STATE OF NEW JERSEY
DEPARTMENT OF AGRICULTURE
WILLIAM B. DURYEE, SECRETARY

Fourteenth Annual Report

of the

New Jersey State Department of Agriculture

1928-1929

Trenton, N. J., November, 1929

WILLIAM B. DURYEE
Secretary of Agriculture

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STATE OF NEW JERSEY
DEPARTMENT OF AGRICULTURE
WILLIAM B. DURYEE, SECRETARY
TRENTON

November 25, 1929

To the Senate and General Assembly
of the State of New Jersey:

I have the honor to transmit on behalf of the State Board of Agriculture the Fourteenth Annual Report of the New Jersey Department of Agriculture for the fiscal year ended June 30, 1929.

Respectfully,

William B. Duryee

Secretary.

Fourteenth Annual Report
of the
New Jersey State Department of Agriculture

REPORT OF THE SECRETARY

This, the fourteenth annual report of the State Department of Agriculture, records the principal activities of the year. It has been a year of great activity and, we believe, of unusual accomplishment in the numerous projects in which the Department is engaged. In addition to carrying out specific duties laid down by statute, the Department is directly concerned with the trends in agriculture and the results of the season's labors on the farms of the state.

Trends in Agriculture

The general trend in the state is toward an increase in the acreage of vegetables and some cereals. During the year tomatoes have shown an increase of 1,000 acres to a total of 45,500 acres, divided between those for manufacture and for immediate consumption. Sweet corn increased by 1,500 acres to 20,000 acres; snap beans by 1,000 acres to 13,000 acres; lima beans, asparagus and cabbage by 200 acres each, making a total of the acreage of all three crops of 25,700 acres. The acreage of corn increased by 5,000 acres to 185,000 acres as compared with 1928 and wheat by 1,000 acres to a total of 61,000 acres over the previous year.

The acreage in oats declined by 2,000 acres to 48,000 acres; white potatoes declined 7,000 acres to 50,000 acres, and sweet potatoes by 1,000 acres to 14,000 acres.

Volume of Production

For the first time in several years drought was a serious factor in crop production throughout the state and reduced the total yield of all major crops as compared with 1928, with the exception of peaches, tomatoes, lima beans and cantaloupes. The total production of white potatoes was less than that of 1928 by 3,000,000 bushels; the yield of apples declined by 1,400,000 bushels; and sweet corn by 8,000,000 ears below the 1928 production. The effect of the drought was also seen

in the case of cereals where yields were lower and in pastures which made but little growth from June to September, compelling dairy farmers to purchase feed stuffs during the summer months. The reduction in the hay crop alone will compel dairy farmers to spend nearly $2,000,000 more for hay than they have expended in recent years.

Prices

Due to the relatively smaller supply in New Jersey and competing states which were also affected by dry weather, prices were better than in the previous year, white potatoes sold for an average of 85 cents more per bushel than in 1928; apples for 65 cents per bushel more; tomatoes for manufacture $4.00 more per ton; and tomatoes for market 52 cents per bushel more. The price of milk was three cents more per 100 pounds than last year, but the price of eggs averaged five cents less per dozen. The following table shows the estimated acreage production and farm prices of products in New Jersey as of September 1:

ACREAGE, PRODUCTION AND FARM PRICES OF FARM PRODUCTS IN NEW JERSEY AS OF SEPTEMBER 1, 1929, AS COMPARED WITH THE FINAL ESTIMATE OF 1928

	Acreage		*Production*		*Price*	
	1928	*1929**	*1928*	*1929**	*1928 (dol.)*	*1929* (dol.)*
All corn (bu.)	180,000	185,000	6,968,000	6,321,000	0.97	1.17
Wheat (bu.)	60,000	61,000	1,200,000	1,159,000	1.24	1.26
Oats (bu.)	50,000	48,000	1,500,000	1,272,000	0.53	0.61
White potatoes (bu.)	57,000	50,000	9,120,000	6,078,000	0.50	1.35
Sweet potatoes (bu.)	15,000	14,000	2,175,000	1,757,000	1.20	1.65
Hay, tame (tons)	247,000	245,000	453,000	363,000	14.60	15.75
Apples, total (bu.)	.....	.....	3,290,000	1,880,000	1.10	1.75
Peaches (bu.)	.....	.....	1,625,000	2,600,000	1.35	1.45
Tomatoes for mfr. (tons)	33,000	33,500	118,000	189,945	18.50	22.50
Tomatoes for mkt. (bu.)	11,500	12,000	2,012,000	2,190,000	1.18	1.70
Sweet corn (100 ears)	18,500	20,000	1,110,000	1,020,000	1.95	2.28
Peppers (bu.)	7,500	7,350	1,725,000	1,719,900	0.65	1.21
Snap beans (bu.)	12,000	13,000	1,440,000	1,365,000	1.47	1.75
Lima beans (bu.)	2,800	3,000	182,000	262,500	3.92	2.39
Strawberries (32-qt. crt.)	7,000	6,860	476,000	397,880	3.20	3.28
Asparagus (crt. 24 bchs.)	10,500	10,700	409,500	428,000	4.90	3.05
Cantaloupes (crt.)	3,400	3,400	544,000	571,200	0.95	1.13
Cabbage (bu.)	6,800	7,000	1,576,000	1,323,000	0.75	1.15
Onions (bu.)	3,000	3,000	780,000	734,250	1.00	1.80
Milk (per 100 lbs.)					2.87	2.90
Eggs (per doz.)					0.45	0.40

* Average to September 1, only.

In comparing the two seasons of 1928 and 1929, the one with abundant rains and heavy yields and the other with drought and light yields, it is clear that this year is more favorable for New Jersey farmers than 1928. Dry weather throughout the east and many other sections of the country, coupled in some cases with reduced acreage, as a result of over-production in 1928, brought yields more nearly within the demands of consumers. There was no depressing surplus hanging over the market in most commodities during the season and prices were far better as a consequence. The smaller crops mean less expenditure for harvesting and transportation, thus resulting in better net returns.

A study of these two successive years shows that although the number of farm operators is less, the improved methods of production now in use, including better seed, the application of machinery and better knowledge of fertilizing practices, coupled with favorable growing weather, can produce crops in excess of demand. The menace of over-production continues to hang over the agricultural picture and it is apparent that only restricted acreage or unfavorable growing conditions, or both, can keep production within reasonable bounds as related to consumption demand. Since the consumer is rarely benefited by glutted markets and the producer is seriously hurt thereby, a better adjustment of production to demand is essential for the well-being of all concerned.

Department Activities

The organic law creating the Department of Agriculture gives a very broad scope to the Department's activities and says specifically that it shall be concerned with "any and all subjects connected with or related to the agricultural interests, present and future, of this state." The Department, as a promotion agency, should be identified with every activity to improve agricultural conditions and promote rural welfare. Activities along this line have included the development of interest in township road improvement through the organization of a Township Road Committee on which are representatives of the State Highway Department, the Federal Bureau of Public Roads, the township committees and the agricultural organizations of the state. Partly as a result of the work of these agencies, the Legislature has doubled state aid to township, county and borough roads, and has established a Rural Roads Commission which includes representatives of the Senate and Assembly. This commission will doubtless recommend further aid to township roads to the Legislature and the development of these roads on a program basis over a period of years, although no plan has yet been published.

The interest aroused by the Business Men's Conference mentioned in the last annual report has continued and the sub-committee held meetings during the winter for the discussion of legislative betterment to agriculture. The chairman of this committee was Willard I. Hamilton, President of the State Chamber of Commerce. Partly because of his active interest in agricultural problems and the contributions that this committee had made to agriculture, Mr. Hamilton was appointed a member of the State Board of Agriculture to succeed C. Fred Day, who died on February 19th. Mr. Hamilton's appointment has brought a new and helpful viewpoint to the Board and to the agriculture of the state generally.

The Agricultural Council

In order to solidify the organized agricultural bodies of the state and to develop a program as well as to obtain a clearer understanding of objectives, an Agricultural Council was organized which included the Master of the State Grange, the Director of the Experiment Station, the Secretary of the Farm Bureau, and the Secretary of the Department. Meetings of this Council have been helpful along the lines for which it was formed and it is proposed to continue meetings of this group as occasion demands.

Certain definite needs have developed during the year and these are presented with the progress that has been made in working them out.

The Agricultural Marketing Act, otherwise known as the Farm Relief Bill, was passed by both houses and aid to agriculture through a Federal Farm Board is now an established fact. This national Board is concerned with problems of the producers of staple commodities principally, but the Act is so worded as to enable the Board to function on a regional basis where agriculture is diversified to a high degree. Contacts were made at once with the Board through the auspices of Hon. Franklin W. Fort, a member of the House Committee on Agriculture, and conferences with representatives of cooperative organizations in this state have been definitely planned. To make effective a national program for agricultural relief, state agencies such as the Department of Agriculture can and should be employed. The services to the farmers in New Jersey through the Bureau of Markets have been made known to the Board and its contacts in marketing will likely be used in part for the administration of the federal aid in marketing.

Control of Insect Infestations

The Federal Plant Quarantine Act gives authority to the Secretary of Agriculture to establish quarantines in the case of "economic insects new to or not widely distributed within the United States." New Jersey has been affected to a greater extent by such federal quarantine than any other state. The application of these quarantines is followed by regulations for extermination or control of the insect involved and by approved methods of inspection for shipment of products outside the quarantined area. In such cases the cost of research is borne almost entirely by the federal government; extermination or control measures are financed jointly by state and federal funds; and the heavy costs for inspection and certification as to freedom from infestation of farm, nursery and soil shipments are paid for by joint appropriations. Each insect infestation constitutes a distinct problem calling for individual treatment in control and inspection of the products to be shipped.

Continued and gratifying progress has been made in the extermination of the gipsy moth and most of the high-powered spraying machines that have been used in this work are being disposed of by the Surplus Property Commission of the state. Scouting for stray egg masses and adults will be continued and incoming shipments of nursery stock from infested regions outside will be carefully watched. We believe, however, that the expense to the state in this regard is practically at an end, and we are sure that the investment made over the past few years, with the cooperation of the federal government, has been well worth while in the protection of our shade trees and ornamentals.

The Japanese beetle continues to spread in the state to new territory, but it is significant that the infestation in older territory has been reduced by some 50 per cent. The effective work done by parasites has shown the possibilities of thoroughly distributing them through the heavily infested regions and some expenditure will be made during the coming year for intensive planting of these colonies. Due to the fact that these parasites feed on Japanese beetles only, the colonies cannot be established very far from centers of infestation because of their disappearance from lack of beetles on which to feed.

During the year a fumigating house has been erected at Hammonton for the destruction of beetles that infest berries. This house based upon experimental work over several months has proved its usefulness and effectiveness and has permitted the distribution of berries over a wide area.

In spite of the continued spread of infestation in New Jersey, the spread outside the present area has been remarkably small, when natural means of transporting these insects are considered. This necessitates continued certification of farm products and nursery stock, sand, and soil, hay, straw, peat moss, and other commodities that are likely to be infested and which are to be shipped outside the area.

Small and isolated infestations of the dreaded European corn borer have been found in the state by federal scouts. Through small appropriations by the state, equalled by federal sums, these infestations have been exterminated and the cost and inconvenience of quarantines have been avoided. There are now eleven states under partial or complete quarantine because of the European corn borer.

Animal Disease Control

The successful control and eradication of prevalent contagious diseases in cattle and other farm animals means far more than the saving of animal life. It means more economic production of milk, meat, and eggs through elimination of diseases that lower vitality and reduce productive capacity. Disease control on this basis safeguards human health as well through removing sources of communicable ailments that may be transmitted to mankind. The Department is constantly and vigilantly at work with this economic and constructive viewpoint in animal disease control. Distinct progress is being made in the eradication of tuberculosis in cattle, more than half the cattle population of the state having been tested, with 9,569 herds under supervision for control of this destructive malady. Success is also being attained in controlling contagious abortion in cattle, glanders and forage poisoning in horses, Pullorum and pox in poultry and cholera in swine. Furthermore, emergency outbreaks of diseases that are more rare, but even more destructive, have been checked in their incipiency.

Licensing and Bonding Activities

Chapter 74, of the Laws of 1917, requires all purchasers of milk for distribution to apply to the Secretary of Agriculture for a license. The statute gives us authority to grant exemptions and to direct that a bond be filed under certain conditions. During the year 245 dealers have been licensed and 105 have given bonds to the value of $225,000 for the faithful execution of their contracts with producers. Compliance with the statute is more complete and its provisions better understood

than previously. The Department's regulatory duties of this type are on a service basis and every opportunity for compliance is given before instituting the action laid down in the act for enforcement purposes.

Agricultural Week

Agricultural Week, held during the second week in January of each year at Trenton, is expanding in scope and in practical value to farmers throughout the state. The associations holding annual or adjourned meetings during that time invite those interested in every field of agricultural endeavor to attend and take part in their proceedings. During the past year a very attractive innovation was made by a general women's committee representing the Board, the Department and other agricultural organizations in staging attractive programs for women for each day of the week. This met with such remarkable response that it is planned as a regular feature hereafter. The exhibitions of farm products and machinery in the armory were on a high plane. Farmers and their families were present from every county in the state and a spirit of optimism was evident to a greater extent than in some previous years.

The Frelinghuysen Fund

The fund set up in 1921 to aid boys and girls on New Jersey farms in the purchase of purebred livestock has as trustees the State Board of Agriculture, and as manager the Secretary of the Department. During the past fiscal year the fund has demonstrated anew its usefulness in interesting farm youth in the possibilities of livestock production on New Jersey farms. Loans are made upon recommendation of county club agents in the extension division. During the past year arrangements have been made for securing the endorsement of the county boards of agriculture before loans are made. This feature has made for greater interest in the county and community and has been welcomed by all concerned. Many interesting stories could be told of the value of the Fund and of its influence on the home farm methods and surrounding area. The interest paid by the young borrowers is used for prizes at county fairs and the Inter-State Fair, as a stimulus to further endeavor. The following table shows in detail the loans made, totalling $72,831.48:

SUMMARY OF LOANS BY YEARS

Fiscal Year	Calf Loans		Pig Loans		Poultry Loans		Total Loans	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
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	83	7,444.00	19	1,240.00	28	1,112.50	130	9,796.50
1928	54	4,644.00	10	620.00	31	890.70	95	6,154.70
1929	55	4,960.00	13	805.00	15	680.65	83	6,445.65
Totals	643	$56,587.50	140	$8,421.03	166	$7,822.95	949	$72,831.48

Needs of Agriculture

Agriculture will continue as an important factor in the state's life and our growth industrially and in population should be of help instead of a restraining influence. If all those who agree that agriculture has an essential place in our state and who see that food production and consumption are of universal import would unite on a program of service to agriculture, great benefits would ensue to the commonwealth.

The needs of agriculture are the concern of the Department of Agriculture. They are here set down as challenging the attention of all those who can and will help in solving them.

1. *Agricultural Survey*—A definite need for New Jersey is a clearer picture of its agriculture. Our great advantages in respect to geographical location, the demand for fresh products from our farms, and the fertility of our soils, all offer possibilities for agricultural developments that will be of intrinsic value to the state as a whole and to all of its people. We should know far more definitely than is available at the present time the facts relative to the trend in agriculture in the state. We should know the place that improved machinery has taken and can take in the operation of farm lands on a more economic basis. We should know the crops and the types and varieties of these crops that have shown themselves to be best adapted to our location near to consuming centers, and we should know more definitely the potential sources of utilizable land for the production of milk, poultry products and other commodities for which we are unable to meet the demand of our own consumers. All of these facts and many others upon which a genuine program of state development agriculturally should be built could be determined through an accurate agricultural

survey and which the census does not supply except in part. It would seem that the expense incidental to such a project would be a good investment for the state as a means of analyzing its position agriculturally and making possible greater progress along profitable and constructive lines.

2. *Tax Revision*—Taxes on farm lands have practically doubled in New Jersey since 1913. The original method of securing revenues for public uses was to assess tangible property with especial emphasis on real estate. Great resources of wealth have now been established in other forms. A revision of the system of taxation is now in order to insure equal participation in public expenditures on the part of all those benefited by government activities and protection. If other sources of revenue are fairly taxed, farm real estate would be relieved of part of its present heavy burden and agriculture would be definitely aided thereby.

3. *Improved Farm Life*—Living conditions on farms in New Jersey should be and in many instances now are the best in the nation. A great deal can still be done in adding attractiveness to rural homes by greater extension of facilities available to urban dwellers. The improvement of township roads on an economic basis has been stressed by the Department and a good deal has been accomplished. The development of secondary systems of highways on a definite program basis should be set up under expert direction and adequate financing. With the present annual expenditure of four million dollars of local funds alone on township roads and the presence of 11,853 miles of unimproved roads, we believe further argument for such systems is unnecessary. Ensuing benefits to the entire state are likewise patent.

The value of electric light and power on farms and in farm homes is becoming increasingly evident. In this, too, the Department has taken the initiative and the employment of a rural electrification engineer for the past year, operating through a joint committee, has shown the potentialities of this field. Continued and effective prosecution of this project is greatly to be desired.

4. *Marketing Farm Products*—The passage of the Agricultural Marketing Act, carrying with it provisions for a Federal Farm Board, and a half billion dollar appropriation, shows the stress laid on improved marketing of farm products by the nation. It is not less important for the farmers of New Jersey and for the consumers as well. Serious attention should be given to the establishment of a great produce distribution center on the west bank of the Hudson. The appalling congestion of the New York City market area with resultant labor disturbances and other economic problems; the presence of more than a

million and a half consumers in New Jersey who would be served by such a market; the reduced primary and secondary hauling charges of produce for consumption in that area, are all potent reasons for establishing a great market outlet in that section accessible to rail and water transportation if possible, and operated on an economic wholesale basis.

