entered for certification in 1927. This represents the largest acreage ever entered for certification in New Jersey. The only unfortunate feature of this conspicuous increase was the introduction of many new growers who had never seen a copy of the rules and regulations governing this work. These newcomers to the seed production work made the most common mistake of planting certified and uncertified seed together in the same field. Approximately 80 per cent of the seed planted for the 1927 late crop was disinfected with organic mercury seed disinfectants.

The inspection work was begun in early September. Aphids had already established themselves in almost every field, and in several instances Black-Leaf "40" had already been applied. However, the aphids did not command the major attention of the growers. The ever increasing percentage of secondary (bottom) leaf roll, especially in the fields grown from South Jersey seed, caused them the greatest distress. This early appearance of leaf roll in fields planted with South Jersey seed again pointed to the fact that a very appreciable percentage of this seed was leaf roll and mosaic infected. The early appearance of leaf roll cannot be attributed to poor roguing of the 1926 season. However, the late appearance of aphid during the 1926 season, and the too frequent incomplete removal of the tubers from rogued plants were primarily responsible for this perplexing trouble. On the other hand most of the fields grown from Maine or Prince Edward Island seed, showed less secondary (bottom) leaf roll, indicating thereby that that seed carried less infectious material. However, it is to be pointed out emphatically that the aphids were just as abundant in fields grown from northern seed as in fields grown from local seed, consequently the former fields were subjected perhaps to a lesser degree to the same danger from the standpoint of primary (top) leaf roll.

The first inspection withdrawals and rejections were approximately 50 per cent of the acreage entered.

By the last week in September, primary (top) leaf roll was present in all the fields entered for certification. This condition led to an almost complete withdrawal of the remaining acreage.

Roguing—The roguing operation, although showing evidence of constant improvement, could be substantially strengthened in sev-

eral respects. It has been observed in previous seasons that the tubers from rogued plants were in some cases not all removed. The effectiveness of roguing is based largely on the removal of the tubers involved. The grower should be sufficiently interested in his seed to be certain that all of the tubers from rogued plants have been dug. This inspection requirement must be strictly enforced. Furthermore, the removal of the vines from the field has represented one of the most exhausting types of manual labor. Roguing requires continual mental alertness, a condition which gradually disappears as fatigue increases because of carrying the heavy vines from the field. Several growers have provided themselves with two-wheel carts, thereby enabling them to give their entire attention to the detection of diseased plants.

Spraying—Spraying has become a subject that should not require much further discussion because of its being established as a practical and essential operation in potato production. During the past few years any reasonable approach to adequate spraying of the late crop gave satisfactory control of early blight. During the 1927 season, spraying was probably done more infrequently and carelessly than ever before. Coincidental with such poor spraying existed conditions ideal for early and late blight. Early blight was generally present, and in many cases the cause of serious defoliation. Late blight, although not having been noticed to seriously defoliate the plants, did occasion a small but very troublesome percentage of rotten tubers. This circumstance has left a very convincing impression with the growers.

No substantial reason exists to support the merits of uncertified South Jersey seed for further seed production, therefore the certification authorities cannot recommend further planting of this seed. Farmers who intend to grow seed next year should provide themselves with seed from a reliable source.

Most of the growers have by this time acquainted themselves with the "Tuber Unit" method of seed improvement. It is urged that an isolated seed plot, preferably planted in tuber units, become the fundamental basis of each seed growing operation. An isolated seed plot will because of the size and interest to the grower receive more frequent and careful attention than will the large acreages. The seed plot should be of such size that will furnish ample seed for the following year's planting.

Potato Aphid—Potato aphid or plant lice are soft bodied in-

sects usually pink or green in color. Their mouth parts are so constructed that they must get their nourishment by piercing the leaf tissue with a beak and sucking the juices from within the leaf. Their feeding habit is entirely different from that of the potato beetle.

In this latitude the aphids pass through the winter in the egg stage, the egg being attached to the stems of weeds, etc. In the spring of the year the young hatch from these eggs and begin feeding on the plant on which they were born. Upon maturity (about 20 days after hatching) the aphids give birth to living young; all females, some winged and the other wingless. Of course, the winged individuals have the ability to migrate to other plants. At this time all the lice are females, and a single individual can produce fifty young in two weeks. In two weeks after birth each of the young reach maturity and then begins bearing young on her own account. The reproduction thus continues throughout the summer and early fall. The approach of the cool weather of fall causes both males and females to be born. This is the only time that the male makes its appearance in the life cycle of the potato aphid. After mating the winged females migrate to plants to which the eggs which are about to be layed may be attached. The insect is therefore again prepared to pass the winter season.

Potato aphids can damage the seed crop in two distinct ways: First, because of their ability to transfer from plant to plant the infectious material causing leaf roll, mosaic and spindle tuber. Secondly, because of the curling of the foliage and its consequent crop reduction. To the seed growers, the aphid is of prime importance as a carrier of the above mentioned degeneration diseases. Every effort should be made to promptly check even a light infestation.

The most generally recommended control measure is the application of nicotine either as a spray or dust. The nicotine ingredient of the liquid or dust is liberated as a gas immediately after its application to the potato foliage. The nicotine gas, if sufficiently dense around the aphid's body, results in paralysis and finally death to the insect. Nicotine preparations should be applied, if possible, during hot, wind-still weather. When applied as a spray, a pressure of at least two hundred and fifty pounds must be maintained, but if applied as a dust, the vines should be dry and a muslin trailer attached to the boom. Climatic conditions influence very noticeably the severity of aphid infestations. Very mild periods

during the winter may encourage the hatching of some of the eggs. Needless to say, these recently hatched insects never survive the winter. Freezing temperatures in late spring further reduce their numbers. Cool summers favor aphid activity, but do not favor the work of another insect which is parasitic on the aphid. Summers during which daytime temperatures are consistently 70° or higher, will serve well to keep the aphids in check. Driving rains cause many of the aphids to be washed from the plants and so beaten about the muddy surface soil that their return to the plant is quite unlikely.

Every seed grower should supply himself in advance of the growing season, with a sufficient quantity of a nicotine preparation to be able to spray or dust, without delay when the first infestation appears.

Suggestions for 1928—At least twelve carloads of northern seed will be used to plant the late crop this year. This seed should be disinfected before planting to avoid the losses due to blackleg and rhizoctonia.

The terms "Primary Leaf Roll" and "Secondary Leaf Roll" were emphasized to the growers for the first time during the past year. The appearance of the aphid transmitted (top) leaf roll made this necessary. Secondary Leaf Roll is the term applied to the diseased condition of the potato plant in which the rolling of the leaves begins at the bottom and proceeds toward the top. In this case the infectious material was carried in the seed piece. Primary Leaf Roll is the term applied to the diseased condition of the potato plant in which the rolling of the leaves begins at the top of the plant and proceeds toward the bottom. The infectious material was introduced into the plant by aphid which had previously been feeding on the leaf-roll diseased plants. In this case the seed piece was probably healthy.

Many of the seed growers are of the opinion that a strain of potatoes that yielded as well as the one which they grew last season cannot be hopelessly diseased. It should be borne in mind that the value of seed is not so much dependent on its past performance, as it is upon the assurance that nothing has crept in to make the seed less valuable for another year. With leaf roll and mosaic having been very generally evident in all of the seed fields, it is unreasonable to expect these strains to show the same vigor, disease freedom and productivity which they did in former seasons.

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SUMMARY OF INSPECTION RESULTS (1927)

	<i>Cumber- land</i>	<i>Salem</i>	<i>Mon- mouth</i>	<i>Burl- ington</i>	<i>Cam- den</i>	<i>Glou- cester</i>	<i>Total</i>
Acreage entered	614.5	571.5	21.0	5.0	3.0	2.0	1,217.0
Number of growers	89.0	53.0	2.0	2.0	2.0	2.0	150.0
Average number of acres per grower,	6.9	10.7	11.5	2.5	1.5	1.0	8.11
Acres rejected, first inspection	307.25	238.75	5.0	5.0	1.5	1.0	558.50
Per cent rejected, first inspection ...	50.00	41.77	23.8	100.0	50.0	50.0	45.89
Acres rejected, second inspection ...	305.5	332.75	16.0	0.0	0.0	1.0	655.25
Per cent rejected, second inspection..	49.71	58.23	76.2	0.0	0.0	50.0	53.85
Acres rejected, third inspection	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acres rejected, total	612.75	571.5	21.0	5.0	1.5	2.0	1,213.75
Per cent rejected, total	99.71	100.0	100.0	100.0	50.0	100.0	99.73
Acres certified	1.75	0.0	0.0	0.0	1.5	0.0	3.25

VARIETAL DISTRIBUTION

<i>Variety</i>	<i>Acres entered</i>	<i>Acres Rejected</i>			<i>Acres Certified</i>
		<i>First</i>	<i>Second</i>	<i>Third</i>	
Cobbler	1,194.25	543.0	651.25	0.0	0.0
Green Mountain	13.5	8.0	4.0	0.0	1.5
Red Skin	9.25	7.5	0.0	0.0	1.75

WHITE POTATO SEED CERTIFICATION INDUSTRY IN NEW JERSEY

<i>Year</i>	<i>Number of Growers</i>	<i>Acres Entered</i>	<i>Percentage Rejected</i>	<i>Varietal Distribution</i>
1919.....	13	153.5	74	Cobbler .....127.0 Giant 22.0 Green Mts. 2.75 Mills Prize 1.25 Norcross 0.5
1920.....	21	197.0	9.6	Cobbler .....133.0 Giant 42.0 Mills Prize 10.0 Red Skin 3.0 Green Mts. 9.0
1921.....	85	947.25	38.0	Cobbler .....826.0 American Giant 90.0 Norcross 15.0 Soperbe 5.0 Green Mts. 9.25 Red Skin 2.0
1922.....	82	762.0	62.0	Cobbler .....658.5 Giant 79.5 Green Mts. 13.0 Norcross 11.0 Red Skin 0.25
1923.....	54	451.25	48.0	Cobbler .....435.0 Green Mts. 9.0 Burbank 5.0 Spaulding 1.0
1924.....	66	757.5	13.1	Cobbler .....771.0 Spaulding 20.5 Green Mts. 4.5 Norcross 1.5
1925.....	84	716.0	24.0	Cobbler .....711.0 Green Mts. 4.0 Norcross 1.0
1926.....	68	640.25	13.4	Cobbler630.25 Green Mts. 6.0 Red Skin 4.0
1927.....	150	1,217.0	99.73	Cobbler1,194.25 Green Mts. .. 13.5 Red Skin 9.25

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Sweet Potatoes

The history of the sweet potato certification work is as follows:

<i>Year</i>	<i>Acres Certified</i>	<i>Growers</i>
1921.....	101	24
1922.....	256	51
1923.....	79	16
1924.....	50	12
1925.....	45	11
1926.....	31	8
1927.....	20	6

The small demand for certified seed potatoes does not encourage more extensive certification. The seed certified during 1927 was grown in Gloucester, Cumberland and Atlantic counties. No rejections were found necessary:

The 1927 acreage was distributed as follows:

<i>Variety</i>	<i>Acres</i>	<i>Growers</i>
Yellow Jersey	18	6
Red Jersey	2	2

Tomatoes

The history of the tomato seed certification work is as follows:

<i>Year</i>	<i>Acres Certified</i>	<i>Growers</i>
1921.....	128	16
1922.....	199	23
1923.....	219	32
1924.....	327	40
1925.....	582	58
1926.....	456	71
1927.....	871	74

The 1927 acreage was distributed as follows:

<i>Variety</i>	<i>Acres</i>
Marglobe	431.25
Bonny Best	207.5
Baltimore	121
J. T. D.	110
Columbia	1.25

The tomatoes certified for seed purposes were grown in Burlington, Camden and Gloucester counties. Approximately 31,000,000 plants, grown from seed from the 824.5 acres certified for Campbell Soup Company were distributed in the spring of 1928.