The popularity of the well managed Trenton wholesale and retail market demonstrates on a somewhat different scale the usefulness of public markets to producers and consumers. It is possible that the aid of the Federal Farm Board could be secured in the establishment of a market that would serve so useful a purpose as great public markets at strategic points in north and south Jersey. If properly located and well managed these markets will be of tremendous benefit to thousands of New Jersey farmers.

5. *Milk Grades and Standards*—Not less than three hundred million quarts of milk are imported into the state annually for consumption. An approximately equal amount is produced by dairymen in the state and shipped in part to New York and Philadelphia. The diverse requirements of these cities have had great effect on the respective areas supplying them with milk and the state has practically no general standards of its own for supplying our own citizens. The establishment of basic minimum grades and standards which could be amplified by local health authorities where desired would accomplish much in stabilizing and protecting both producing and consuming interests. Such action would also be a step toward the development of thousands of acres of farm land in the state adapted to dairying that are now out of production. A great need is this development of an adequate supply of fresh milk in the future growth of the state.

Important contributions to this end have been made by the New Jersey Milk Conference Board, representing all interests concerned, and the State Dairy Advisory Committee, composed of representatives of producers in each county and each breed organization. Both of these groups were organized by request of the Department and as a result of their studies, the Department was asked to prepare desirable grades for milk. If these standards meet with general acceptance and approval, it is the thought of the farmers' representatives to present them to the Legislature.

6. *Research*—Experimentation in agriculture is recognized as the basis for improvement along sound lines under field conditions. There is not only need for adequate support of research and experimentation but a need for a consideration of the agricultural problems of the state relating to crop production on the basis of production items, including

soil type or varieties, treatment of the seed and the soil, combined with marketing information such as the trend of consumer demand, the competition in our markets from other states, and the most desirable package and method of packing. Consideration of one side of the picture without the other does not furnish a complete basis for successful agriculture, whereas the consideration of both must result in constructive improvement for the individual and for each type of production in the state.

In recording these needs of agriculture, only those of greatest current interest have been discussed. Others are mentioned in succeeding pages. In conclusion, deep appreciation is expressed for the progress made and the results attained through the work of the chiefs of bureaus whose reports follow, and all the personnel of the Department during the year. The esprit de corps of the Department has not been higher nor the spirit of service to the state better exemplified than in recent months.

Publications

The following circulars were issued during the year:

150. Results of the Eighth Year's Work Against the Gipsy Moth in New Jersey.
151. Directions for the Treatment of American Foulbrood (Revised).
152. Questions and Answers on the Japanese Beetle.
153. The Principles of Consumers', Producers' and Credit Cooperation.
154. The Ostomidæ of New Jersey.
155. New Jersey Prices of Hired Farm Labor, Feedstuffs and Fertilizer Materials and Their Index Numbers. 1910-1927.
156. Community Shade Tree Spraying for Protection from the Japanese Beetle.
157. Official List of New Jersey Breeding Flocks.
158. Motor Truck Receipts of Fruits and Vegetables at Newark, New Jersey, from July 3 to December 31, 1928. .
159. The Cost of Producing Honey in New Jersey and Other Economic Data on Beekeeping.
160. Official Proceedings of the Fourteenth Annual State Agricultural Convention.
161. County Boards of Agriculture, Granges and State Agricultural Organizations for 1929.
162. The Dairy Industry of New Jersey—Economics and Statistics.
163. The Control of White Grubs in Lawns and Golf Courses.
164. Requirements and Rules for the Inspection and Certification of New Jersey Second-Crop Seed Potatoes.
165. Seed Certification Activities of the New Jersey State Department of Agriculture with Rules and Regulations Appertaining Thereto.
166. Statistical Handbook of New Jersey Agriculture (Being Printed).
167. Services Available to New Jersey Citizens by the State Department of Agriculture.
168. Control of the Japanese Beetle.

REPORT OF THE BUREAU OF ANIMAL INDUSTRY

The Control of Infectious Swine Diseases

In making a general survey of the swine industry, it is very evident that there has been a large decrease in the number of hogs raised in New Jersey during recent years. However, the record of vaccinations indicates that more hogs have been treated than in previous years, proving that the hog farmer is aware of the fact that he can conduct his business with profit only when it is safeguarded by modern methods for the control of infectious diseases.

While there has been a slight decrease in the number vaccinated by Bureau veterinarians there has been considerable increase in work performed by private veterinarians. The total number vaccinated in the state during this fiscal year was 34,241 as compared with 29,964 last year or an increase of 14 per cent.

The policy of the Department with regard to vaccination has not been materially modified. Hog owners are advised that when possible they should secure the services of their private veterinarians who are in full touch with all their operations and are in a position to advise not only regarding the diseases of hogs but ailments of other livestock and poultry.

There are several sections in New Jersey where there are small droves, necessitating our working through the county agent, who lists the owners and the location of the premises together with the number of hogs to be treated. The work is then carried on by a Bureau veterinarian in cooperation with the county agent or his representative, and all the hogs are vaccinated at least twice annually within this given area. This plan insures the proper protection and is a great saving to the individual, especially if hog cholera breaks out at any time during the interim between the Spring and Fall vaccinations. By this method a maximum service is rendered at a minimum cost to the Department.

HOG CHOLERA INOCULATION

Summary by Months

Treated by Bureau and Private Veterinarians—July, 1928-June, 1929

	Bureau Veterinarians		*Private Veterinarians*	
	Single	*Double*	*Single*	*Double*
July	..	1,153	40	1,571
August	..	25	113	1,795
September	8	876	216	5,465
October	21	480	482	5,159
November	..	508	250	1,623
December	..	686	106	1,668
January	..	225	6	2,220
February	6	139	179	481
March	2	290	31	1,240
April	1	295	54	1,734
May	..	1,290	42	1,269
June	..	655	2	1,835
Totals	38	6,622	1,521	26,060

Total Single 1,559
Total Double 32,682

GRAND TOTAL ... 34,241

HOG CHOLERA INOCULATION

Summary by Counties

Treated by Bureau and Private Veterinarians—July, 1928-June, 1929

	Bureau Veterinarians		*Private Veterinarians*	
	Single	*Double*	*Single*	*Double*
Atlantic	2	2,081	16	847
Bergen	..	..	..	..
Burlington	1	202	2	8
Camden	..	46	..	2,417
Cape May	..	939	240	1,218
Cumberland	..	140	22	289
Essex	..	..	4	203
Gloucester	6	213	404	11,875
Hudson	..	..	..	..
Hunterdon	..	82	12	798
Mercer	..	483	89	473
Middlesex	..	..	..	120
Monmouth	21	1,544	119	3,138
Morris	..	..	..	13
Ocean	..	454	..	119
Passaic	..	..	..	433
Salem	8	402	613	2,216
Somerset	..	..	..	445
Sussex	..	..	..	397
Union	..	36	..	1,048
Warren	..	..	..	3
Totals	38	6,622	1,521	26,060

Total Single 1,559
Total Double 32,682

GRAND TOTAL ... 34,241

HOG CHOLERA INOCULATION

Comparison of Summaries 1924-1929

Treated by Bureau Veterinarians	*1924–1925*	*1925–1926*	*1926–1927*	*1927–1928*	*1928–1929*
Double	3,468	4,503	8,931	9,575	6,622
Single	121	527	624	387	38
	3,589	5,030	9,555	9,962	6,660
Treated by Private Veterinarians					
Double	6,138	7,324	13,305	18,716	26,060
Single	604	561	1,392	1,286	1,521
	6,742	7,885	14,697	20,002	27,581
Totals					
Double	9,606	11,827	22,236	28,291	32,682
Single	725	1,088	2,016	1,673	1,559
	10,331	12,915	24,252	29,964	34,214

RABIES

The Department is in receipt of many communications with regard to rabies affecting dogs and other animals, but inasmuch as this work is delegated to the Board of Health we cannot do other than advise owners as to the best method of procedure in handling such cases and notify the State Board of Health immediately. That Department makes an examination of the brain tissue presented and forwards a diagnosis to the local board of health, which in turn prescribes the plan of treatment.

We received a report this year of the loss of four cows in Sussex County as result of rabies inoculation.

NECROBACILLOSIS

We frequently have reports from private veterinarians of outbreaks of necrobacillosis. This effects principally hogs and sheep.

We report one case which was investigated occurring in sheep in Sussex County. They had developed sore mouth. The owner suspected foot-and-mouth disease, but after a thorough investigation conducted by a representative of this Bureau, a diagnosis of necrobacillosis was made. Treatment was prescribed and subsequent reports indicate that the sheep fully recovered.

STALLION REGISTRATION

Carrying out the provisions of chapter 212, Laws of 1908, the following stallions were examined and licenses issued:

Breed	*1925*	*1926*	*1927*	*1928*	*1929*
Percheron (registered)	11	11	8	6	7
Standardbred (registered)	2	2	2	2	..
Clydesdale (registered)	1	1	..	..	1
Belgian (registered)	..	..	..	..	..
Suffolk (registered)	..	..	..	..	..
Thoroughbred (registered)	2	3	2	..	4
German Coach (registered)	..	..	..	..	..
Arabian (registered)	1	..	1	1	..
Jacks (registered)	1	1	1	..	..
Standardbred (non-registered)	..	..	..	..	..
Suffolk (non-registered)	..	..	..	..	..
German Coach (non-registered)	..	..	..	..	..
Jacks (non-registered)	..	2	2	..	2
*Grade Drafts	7	8	6	1	1
Totals	25	28	22	10	15

STALLION REGISTRATION BY COUNTIES

County	*1925*	*1926*	*1927*	*1928*	*1929*
Atlantic	..	..	..	..	..
Bergen	..	..	..	..	..
Burlington	2	3	5	1	..
Camden	..	..	..	2	..
Cape May	..	..	..	..	..
Cumberland	2	2	1	..	1
Essex	..	..	..	..	..
Gloucester	..	..	..	..	..
Hudson	..	..	..	..	..
Hunterdon	8	9	7	2	5
Mercer	1	..	..	1	..
Middlesex	2	1	2	2	2
Monmouth	3	2	2	..	3
Morris	..	..	..	..	..
Ocean	..	..	..	..	..
Passaic	..	..	..	..	..
Salem	2	2	..	..	..
Somerset	2	3	2	1	2
Sussex	..	..	..	..	..
Union	..	..	..	..	..
Warren	3	5	2	1	2
Totals	25	28	22	10	15

* Includes grade Percherons, Belgians and Clydesdales.

FOOT-AND-MOUTH DISEASE

Under date of January 18, 1929, we received notice from the Federal Bureau of Animal Industry of an outbreak of foot-and-mouth disease in a drove of hogs in Los Angeles County, California. The source of infection was traced to garbage brought in on boats from foreign countries where the disease exists. Strict quarantine measures were inaugurated and orders issued by the federal government that steamships taking on stores at foreign ports in countries where foot-and-mouth disease exists must destroy the garbage and refuse by incineration or dispose of it outside the three-mile limit.

The original California outbreak occurred in a drove of 3,500 hogs, all of which were destroyed. It later spread to a few herds in close proximity, but all of the diseased and exposed cattle were immediately destroyed and no further outbreaks were reported.

Immediately upon receipt of the first notification from Washington our representatives and private practitioners working in the field were notified to report to this office any suspicious animals that they might encounter in their work in order that steps might be taken without delay to stamp out any outbreak that might occur in the state.

The Federal Bureau of Animal Industry adopted rigid measures and finally eradicated the disease, and the quarantine was lifted.

HEMORRHAGIC SEPTICEMIA

Hemorrhagic septicemia or shipping fever in cattle occurs more or less regularly in in-shipped cattle during the Spring and Fall of the year. The disease may be spread to native cattle by coming in contact with infected imported animals.

The aid of the Federal Bureau of Animal Industry has been solicited in the establishment of cleaned and disinfected yards where dairy cattle may be unloaded in order to conform to the twenty-eight hour shipping law. Much good has been accomplished along this line, but representatives of the transportation companies do not always obey the law and regulations.

The manufacturers of biologic products have discovered serums which they claim will induce immunity and permit animals to be shipped and exposed to infection without contracting the disease. Although many of the shippers treat their animals before and after shipment the results as reported to us by shippers have not been entirely satisfactory. After the disease has developed very little can be ac-

complished in handling the individual, especially if the infection exists in a very virulent form, since the victim dies from pneumonia.

It is to be hoped that through continued experimentation a reliable form of preventive treatment will be evolved.

BLACK-LEG

Black-leg is confined to animals that are pastured in what has previously been timber land recently cleaned. Very few cases are reported to the Department.

We received a report of one death during the past fiscal year. The remaining animals, 39 in number, were vaccinated and no new cases appeared.

GLANDERS IN HORSES

The mallein testing of horses for glanders has, within the past year, been carried on by private veterinarians only. They have reported to us the testing of 567 animals with one reactor. This animal was destroyed and properly disposed of and the premises thoroughly cleaned and disinfected.

The mallein testing of the horses used in the interstate traffic between New Jersey and New York is done to meet New York City requirements, without expense to the state except for the purchase of the metal tags used to mark animals so tested. The work is done under the supervision of Dr. T. E. Smith, 309 Barrow Street, Jersey City, a private practitioner.

During the year just closing 1,786 animals were tested for interstate traffic and no reactors were reported.

GLANDERS—1928-1929

	Negative	*Positive*
July	27	..
August	13	..
September	131	..
October	157	..
November	4	..
December	45	..
January	9	..
February	1	..
March	28	..
April	119	..
May	16	..
June	16	1
Totals	566	1

GLANDERS—1928-1929

Comparison of Summaries—1924-1929

	1924–1925	*1925–1926*	*1926–1927*	*1927–1928*	*1928–1929*
Negative	174	169	131	566	566
Positive	1	..	..	1	1
Totals	175	169	131	567	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:

	1924–1925	*1925–1926*	*1926–1927*	*1927–1928*	*1928–1929*
Negative	2,435	3,414	3,822	2,785	1,786
Positive	....	....	....	....	....
Totals	2,435	3,414	3,822	2,785	1,786

ANTHRAX

The usual protective inoculation has been carried out in the southern districts of the state. Following is a summary of inoculation made during the past fiscal year:

ANTHRAX—1928-1929

	Cattle	*Horses*	*Total*
1928-1929	905	101	1,006
1927-1928	1,265	74	1,339
1926-1927	1,413	119	1,532
1925-1926	2,214	379	2,593
1924-1925	726	102	828

FORAGE POISONING OR PASTURE DISEASE

During the past fiscal year the Bureau was called upon to handle a rather serious outbreak of forage poisoning or pasture disease which occurred in practically all of the counties south of Mercer and Monmouth.

The plan of procedure followed by the Bureau was the prophylactic inoculation of all animals on the infected premises. Private veterinarians in the area where the outbreak occurred and who worked in conjunction with the Bureau veterinarians were supplied with Botulinus Antitoxin.

Owners were advised to stable all animals and return them to the feed that had been used prior to the appearance of the disease, but it was hard to secure full cooperation in this respect and as a result many horses died that might have remained well.

The period of artificial immunity resulting from the injection of the Botulinus Antitoxin is probably of short duration, after which the animals are again susceptible.

It will be noted from the following table that 65 horses died as result of this disease, while protective inoculation was practiced on 854 animals:

PASTURE DISEASE OR FORAGE POISONING—JULY, 1928-JUNE, 1929

Injection of Polyvalent Botulinus Antitoxin was practiced to immunize horses for the control of forage poisoning or pasture disease, as indicated by the following table:

	Atlantic		Burlington		Camden		Cape May		Cumberl'd		Gloucester		Mercer		Monmouth		Ocean		Total	
	No. Inc.	No. Died	No. Inc.	No. Died	No. Inc.	No. Died	No. Inc.	No. Died	No. Inc.	No. Died	No. Inc.	No. Died	No. Inc.	No. Died	No. Inc.	No. Died	No. Inc.	No. Died	No. Inc.	No. Died
1928																				
July	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Aug. ...	..	..	309	23	4	7	..	..	..	..	..	..	..	..	5	1	77	..	395	31
Sept. ...	34	2	52	3	39	2	33	2	82	2	4	..	..	..	14	2	20	..	278	13
Oct.	4	1	3	..	..	..	..	..	67	8	..	..	..	..	..	..	88	10	162	19
Nov. ...	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Dec.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1929																				
Jan.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Feb.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mar. ...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Apr.	..	..	..	..	..	..	..	..	..	..	..	..	18	2	....	..	..	..	18	2
May	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
June ...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	38	3	365	26	43	9	33	2	149	10	4	..	18	2	19	3	185	10	854	65

POULTRY

The enforcement of regulations relating to the control of infectious diseases of poultry has added materially to the work of the Bureau, but by re-adjusting our plan of work we have been able to take care of all the added responsibility in a manner that has been entirely satisfactory.

Inspection of In-Shipped Car Lots

Carrying out the provisions of chapter 80 of the Laws of 1925 and the regulations of the Board of Agriculture based thereon, inspection was continued of all car lots of poultry received in this state during the fiscal year and it will be noted from the summary following that 8,424 cars were so inspected, or approximately 33,696,000 birds, as each car averages about 4,000 birds.

The health condition of the in-shipped poultry was much improved over that received in previous years, due, no doubt, to the fact that rigid inspection is maintained and all poultry not in first-class condition as far as health is concerned is rejected and therefore the shippers slaughter the poultry at point of origin or ship to other markets.