Corn

Corn certification work is carried on cooperatively with the Department of Agronomy, New Jersey Agricultural Experiment Station, New Brunswick. The history of the work is as follows:

<i>Year</i>	<i>Acres Entered</i>	<i>Growers</i>
1924.....	6.5	2
1925.....	18.5	5
1926.....	18.0	1
1927.....	none	

A request for corn certification was received from an Easton, Pennsylvania, dealer who arranges for the growing of his crop on farms in the vicinity of Alpha. The varieties presented for certification, although apparently quite desirable, judging from the volume of sales for the past eight years, have no record of productivity adaptation at the New Jersey Agricultural Experiment Station. A two-year test has therefore been undertaken, one planted on the College Farm and another at Alpha, to determine the value of these varieties as compared to varieties, the productivity of which has been reliably determined.

Raspberry Inspection

Dealers shipping raspberry plants into certain states must provide themselves with certificates issued by the State Department of Agriculture. These certificates are issued upon the satisfactory passing of two inspections for transmissible diseases. The 1927 inspections, all of the variety St. Regis, were as follows:

Camden	71.5
Atlantic	53.25
Cumberland	3.0
Monmouth	1.5
Burlington	1.0
Total	130.25

Disease Investigational Work

During the year twenty-seven cases of plant diseases reported to the Department were investigated. In the instances where disease was present, recommendations were promptly made. A careful laboratory examination was also made whenever necessary. The laboratory facilities of the Department of Plant Pathology at New Brunswick were kindly extended for this work. An experiment

was conducted in conjunction with the gipsy moth spraying work at Watchung, to determine the behavior of the fish-oil coated lead arsenate spray particles on growing leaves. Growing leaves were stamped to determine the region of growth. On the eight species of leaves of forest trees stamped, growth took place quite uniformly throughout the entire leaf surface, probably a little more rapidly at the apex. Laboratory experimentation seemed to indicate that the fish-oil does not provide a continuous film on the leaf surface which supposedly stretched with growth, but that the fish-oil exists as a film on the lead arsenate particles. Such a combination provides increased tenacity with the leaf surface. The fact that growth takes place throughout the entire leaf surface encouraged the impression that leaves, although sprayed when half grown, appeared to be completely covered at the time they were full grown.

White Pine Blister Rust

The white pine blister rust scouting, the results of which are herein presented, was conducted in accordance with the agreement, dated April 18, 1927, entered into by the Office of Blister Rust Control, Department of Agriculture, Washington, D. C., and the Bureau of Statistics and Inspection, Department of Agriculture, Trenton, N. J.

The Office of Blister Rust Control contributed the services of Mr. Thomas Graham, the New Jersey Department of Agriculture those of Mr. Clarence Grant.

The work was begun July 7 at Red Bank. Mr. Graham was regularly employed at this work until September 10. Mr. Grant was regularly engaged in this work throughout July, but irregularly during August and September.

The scouts were provided with topographical maps (1-2000) of the territory in which they were working. Each map was further subdivided into "Blocks," each block being given a numerical designation. The term "Block" as here employed, refers to an area of indefinite size, bounded by highways, railroads, rivers, bays, etc. Each inspection report, with but few exceptions, carries with it a block number of the area in which the inspection was made. The maps used in conjunction with this work are available for examination at the Department of Agriculture, Trenton, N. J.

The scouts were not required to make notations of premises

1927—						1928—					
July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
12	75	188	266	234	72	25	21	153	624	585	154
Total inspections made, 2,429.											

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The results of the exterminative work during the past eight years are shown in the following table:

RESULTS OF SCOUTING AND OTHER WORK

	<i>First Year</i>	<i>Second Year</i>	<i>Third Year</i>	<i>Fourth Year</i>	<i>Fifth Year</i>	<i>Sixth Year</i>	<i>Seventh Year</i>	<i>Eighth Year</i>
No. colonies found	855	216	98	48	9	3*	12	5
No. of egg masses found..	3,003,039	909	1,182	723	69	54	646	70

*Does not include colony of caterpillars found in Duke's Park. Does include Readington colony and the Montgomery and Franklin colonies, although the latter are two parts of one colony which extends in two townships.

A more detailed account of the eighth year's work will be published as a Department circular.

*Conducted in cooperation with the Bureau of Entomology, U. S. D. A.

THE JAPANESE BEETLE SUPPRESSION PROJECT*

Basic Principles of the Project

Since the discovery, some twelve years ago, of the Japanese beetle's entrance into the United States, the New Jersey Department of Agriculture in cooperation with the United States Department of Agriculture has made investigations into the life history and habits of the insect and possible methods of control. Many features in the life history of this insect were discovered that explained why the usual methods of attacking other insect pests were not effective in this case.

Investigations were conducted into methods of killing the insect and of protecting plants from attack. After investigation follows experimentation to test out the principles discovered, then follows demonstration to test out the methods under actual conditions; upon the successful survival through such procedure of the principles developed, the methods of control are then ready to present to the public as established principles.

Function of the Suppression Project

The Japanese Beetle Suppression Project was organized to pre-

*By V. I. Safro.

sent to the public the results of years of research, experimentation and demonstration. Communities, organizations and individuals; farmers, fruit growers and householders have been assisted in meeting the Japanese beetle problem.

To this end, spray campaigns have been organized, publications issued, and information service maintained, timely items issued to the press, meetings of interested organizations have been addressed, educational exhibits prepared and furnished, conferences attended and consultations held whenever the suppression project was so requested.

Publications

NEW JERSEY DEPARTMENT OF AGRICULTURE CIRCULAR—

No. 133, "Some Ornamental Trees and Shrubs Practically Free from Japanese Beetle Attacks."

No. 134, "Some Garden Ornamentals Practically Unharmed by Japanese Beetles."

No. 136, "Some Farm Crops Practically Free from Japanese Beetle Attack."

No. 140, "Questions and Answers on the Japanese Beetle."

INFORMATION SHEET No. 1, "Spraying Garden Ornamentals for Protection from Japanese Beetle Attack."

INFORMATION SHEET No. 2, "How to Control Japanese Beetles in Lawns."

Meetings

Meetings have been addressed the past season in the following localities: Camden; Camp Burton, Monmouth County; East Orange; Haddonfield; Haddon Heights; Merchantville; Riverside; Swedesboro.

Spray Campaigns

Conferences were held and spray campaigns discussed with representatives of the following communities: Aubudon, Brooklawn, Collingswood, Edgewater Park, Florence, Haddon Heights, Merchantville, Moorestown, Pensauken, Riverton.