Periodic inspection is made of the premises of local poultry dealers to determine if they are maintained in a sanitary condition. It is also the duty of the inspectors to prevent the movement of improper, unclean and unsanitary coops, crates or other containers from infected poultry yards to points within the state.

Bureau representatives are given splendid cooperation by representatives of the railroads and the live poultry transit companies who handle the poultry cars and the trucking companies who transport the poultry from the railroad terminals to local produce markets in New Jersey and New York City.

It is important that we should continue to maintain this inspection in order to protect the local poultry industry and to prevent the movement of diseased poultry to points within the state which, in many cases, would be instrumental in carrying contagious diseases to the country flocks and cause a loss to the purchaser not only of the purchased birds but also of the birds of his own flock which might become infected.

A summary of the releases made during this fiscal year follows:

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

July 1, 1928--June 30, 1929

Month	*Asb. Pk.*	*C.R.R. Nrk.*	*C.R.R. N.J.*	*D.L.&W. Boonton*	*D.L.&W. J.C.*	*D.L.&W. Nrk.*	*Erie Whkn.*	*Erie Nrk.*	*Pa. Eliz.*	*Pa. Nrk.*	*Pa. J.C.*	*Total*
July	3	..	72	..	169	9	229	41	9	28	11	571
Aug.	3	..	52	..	181	15	295	42	10	26	11	635
Sept.	..	..	41	..	183	10	259	53	8	26	5	585
Oct.	..	..	23	11*	154	9	230	54	8	23	11	523
Nov.	..	2	57	17*	223	11	324	75	11	38	6	764
Dec.	..	1	58	9*	180	7	244	63	9	34	9	614
Jan.	..	..	37	..	165	6	236	60	7	20	5	536
Feb.	..	..	102	..	168	4	213	42	6	31	8	574
Mar.	..	2	200	..	178	7	207	47	10	46	9	706
Apr.	..	..	236	..	145	5	161	35	8	35	9	634
May	..	..	170	..	127	5	163	36	8	31	10	550
June	..	..	50	..	80	1	126	24	5	17	11	314
Totals .	6	5	1,098	37*	1,953	89	2,687	572	99	355	105	7,006

* Number of cars of geese released.

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. Nrk.	C.R.R. N.J.	D.L.&W. J.C.	D.L.&W Passaic	Erie Whkn.	Erie Nrk.	Pa. Eliz.	Pa. J.C.	Pa. Nrk.	D.L.&W. Boonton	Total
July	..	..	..	1	183	6	177	26	7	46	17	..	463
Aug.	..	..	6	5	274	3	264	22	9	102	23	..	708
Sept.	..	..	10	6	341	2	369	36	13	113	44	..	934
Oct.	..	..	2	7	267	..	285	24	8	65	42	..	700
Nov.	6	8	4	11	329	..	314	49	11	112	59	11	914
Dec.	..	..	4	14	226	..	292	22	9	76	50	5	698
Jan.	..	..	7	7	174	..	384	21	10	82	42	1	728
Feb.	..	..	1	29	141	..	281	14	8	95	30	..	599
Mar.	..	..	4	81	178	..	329	57	9	131	41	..	830
Apr.	..	..	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 FROM VARIOUS STATES

July 1, 1928—June 30, 1929

	July	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Jan.*	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*Total*
Alabama	3	1	..	2	10	6	2	15	21	29	18	8	115
Arkansas	30	25	11	8	20	16	21	32	44	34	34	15	290
Colorado	9	2	3	5	4	1	3	3	4	..	5	2	41
Florida	..	..	..	..	..	..	..	..	2	..	..	..	2
Georgia	11	2	1	1	9	7	13	22	50	64	36	15	231
Illinois	50	57	45	48	56	55	49	27	22	22	22	19	472
Indiana	91	96	94	103	132	121	70	61	53	46	62	40	969
Iowa	49	38	44	33	37	33	13	4	1	..	..	10	262
Kansas	16	12	16	17	14	10	18	17	13	7	7	4	151
Kentucky	8	6	4	2	9	13	19	17	24	26	22	10	160
Michigan	..	1	5	..	..	..	..	..	..	..	..	..	6
Minnesota	8	14	12	22	32	9	3	..	..	1	..	2	103
Mississippi	1	6	..	..	7	7	1	16	12	9	9	3	71
Missouri	80	98	74	49	67	64	64	44	53	54	56	44	747
Nebraska	43	61	64	51	79	59	35	33	26	15	31	26	523
New Jersey	1	2	7	..	..	..	..	2	..	1	2	..	15
New York	..	1	..	..	..	..	..	..	..	..	..	..	1
North Carolina	9	6	8	1	8	12	14	41	55	33	17	7	211
North Dakota	2	..	5	..	8	1	..	..	..	..	..	..	16
Ohio	34	45	49	50	71	50	18	15	11	15	14	11	383
Oklahoma	42	65	43	24	29	32	75	75	88	69	64	42	648
Pennsylvania	5	4	13	6	11	11	4	6	18	12	5	..	95
South Carolina	3	..	..	1	1	2	12	15	35	21	16	8	114
South Dakota	10	17	32	52	63	38	16	6	6	3	6	5	254
Tennessee	39	42	33	24	57	46	60	79	121	146	101	28	776
Texas	8	12	1	1	3	8	26	42	42	16	13	4	176
Utah	..	..	..	..	..	..	..	..	..	..	1	3	4
Virginia	6	..	..	..	6	4	..	2	4	10	7	2	41
Wisconsin	13	22	19	23	31	8	..	..	..	..	2	6	124
Wyoming	..	..	2	..	..	1	..	..	1	1	..	..	5
Totals	571	635	585	523	764	614	536	574	706	634	550	314	7,006

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:

	July	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Jan.*	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*Total*
New Jersey ..	571	635	585	523	764	614	536	574	706	634	550	314	7,006
New York City	338	410	503	583	542	472	340	246	256	266	204	280	4,440

Following is the number of car lots of poultry released at the various railroad terminals in New Jersey during the past four years during which the poultry inspection has been conducted:

July 1, 1925 to June 30, 1926	*July 1, 1926 to June 30, 1927*	*July 1, 1927 to June 30, 1928*	*July 1, 1928 to June 30, 1929*
8,394	8,569	8,424	7,006

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

July 1, 1925 to June 30, 1926	*July 1, 1926 to June 30, 1927*	*July 1, 1927 to June 30, 1928*	*July 1, 1928 to June 30, 1929*
3,528	4,245	4,578	4,440

Following is a comparison of the number of birds and their approximate weight condemned, July, 1928-June, 1929.

	No. Cars	*No. Birds*	*No. Lbs.*
July	..	....	....
August	..	....	....
September	16	2,133	6,413
October	12	3,170	10,418
November	11	2,760	10,154
December	31	4,716	17,431
January	5	559	2,003
February	3	257	1,024
March	1	84	398
April	1	76	300
May	1	242	973
June	1	132	446
Totals	82	14,129	49,560

INFECTIOUS DISEASE OF POULTRY

During this fiscal year there was reported to the Department the existence, in the vicinity of Flanders and Ledgewood, of a highly infectious and contagious disease of poultry, diagnosed by the Federal Bureau of Animal Industry as European Fowl Pest.

Immediately following the diagnosis steps were taken to eradicate the disease by the appraisement and destruction by incineration of all diseased and exposed poultry and all material that could not be properly cleaned and disinfected.

The Federal Bureau of Animal Industry gave us full cooperation and materially assisted the Bureau representatives in the supervision of the cleaning and disinfection of the premises and the maintenance of quarantines.

It is planned to restock the premises after a period of thirty days with susceptible birds to check and determine definitely if infection still exists. If this test proves negative the premises are to be inspected regularly in order to prevent the spread of the disease should it again occur.

The disease was found to exist on eight premises and it has not been possible after a thorough and searching investigation to determine the origin of the outbreak. It was first diagnosed at Flanders where the poultry on three premises were infected. The disease afterwards spread to a large flock at Ledgewood and from there was distributed to four small yard flocks at Denvil and Dover.

The largest flock affected numbered about 1,500 birds, but there was a total of 1,835 birds on the eight premises appraised and incinerated.

The outbreak was handled promptly and efficiently thereby preventing the spread to other flocks and the issuance of quarantines by other states against New Jersey poultry and poultry products.

TUBERCULOSIS

The control and eradication of bovine tuberculosis continues to make slow but steady progress. Our records, based on the federal census, indicates that we have now under state and federal cooperative supervision and tested regularly 66,851 animals, or 52.63 per cent. of the total cattle population of the state.

The plan in operation is the testing of the individual herd or all of the herds within a given area under the survey plan which permits the Department to control the movement of cattle within the area and prevent the spread of infection from non-tested tuberculous cattle to those in the area that are free from disease.

The area operating under this plan comprises the entire counties of Atlantic and Cape May and the four adjoining townships in Cumberland County, of Lawrence, Downe, Maurice River and Commercial. We also have included the southern townships in Ocean County, Little Egg Harbor, Eagleswood, Stafford, Union, Ocean and Lacy, as well as the lower end of Burlington County comprising the townships of Bass River, Washington and Woodland.

During the coming year it is planned to embrace in this survey testing other areas in the state which qualify.

Through the influence of the large milk receiving companies in Philadelphia and neighboring points in New Jersey operating in the southern half of the state which require that all patrons supplying such stations with milk must have the cattle supplying the milk tuberculin-tested under cooperative supervision, a number of owners have been induced to place their herds under supervision. One of the largest receiving stations in Trenton is making a similar requirement effective January 1, 1930.

The annual appropriation made for the indemnification of owners for losses sustained on tuberculin test was $100,000, but the enactment of chapter 138 of the Laws of 1929, which provides for the payment in indemnity by the state of an amount equal to 50 per cent of the appraised valuation, will materially increase the amount received by the owner, and in order to meet this advance in the amount paid it was necessary to request the Legislature to make an additional or supplemental appropriation of $20,000 which was granted. This amount was exhausted at the close of the fiscal year.

For the coming year the Legislature appropriated $200,000 which will probably be sufficient providing the milk companies or boards of health do not make additional demands for milk produced by tuberculin-tested cattle.

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

At the close of the fiscal year, June 30, 1928, there were under supervision in New Jersey 8,179 herds comprising 66,851 animals. At the close of the fiscal year, June 30, 1929, there were 9,323 herds comprising 82,209 animals, or an increase of 13.99 per cent in the number of herds and 22.97 per cent in the number of animals.

During the past twelve months the Bureau tested 102,825 cattle with 4,754 reacting, or 4.62 per cent of the total number of animals tuberculin tested in herds under state and federal supervision.

The annual appropriation for payment of indemnities for this year was $100,000. A supplemental appropriation of $20,000 was granted in May, when the annual appropriation had been exhausted.

During the year 1927-1928 indemnity was paid for 6,634 reactors, 290 being purebreds and 6,344 grades. During this year, 1928-1929, indemnity was paid on 3,358 reactors, 209 purebreds and 3,149 grades.

During the year 1927-1928 the reactors on initial tests was 26.54 per cent, with 21,995 tested and 5,837 reacting. During the year 1928-1929 the reactors on initial tests amounted to 23.42 per cent, with 12,910 tested and 3,024 reacting.

The reactors from imported cattle added to herds under supervision during the fiscal year 1927-1928 was 4.84 per cent, or 1,507 cattle tested with 73 reacting. For the year 1928-1929, 6,368 cattle were tested with 325 reacting, or 5.10 per cent.

Other tests included second or third retests of herds already under supervision. During the fiscal year 1927-1928, 60,246 animals were tested with 1,116 reactors, or 1.85 per cent. During the fiscal year 1928-1929, 83,547 animals were tested with 1,405 reacting, or 1.68 per cent.

Following is the total amount received by dairymen and breeders for 3,358 reactors condemned as a result of tuberculin testing during the fiscal year 1928-1929:

Amount received for salvage of reactors	$168,363.37
Amount paid by State of New Jersey	103,341.18
Amount paid by United States Government	81,767.30
Total	$353,471.85

This is an average of $105.26 per head.

TOTAL INDEMNITY PAID BY COUNTIES–JULY 1, 1928, TO JUNE 30, 1929

Atlantic	$299.99
Bergen	1,713.80
Burlington	11,647.01
Camden	2,366.14
Cape May	523.38
Cumberland	9,103.29
Essex	482.48
Gloucester	6,357.85
Hudson	434.67
Hunterdon	19,993.49
Mercer	2,960.73
Middlesex	454.17
Monmouth	2,080.98
Morris	762.01
Ocean	498.12
Passaic	957.84
Salem	25,881.41
Somerset	7,448.27
Sussex	5,050.60
Union	355.62
Warren	3,969.33
Total	$103,341.18

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

1924–1925	*1925–1926*	*1926–1927*	*1927–1928*	*1928–1929*
$20.96	$26.05	$32.10	$45.43	$50.14

STATE INSTITUTION HERDS—Fully Accredited

	P. B.	*Gr.*	*Total*
N. J. Agricultural Experiment Station, New Brunswick	117	23	140
N. J. Manual Training and Industrial School, Bordentown	27	31	58
N. J. Reformatory, Rahway	..	37	37
N. J. State Prison, Leesburg	1	36	37
N. J. State Colony for Feeble Minded Males, New Lisbon	..	30	30
N. J. State Home for Boys, Jamesburg	13	71	84
N. J. State Hospital, Trenton Junction	20	202	222
N. J. State Hospital, Morris Plains	56	132	188
N. J. State Reformatory for Boys, Annandale	14	28	42
N. J. State Institution for Feeble Minded, Vineland	30	62	92
N. J. State Reformatory for Women, Clinton	..	36	36
N. J. Sanatorium for Tuberculosis, Glen Gardner	..	87	87
N. J. State Village for Epileptics, Skillman	33	71	104
Totals	311	846	1,157

Percentage of purebred animals in State Institution Herds 26.87%
Percentage of grade animals in State Institution Herds 73.12%

STATE INSTITUTION HERDS—Under Supervision

North Jersey Training School, Little Falls	..	14	14

Percentage of grade animals in State Institution Herds under supervision 100%

COUNTY HERDS—Fully Accredited

Cape May County Farm, Cape May Court House	1	14	15
Cumberland County Almshouse, Bridgeton	1	24	25
Morris County Almshouse, Morris Plains	1	11	12
Mercer County Workhouse, Lambertville	1	9	10
Warren County Farm, Oxford	1	37	38
Essex County Hospital, Cedar Grove	167	3	170
Totals	172	98	270

Percentage of purebred animals in County Herds fully accredited 63.70%
Percentage of grade animals in County Herds fully accredited 36.29%

COUNTY HERDS—Under Supervision

	P. B.	Gr.	Total
Camden County Almshouse, Grenloch	2	103	105
Gloucester County Institution, Clarksboro	..	8	8
Burlington County Almshouse, New Lisbon	7	38	45
Totals	9	149	158
Percentage of purebred animals in County Herds under supervision	5.69%		
Percentage of grade animals in County Herds under supervision	94.30%		

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	..	10	10
Percentage of grade animals in Township Herds under supervision	100%		
Grand Totals	492	1,141	1,633
Percentage of purebred animals in State, County, City and Township herds	30.12%		
Percentage of grade animals in State, County, City and Township herds	69.87%		

CERTIFIED DAIRIES—Fully Accredited

Walker-Gordon Laboratories, Plainsboro	37	1,825	1,862
Walker-Gordon Laboratories, Juliustown	9	453	462
Woodbrook Farm, Metuchen	..	269	269
Totals	46	2,547	2,593
Percentage of purebred animals in Certified Dairies fully accredited	1.77%		
Percentage of grade animals in Certified Dairies fully accredited	98.22%		

CERTIFIED DAIRIES—Under Supervision

	P. B.	*Gr.*	*Total*
Noe Farms, Madison	..	149	149
Purity Farms, Pennington	1	547	548
Sheffield Farms, Pompton Plains	..	251	251
Raritan Valley Farms, Somerville	7	225	232
Totals	8	1,172	1,180
Percentage of purebred animals in Certified Dairies under supervision .67%			
Percentage of grade animals in Certified Dairies under supervision 99.32%			
Grand Totals	54	3,719	3,773
Percentage of purebred animals in Certified Dairies accredited and under supervision 1.43%			
Percentage of grade animals in Certified Dairies accredited and under supervision 98.56%			

COMPARISON OF TOTAL NUMBER OF CATTLE TESTED UNDER ACCREDITED HERD PLAN

Fiscal years 1927-1928 and 1928-1929

	Purebred		*Grades*		*Total Animals*	
Initial	*1927–28*	*1928–29*	*1927–28*	*1928–29*	*1927–28*	*1928–29*
Tested	965	970	21,030	11,940	21,995	12,910
Reacted ...	173	83	5,664	2,941	5,837	3,024
					Percentage of Reactors	
					26.54	23.42
Additions						
Tested	112	602	1,395	5,766	1,507	6,368
Reacted ...	10	19	63	306	73	325
					Percentage of Reactors	
					4.18	5.10
Other Tests						
Tested	14,762	14,701	45,514	68,846	60,276	83,547
Reacted ...	133	173	983	1,232	1,116	1,405
					Percentage of Reactors	
					1.85	1.68
Totals						
Tested	15,839	16,273	67,939	86,552	83,778	102,825
Reacted ...	316	275	6,710	4,479	7,026	4,754
					Percentage of Reactors	
					8.39	4.62

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:

County	*No. Herds Under Supervision*	*Herds Fully Accredited*	*No. Cattle Under Supervision June 30, 1929*	*Percentage Cattle Under Supervision 6/30/29 Taken from 1925 Fed. Census*
Atlantic	476	365	725	98.67
Bergen	160	16	2,336	83.25
Burlington	561	257	9,256	52.01
Camden	254	88	972	68.07
Cape May	335	274	1,061	98.93
Cumberland	1,150	506	5,541	79.37
Essex	38	11	1,677	47.04
Gloucester	974	577	3,970	67.57
Hudson	22	...	271	92.52
Hunterdon	864	368	8,113	45.07
Mercer	604	286	6,152	77.95
Middlesex	377	222	4,326	72.67
Monmouth	489	260	3,138	37.20
Morris	455	248	5,388	83.16
Ocean	293	148	937	78.28
Passaic	205	22	2,769	97.93
Salem	765	202	8,354	54.95
Somerset	360	194	4,275	49.76
Sussex	301	150	4,135	16.97
Union	29	10	1,503	50.97
Warren	611	418	7,310	49.07
	9,323	4,622	82,209	52.63

Animals in herds under supervision	*Animals in herds fully accredited*
14,977 P. B.	9,649 P. B.
67,232 Gr.	30,223 Gr.
82,209	39,872

	HERDS UNDER SUPERVISION				HERDS FULLY ACCREDITED			
	1925–26	*1926–27*	*1927–28*	*1928–29*	*1925–26*	*1926–27*	*1927–28*	*1928–29*
Atlantic	130	222	548	476	...	82	190	365
Bergen	33	48	128	160	5	6	11	16
Burlington	209	274	451	561	66	104	119	257
Camden	13	41	201	254	3	6	8	88
Cape May	95	349	438	335	19	71	205	274
Cumberland	174	227	910	1,150	75	101	110	506
Essex	40	35	49	38	4	7	8	11
Gloucester	133	259	922	974	68	82	92	577
Hudson	...	...	18	22	...	...	...	...
Hunterdon	248	337	530	864	105	168	199	368
Mercer	190	363	572	604	83	127	163	286
Middlesex	257	297	374	377	77	152	183	222
Monmouth	103	135	405	489	30	52	75	260
Morris	238	259	417	455	80	116	144	248
Ocean	49	70	263	293	9	27	29	148
Passaic	81	78	157	205	7	21	22	22
Salem	130	156	539	765	32	73	81	202
Somerset	198	215	320	360	108	142	141	194
Sussex	87	101	248	301	16	50	62	150
Union	24	21	27	29	1	8	10	10
Warren	563	587	662	611	250	368	369	418
	2,996	4,074	8,179	9,323	1,038	1,763	2,221	4,622
	10,758 PB	11,574 PB	13,357 PB	14,977 PB	6,307 PB	7,686 PB	8,551 PB	9,649 PB
	28,554 Gr.	34,400 Gr.	53,594 Gr.	67,232 Gr.	11,090 Gr.	14,682 Gr.	19,146 Gr.	30,223 Gr.
	39,312	45,974	66,851	82,209	17,397	22,368	27,697	39,872

TOTAL PERCENTAGE OF INITIAL TESTS BY COUNTIES

July 1, 1928—June 30, 1929

Counties	Number Herds	Number Tested		Number Reacted		Percentage Reactors		Total Tested	Total Reacted	Total Per Cent Reactors
		Purebred	Grade	Purebred	Grade	Purebred	Grade			
Atlantic	66	.....	78	.....	2	.....	2.56	78	2	2.56
Bergen	43	67	283	.....	24	.....	8.48	350	24	6.85
Burlington	146	41	1,134	3	282	7.31	24.86	1,175	285	24.25
Camden	86	43	242	.....	55	.....	22.72	285	55	19.29
Cape May	15	1	23	.....	.....	.....	.....	24	.....	.....
Cumberland	343	50	1,371	1	282	2	20.56	1,421	283	19.91
Essex	3	19	56	.....	1	.....	1.78	75	1	1.33
Gloucester	110	61	516	17	193	27.86	37.40	577	210	36.39
Hudson	4	.....	38	.....	1	.....	2.63	38	1	2.63
Hunterdon	352	239	2,623	30	748	12.55	28.51	2,862	778	27.18
Mercer	99	50	400	2	67	4	16.75	450	69	15.33
Middlesex	64	12	168	1	11	8.33	6.54	180	12	6.66
Monmouth	127	15	516	.....	55	.....	10.65	531	55	10.35
Morris	71	25	333	1	6	4	1.80	358	7	1.95
Ocean	81	1	126	.....	2	.....	1.58	127	2	1.57
Passaic	59	.....	244	.....	16	.....	6.55	244	16	6.55
Salem	252	93	2,344	19	981	20.43	41.85	2,437	1,000	41.03
Somerset	71	32	359	1	40	3.12	11.14	391	41	10.48
Sussex	65	194	722	5	137	2.57	18.97	916	142	15.50
Union	3	2	27	1	5	50	18.51	29	6	20.68
Warren	64	25	337	2	33	8	9.79	362	35	9.66
Total	2,124	970	11,940	83	2,941	8.55	24.63	12,910	3,024	23.42

ACCREDITED HERD WORK

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.*
1928—															
July	286	60	1,899	13	761	12	23	162	.....	.....	291	278	3,033	4	85
August	261	61	1,751	12	530	13	18	28	.....	.....	740	515	4,932	5	96
September	129	15	642	.....	118	8	....	17	.....	.....	559	402	5,179	.....	91
October	209	91	986	21	163	18	23	378	1	11	614	835	6,777	6	112
November	182	22	895	3	187	35	38	823	1	31	620	1,439	6,240	12	85
December	56	51	300	3	57	28	31	629	.....	47	486	1,292	4,973	29	123
1929—															
January	156	128	963	5	215	16	81	748	1	43	549	874	5,226	5	89
February	148	94	994	.....	239	17	70	684	5	36	552	1,654	5,946	15	83
March	125	135	660	6	112	34	60	548	1	27	759	1,691	6,367	41	118
April	86	23	247	.....	19	26	54	433	1	36	589	597	6,958	4	66
May	106	33	447	.....	36	22	62	362	8	14	589	1,562	4,802	15	70
June	132	40	435	.....	38	21	28	333	.....	35	445	704	2,929	16	95
Totals	1,876	753	10,219	63	2,475	250	488	5,145	18	280	6,793	11,843	63,362	152	1,113
Percentage of reactors	.....	.....	.....	8.37	24.21	.....	....	.....	3.68	5.44	.....	.....	.....	1.28	1.75
Average Percentage	.....	.....	.....	23.13		.....	.....	.....	5.29		.....	.....	.....	1.68	

ACCREDITED HERD WORK

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.*
1928—															
July	4	1	99	.....	2	7	....	23	.....	1	16	20	274	.....	8
August	1	.....	35	.....	.....	7	....	21	.....	1	14	54	123	.....	4
September	.....	.....	.....	.....	.....	2	....	7	.....	.....	6	221	103	.....	.....
October	.....	.....	.....	.....	.....	7	....	35	.....	.....	6	177	67	.....	.....
November	3	.....	5	.....	1	2	....	10	.....	1	7	12	46	1	1
December	.....	.....	.....	.....	.....	7	....	44	.....	.....	6	118	25	2	.....
1929—															
January	1	.....	16	.....	.....	9	10	10	.....	.....	7	120	58	.....	.....
February	.....	.....	.....	.....	.....	4	....	44	.....	6	6	63	50	.....	.....
March	.....	.....	.....	.....	.....	10	....	38	.....	3	17	197	161	.....	1
April	1	.....	2	.....	1	4	....	27	.....	1	10	722	99	.....	.....
May	.....	.....	.....	.....	.....	4	....	11	.....	.....	3	214	4	.....	.....
June	.....	.....	.....	.....	.....	3	....	11	.....	1	9	30	109	.....	.....
Totals	10	1	157	.....	4	66	10	281	.....	14	107	1,948	1,119	3	14
Percentage of Reactors	.....	.....	.....	.....	2.54	.....	....	.....	.....	4.98	.....	.....	.....	.15	1.25
Average Percentage	.....	.....	.....	2.53		.....	.....	.....	4.81		.....	.....	.....	.55	

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.*
1928—															
July	45	34	441	13	190	10	....	27	.....	.....	15	59	159	2	5
August	34	28	188	2	69	3	....	7	.....	.....	55	89	266	.....	6
September	26	.....	87	.....	3	5	....	26	.....	.....	11	31	292	1	8
October	5	91	33	2	3	7	11	59	.....	4	78	113	501	8	23
November	23	11	252	1	129	5	....	17	.....	1	54	59	306	1	14
December	10	2	56	1	28	11	4	35	.....	2	16	3	110	.....	13
1929—															
January	14	4	68	.....	8	4	....	25	.....	.....	31	115	349	1	2
February	6	4	93	.....	.....	1	....	3	.....	.....	5	1	137	.....	9
March	7	8	47	1	5	6	64	28	.....	1	5	33	172	.....	1
April	21	4	99	.....	4	5	8	28	1	1	36	90	422	1	8
May	44	30	196	.....	23	.....	16	76	.....	1	80	217	1,014	4	12
June	3	.....	4	.....	.....	2	1	9	.....	2	68	100	637	.....	4
Totals	238	216	1,564	20	462	59	104	340	1	12	454	910	4,365	18	105
Percentage of Reactors	.....	.....	.....	9.25	29.53	.....	....	.....	.96	3.52	.....	.....	.....	1.97	2.40
Average Percentage	.....	.....	.....	27.07		.....	....	.....	2.92		.....	.....	.....	2.33	

CATTLE SLAUGHTERED—ACCREDITED

	Reactors Slaughtered
1928	
July	1,300
August	783
September	252
October	325
November	330
December	377
1929	
January	435
February	255
March	411
April	144
May	180
June	126
Total	4,918

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*
1928—												
July	24	225	7	3.11	1	2			3	14		
August	17	87	4	4.59	10	47	2	4.25				
September	16	33	2	6.06	3	10			3	8		
October	16	129	4	3.10					5	16		
November	12	71	7	9.85					3	11	1	9.09
December	17	87	4	4.59	1	1			3	14		
1929—									1	1		
January	22	209	2	.95								
February	24	237	26	10.97					3	10		
March	31	504	12	2.38					1	1		
April	31	234	11	4.70	8	282			2	7		
May	27	479	6	1.25	5	160			1	1		
June	16	133	14	10.52	2	137						
Totals	253	2,428	99	4.07	30	639	2	.31	25	83	1	1.20

IMPORT CATTLE

Tested Before Entering by Private Veterinarians	*Number Lots*	*Animals Tested*	*Number Reactors*	*Percentage Reactors*
1928—July	107	2,611	.....	.....
August	106	2,733	.....	.....
September	144	3,549	3	.08%
October	143	3,038	.....	.....
November	73	1,869	2	.10%
December	66	1,659	1	.06%
1929—January	33	839	.....	.....
February	56	1,115	2	.17%
March	83	2,280	3	.13%
April	88	1,885	1	.05%
May	66	1,605	1	.06%
June	64	1,643	.....	.....
Totals	1,029	24,826	13	.05%

Tested Before Entering by U. S. B. A. I. Veterinarians	*Number Lots*	*Animals Tested*	*Number Reactors*	*Percentage Reactors*
1928—July	.....	.....	.....	.....
August	.....	.....	.....	.....
September	1	20	.....	.....
October	6	21	.....	.....
November	1	6	.....	.....
December	1	9	.....	.....
1929—January	2	28	.....	.....
February	2	29	.....	.....
March	.....	.....	.....	.....
April	12	49	.....	.....
May	4	72	.....	.....
June	1	5	.....	.....
Totals	30	239	.....	.....

IMPORT CATTLE

Tested After Entering by Private Veterinarians	*Number Lots*	*Animals Tested*	*Number Reactors*	*Percentage Reactors*
1928—July	2	13	.....	.....
August	3	20	.....	.....
September	1	15	.....	.....
October	6	99	.....	.....
November	2	26	.....	.....
December	7	75	.....	.....
1929—January	.....	.....	.....	.....
February	2	23	.....	.....
March	1	2	.....	.....
April	2	8	.....	.....
May	5	67	.....	.....
June	.....	.....	.....	.....
Totals	31	348	.....	.....

Tested After Entering by Bureau Veterinarians	*Number Lots*	*Animals Tested*	*Number Reactors*	*Percentage Reactors*
1928—July	.....	.....	.....	.....
August	.....	.....	.....	.....
September	2	56	.....	.....
October	.....	.....	.....	.....
November	.....	.....	.....	.....
December	.....	.....	.....	.....
1929—January	1	47	1	2.12%
February	.....	.....	.....	.....
March	.....	.....	.....	.....
April	.....	.....	.....	.....
May	.....	.....	.....	.....
June	.....	.....	.....	.....
Totals	3	103	1	.97%

MONTHLY COMPARISON OF IMPORT ANIMALS RECEIVED FROM THE FOLLOWING STATES FOR DAIRY AND BREEDING PURPOSES 1928-1929

Points of Origin	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Jan.*	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*Total*
Athenia (Quarantine)	.....	.....	.....	74	.....	.....	.....	28	.....	15	69	.....	186
California	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Canada	251	172	220	207	152	127	.....	82	234	124	113	132	1,814
Connecticut	.....	.....	.....	7	.....	.....	.....	.....	18	1	.....	.....	26
Delaware	3	18	.....	1	.....	.....	.....	.....	2	2	1	1	28
Illinois	.....	.....	.....	.....	.....	.....	.....	.....	.....	26	.....	.....	26
Kentucky	.....	73	2	17	.....	.....	.....	.....	.....	1	.....	.....	93
Lancaster Yds.	.....	.....	165	74	45	24	26	.....	.....	.....	22	38	394
Maine	.....	.....	24	.....	28	.....	.....	.....	.....	.....	.....	27	79
Maryland	72	84	13	17	.....	10	11	9	7	5	.....	.....	228
Massachusetts	.....	.....	.....	1	.....	.....	.....	1	.....	3	1	.....	6
Michigan	289	369	475	439	331	321	155	346	389	316	170	199	3,799
Minnesota	.....	.....	33	11	.....	.....	.....	.....	.....	11	.....	.....	55
Mississippi	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	64	64
Missouri	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1
New Hampshire	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	12	.....	13
New York	130	45	142	135	42	68	22	41	140	164	47	69	1,045
North Carolina	.....	22	.....	.....	.....	.....	.....	.....	.....	85	.....	.....	107
Ohio	150	231	296	287	192	137	160	124	243	206	145	268	2,439
Pennsylvania	269	302	308	329	121	187	51	67	248	132	105	63	2,182
Tennessee	85	20	48	58	.....	.....	.....	3	51	25	29	34	353
Vermont	22	99	56	.....	6	.....	46	.....	.....	.....	92	.....	321
Virginia	232	150	196	92	79	53	71	71	80	33	90	79	1,226
Wisconsin	1,067	1,119	1,614	1,353	876	779	354	368	845	767	814	663	10,619
	2,570	2,704	3,592	3,103	1,872	1,706	896	1,141	2,257	1,917	1,710	1,637	25,105

CONTAGIOUS ABORTION

Breeders and dairymen of the state have continued to maintain a deep interest in the program planned for the control and eradication of contagious abortion in cattle or Bang Abortion Disease.

The progressive breeder and dairyman long since recognized the fact that it is unprofitable to attempt to maintain a herd of either purebred or grade stock with the assurance of profit when they are badly infected with contagious abortion, and it has been chiefly through the influence of these agencies cooperating with livestock sanitary officials that we have made the advancement recorded.

There are certain fundamental principles which underly the establishment and maintenance of abortion-free herds. They are:

1. The conducting of serological tests to determine the presence of the disease.
2. Segregation and quarantine of all animals not giving a negative reaction.
3. Thorough disinfection of the premises.
4. Addition of only negative animals declared such by proper testing.
5. Raising of young stock for replacements.

Careful consideration must be given to the selection of a plan that will not only serve the owner who has adequate facilities for quarantine but will offer reasonable assurance of success to the owner of a small herd who does not have ample equipment for quarantine and only limited funds to provide for the same but who has a desire to have a clean herd and will carry out any regulations that may be recommended.

Before herds are placed under supervision a careful survey of the premises should be made in order to determine the best plan to follow in each specific instance.

In our work in New Jersey we have found it convenient to follow one of the several plans enumerated, depending upon conditions determined on survey as follows:

Serological test of all animals in the herd over six months of age with the disposition of the positive animals as follows:

(a) Immediate slaughter under supervision.

(b) Removal of valuable purebred animals to quarantine farms on which only positive animals are maintained. This affords owners an opportunity to hold purebred animals so that valuable breeding lines may be preserved without the danger of infecting abortion-free animals in their own negative herds, which might occur if reactors were quarantined on the same premises.

(c) Segregation and quarantine on separate premises of the owner.

(d) Segregation and quarantine on the same premises.
Under this plan where adequate and ideal conditions do not obtain but where the owner desires to make an attempt to clean up his herd we have followed two plans as outlined below and which have given assurance of success:

1. Serological tests of only the young stock in the herd, such animals to be maintained in separate pasture and quarters from the remaining non-tested animals. These animals to be held until a new herd is established, after which, the animals remaining in the old and untested herds are to be disposed of, or subjected to test and the positive animals quarantined in segregation, or sent to slaughter, and the negative animals held for future testing and possible admission to the young, negative herd when they have qualified by giving a negative reaction.

2. Serological test of the entire herd and the temporary establishment of three herds on the same premise as follows:

(a) Comprising negative young stock.
(b) Comprising negative mature animals.
(c) Comprising mature animals giving positive reaction to the test.

Following the initial test made on a herd under either of the above named plans, all of the animals not giving sufficient reaction to justify condemnation should be retested within a thirty-day period and subsequent tests made in from four to six week intervals until such animals are eliminated.

The problem of replacements is very important as the supply of abortion-free animals is very limited. Since it will be necessary to purchase in the open market the supply should be obtained from dealers who will sell on a guarantee that the animals are negative when tested by agglutination test from three to four weeks after calving.

All animals added to a herd under supervision should be maintained in quarantine until they have passed a sufficient number of negative tests to justify their being placed with the negative animals.

We are now conducting the agglutination test on many small herds, quarantining the reactors until such time as they can be disposed of without serious loss and segregating the negative and young breeding animals so that a new herd can be built up within a short period of time.

By this plan we foster and stimulate the breeding of better cattle and the placing of herds on a foundation where they can be maintained on a profitable basis.

Many of the states that supply New Jersey with dairy cattle are now

carrying on a campaign of testing for contagious abortion. In order to protect the dairy industry of this state and prevent the entrance of animals that are known to be infected with contagious or infectious abortion or have at any time reacted or been declared suspicious to the agglutination test or any other test employed for the detection of contagious abortion, we believe quarantine measures should be promulgated to prevent the movement of such cattle into the state unless they are shipped to slaughtering centers and then only on written permit. If for any reason they are moved into the state, they should be placed in quarantine on arrival at destination and moved to slaughter and disposed of under Department supervision. Such a quarantine prohibiting the movement of known reactors would materially assist in the protection of the dairy industry.

The following will give a brief resume of the work accomplished in the Bureau of Animal Industry Laboratory in contagious abortion since its inception. Following is a list of the number of herds being maintained under state supervision for the eradication of contagious abortion, arranged by counties:

Atlantic	0
Bergen	1
Burlington	2
Camden	0
Cape May	0
Cumberland	3
Essex	0
Gloucester	1
Hudson	0
Hunterdon	4
Mercer	14
Middlesex	9
Monmouth	6
Morris	2
Ocean	1
Passaic	1
Salem	0
Somerset	13
Sussex	0
Union	1
Warren	0
Total	58

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

Certificate Number	*Owner's Name*	*Address*
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
6	Mrs. Elmer M. Geran	Matawan
7	A. C. Wadley	New Market

There are four quarantine farms in the state where reactors are held quarantine until such time as they become unprofitable, when they are sent to slaughter on written order from the Chief, Bureau of Animal Industry. There are 87 reactors maintained on these four farms.

The following summary will show the work accomplished in the program arranged for the eradication of contagious abortion in the state:

Total number of animals bled since the work commenced	15,358
Total number of animals showing positive reaction	2,565—16.7%
Total number of animals showing negative reaction	12,793—83.3%
Total number of animals bled on initial test since the work commenced	4,980
Total number of animals showing positive reaction	1,439— 29%
Total number of animals showing negative reaction	3,541— 71%

Included in the herds under supervision for the eradication of contagious abortion are 10 owned by the various State Institutions. A summary of this work follows:

Total number of animals bled in State Institution Herds	810
Total number of animals showing positive reaction	237— 29.3%
Total number of animals showing negative reaction	573— 70.7%

Four of the certified dairies in the state are being maintained under supervision, comprising 2,794 animals.

Further activities of the Bureau of Animal Industry Laboratory follow:

CONTROL OF BANG ABORTION DISEASE

Blood samples collected	805
Blood samples received	5,842
Agglutination tests conducted	6,645
Number of samples positive	738
Number of samples highly suspicious	248
Number of samples slightly suspicious	358
Number of samples unfit for test	34
Number of samples negative	5,267

MICROSCOPIC EXAMINATIONS

Material	*Animal*	*Conditions suspected*	*Finding*
Lung tissue	Bovine	Tuberculosis	Negative
Feces	Canine	Parasitism	Negative
Lymph glands	Bovine	Tuberculosis	Positive
Intestine and lymph glands	Bovine	Johne's Disease	Positive
Tissue Slough	Ovine	Necrobacillosis	Positive
Lymph tissue	Bovine	Tuberculosis	Negative
Skin scraping	Canine	Parasitism	Negative

IMMUNICATION OF SWINE AGAINST CHOLERA AND SEPTICEMIA

Month	*Serum and virus*	*Hemorrhagic septicemia aggressin*
July	537	537
August	284	284
September	134	134
October	448	448
November	265	265
December	187	187
	1,855	1,855

IMMUNICATION OF HORSES AGAINST BOTULISM

August	82
September	40
October	188
	310

POSTMORTEM EXAMINATIONS

Condition	*Bovine*	*Porcine*	*Equine*	*Avian*
Malignant edema	..	1	..	..
Catarrhal enteritis	..	..	..	1
Cystic ovaries and oviducts	1	..	..	..
Visceral gout	..	..	..	1
Parasitism	..	..	..	2
Faulty feeding	..	..	..	3
Botulism	..	..	1	..
Cholera, acute	..	2	..	..
Necrotic enteritis	..	1	..	..
Verminous broncho-pneumonia	..	2	..	..
Leukemia	..	..	..	2
Vent Gleet	..	..	..	1
Roup	..	..	..	1
Chemical poisoning	..	1	..	..
Coccidiosis	..	..	..	3

BACTERIOLOGICAL EXAMINATIONS

Condition suspected	*Animal*	*Material*	*Finding*
Anthrax	Bovine	Ear and spleen	Negative
Black-leg	"	Muscle	Negative
Bang disease	"	Fetus	Negative
" "	"	"	"
" "	"	"	"

PATHOLOGICAL EXAMINATIONS

Material	*Animal*	*Finding*
Kidney	Porcine	Purulent nephritis
Lymph glands	Bovine	Carcinoma
Blood vessels	Bovine	Carcinoma
Mesentery	Bovine	Carcinoma
Liver	Bovine	Haemangioma

SPECIAL INVESTIGATIONS

Condition suspected	*Animal*	*Finding*
Foot-and-mouth disease	Bovine	Stomatitis and pododermatitis

REPORT OF THE BUREAU OF MARKETS

It has been increasingly apparent to the public in general that something should be done to pull agriculture out of the slump into which it has been settling. The fact that agriculture has been in a bad way is especially evident to all those who have any dealing with it. Beginning with the race for primary nominations and continuing through the past year of political activity, promises have been made that are in a measure in process of being carried out. Agriculture has looked with great interest to see just what type of assistance it would receive from the government.

As the year closes, the farm relief bill, called the Agricultural Marketing Act, has been passed by Congress and a Federal Farm Board appointed. A thorough study of the bill shows improved marketing is uppermost in the minds of Congress as the greatest possible aid to agriculture. The question of growing crops receives but little consideration. The national problem is to dispose of those crops which are grown in a manner that will cover cost of production and provide a reasonable profit to the farmer. The purpose of the act is to protect, control and stabilize the marketing of agricultural commodities by

1. Minimizing speculation.
2. Preventing inefficient and wasteful methods of distribution.
3. Encouraging the organization of producer-owned and producer-controlled cooperative marketing associations and other agencies.
4. Aiding in preventing and controlling surplusses through orderly production and distribution to prevent undue and excessive price fluctuations or depressions.

How well the Federal Farm Board will carry out its task is yet to be seen, but great hopes are now being built on their endeavors and on the high quality of the personnel appointed by President Hoover. It is the object of the Bureau of Markets to assist in this work wherever possible.

The work of the Bureau in the past has been largely along the lines laid down by Congress in the Agricultural Marketing Act. A study of the Bureau's projects during the past year will show that its chief objective was to stabilize the marketing of New Jersey produce through, first, a better knowledge of market conditions in the state and of marketing facilities outside of the state available for New Jersey growers. To develop this first line of work the Bureau has not

only obtained for the growers a definite and immediate knowledge of prices offered for produce in these markets, but has developed a line of information to show in advance, demand, probable competition and supply in competing areas. Second, it has endeavored through sound measures of standardization and through lessons in market requirements as to package and pack to meet the demand of various markets as shown in its first line of work. City and farmers' market work has been along the line of efficient distribution. The Bureau's organization work has covered the third means of making effective the Agricultural Marketing Act; *i. e.*, encouraging the organization of producer-owned and producer-controlled cooperative marketing associations. Two new such associations were organized by this Bureau during the past year. The market conditions reports aid in number four of the same list in that the Bureau endeavors to influence orderly production by showing the demand and by timely information on competition previous to planting time. "Orderly distribution" is aided by studies of what the consumer wants, how the distributor wants it, and where the demand is to be found.

Thus the Bureau feels that it is in a position to be of service in the great work of the Federal Farm Board.

In addition to this, growers in New Jersey have peculiar problems, due to their position in the great industrial section of the country. Markets are at our very door and this fact is not always the advantage that it should be, because of the ease in marketing low-grade products that on account of distance are never offered for sale by far-distant producing sections of the country. In some cases the offering for sale of low-grade New Jersey produce has developed a poor reputation for our production which has affected the price and the demand for our fruits and vegetables. The Bureau has had to combat this tendency and with this aim in view it is endeavoring to obtain a reputation for quality in New Jersey produce which the state justly deserves.

It is known that New Jersey can also, because of its nearness to the consumers, deliver milk and eggs of higher quality than those products transported from a distance, and because of this fact the Bureau of Markets is making a special effort to develop a market for quality milk and a special grade of eggs that it is impossible for distant producers to deliver.

As mentioned in the last annual report, the Bureau has continued to be guided in its work by commodity committees made up of practical men in each line of work who, through their experience, can aid us as a Bureau in placing our efforts where they can be of most good.

MILK MARKETING

During the past year the principal lines of work in milk marketing have been carried out under the direction of the executive committee of the New Jersey Milk Conference Board.

Toward the end of the year it became increasingly evident that the dairy work required more time and attention than could be given it by the Bureau without a man detailed to that work. Therefore, arrangements were made to employ a specialist in milk marketing beginning with the new year, July 1, 1929.

The New Jersey Milk Conference Board held three meetings during the year. The most important work carried on by the board was the endeavor to develop a series of grades for milk that would meet the requirements of the consumers and at the same time be of benefit to the industry, including both producers and distributors. This work was not completed. The sub-committees of the board, on all of which the Bureau was represented, spent much time endeavoring to work out a satisfactory set of grades. This work entailed some research work by the Bureau along lines of the requirements of other municipalities or states. It also required some research in the producing area of the state supplying the New York metropolitan area. All of the creameries and milk stations in Sussex, Warren and Hunterdon counties were visited and the average amount of milk handled by them daily of each grade, whether Raw, Grade A Pasteurized or Grade B Pasteurized was determined as well as the destination of all this milk. The method of transportation was also ascertained, whether by tank car or tank truck, or by bottles or cans in trucks, or by rail. The following table shows the results of this investigation:

SUMMARY OF SURVEY OF SUSSEX, WARREN AND HUNTERDON COUNTIES

Destination	*Grade A Raw (Quarts)*	*Grade B Raw (Quarts)*	*Grade A Pasteurized (Quarts)*	*Grade B Pasteurized (Quarts)*	*Total Quarts All Grades Daily*
New York	.....	.....	10,240	45,043	55,283
Brooklyn	.....	.....	7,260	.....	7,260
Clifton	.....	.....	5,680	.....	5,680
Paterson	.....	.....	.....	8,150	8,150
Jersey City	.....	.....	4,800	8,840	13,640
Montclair	.....	.....	.....	10,600	10,600
Hackensack	.....	.....	4,067	7,960	12,027
Newark and vicinity.	29,000	3,600	42,170	56,595	131,365
Passaic	.....	.....	.....	3,600	3,600
Philadelphia	4,600	10,350	.....	.....	14,950
Camden	.....	1,750	.....	.....	1,750
Totals	33,600	15,700	74,217	140,788	264,305

It was not determined whether the raw milk as shown in columns 1 and 2 was delivered to the consumer as raw milk or pasteurized at the distributor's plant.

The milk grades as definitely decided on by the Milk Conference Board are:

1. Certified
2. Natural (Raw)
3. Grade A Pasteurized
4. Grade B Pasteurized

As the requirements for each of these grades were not definitely settled, with the exception of Certified milk which comes under regulations of the State Department of Health, they are not included in this report.

A survey of sections of Hunterdon County was conducted to determine the possibility of increased production of higher grade milk. The result showed that such milk could be produced, that the facilities were on hand or obtainable, but that a market that would pay a premium for such milk would have to be secured. It was the feeling of the Bureau that the attitude of the fifty or more dairymen in Hunterdon County interviewed also reflects the feeling in Warren and Sussex counties. The Bureau also feels that grades protecting the producer of better milk and aiding in proper payment for such milk will be of great benefit to the dairy interests of the state.

With the advent of another year and the fact that the Bureau will have a dairy specialist we believe there are great possibilities for service to the dairy industry in New Jersey.

POULTRY STANDARDIZATION AND MARKETING

The poultry work of this Bureau has increased considerably during the past year and some new features have been added. It has made a careful study of market policies throughout the country with a hope of obtaining a sound general policy for New Jersey. As a part of this study the Bureau sent a representative to the Newark and New York markets to get first-hand knowledge of the methods used in the sale of poultry and eggs, both by auction and private sale. A comparative study of egg auctions and fruit and vegetable auctions was made to determine whether some of the evident advantages of shipping point auctions might not be used for egg marketing. Due to these studies we expect during the coming year to recommend the auction block to poultry producers and we expect to have compiled sufficient data to convince the most skeptical that the auction block is an economic method applicable to eggs. Several sections of the state are already preparing to establish egg and poultry auctions, but strategic points where volume can be assembled and where the auction is easily accessible to large buyers must first be selected. We also believe that eggs could be sold in New Jersey to better advantage under U. S. certificate of quality and are preparing to offer this service in connection with the auctions.

A conference for the discussion of compulsory and voluntary egg grades was held at the State House on February 20, but due to the difference in opinion between New Jersey producers the Department was forced to forego a general recommendation for New Jersey for the present. A representative was sent to the Egg Grading School at Ithaca, New York, to be prepared for federal-state inspection should it be requested by the producers. Likewise a representative was sent to Virginia to observe the operation of the federal-state grading system being used in that state. By this method in Virginia all eggs are purchased from producers on the basis of U. S. Grades and Standards.

There has been a normal increase in the standardization project and the Bureau has instituted the three grades in place of two to conform to the National Plan without friction. In cooperation with the Record of Performance Association and the Agricultural Experiment Station the Department has developed and executed the finest system of

pedigree work now existing, simplifying recording and the pedigree operation while giving a maximum amount of information to prospective purchasers of New Jersey bred birds.

The Bureau has investigated all complaints on standard chicks made by purchasers and has assisted in having satisfactory adjustments made.

The Baby Chick Show was again held as one of the interesting features of Agricultural Week and much favorable comment was received. The poultry specialist attended several county fairs and placed exhibits at these fairs on request. These included the Atlantic County, Morris County, Garden State (Bridgeton) and Trenton Inter-State Fair. He also visited the Madison Square Garden Poultry Show, New York, and Pennsylvania Farm Products Show (Poultry Show) at Harrisburg, and obtained valuable suggestions from them. Other meetings attended included the International Baby Chick Association Show at Cedar Point, Ohio, and the Poultry Science Convention at Lafayette, Indiana, in the interests of New Jersey poultry breeders; and conferences at Harrisburg, Baltimore, State College, Pennsylvania, and Washington, D. C., in the interest of New Jersey's part in the National Program of Poultry Standardization.

Representatives were sent to several meetings of the Record of Performance Association and the Poultry Council and we have endeavored to incorporate constructive recommendations into our Standardization Plan. We are indebted to these organizations for much assistance in our poultry work during the past year.

The usual annual report of all standard breeding flocks under supervision was published, including the Record of Performance trapnest report and the mating lists of the Record of Performance breeding flocks, in Circular 157, which has had wide distribution.

Representatives of this Bureau made an average of 225 farm visits and inspections of poultry flocks, hatcheries and Record of Performance flocks monthly from January 1 to June 1. The poultry flocks and hatcheries were visited monthly during the incubation period.

Poultry Standardization

The poultry standardization project has shown a normal increase in numbers and from reports cooperators are well satisfied with the results obtained. In all reports there is a satisfaction derived from more uniform products in both eggs and poultry sold and a better livability and uniformity of chicks from this source. Production has generally increased in proportion to the number of years of inspection.

There were 126 applications for certification and approval for the 1928-29 season. These applications covered 201 flocks, having a total of 128,695 birds of which 24,693, or 19 per cent of the total, were rejected at time of inspection for standard disqualifications or production defects. A total of 99,912 birds passed inspection and testing of which 51,518 were Supervised; 33,946 Certified; 3,050 Supervised-Accredited; 5,965 Certified-Accredited; 2,156 Certified Meat Production; and 3,277 Approved Meat Production. Four thousand and ninety or 4.1 per cent of the birds passing inspection were bacillary white diarrhea reactors and were removed from the flock. This shows an increase of 13,533 birds inspected over 1927, and an increase of applicants from 113 to 126, which is highly satisfactory.

Of the 201 flocks inspected and blood tested, 32 contained less than 200 birds; 29 between 200 and 500; 27 from 500 to 1,000; 25 from 1,000 to 5,000 (including 16 hatchery out-flocks listed as one flock); 1 over 10,000 (including 41 hatchery out-flocks listed as one flock). There were 17 Certified Meat Production flocks, mostly Black Giants, all in Mercer County; and 13 Approved Meat Production flocks, distributed among Burlington, Camden and Salem counties.

Single Comb White Leghorns led the single breed total of birds inspected with 110,522, followed by Barred Plymouth Rocks with 5,345; Approved Meat Production, 4,083; Rhode Island Reds, 3,116; Certified Meat Production, 2,783; White Plymouth Rocks, 1,766; White Wyandottes, 849; Black Minorcas, 191; Dark Cornish, 31; and 9 Black Leghorns.