Cooperation With Other Agencies

Among the various types of agencies with which the suppression project has cooperated the past season are:

- Chambers of Commerce
- County Agricultural Agents
- Municipal Commissions and Committees
- Service and Garden Clubs
- Shade Tree Commissions
- State Experiment Station
- State Extension Service
- Superintendents of Highways

Entire State Covered by Project

The activities of the suppression project include the entire state. Most of the state is in the zone of localized infestations. This part of the state, particularly North Jersey, is particularly interested in the progress of the Japanese beetle and in developments of control methods. It was for this zone that lists were prepared of shade trees that could be planted with reasonable assurance of immunity from epidemic attacks of the beetle later on. This information is of extreme importance to North Jersey, its parks, streets, estates and home sites.

The activities in South Jersey, which includes the zone of heavy infestation and the zone of moderate infestation, were necessarily greater and included more direct methods of combating the problem. During the active beetle season, a telephone and visitors service was maintained for emergency calls in connection with proper spraying of plants and other methods of attacking the problem.

**PREVENTING SPREAD OF JAPANESE AND ASIATIC
BEETLES*****Introduction**

The area infested by the Japanese beetle was enlarged during the period under review to include 19,827 square miles. This represents an increase of 5,908 square miles as compared with 1927. Twelve additional townships south of the Housatonic River, including the city of Bridgeport, were found to be infested in Connecticut. The discovery of new colonies of the insect on Long Island made it necessary to include the entire island within the regulated area. Infestations were found in many localities in the coal mining region of Pennsylvania. The regulated area was extended westward in the autumn of 1927 to a point on the Susquehanna River, northwest of Sunbury, Pennsylvania. From thence the line extends northeasterly and includes all of Montour, Columbia, Luzerne, Lackawanna and Monroe Counties. The cities of Carbondale, Scranton and Wilkes-Barre are now within the restricted area. A small infestation of beetles was found at Gettysburg and a single beetle at York, Pennsylvania. Small colonies of beetles were discovered at Clayton and Dover, Delaware. Several

*By L. B. Smith, Report covers entire infested portion of United States.

infestations were located in the State of Maryland. These occurred in the towns of Cambridge, Ridgeley, Chesapeake City, Perryville and the city of Baltimore. Several beetles were discovered in the northeast section of Washington, D. C.

The area heavily infested by the Japanese beetles increased considerably in 1927. Severe injury to shade trees, ornamental plants and field crops was noted in portions of Delaware, Chester, Montgomery, Philadelphia and Bucks counties, Pennsylvania. Injury by the insects was evident in Salem, Gloucester, Atlantic, Burlington and Mercer counties in New Jersey. The periodic appearance of large numbers of Japanese beetles in the business section of Philadelphia was more pronounced than in any previous year. In general the damage caused by the beetles was equally as severe as in former seasons. The most notable feature of the year was the severe injury to sweet and field corn resulting from the feeding of the beetle on the silk and tips of the ears. This damage was general throughout the heavily infested area. Thorough and timely spraying continued to afford excellent protection to fruit and ornamental trees. Satisfactory methods for the protection of early ripening varieties of peaches and of small fruits still remain to be developed.

One of the more outstanding problems at the present time is the development of a repellent which will afford protection to flowering plants and small fruits. Several problems have been completed and the data are being published as rapidly as possible. The successful introduction and establishment of five species of foreign parasites stimulates continued and enlarged efforts on this phase of control. On account of the greatly enlarged area under quarantine, it was necessary to obtain a considerable increase in both the state and federal appropriations in order to maintain the necessary inspection and certification of farm products and nursery stock as required by quarantine regulations.

Research

Certain difficulties were encountered in the manufacture of oleate-coated lead arsenate on a commercial basis. It was necessary to spend much time and effort in improving methods for its manufacture in order to assure the production of a standardized product which would give the results desired. This material more than any other has enabled the general public to protect their plants

from the attacks of the beetles, and is, undoubtedly, the most generally used insecticide for Japanese beetle control. Several manufacturers are now producing oleate-coated lead arsenate in sufficient quantities to supply the present demand. The adhesive and spreading qualities of this material have been much improved and under all ordinary conditions one application is sufficient to protect plants from the Japanese beetle throughout the season. Owing to its adhesiveness, oleate-coated lead arsenate should not be used on bearing fruit trees or other crops intended for food. Since it has been necessary to apply lead arsenate to early ripening apples shortly before they are harvested in order to protect them from attack, investigations are being conducted for the purpose of developing a non-toxic repellent which will leave no residue on the plant. Approximately 300 chemicals offering possibilities in this connection are being investigated and every effort is being made to bring about an early solution of this problem.

Lead arsenate has been considered a repellent rather than a stomach poison since relatively few of the adult beetles consume a killing dose of the chemical before they stop feeding. It has been found that when certain types of highly refined sugar syrups are combined with lead arsenate sprays the beetles will consume sufficient of the poison to kill them. The insects usually remain on the tree or plant until they die, and many thousands of dead beetles can be observed under trees treated in this manner. Further investigation is necessary in order to overcome certain objectionable features to the use of this mixture. When lead arsenate is sprayed on ornamental plants, the white color of the residue detracts from the appearance of the plant. To overcome this objection a green arsenate of lead was developed and has proven quite satisfactory.

An improved pyrethrum soap prepared with a cocoanut fatty acid and containing sodium silicate has been developed. This is considered a distinct improvement over the pyrethrum soap previously recommended by the laboratory and which is now being sold commercially. Investigations are being continued on the development of traps for capturing the Japanese beetle. The traps are baited with a combination of geraniol, eugenol, bran, molasses and glycerine. Considerable improvement must be made in the design of the Japanese beetle traps, however, before they can be generally recommended except as an adjunct to other control methods.

Progress has been made in the investigation of the use of hot

water as a control for the larvae of the Japanese beetle in balled nursery stock. Approximately 100 varieties, including 200,000 individual plants have been treated under commercial conditions. The results show that many varieties of nursery plants can be successfully treated by water at temperatures between 110° Fahr. and 112° Fahr. and infestations of larvae destroyed without injury to the plant. The development of this treatment and its general use by the trade will effect the saving of many thousands of dollars to the nurserymen in the territory infested by the Japanese beetle. A new formula for the preparation of an improved carbon disulfide emulsion was developed and commercialized. This is known as miscible carbon disulfide. It has been used extensively and with excellent results. This concentrated emulsion is not affected by cold weather and can be used in soil when the temperature is as low as 35 degrees Fahrenheit. Investigations have shown that under certain conditions naphthalene is an extremely effective insecticide. Investigations are now under way to find means whereby it may be used in soil. Studies of various and miscellaneous chemicals are being continued for the purpose of developing improved materials to use as soil insecticides.

Studies are being continued for the purpose of obtaining further data on the reaction of the Japanese beetle to its environment, and its probable importance as a pest when it reaches other regions of the United States. At the close of 1927, the Japanese beetle was well and firmly established in the Piedmont region of Pennsylvania. There has been some doubt whether the insect would multiply as rapidly and cause as serious damage in the Piedmont as it has done in the coastal plain area. The information accumulated during the past year indicates the beetles have found favorable conditions for development throughout most of the northeastern United States. Studies are being continued on the general ecology, life history and biology of the Japanese beetle.

Unquestionable proof has been obtained that the dextiid parasite *Prosema siberita* has become established in the vicinity of Moorestown, N. J. Recoveries were made of adults of this parasite in New Jersey in the summer of 1927 and again in the spring of 1928. This is the first time that this parasite has been established in a country foreign to its native home. Another dextiid, *Dexia ventralis*, a parasite introduced from Korea, has also been recovered in New Jersey during the past year. The tachinid

Centeter cinerea, introduced several years ago, has increased its distribution in New Jersey and Pennsylvania to include an area of approximately 75 square miles. Additional colonies of this parasite were liberated at Harrisburg, Pennsylvania, and Bridgeport, Connecticut, during the late spring of 1928. Strong colonies of the three introduced species of *Tiphia* wasps have been established in Long Island, New Jersey and Pennsylvania. During August, 1927, the adults of *Tiphia popilliavera* were found to be extremely abundant in an area near Riverton, N. J. This colony was so vigorous that it was possible to establish ten sub-colonies in New Jersey and Pennsylvania without detracting materially from the strength of the parent colony. Shipments of the several parasites are being made from India, Japan, Korea and China, and the importations are being enlarged and expedited, particularly of those species which are now known to successfully survive the conditions found in this country.

Quarantine Enforcement

The Bureau of Entomology cooperating with the Federal Horticultural Board and with the states of New Jersey, Pennsylvania, Delaware, New York and Connecticut has continued the enforcement of Federal and State quarantines to prevent the spread of the Japanese beetle. A revision of the quarantine was made in the autumn of 1927. Infestations of the Japanese beetle found at points in Maryland distinctly removed from the main infestation presented the problem of whether large areas of uninfested territory should be included in the regulated area or whether attempts should be made to exterminate such distant infestations. There appeared to be a reasonable chance for success in an extermination campaign in the areas in Maryland, Delaware and Pennsylvania. The Federal Horticultural Board agreed to withhold the extension of the regulated area to include Maryland until the summer of 1928 when the results of the work could be determined. The actual extermination treatments were performed by the several state departments of agriculture under the supervision of federal inspectors. The treatment included the application of carbon disulfide emulsion to approximately five acres of soil at each point where infestation had been found. The treatments were concluded late in the spring of 1928. The shipment of all nursery stock from these areas was supervised and regulated

by the several states in order to safeguard such movement and prevent the possibility of transporting any infestation of Japanese beetles.

During the summer of 1927 the inspection of farm products was required between June 15 and October 15, this included the inspection of fruit and vegetable products with the exception of certain roots and seeds. The regulations require the inspection of nursery and greenhouse products, including sand, soil, earth, peat, compost and manure throughout the year. Due to the large regulated area this method of quarantine enforcement was changed somewhat from the system maintained during previous years. Formerly, the inspectors have been stationed at strategic points subject to call by the growers. Under the new arrangement, the growers presented their products at central points for inspection. Patrols were established on the majority of roads leading out of the regulated area for the purpose of preventing the movement of contraband articles of produce. It was the duty of road inspectors to examine all trucks and vehicles passing out of the regulated area to assure that they carried no uncertified or contraband products. The presence of large numbers of beetles in the downtown districts of Philadelphia at certain times during the summer made it necessary at times to discontinue all inspection and certification after ten o'clock in the morning when the beetles usually become active.

The inspection and certification of nursery stock and ornamental plants has been conducted on much the same basis as in former years. Improved methods of soil treatment have been devised whereby it is possible to destroy any infestation of the Japanese beetle which may exist in the soil about the roots of plants. All treatments of plants are performed under rigid safeguards and are supervised by specially trained inspectors. The total number of plants certified for shipment out of the regulated area during the past calendar year amounted to 76,155,425. These were consigned to forty-eight states, Canada, Mexico and many foreign countries. Ten-thousand two-hundred six carloads of sand or soil were shipped from the regulated area to all states and Canada, 525 carloads of manure, 5,905,021 packages of farm products, 55,507 bales of hay and straw, 25,279 boxes of cut flowers were inspected and certified for shipment from the regulated area. A total of 711,689 certificates for shipment were issued during the year.

Eight-thousand one-hundred fifty-eight nursery plants were treated under field conditions, and 17,674 plants were treated by the tank method. In addition 2,166 cubic yards of potting soil were fumigated under the supervision of inspectors in the several nurseries.

Ninety-five bonafide violations of the quarantine regulations occurred. Twenty-six of these were prosecuted, two held in abeyance, and sixty-seven filed without action. A total of \$430.00 was collected by the courts in fines.

As a means of determining the spread of the Japanese beetle from year to year, scouting crews are established in the territory adjacent to the periphery of the known infested area. It is their duty to search for infestations in definite territories at regular intervals during the summer. Upon finding beetles the scouts are moved further out from the districts where the insect is known to occur. As a result of intensive scouting, infestations in the State of Maryland, the District of Columbia and other points were located during 1927. It is possible by this means to obtain fairly accurate information relative to the distribution of the Japanese beetle.