The flocks were distributed over 19 counties, Cumberland leading with 51, followed by Somerset with 23; Hunterdon, 19; Burlington, 19; Mercer, 18; Salem, 11; Essex, 8; Middlesex, 8; Monmouth, 7; Gloucester, 6; Atlantic, 5; Bergen, 5; Ocean, 5; Passaic, 5; Morris, 3; Sussex, 3; Camden, 2; Union, 2, and Warren, 1. Rated numerically on the basis of number of birds inspected, the ranking of counties is radically changed as follows: Cumberland leading with 36,588; Hunterdon, 12,134; Middlesex, 11,306; Somerset, 9,438; Passaic, 8,594; Gloucester, 7,885; Burlington, 7,851; Salem, 5,704; Mercer, 5,103; Bergen, 4,995; Monmouth, 4,035; Ocean, 3,886; Essex, 3,729; Morris, 2,600; Atlantic, 1,190; Sussex, 1,781; Camden, 824; Union, 230, and Warren, 102.

The certification work for the 1928-29 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 16 days' work by inspectors of this Depart-

ment who inspected 4,205 birds and rejected 397. Of the birds that passed inspection, there were Supervised, 1,017; Certified, 185; Certified Meat Production, 785, and Approved Meat Production, 975 (477 reactors). There were 369 birds Supervised-Accredited. 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 275 days' work in which 124,490 birds were inspected; 24,296 rejected; 50,501 Supervised; 33,761 Certified; 2,681 Supervised-Accredited; 5,965 Certified-Accredited; 1,371 Certified Meat Production, and 2,302 passed for Approved Meat Production (3,613 reactors).

The chart showing distribution of hatcheries indicates that 60 breeder hatcheries, having a total egg capacity of 598,484 eggs, were receiving their total egg supply from flocks under state supervision, and 11 commercial hatcheries with capacities of 1,855,364 were receiving eggs from at least one breed under supervision. The total capacity of this group alone is 2,453,848.

The further distribution of the service can be realized by noting the increase in flocks in the various counties. Nineteen counties are still represented, but many notable increases have occurred within the counties.

Fewer complaints on chicks were received during the past year than ever before. To be exact, there was just one complaint, which was satisfactorily adjusted. On the other hand, flock owners have reported greater satisfaction with the service than at any time since its inception in 1923.

Flocks were inspected in three grades as outlined in Circular 114, published in 1927, and in accordance with the rules and regulations of 1928. The divisions by grades are shown in the four charts and the distribution on the two maps.

The cost of inspection work, as in former years, has been charged directly to the poultrymen on a straight cost basis. Seven dollars and fifty cents per day for the inspector hire and 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 has been collected for and transferred to the Agricultural Experiment Station at New Brunswick under whose direction the samples were tested.

Supervision of this work and systematic 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.

CAPACITY OF HATCHERIES UNDER STATE SUPERVISION

Counties	*Breeder Hatcheries Under* 5,000	*Breeder Hatcheries* 5,000 *to* 15,000	*Breeder Hatcheries* 15,000 *to* 47,000	*Breeder Hatcheries Over* 50,000 *Capacity*	*Total Capacity of Breeder Hatcheries*	*Commercial Number of Hatcheries*	*Hatcheries Capacity*	*Total Hatchery Capacities*
Atlantic	4	..	..	..	8,500	..	.....	8,500
Bergen	..	2	1	..	31,700	..	.....	31,700
Burlington	5	..	..	1	104,630	1	X141,000	245,630
Camden	1	..	..	..	4,320	..	.....	4,320
Cumberland	2	1	3	..	86,794	1	J222,000	308,794
Essex	1	1	1	..	41,640	..	.....	41,640
Gloucester	3	2	1	..	54,354	..	.....	54,354
Hunterdon	2	2	2	..	57,900	5	*1,355,000L	1,412,900
Mercer	1	1	..	..	9,000	..	.....	9,000
Middlesex	..	3	1	..	50,000	1	46,000	96,000
Monmouth	3	1	1	..	36,060	..	.....	36,060
Morris	..	1	..	..	6,600	..	.....	6,600
Ocean	..	3	..	..	27,912	..	.....	27,912
Passaic	..	4	1	..	62,544	..	.....	62,544
Salem	..	..	..	..	....	1	X8,640	8,640
Somerset	3	..	..	..	8,280	2	82,724	91,004
Sussex	..	1	..	..	7,000	..	.....	7,000
Union	1	..	..	..	1,250	..	.....	1,250
Warren	..	..	..	..	....	..	.....	.....
	26	22	11	1	598,484	11	1,855,364	2,453,848

* Home Farm Only.
X—Approved Meat Production.
J—Leghorns Only.
L—600,000 Giants Only.

NUMBER OF BIRDS INSPECTED 1928-29

Counties	*Flocks Applied for and Inspected*	*S. C. White Leghorns*	*White Wyandottes*	*R. I. Reds*	*Barred Rocks*	*White Rocks*	*Black Minorcas*	*Dark Cornish*	*Brown Leghorns*	*Certified Meat Production*	*Accredited Meat Production*	*Total Birds*
Atlantic	5	1,517	...	223	...	...	139	31	...	...	...	1,910
Bergen	5	4,909	...	86	...	...	...	...	...	...	...	4,995
Burlington	19	4,611	5	463	220	108	...	...	...	264	2,180	7,851
Camden	2	457	...	...	...	...	...	...	...	...	367	824
Cumberland	51	35,926	...	662	...	...	...	...	...	...	...	36,588
Essex	8	3,173	101	22	189	...	...	...	...	244	...	3,729
Gloucester	6	7,001	254	...	137	493	...	...	...	...	...	7,885
Hunterdon	19	9,557	489	680	1,345	54	...	...	9	...	...	12,134
Mercer	18	2,637	...	129	376	...	...	...	...	1,961	...	5,103
Middlesex	8	10,597	...	...	475	...	...	...	...	234	...	11,306
Monmouth	7	3,439	...	...	352	192	52	...	...	...	...	4,035
Morris	3	2,371	...	81	148	...	...	...	...	...	...	2,600
Ocean	5	3,646	...	...	...	240	...	...	...	...	...	3,886
Passaic	5	8,044	...	550	...	...	...	...	...	...	...	8,594
Salem	11	3,489	...	...	...	679	...	...	...	...	1,536	5,704
Somerset	23	7,115	...	220	2,103	...	...	...	...	...	...	9,438
Sussex	3	1,781	...	...	...	...	...	...	...	...	...	1,781
Union	2	150	...	...	...	...	...	...	...	80	...	230
Warren	1	102	...	...	...	...	...	...	...	...	...	102
	201	110,522	849	3,116	5,345	1,766	191	31	9	2,783	4,083	128,695

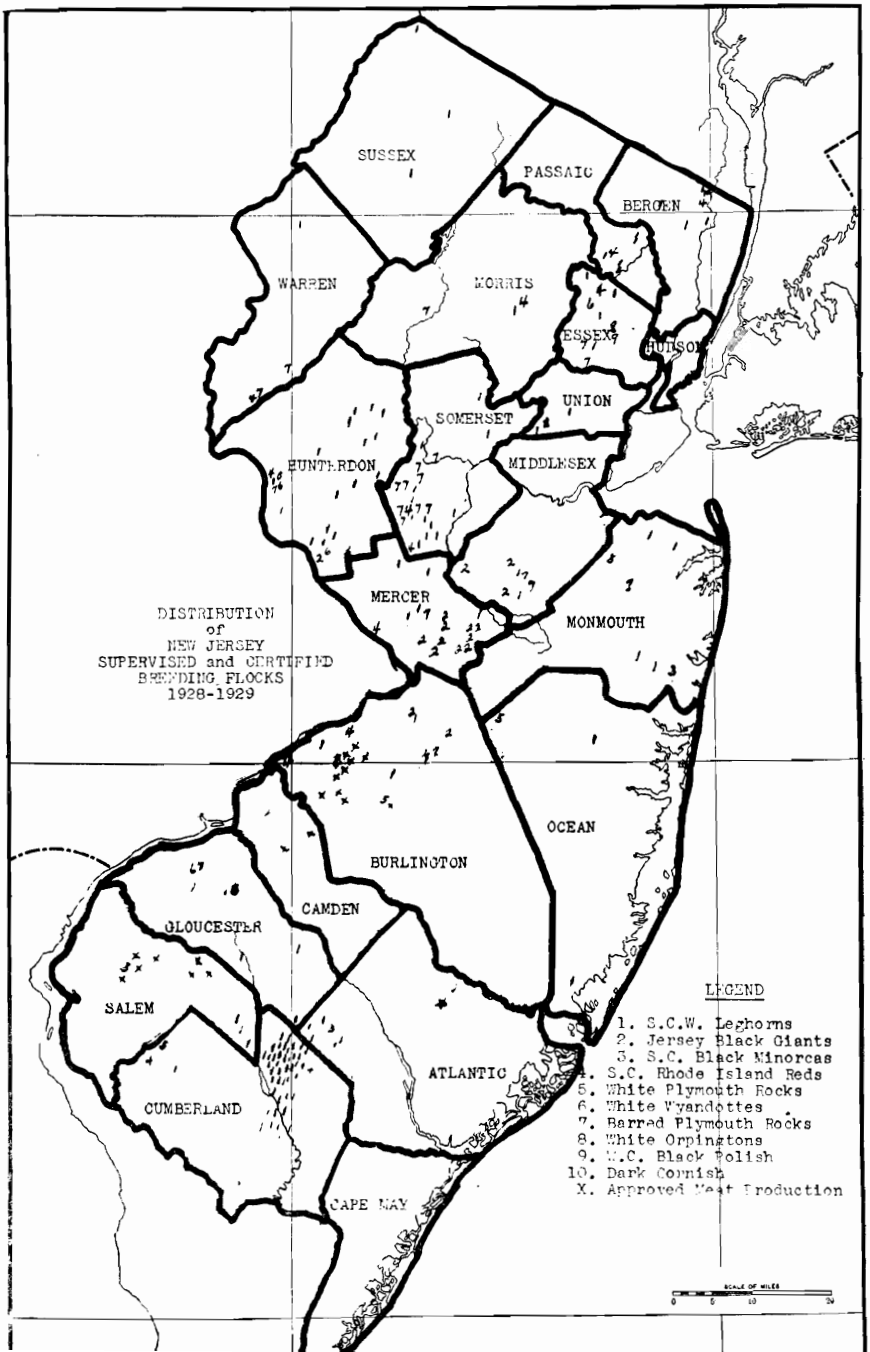
NUMBER OF BIRDS REJECTED 1928-29

Counties	*S. C. White Leghorns*	*White Wyandottes*	*R. I. Reds*	*Barred Rocks*	*White Rocks*	*Black Minorcas*	*Dark Cornish*	*Certified Meat Production*	*Accredited Meat Production*	*Total Culls*
Atlantic	291	...	56	...	...	34	...	...	...	381
Bergen	1,467	...	10	...	...	...	9	...	...	1,486
Burlington	1,244	...	51	30	5	...	...	72	56	1,458
Camden	57	...	...	...	...	...	...	...	61	118
Cumberland	6,068	...	62	...	...	...	...	...	...	6,130
Essex	733	30	3	57	...	...	...	83	...	906
Gloucester	1,402	29	...	9	58	...	...	...	...	1,498
Hunterdon	1,804	94	220	437	15	...	...	...	...	2,570
Mercer	331	...	1	51	...	...	...	323	...	706
Middlesex	2,193	...	...	200	...	...	...	57	...	2,450
Monmouth	516	...	...	40	2	3	...	...	...	561
Morris	688	...	39	22	...	...	...	...	...	749
Ocean	584	...	...	...	23	...	...	...	...	697
Passaic	1,398	...	69	...	...	...	...	...	...	1,467
Salem	796	...	...	...	84	...	...	...	76	956
Somerset	1,458	...	64	549	...	...	...	...	...	2,071
Sussex	547	...	...	...	...	...	...	...	...	547
Union	14	...	...	...	...	...	...	...	...	14
Warren	18	...	...	...	...	...	...	...	...	18
	21,609	153	575	1,395	187	37	9	535	193	24,693

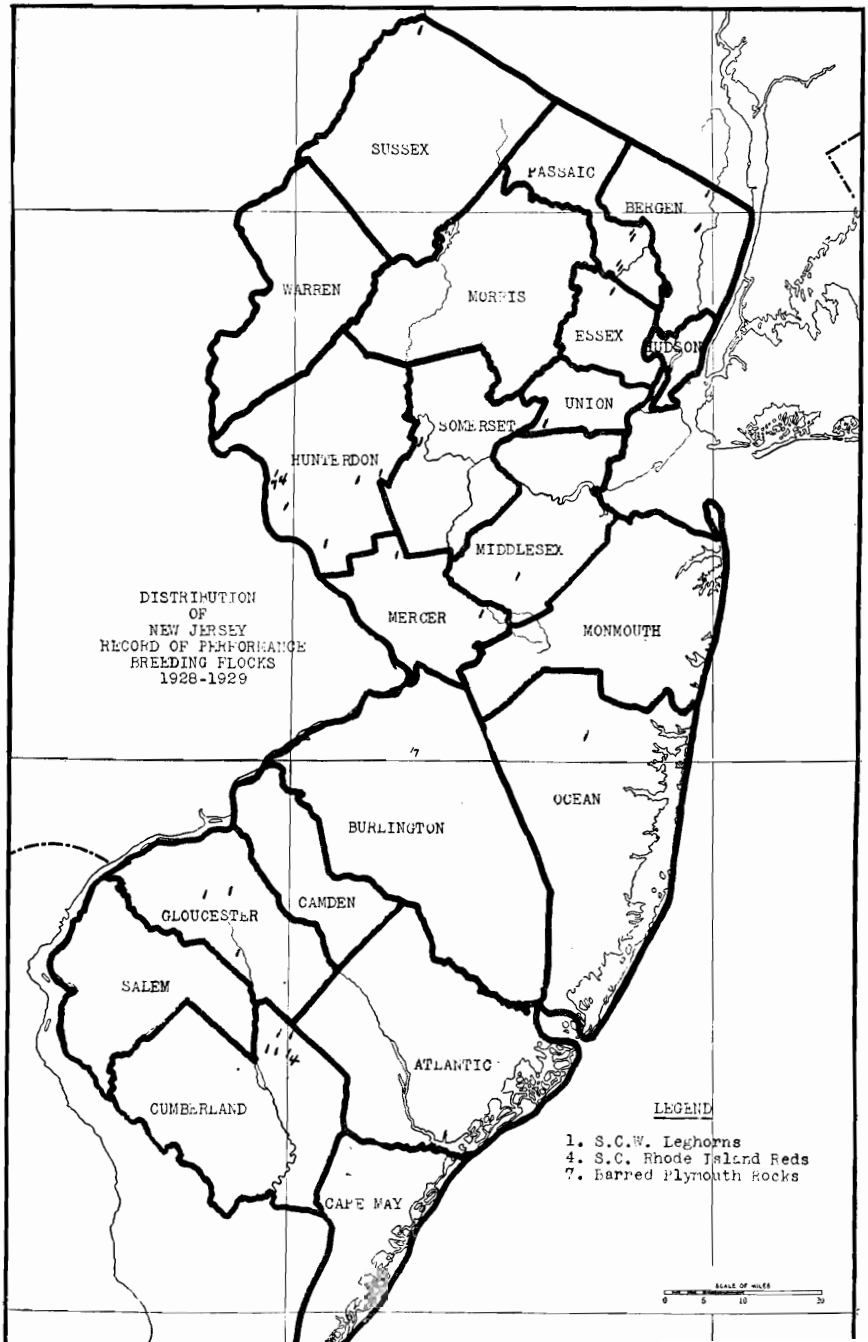
NUMBER OF B. W. D. REACTORS 1928-29

Counties	*S. C. White Leghorns*	*White Wyandottes*	*R. I. Reds*	*Barred Rocks*	*White Rocks*	*Black Minorcas*	*Dark Cornish*	*Certified Meat Production*	*Accredited Meat Production*	*Total Reactors*	*Total Supervised*	*Total Certified*	*Total Accredited*	*Total Cert. Meat Production*	*Total App'd Meat Production*
Atlantic	65	...	51	...	...	10	...	...	...	126	1,372	...	...	...	...
Bergen	215	...	3	...	...	...	...	...	...	218	783	2,539	...	...	...
Burlington	69	...	23	33	...	...	...	29	281	435	1,716	1,907	...	489	1,846
Camden	...	...	...	...	...	...	...	...	81	81	...	400	...	...	225
Cumberland	520	...	...	...	...	...	...	...	...	520	21,142	1,630	7,228	...	...
Essex	76	11	1	32	...	...	...	7	...	127	1,712	832	...	154	...
Gloucester	95	1	...	...	31	...	...	...	...	127	1,226	4,906	128	...	...
Hunterdon	256	59	59	87	...	...	...	...	...	461	2,969	6,134	...	...	...
Mercer	67	...	2	16	...	...	...	332	...	417	2,093	581	...	1,306	...
Middlesex	218	...	...	30	...	...	...	40	...	288	3,785	4,646	...	137	...
Monmouth	50	...	...	...	6	...	...	...	...	56	3,418	...	...	...	...
Morris	13	...	1	13	...	...	...	...	...	27	1,296	528	...	...	...
Ocean	109	...	...	...	14	...	...	...	...	123	1,856	1,300	...	...	...
Passaic	115	...	11	...	...	...	...	...	...	126	1,230	5,707	...	...	...
Salem	107	...	...	...	172	...	...	...	369	648	2,894	...	...	...	1,206
Somerset	91	...	16	138	...	...	...	...	...	245	3,518	1,945	1,659	...	...
Sussex	52	...	...	...	...	...	...	...	...	52	291	891	...	...	...
Union	1	...	...	...	...	...	...	10	...	11	135	...	...	70	...
Warren	2	...	...	...	...	...	...	...	...	2	82	...	...	...	...
	2,121	71	167	349	223	10	...	418	731	4,090	51,518	33,946	9,015	2,156	3,277

DISTRIBUTION OF NEW JERSEY SUPERVISED AND CERTIFIED BREEDING FLOCKS 1928-1929



DISTRIBUTION OF NEW JERSEY RECORD OF PERFORMANCE BREEDING FLOCKS 1928-1929



Record of Performance

The Record of Performance trapnest project has been administered by the Contest management during the past year, but was returned to this Department on July 1, 1929.