It is believed that every effort should be made to maintain stringent regulations to prevent the spread of the Japanese beetle over long distances. This applies particularly to the regulation of movement of nursery stock and soil. Since the great metropolitan districts of Philadelphia and New York are now within the regulated area, the inspection and regulation of movement of farm products is much less important than formerly.

Investigations of the Asiatic beetle, *Anomala orientalis*, have been continued and enlarged during the past year. A small field laboratory has been established at Westbury, Long Island, for the purpose of studying the biology of this insect, as well as to devise improved methods for its control. It has been found that certain parasites which are effective against the Japanese beetle are also useful in the control of the Asiatic beetle. Efforts are being made to establish the several species of Japanese beetle parasites in Long Island and Connecticut for the purpose of assisting in the control of the Asiatic beetle. As the Japanese beetles also occur in both of these areas in small numbers, the establishment of the parasites at those points will be of great help later in controlling the Japanese beetle as it becomes more abundant in these areas.

Preliminary studies of another beetle from Japan known as *Aserica castania* Arrow occurring in the vicinity of New York City and on Long Island, indicates it to be a somewhat serious pest. It feeds at night on many ornamental plants as well as on fruit and causes considerable damage. Another Japanese species closely related to this insect has also been discovered on Long Island. This insect is known as *Serica similis*, and is reported as an injurious species in Japan. Thus far it has been found in very small numbers, and it has not yet been possible to determine whether it may prove a pest in this country. Arsenical sprays have been found helpful in the control of these insects, although as with the Japanese beetle they tend to attack those portions of the plants which are not covered by the spray. All of these species are susceptible to control by the applications of arsenate of lead to the soil.

JAPANESE BEETLE QUARANTINE WORK*

In addition to scouting to determine the spread of the beetle in New Jersey, the Quarantine Department's activities include the certification of fruits, vegetables, cut flowers, nursery products, greenhouse products, sand, soil, earth, peat, compost and manure for shipment out of the regulated area. The following table shows the numbers of plants and the amounts of sand, soil, earth, etc., certified for shipment out of the New Jersey area during the 1928 fiscal year.

*By G. K. Handle. Work conducted in cooperation with the U. S. Bureau of Entomology.

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PLANTS, SAND, SOIL, EARTH, ETC., CERTIFIED DURING 1928 FISCAL YEAR

	<i>Number Shipments Reported</i>	<i>Number Plants Shipped</i>	<i>Sand, Soil, Earth</i>		<i>Peat</i>		<i>Compost & Manure</i>	
			<i>Carloads</i>	<i>Pounds</i>	<i>Carloads</i>	<i>Pounds</i>	<i>Carloads</i>	<i>Pounds</i>
Alabama	1,543	67,406	2	109,193	..	450	..	...
Arizona .....	...	1,875	...	1,839	..	...	..	...
Arkansas .....	...	13,328	1	26,936	..	...	..	...
California	1,842	54,463	7	377,712	..	127,233	..	...
Colorado .....	...	54,349	...	39,239	..	2,000	..	...
Connecticut .....	...	1,112,279	534	287,627	11	197,300	26	6,915
Dist. of Col. ....	...	349,895	58	130,360	..	7,100	5	630
Delaware .....	...	2,068,482	4	3,000	7	69,900	19	10
Florida	1,610	317,348	4	250,586	..	22,000	3	10
Georgia	2,646	228,420	6	157,280	..	16,105	..	2,000
Idaho .....	...	3,812	11	17,656	..	...	..	...
Illinois .....	...	1,969,162	46	597,732	..	45,850	..	285
Indiana .....	...	160,513	46	295,863	..	1,550	..	200
Iowa .....	...	382,954	...	165,982	1	50,100	..	50
Kansas .....	...	54,309	1	83,306	..	...	..	...
Kentucky .....	...	93,234	...	148,004	..	300	..	200
Louisiana .....	...	38,518	112	93,364	..	...	..	10
Massachusetts ...	20,163	1,666,885	1,058	24,366,131	9	157,630	17	3,710
Maryland .....	...	1,464,209	435	480,109	5	61,400	26	290
Maine .....	...	304,637	82	104,525	..	6,400	3	295
Michigan .....	...	450,054	45	486,661	..	4,505	..	1,020
Minnesota .....	...	157,136	1	128,825	..	100	..	...
Mississippi	819	24,824	1	75,804	..	...	..	5
Missouri .....	...	282,730	89	175,607	..	1,975	..	350
Montana .....	...	18,029	...	5,100	..	...	..	...
N. Carolina	5,170	332,849	11	260,654	..	26,600	..	...
N. Dakota .....	...	3,645	...	24,752	..	1,000	..	10
Nebraska .....	...	31,822	...	5,251	..	2,000	..	...
Nevada .....	...	488	...	...	1	...	..	...
New Hampshire..	2,843	245,889	40	39,612	..	1,100	..	20
New Mexico .....	...	6,613	...	8,646	..	2,600	..	...
New York .....	...	6,290,682	1,990	9,977,210	11	247,620	12	212,050
Ohio .....	...	1,870,502	328	747,838	2	104,152	..	2,710
Oklahoma .....	...	29,673	...	115,930	..	...	..	...
Oregon .....	...	111,130	6	39,256	..	...	..	...
Pennsylvania .....	...	2,495,082	888	764,391	9	391,100	1	3,815
Rhode Island ....	...	326,020	143	122,858	..	6,900	..	12,410
S. Carolina .....	...	139,464	1	33,907	..	3,890	..	...
S. Dakota .....	...	11,369	...	11,119	..	...	..	...
Tennessee .....	...	468,799	18	316,904	..	700	..	...
Texas .....	...	82,236	...	126,268	..	600	..	...
Utah .....	...	4,589	...	3,290	..	...	..	...
Virginia	11,798	747,549	56	300,287	..	54,700	3	530
Vermont .....	...	124,041	9	12,490	..	7,000	1	110
Washington .....	...	13,724	7	129,848	..	...	..	...
West Virginia ...	...	220,223	51	358,091	1	5,450	..	305
Wisconsin	2,640	168,144	9	255,397	..	9,800	..	...
Wyoming .....	...	2,220	12	125	..	...	..	...
Foreign .....	...	187,088	582	569,002	..	11,700	..	10
Total	51,074	25,252,642	6,694	42,831,567	57	1,648,810	116	247,950

The following tables deal with other quarantine activities. They represent farm products and other items certified during the calendar year 1927, for shipment out of the regulated area of New Jersey.