The Record of Performance breeding flocks have been maintained on the same basis as last year. Flock inspections were on a fee basis and hatchery inspections were made monthly by this Department. Mating lists of this class were published in Circular 157. These flocks are made up entirely from females whose production has been certified by the Contest management from either Contest or Home Record of Performance trapnest projects. The females are mated to wing-banded pedigreed males whose dams produced 225 eggs or more during their pullet year. Eggs from each female in this class must weigh two ounces and average twenty-five ounces to the dozen. Twenty-eight breeders entered 127 flocks in this class of which 118 were Leghorns, 6 Barred Plymouth Rocks and 3 Rhode Island Reds. Ninety-five flocks were Certified and 32 Certified-Accredited, distributed by counties as follows:

> Bergen 3 (Leghorns); Burlington 4, of which 2 were Leghorns and 2 Barred Plymouth Rocks; Cumberland 47, of which 46 were Leghorns and 1 Single Comb Rhode Island Reds; Essex 3 (Leghorns); Gloucester 8 (Leghorns); Hunterdon 20, of which 14 were Leghorns, 4 Barred Plymouth Rocks and 2 Single Comb Rhode Island Reds; Mercer 4 (Leghorns); Middlesex 13 (Leghorns); Ocean 1 (Leghorns); Passaic 15 (Leghorns); Salem 3 (Leghorns); Somerset 5 (Leghorns); Sussex 1 (Leghorns).

All of these flocks were single mated and progeny hatched under the supervision of this Department. Such male progeny is qualified after inspection to head Certified and Record of Performance breeding flocks in accordance with the production standard in each case. The records show a total of 1,770 females which produced 93,685 eggs, of which 76,240 were incubated to produce 42,256 chicks. Of this progeny many of the females will be entered in the Record of Performance trapnest project for official record and progeny test by flock owners. The males will be used on Certified and Record of Performance flocks for the present season.

SUMMARY OF 1929 RECORD OF PERFORMANCE BREEDING FLOCKS

Counties	*No. of Flocks*	*No. of Birds*	*No. of Eggs Produced*	*No. of Eggs Set*	*No. of Chicks Hatched*
Cumberland	47	824	44,407	34,831	17,181
Salem	3	30	1,843	1,832	959
Somerset	5	33	1,382	1,377	980
Gloucester	8	116	6,931	5,952	4,282
Hunterdon	20	214	9,271	7,283	3,589
Middlesex	13	197	10,863	9,806	6,250
Passaic	15	198	10,859	9,243	5,244
Burlington	4	34	1,683	1,179	592
Mercer	4	47	1,847	1,499	742
Bergen	3	26	1,679	1,012	785
Essex	3	32	1,814	1,301	978
Sussex	1	9	615	434	277
Ocean	1	10	491	491	397
Totals	127	1,770	93,685	76,240	42,256

FRUIT AND VEGETABLE GRADING AND STANDARDIZATION

The continuation of inspection and quality certification of fruits and vegetables at shipping point was the most important and practical work of the project. Additional work along educational and investigational lines constituted a large part of the year's program, particularly in grading investigations, demonstrations and various exhibits.

Shipping Point Inspection

Shipping point inspection on fruits and vegetables was carried on during the fiscal year beginning July 1, 1928, under the existing co-operative agreement between the United States Bureau of Agricultural Economics and the New Jersey Department of Agriculture, representing the seventh year in which this service has been available to growers and shippers. Practically all of the work was on potatoes in the Hightstown-Freehold area. The total number of inspections since July 1 amounted to 802 cars. As usual, about three-fourths of the inspections were made in August and most of the remainder in September. Inspection work since 1922, by carloads, is tabulated below:

	1922	1923	1924	1925	1926	1927	1928
Apples	...	250	147	124	...	25	13
Pears	...	...	2	...	...	...	...
Peaches	249	380	443	245	188	154	...
Potatoes	1,259	89	77	27	423	757	789
Total Cars	1,499	719	669	396	611	936	802

One inspector was located at Del-Bay Farms, Bridgeton, to carry on the usual peach work. However, loss of some of the crop by severe freezes, and a better market through local sales and truck movement for what fruit matured, rather than carlot shipping, resulted in canceling peach inspection service. Only 41 cars were shipped from the state compared with more than 1,000 during each of the past several years.

Inspection of Potatoes

The potato inspection work began during the second week of August, several weeks later than usual, with six men, which number was reduced to four about the end of August, and to two men about the end of the season. Heavy shipments from Virginia and Maryland delayed New Jersey's season and continued heavy until after the middle of August. Kansas shipped moderately to central markets throughout New Jersey's digging period. Long Island opened up for nearby markets along with New Jersey, and Maine was up to 1,000 cars per week while this state was still moving an average of 60 cars daily.

This overlapping and pressure on either end of the New Jersey shipping period is shown in the following table:

1928 POTATO SHIPMENTS

Shipped	*N. C.*	*Va.*	*Md.*	*Kan.*	*N. J.*	*L. I.*	*Maine*
Before July 15	8,250	15,515	508	189	...	...	...
July 15-21	120	3,759	579	394	1	...	...
22-28	59	2,292	674	346	4	...	...
29-Aug. 4	70	1,880	605	347	28	17	...
Aug. 5-11	114	942	265	277	353	69	...
12-18	135	881	130	453	606	100	...
19-25	102	696	81	303	966	230	14
26-Sept. 1	112	268	59	410	776	231	23
Sept. 2- 8	109	195	25	402	385	281	43
9-15	107	87	34	172	729	413	698
16-22	56	62	7	402	346	221	983
23-29	82	54	8	323	379	426	1,039
30-Oct. 6	28	48	1	197	231	379	1,187
Oct. 7-13	33	...	...	127	127	574	1,284
14-20	...	...	...	91	74	547	1,435
After Oct. 20	...	...	...	228	144	2,392	9,464

Quality was reasonably good but not up to that of 1927. Heavy growths of crabgrass and other weeds made digging of some fields difficult and resulted in more cut potatoes than usual. This injury and scab were the more common defects, but more cars failed to grade U. S. No. 1 because of muddy potatoes than noted previously. The following figures show the number of weekly inspections and the proportion of U. S. No. 1 stock:

Week of	*Total Cars Inspected*	*Cars Grading U. S. No. 1*	*% Grading U. S. No. 1*
Aug. 6-11	112	77	69%
13-18	150	113	75%
20-25	200	136	68%
27-Sept. 1.	140	79	56%
Sept. 3- 8	34	23	68%
10-15	76	47	62%
17-22	51	34	67%
24-29	26	24	92%
1928 season	789	533	68%
1927 season	757	577	76%
1926 season	423	233	55%

It is of interest to note that of the 789 cars of potatoes inspected, 14 per cent showed grade defects "well within tolerance" (three per cent or under); 54 per cent showed grade defects "within the tolerance" (4 to 6 per cent inclusive); 19 per cent showed grade defects ranging from 7 to 10 per cent, and 8 per cent grade defects ranging from 10 to 20 per cent. In addition, 27 cars failed to grade U. S. No. 1 on account of various percentages of mud-caked stock ranging up to 50 per cent of the load; 4 cars failed because of decay; and 14 cars failed due to undersized stock which averaged 7 per cent.

Appeal inspection was requested by receivers on three cars at terminal markets. The grade as certified at shipping point was sustained in the case of one car, and reversed on the other two.

Expansion of service to applicants was made this year by establishing field offices for more rapid certificate delivery. At Hightstown this work was taken care of in the field office of the Market News Service operated by the Department during the potato shipping season. The salary of a typist was on a weekly basis, paid from inspection receipts. At Freehold the inspection headquarters was in the office of the Monmouth County Farm Bureau, with fewer certificates through this office. Clerical service was paid for at the rate of ten cents a certificate. The same fee was paid to the inspector at Englishtown for his own certificate typing. This field office arrangement not only provided 24-hour certificate service to applicants, but also served as official headquarters for inspectors to meet, prepare their notes and discuss inspection problems.

Inspection of Apples

Requests for inspection of a few cars of apples were taken care of. In the case of two applicants, who were packing in barrels for export, the inspection work offered an opportunity to familiarize them with various packing operations as well as grading. These included proper

ring-facing, ring-tailing, racking, nailing and car loading. Of the 13 cars inspected, 6 graded U. S. No. 1, 6 graded U. S. Commercial, and one failed to grade U. S. No. 1 on account of worm injury and excess russeting.

Financial Statement

Fees assessed		$1,944.92
Expenses:		
Salaries, inspectors	$1,305.00	
Salaries, clerical	119.50	
Travel	198.19	
Typewriter, rentals	15.00	
Federal fees	80.20	
Refunds	157.80	
Reserve (new equipment, supplies, etc.)	67.23	
Unpaid bills	2.00	
		$1,944.92

Special Inspections

By agreement with the U. S. Bureau of Agricultural Economics, the Trenton office was designated as a market inspection office to make straight federal inspections of in-bound fruits and vegetables. Such federal inspections were made at the request of receivers or other financially interested parties to settle differences of opinion between receivers and shippers as to the quality and condition of certain shipments. Total inspections for the fiscal year amounted to 27 cars compared with 11 for the previous year. Fees assessed and transmitted to the Washington office totaled $123.25. The inspections involved 13 cars of potatoes, 9 cars of apples, 2 cars of tomatoes, and one car each of peaches, watermelons and Christmas trees. Thirteen cars were inspected in Trenton and 14 at receiving points in New Jersey not covered by the Philadelphia or Newark offices.

In accordance with the regulations of the 300-Bushel Potato Club, which provides that potatoes entered must be of U. S. No. 1 quality, a number of inspections were made to determine the quality of stock produced by prospective club members. All stock entered met the necessary requirements.

Investigations

Through the courtesy of officials of the Pennsylvania, Reading, Central Railroad of New Jersey, Erie and Lackawanna railroads, figures were obtained for the second year on carlot receipts of fruits and vegetables in five markets of the state. Although impossible to ascertain the large quantities of perishables moving into these markets by truck, a knowledge of the carlot deliveries has proven valuable, particularly in such staple commodities as potatoes, which is the leading

product received. Decreases occurred in receipts in several of the markets as shown below, and were probably due to larger amounts of stock brought in by motor.

Market	*Receipts in* 1928 (*Cars*)	*Receipts in* 1927 (*Cars*)
Atlantic City	1,134	1,216
Elizabeth	245	260
New Brunswick	167	188
Paterson	1,581	1,322
Trenton	689	587
Totals	3,816	3,573

One of the important investigational studies was the inspection of various lots of orchard-run apples in Burlington and Camden counties to determine the amount of grade defects present and the amount of grading that would be necessary to have the fruit of U. S. No. 1 or U. S. Commercial quality. Enlargement of this type of work can be made of distinct benefit to growers by determining whether or not it is practical to grade a crop and also the degree of injury by insect or disease troubles.

Continuation of asparagus grading work in Gloucester County indicated that a more uniformly graded product was put on the market than has been the case since the industry has expanded in that county. Likewise a greener product was packed, which meant reduction in the number of crates, particularly of large sizes, but which practice apparently paid the growers well. The usual and most practical method of grading was the three-grade system. Four grades were practical only on very large operations, and the two-grade method, although used by a number of growers, usually produced a rather irregular pack.

Several investigations on the grading of blueberries were made in Burlington County to determine the practicability of grades drafted by this Bureau a year ago for cultivated blueberries. The pack was well graded, attractive, and in accordance with the grade requirements. Several seasons will be required to determine whether or not minor revisions will be necessary, but the tentative requirements as originally drafted have been found satisfactory so far. The cultivated blueberry industry is local, both in this state and the country as a whole, and the grades drafted by the Bureau are probably the first official standards promulgated for this fruit.

Exhibits

The most extensive exhibit of the year was that placed in the marketing car of the joint Department-College Agricultural Train. A

description of this exhibit will be found under the heading "Agricultural Train."

Other exhibit activities included a continuation of the marketing car exhibit at the Trenton Inter-State Fair; setting up a standardization booth and the apple and sweet potato displays at the Farm Products Show; revising and issuing the 1929 Premium Lists for the Trenton Fair; setting up a potato sizing and grading exhibit at the annual Potato Field Day.

Contests

Apple packing contests were held under the direction of this Bureau in conjunction with the annual meeting of the Horticultural Society at Atlantic City. This type of practical competition attracted numerous contestants and good audiences. The first contest required the ring-packing of an E-Z bushel, and the second involved the packing of three bushels with the use of patented forms. Speed, tightness of face and pack, and bulge, were scored on a total of 82 bushels packed under competition.

Similar contests were conducted on the marketing car for vocational students. The best packer in each contest entered a final competition at the time of the Trenton Fair. This contest was very favorably received by the vocational students and instructors, and at the same time had its effect in presenting in a practical way the best methods of packing fruit.

Legislation

Several legislative measures of interest to the fruit and vegetable project were considered during the year. One of these was the "Honest Pack Bill" which provided for uniform packing and prohibited the facing of any package or load with fruits or vegetables superior in quality to the contents. Although endorsed by agricultural agencies and numerous growers, legislative action was withheld.

A proposal from a group of growers to encourage and draft a potato branding or grading law, as endorsed at the annual meeting of the State Potato Association, was likewise of interest to this project. A suitable bill was drafted through the office of the Farm Bureau Federation and submitted for approval at a meeting of dealers and representative growers. Legislative action was opposed by the dealers, who in substitution signed an agreement to handle only potatoes which had been graded over 1⅞ inch belts. In view of this action, the proposed potato branding bill was not introduced.

A third measure was an amendment to the original package marking law of the Department of Weights and Measures. This amendment.

adding "sacks and other containers" to the original law of "crates, covered baskets and carriers" was passed, and now requires the name and address of grower or packer to be stamped or tagged on all closed packages of fruits and vegetables. This amendment will now legally affect potatoes and green corn in sacks.

Committees

The New Jersey Potato Improvement Committee, composed of representative growers, dealers, and members of the Agricultural College, Extension Service and the Department of Agriculture, met several times during the year to discuss problems of the potato industry and make suggestions for improvements. These discussions centered around the proposed potato branding law and its enforcement; the honest pack bill; crop conditions and acreages; the Hightstown branch office of the Department of Agriculture; the package marking law amendment; the dealers' grading agreement, and the annual Potato Field Day as sponsored by the Committee and the State Potato Association.

AGRICULTURAL TRAIN

The Reading Company and the Central Railroad of New Jersey again offered the Department a train for demonstration purposes to run over their lines as in 1927. During the past season an additional car was added and placed at the disposal of the State Agricultural College. The fine cooperation of Professor E. R. Gross and his corps of assistants, in making the combined train a success, was greatly appreciated.

The Bureau exhibits on this train were the Fruit and Vegetable Standardization project, the Poultry project and Market News. Grading, packing and standard packages made up the fruit and vegetable project exhibit, and these were demonstrated on a number of commodities. The poultry exhibit consisted of examples of standard grades of eggs and comparisons showing sizes, colors and defects. Charts and signs drawing attention to the lessons illustrated were placed in prominent position. Market news service was illustrated by pictures, charts and signs. The set-up of the car was essentially the same as the first year. However, two outstanding improvements were a separate exhibit of various standard packages, and the placing of a packing table in the baggage section which afforded a good opportunity for numerous packing demonstrations and for conducting the apple packing contests for vocational students.

The evening programs were split, one speaker representing some activity of the Department of Agriculture and one representing the State Agricultural College. In addition to the stops made in southern New Jersey, which were the same as in 1927, the train made stops at Freehold and Middletown in Monmouth County; and at North Branch, Somerset County; and Annandale, Bloomsbury and Flemington in Hunterdon County. The attendance during the twenty-five days of the tour was 10,524 persons. This exceeded the attendance of 1927 by over 2,000 persons. The assistance of speakers outside of the Department organization was greatly appreciated. The men who so kindly helped in this way were Mr. Robert P. Hunter of the American Stores Company; Mr. E. R. Biddle from the New York office of the U. S. Bureau of Agricultural Economics; Mr. H. B. Hancock of Greenwich, N. J.; Mr. W. G. Lensen of the Philadelphia office, U. S. Bureau of Agricultural Economics; Mr. W. E. Lewis of the U. S. Bureau of Agricultural Economics, Washington, D. C.; Mr. Elmer Wene of Vineland, N. J.; Mr. W. R. Whitacre, cooperative agent, U. S. Bureau of Agricultural Economics and the Pennsylvania Department of Agriculture; Mr. R. R. Pailthorp of the U. S. Bureau of Agricultural Economics, Washington D. C., and Mr. H. E. Taylor, Secretary of the New Jersey Federation of County Boards of Agriculture.