TOTAL NUMBER OF PACKAGES OF FRUIT, VEGETABLES AND CUT FLOWERS CERTIFIED IN THE REGULATED AREA OF NEW JERSEY, SUMMER 1927

<i>Articles</i>	<i>Number of Packages</i>
Corn	12,024
Beans	21,690
Lettuce	12,223
Peas	2,280
Vegetables with tops	76,876
Miscellaneous Vegetables.....	681,191
Miscellaneous Fruits	981,206
Bunches Bananas	1,580
Boxes of cut flowers	4,665
Total packages	1,793,735

NUMBER OF BALES OF HAY, STRAW AND SPAGNUM MOSS CERTIFIED BY ALL OFFICES IN THE REGULATED AREA OF NEW JERSEY FOR SHIPMENT TO EACH STATE

<i>State</i>	<i>Bales of Hay</i>	<i>Bales of Straw</i>	<i>Bales of Moss</i>	<i>Total Bales</i>
Alabama .....	..	..	25	25
Connecticut .....	..	3,730	1,184	4,914
District of Columbia.....	..	360	703	1,063
Delaware .....	..	79	195	274
Florida .....	..	..	35	35
Georgia .....	..	..	442	442
Illinois .....	..	..	14	14
Indiana .....	..	720	185	905
Louisiana .....	..	..	5	5
Massachusetts	260	6,658	1,450	8,368
Maryland .....	..	360	1,679	2,039
Maine .....	..	120	..	120
Michigan .....	..	..	2	2
Mississippi .....	..	..	100	100
North Carolina .....	..	..	1,412	1,412
New York	1,339	4,389	2,565	8,293
New Hampshire .....	..	120	..	120
Ohio	108	480	90	678
Pennsylvania	452	5,522	868	6,842
Rhode Island .....	..	600	153	753
South Carolina .....	..	..	282	282
Tennessee	55	..	185	240
Virginia	270	240	487	997
West Virginia	3,486	..	3,486
Foreign	120	46	166
Totals	2,484	26,984	12,107	41,575

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ESTABLISHMENTS REQUIRING INSPECTION AND SUPERVISION

Total number of classified nurseries.....	149	
“ “ “ “ greenhouses	61	
“ “ “ “ nurseries and greenhouses.....	137	
“ “ “ “ aquatic dealers	5	
“ “ “ “ brokers	10	
	<hr/>	
Total number of classified establishments	362	
Total number of square feet of glass in greenhouses.....		5,698,321
Total number of acres in nurseries		9,431.5

TOTAL MEN EMPLOYED AT ALL OFFICES (AVERAGES)

	<i>Jan.</i>	<i>Feb.</i>	<i>Mar.</i>	<i>Apr.</i>	<i>May</i>	<i>June</i>	<i>July</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>
Scouting	0	0	0	0	0	0	57	71	27	0	0	0
Farm Products	0	0	0	0	0	2	33	32	18	2	0	0
Nursery and Green-house	13	13	20	25	22	17	12	12	14	25	25	20
Administrative	11	11	11	11	11	11	15	16	15	14	14	15
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
Totals	24	24	31	36	33	30	117	131	74	41	39	35

TOTAL AMOUNT OF ARTICLES CERTIFIED AND NUMBER OF BEETLES
REMOVED IN THE STATE OF NEW JERSEY,
JANUARY 1 TO DECEMBER 31, 1927

	<i>Total Amount</i>	<i>Beetles Removed</i>
Packages of Farm produce	1,789,070	91
Boxes of cut flowers	4,665	172
Bales of hay, straw and moss.....	41,575	..
Plants certified	27,887,026	..
C. L. sand, soil, etc.....	7,944	..
C. L. manure	18	..
	<hr/>	<hr/>
Total .....	.....	263

BEE INSPECTION SERVICE*

HARRY B. WEISS, *Chief*THOMAS J. HEADLEE, *State Entomologist*ELMER G. CARR, *Deputy to State Entomologist in Bee Inspection*

The experience of the past has shown that although in the majority of cases beekeepers have cleaned out disease within the time

*By E. G. Carr.

specified, as a general practice it is unsafe to assume that this is always done. This being true more attention has been given to follow-up work during the past fiscal year. As a result seventy-seven diseased colonies which were not treated within the time limit were burned.

It is interesting to note that there is a gradual increase in the number of colonies per apiary as shown by the inspection figures. For the fiscal year ending June 30, 1927, there were 20 colonies per apiary and for the past fiscal year, 24 (plus) colonies per apiary.

Bee Disease Control

There were inspected for this period 5,511 colonies of bees in 226 apiaries. Except 24 in boxes and 88 in cross-combed hives, all were in movable comb hives.

In 73 apiaries were found 280 colonies infected with American foulbrood. In 14 apiaries were found 47 colonies with European foulbrood. Two hundred and thirteen cases of sacbrood were found.

Although the inspection work has, for the greater part, been done where disease was suspected or known to exist, there were six less apiaries and 58 less colonies found infected with American foulbrood than last year.

Sacbrood has been extremely plentiful and has caused much anxiety among beekeepers and has somewhat slowed down inspection work.

Queen-rearers' Certificates

Queen-rearers' apiaries were inspected, found free of disease and certified as follows: R. B. Spicer, Wharton, Morris County, July 28, 1927, and June 13, 1928; Albert G. Hann, Glen Gardner, Hunterdon County, August 4, 1927, and May 14, 1928; James C. Crawford, R. D. No. 6, New Brunswick, Somerset County, April 4, 1928.

Microscope

The microscope has continued to be an invaluable aid in bee-disease diagnosis. Not only have many samples been examined in the field to confirm the gross diagnosis in cases where the gross symptoms were not sufficiently clear to make a positive statement advisable, but in addition 27 samples have been received by mail for diagnosis. This has much increased the service which the Department of Agriculture is able to render for beekeepers.

Newspaper Warning

Early in the season of 1928 it became apparent that an unusual shortage of stores existed in hives in general in New Jersey so a general warning was issued advising beekeepers to feed the bees in order that they might be ready for the honey harvest should it arrive.

Exhibits

An exhibit of bees and honey was made at the 150th Burlington celebration, one at the Armory, Trenton, in January and one in the market car at Trenton Fair Grounds.

Moving Certificates

A certificate was issued for moving 20 colonies of bees from Flemington to Staten Island and one for the movement of 17 colonies from Barbertown to Pennsylvania.

Disappearing Disease

After a period of several years when it was not noticed to a harmful extent anywhere in the state, the so-called "disappearing disease" occurred in the vicinity of Bridgeton in July, 1927, in a very destructive degree and to a lesser degree at Bordentown. The cause of this trouble is not known although an effort has been made to determine it. No real remedy is known.

Scouting

In order that queen-rearing apiaries may better be protected against the appearance of disease therein, every place within a radius of two miles from a queen-rearing unit is being scouted for bees and bee disease.

New Jersey Beekeepers Association

As the Secretary of the New Jersey Beekeepers Association, the Deputy Bee Inspector has had charge of these activities for the advancement of New Jersey beekeeping, viz; distributed five issues of the official organ "New Jersey Bee Culture" to the membership; held an annual meeting at Trenton when there were 117 present at the five sessions; held five field meetings for beekeepers, one at Newfoundland on July 21, 1927, with an attendance of 28, one at Stewartsville on August 15, 1927, with an attendance of 36,

one at Port Norris on May 24, 1928, with an attendance of 10, one at Pottersville on June 8, 1928, with an attendance of 21 and at McAfee on June 14 with an attendance of 19.

Meetings and Conferences

The Deputy Bee Inspector attended the following conferences and meetings: the exhibit conference at Trenton, State Police luncheon conference at Wilburtha, legislative conference of the county boards of agriculture, Trenton, and the annual meeting of the Pennsylvania Beekeepers Association. Also acted as judge of the apiary products at the Farm Show at Harrisburg.

REPORT OF THE FRELINGHUYSEN LOAN FUND

L. BERGEN BURK, *Assistant Manager*

As the dairy industry has always occupied an important place in New Jersey's agriculture, it is only natural that our farm boys and girls should be quick to avail themselves of the advantages offered them by the creation of the Frelinghuysen Fund from which they can borrow money for the purchase of pure-bred livestock. Many of them have made records of production which are noteworthy, and their achievements in breeding are outstanding. Since 1921, when the Fund was created, 867 boys and girls have been loaned more than \$65,000. During the last fiscal year 95 loans were made. The following tables analyze the loans made since the Fund was established:

SUMMARY OF LOANS BY COUNTIES

County	Calf Loans		Pig Loans		Poultry Loans		Total
	Previous 1927-28		Previous 1927-28		Previous 1927-28		
Bergen .....	..	..	1	..	..	..	1
Burlington	33	..	16	..	2	..	51
Cape May	6	1	..	..	..	..	7
Cumberland ...	36	2	6	1	11	3	59
Essex .....	..	..	..	..	..	16	16
Gloucester	7	1	..	..	..	..	8
Hunterdon	52	4	2	1	..	..	59
Mercer	86	21	37	4	6	1	155
Middlesex	72	9	..	..	23	4	108
Monmouth	35	3	12	..	55	7	112
Morris	44	1	1	..	4	..	50
Ocean	16	1	..	..	9	..	26
Salem	37	..	38	4	3	..	82
Somerset	29	..	..	..	..	..	29
Sussex	28	3	1	..	7	..	39
Warren	54	8	3	..	..	..	65
Totals	535	54	117	10	120	31	867

SUMMARY OF LOANS BY YEARS

<i>Fiscal Year</i>	<i>Calf Loans</i>		<i>Pig Loans</i>		<i>Poultry Loans</i>		<i>Total Loans</i>	
	<i>No.</i>	<i>Amount</i>	<i>No.</i>	<i>Amount</i>	<i>No.</i>	<i>Amount</i>	<i>No.</i>	<i>Amount</i>
1921.....	30	\$2,815.00	..	.....	..	.....	30	\$2,815.00
1922.....	92	7,985.00	16	\$1,074.98	16	\$824.25	124	9,884.23
1923.....	81	6,365.00	21	1,267.25	13	636.25	115	8,268.50
1924.....	96	8,670.00	10	409.50	14	932.00	120	10,011.50
1925.....	81	7,065.00	26	1,320.00	17	1,183.50	124	9,568.50
1926.....	71	6,639.50	25	1,684.30	32	1,563.10	128	9,886.90
1927.....	84	7,444.00	19	1,240.00	28	1,112.50	131	9,796.50
1928.....	54	4,644.00	10	620.00	31	890.70	95	6,154.70
Totals.	589	\$51,627.50	127	\$7,616.03	151	\$7,142.30	867	\$66,385.83

Emergency Fund

It was with regret that the management increased the emergency fees January 1, 1928, but the need was imperative as a large deficit was in existence. Emergency fees paid by the boys and girls since 1921 amounted to \$971.02, and the losses to January 1, 1928, reached the total of \$3,091.46. Progress has been made during the year toward reducing the deficit and it is our hope that the emergency fee may be decreased in the future. However, it is our duty to the donors of the fund and to our boys and girls to keep it on a sound financial basis.

Junior Livestock Show, Trenton Fair

In referring to our records of the 1928 Junior Breeders Exhibit, we find that there were forty-eight entries in the Holstein, Guernsey, Jersey and Ayrshire classes, nine pig and fourteen poultry entries, making a total of seventy-one entries. The amount awarded was \$483.50.

In the 1928 exhibit the entries were as follows: Thirty Holsteins, fifteen Guernseys, eighteen Jerseys, two Ayrshires, fifty-five pig entries and eighty-seven poultry entries, making a total of two hundred seven. The amount of the awards, including sweepstakes, was \$716. These statistics are conclusive proof that remarkable progress has been made. To the State Board of Agriculture this is gratifying and they desire to congratulate the Frelinghuysen Fund boys and girls on their achievements which are notable and deserve the highest praise.