TRANSPORTATION

Ten years ago the agricultural interests of this state had a very definite need for a specialist in the Department of Agriculture to look after their transportation problems. Through this service the railroads were impressed with the need of quick service to the markets and cooperated very closely with the Bureau in giving New Jersey the attention the farmers required. As time passed the highway system of the state was greatly improved and the motor truck became each year an increasing competitor with the railroad for short hauls. This keen competition forced the railroads, already friendly, to take even greater pains to give service, when needed, to the farmers, thus decreasing the demands for the services the Department had been rendering.

Occasional demands along transportation lines that come to the Bureau are now cared for by the chief of the Bureau. One service rendered during the past year was a cooperative effort by the Bureau together with the Cumberland County agent to get better service on the Central Railroad out of South Jersey. In former years the rail-

road had advanced their schedule on our request to meet the earlier opening time of the New York market. Following a meeting held in the county agent's office in Bridgeton, two meetings in this office and one meeting in the Central Building in New York, the railroad has scheduled the produce trains from South Jersey to leave one and one-half hours later at shipping point and to arrive at 9:00 P. M., standard time, at Jersey City. This is approximately the same arrival time as last year and is satisfactory for the market. The farmers appreciate the extra loading time available.

Arrival time of produce trains in Jersey City has been checked and the unload yards visited occasionally. Incidental requests concerning hours of arrival have come in to the office and a report returned.

Two meetings of the Atlantic States Shippers Advisory Board have been attended. At each of these meetings brief reports of transportation needs of agriculture in New Jersey were made.

The volume of motor truck receipts on the Newark market, which is of considerable interest to this Bureau, has been obtained by the Bureau of Statistics and Inspection. Persons interested in that phase of market work should read the report of that Bureau.

MARKET NEWS

The market news service of the Bureau of Markets must meet two needs of the producer to be of value to him. It must aid him in marketing his particular crop at the proper time and place, by furnishing him with accurate and timely information. It must also supply him with such economic information as will assist him in understanding and meeting existing market requirements and conditions.

The program of the market news service during the past year has attempted to fulfill both of these needs. The collection of daily market news, in cooperation with the United States Department of Agriculture, has supplied the producer with unbiased, up-to-date price quotations at his most important markets. It has also given him figures showing the volume of supply at these markets, and has determined the relation between this supply and the existing demand. The part of the work which has proved most valuable and probably the most popular has been the attempt to fill the second of the needs stated above. This requirement has been met by including in our reviews such information as: crop and market conditions in competing areas, both domestic and foreign; explanation of legislative acts as they affect the producer; information regarding transportation embargoes, due to labor troubles or market gluts; and also interpretation of changes in market practices.

The incorporation of such material into market reports has been a forward step in the market news service of the Bureau.

Daily Market News Service

Following a policy of the Department adopted about three years ago, all daily market information at our larger markets was collected during the past year by the United States Department of Agriculture. This policy was put into effect to prevent duplication of effort, and the Federal Department with greater resources and the advantages of the leased telegraphic wire system was in a better position to take over this part of the work. Through an agreement between the two departments, local representatives of the U. S. Bureau of Agricultural Economics at Newark, New York and Philadelphia make special efforts to obtain market information on New Jersey fruits and vegetables. In return for this service, the New Jersey Department of Agriculture pays part of the salary of each of these men, and in addition pays the full salary of a clerk-stenographer at the Newark office, which is maintained as a joint federal-state market news and inspection office. In order that proper attention be paid to New Jersey produce and that full value be returned for the money expended, a certain amount of supervision of this work by the Bureau has been necessary during the year. There has also been some supervision of market reporting in Trenton and Atlantic City in connection with the municipal markets of each of these cities.

Newspapers continue to be the main medium for distributing daily market reports. A total of fourteen daily newspapers of the state, most of which are members of the Associated Press, carried our daily service during the past year. In addition, four of the leading newspapers of Philadelphia continued to include the Newark and New York markets on nearby fruits and vegetables in their review of the produce markets. The distribution of our market reports through this medium covers the agricultural sections of the state very satisfactorily, as the geographical distribution of the papers extends from one end of the state to the other.

The following table shows the distribution of our market news service through the daily newspapers as the 1928-29 year closes:

STATISTICS SHOWING GROWTH AND DISTRIBUTION OF DAILY MARKET NEWS SERVICE

Name of Paper	*Circulation*
Asbury Park Press	11,696
Atlantic City Evening Union	16,648
Atlantic City Morning Press	24,155

	Circulation	
Bergen Evening Record—Hackensack	14,975	
Bridgeton Evening Record	7,030	
Camden Post	66,190	
Elizabeth Journal	26,579	
Jersey Journal—Jersey City	42,547	
Newark Evening News	134,752	
Newark Star Eagle	98,157	
Paterson Morning Call	20,700	
Paterson Press Guardian	17,289	
Trenton Times (Gazette)	59,227	
Total for New Jersey papers	539,945	539,945
Philadelphia Bulletin	544,029	
Philadelphia Inquirer	292,698	
Philadelphia Ledger	357,573	
Philadelphia Record	112,205	
Total for Philadelphia papers	1,306,505	1,306,505
Total all papers		1,846,450

Broadcasting daily market information over the radio was carried on with few changes from previous years. One small station was dropped, due to the inability of the station to put on our program at a regular hour each day. The first report during the day was broadcast at 10:00 A. M. over Station WNJ at Newark, and carried the Newark and New York markets on nearby fruits and vegetables. At the close of the year, arrangements were made with Station WAAM at Newark to put on a report at 8:45 A. M. each day. The next report of the day went on at 10:15 A. M. over Station WFI at Philadelphia. This report was put on in cooperation with the United States Department of Agriculture and also the Pennsylvania Department of Agriculture. This covered the New York and Philadelphia fruit and vegetable markets. Practically all of the large radio stations in New York and Philadelphia carried quotations on New Jersey produce in season, as well as dairy products, and eggs and poultry.

Weekly Market Summaries

The "Market Conditions" reports of the Bureau of Markets continue to be one of the most successful projects of the entire market news service. Evidence of the increasing value and popularity of these reports is shown in the figures, which reveal the increase in circulation since its inception in 1927. On August 30 of that year there were 3,160 names on the mailing list. At the end of this fiscal year there

were 3,747 names. The entire list has been made up from voluntary inquiries on the part of producers, and through no solicitation by the Department. During the year approximately twenty-five weekly newspapers were added to the list. Some of these use the reports as issued, while others receive a news item along with the report. The addition of these papers has increased the circulation of the reports and has made distribution more effective. There were 181 reports issued during the past year. These included 38 on apples, 28 on sweet potatoes, 25 on white potatoes, and from 7 to 16 on each of the following: tomatoes, onions, strawberries, asparagus, spinach, lettuce, peaches, and a combined miscellaneous truck crop report. The main purpose of these reports has been to keep the grower informed as to conditions in competing areas as well as in the most important markets for his product. The collection of material for such reports has meant considerable correspondence with shippers and officials of other states, as well as contacts with members of the trade in various markets. It has also entailed much travel in the field in order to keep informed as to crop conditions.

The following table shows the demand for "Market Conditions" reports on the commodities listed:

STATISTICS SHOWING GROWTH AND DISTRIBUTION OF "MARKET CONDITIONS" REPORTS

	August 30, 1927	*July 31, 1928*	*June 30, 1929*
1. Sweet Potatoes	226	235	258
2. Potatoes	442	451	476
3. Apples late	411	421	449
4. Lettuce	143	147	181
5. Asparagus	221	231	255
6. Spinach early	130	136	158
7. Strawberries	207	212	236
8. Apples early	377	385	412
9. Onions	119	124	150
X. Tomatoes	408	415	438
Y. Peaches	332	342	365
Z. Spinach late	144	149	170
W. Misc. Truck Crops	...	143	174
N. News Story	...	...	25
Totals	3,160	3,391	3,747

The mailing list of the "Weekly Market Review" was revised in the spring of 1928 and the names of all persons not requesting the report were dropped. This report was issued regularly each Thursday

throughout the year with very few changes from previous years. It included an analysis of the grain and feed markets together with quotations at several receiving stations within the state. It also included short reviews and prices of hay and straw at New York and Philadelphia, as well as live and dressed poultry quotations at New York; egg prices at New York, and fruit and vegetable quotations at New York, Newark and Philadelphia. The special service to the poultrymen, started during the previous year, was continued. From January to the end of the hatching season this consisted of a report showing the estimated monthly surplus and asking prices for baby chicks and hatching eggs from certified flocks. For the remainder of the year, figures showing the estimated supply and price of certified and certified-accredited pullets and cockerels, were included in the report.

Special Services

In addition to the regular duties in connection with the market news service, there were several special seasonal services rendered to various agricultural interests in different parts of the state.

1. The shipping point auction markets at Landisville, Cedarville and Rosenhayn were furnished with New York, Newark and Philadelphia quotations daily throughout the active shipping season at these points. The service to Cedarville and Rosenhayn was rendered in cooperation with the Cumberland County Board of Agriculture. The county agent's office at Bridgeton took care of forwarding the necessary information to each auction market after receiving it from Philadelphia.

2. The special service to the berry growers in the vicinity of Hammonton was carried on again during the past year. In cooperation with the Hammonton Market Commission and the United States Department of Agriculture, several important berry markets of these growers were transmitted to this market by way of Philadelphia. Although the Japanese Beetle Quarantine prevented the growers from using all of the markets for which quotations were received, the quotations were a considerable aid to them in disposing of their berries to truck buyers at the market.

3. Several markets of eastern Pennsylvania are important outlets for New Jersey fruits and truck crops. During the year arrangements were made with the Pennsylvania Department of Agriculture to furnish us with market conditions and prices of apples, peaches, sweet corn, and beans on the Scranton and Wilkes-Barre markets. This information was disseminated through the Burlington County agent's office and was available to all, throughout the season, both at that

office and at Trenton. Conditions and prices from other markets of that same territory were obtained upon special request.

4. A new feature in reporting was started in September which consisted of securing records of sales of apples on the farm in Sussex and Warren counties. Each year there is an increase in the use of the truck for marketing purposes, and with it more growers have the problem of making frequent sales of their produce on the farm to buyers from nearby cities. It is well known that in certain sections, especially where apples are more or less of a sideline, that producers have not known the true value of their crop and buyers have been quick to take advantage of such a situation. It was to remedy this condition that the service was started. A report of actual sales by large growers, who knew the market was forwarded to the county agent's office at both Warren and Sussex counties. A summary of these sales was made available to all who called the office, and it was also printed in weekly papers and in "Market Conditions." The county agent's office was also kept in close touch with the market situation at Newark, which forms the chief market for fruit from this territory. The service was greatly appreciated and in many cases saved the small growers a considerable sum of money.

Farm Prices

Farm prices for fifteen fruits and vegetables were obtained semi-monthly. These were secured through the questionnaire method as in the past and an average price tabulated for each commodity.

HIGHTSTOWN POTATO INFORMATION OFFICE

As the potato harvest season of New Jersey for the summer of 1928 grew near it was increasingly evident that New Jersey would have the same difficulty in moving its crop with a profit to the growers that was being experienced in all of the potato producing states south of us. As states from Florida north had a very late season with a bumper crop, and thousands of carloads of old stock was on hand even when the Eastern Shore of Virginia was attempting to market their crop, a wave of potatoes was piled up which rolled gradually northward. The daily digging exceeded the possible consumption of the markets and the overlapping of digging and shipping dates made orderly marketing impossible.

With this situation facing us, the Department of Agriculture felt that it would be worth while to make a special endeavor to aid in the marketing of the New Jersey crop, if such aid was at all possible.

Therefore, at the time of the State Potato Association Field Day on June 26, 1928, the Secretary of Agriculture called a meeting of representatives of the big distributors of the state and the county agents of the central potato counties, together with a representative of the College and the Department. A picture of the situation was drawn and it was the feeling of the meeting that an experienced potato marketing man placed in an office in the potato belt, who could obtain daily needed information in regard to crop movement and demand, would be valuable. A man was secured and an office established in Hightstown.

Shortly after the office was opened a meeting of distributors, representatives of the College and the Department was held at Jamesburg to discuss methods of procedure, and the information that would be available to the potato interests. The support of these men was pledged to the Department so that the office could be made of as much value as possible.

The New Jersey season normally begins around July 15, but was delayed three weeks in the hope that the Eastern Shore would move the bulk of its crop. Virginia and Maryland, however, because of prevailing low prices, held back its immense crop so that even after New Jersey began to dig the Shore continued shipping very heavily. The following table shows the overlapping of the Eastern Shore, New Jersey and Long Island. Carloads shipped during week ending:

	July 28	*Aug. 4*	*Aug. 11*	*Aug. 18*	*Aug. 25*	*Sept. 1*	*Sept. 8*	*Sept. 15*	*Sept. 22*	*Sept. 29*
New Jersey ...	4	28	353	606	966	783	383	729	416	379
Eastern Shore .	2,152	1,800	894	828	657	229	172	50	37	20
Long Island ..	0	0	69	98	230	265	261	413	221	426

It is thus seen that not until the week ending August 25 did New Jersey move more potatoes by rail than did the Eastern Shore. In addition to the rail shipments mentioned, it is conservatively estimated that New Jersey moved 4,000 carloads by truck. New Jersey did not have an abnormal crop. If New Jersey had not had the abnormal competition from competing states this crop could have been marketed for satisfactory prices.

The Department's greatest service was to farmers selling to truckers. An average of ten calls a day were made to the Hightstown office by growers. It seemed quite customary for some of these farmers to quote prices to truckers only after calling the office for the latest information. The market moved very steadily during the entire period the office operated, the fluctuations rarely being more than 10 cents on any day. Had the market fluctuated as customary in normal years the tele-

phone market service and advice would have been of much greater value.

During the 1928 season many valuable lessons were learned by which great improvement may be made in the conduct of this branch office and greater service be rendered to New Jersey potato growers and shippers. Plans are now made for the 1929 season.

MARKET ORGANIZATION AND SUPERVISION

The past year has seen the development within the state of a new type of farmers' market. In last year's report mention was made of the Cedarville and Rosenhayn markets with a record of the first month's accomplishments on those markets. In this report we are able to give a year's accomplishments, which will show a valuable service to producers through better prices obtained. There is also a valuable service to consumers because of the direct distribution of these commodities to consuming centers rather than the roundabout way of through great distribution points with the inevitable delay and extra handling necessitating higher costs to the consumer. The two markets mentioned owe their success to the fine spirit of cooperation of the local board of directors and to the untiring efforts and cooperation of the local county agricultural agent.

In addition to these markets, two new auction markets were established during the year. One was at Trenton as a part of the city market plans and the other was at Landisville, in Atlantic County. At Landisville, the county agricultural agent's office and the vocational agricultural teacher in that district were the cooperating agencies. Reports of these four auctions are made separately.

The Bureau has continued its support to the four markets established in previous years which have cooperative agreements with the Department of Agriculture, and it has helped to increase the usefulness of these markets to the producers through inspection service and proper supervision. These markets are the city markets at Trenton and Atlantic City, and the wholesale markets at Hammonton and Swedesboro.

During the year the Bureau has cooperated with the farmers and chambers of commerce interested in new market facilities in Newark and Camden, and has assisted in the selection of possible sites. In the case of the Camden Chamber of Commerce, photographs and data to be included in a prospectus were supplied to aid in the establishment of the market at that point.

Mention should be made in this report of the Orange market in Essex County. This market organization was established in the spring of 1928 through the cooperation of the Essex County agricultural agent. A report of the establishment of this market appears in the 1927-28 report. The year has been a successful one for the Orange Market Association. While the Department has not cooperated in supervision of the market, there have been requests for assistance and advice. The financial report of the association for the year just completed is a very satisfactory one.

A report of the markets established during the year and of the older markets in which we cooperate in supervision follows:

Swedesboro—Our cooperation in this market has been chiefly that of obtaining an inspector for the market, paying a small part of the inspector's salary and supervising his work. Representatives of the Bureau made twelve trips to the market during the ten weeks the inspector was employed. On these visits the representative checked up on the work of the inspector, talked with individual growers and buyers concerning the progress made in better grading and marketing, and gave market advice when requested.

Considerable improvement was reported in the grade and pack of sweet potatoes, peppers, tomatoes and cantaloupes over the grade and pack of the year previous. Prices during the season were in the main satisfactory and Swedesboro continued as the chief of the market tomato districts of the state. There is one condition that has changed market methods considerably in this county. That is the practice of truck owners going to farms where the finest quality goods are produced, buying a load and hauling the same to a large market, usually Newark or New York, and selling the load for a figure to insure hauling charges and a small profit. This practice has cut down the actual sales and rail shipments out of Swedesboro. At this market there has been considerable agitation for an auction market to be established. It is felt that an auction would be quite successful in this place.

No records were kept during the first three weeks the market operated with supervision in 1928. During the 44 days in August and September that the market was open, there were 289,600 packages on the loads inspected. These loads sold for $318,645.

The inspection work on this market was purely permissive and instructive. The value lay in building up a system of better grading and packing through daily correction and guidance by the inspector. Improvement in quality and pack was quickly recognized by the buyers and better prices paid to those profiting by the instruction given.

The Swedesboro National Bank was most helpful in this market, giving generous support to the project and opening up one of their rooms for telephone service and as a market office. The bank supplied for the use of the shippers reference guides of important mercantile agencies.

In the operation of the Swedesboro market for 1928-29, certain shippers of that town contributed $335.00 toward the fund to employ the market supervisor or inspector. The Department contributed $166.16. All of this sum was paid for the salary and expenses of the inspector.

Hammonton—The Market Commission of Hammonton again requested the Department to cooperate with them in operating this market. The commission feels that inasmuch as farmers from four or five counties sell on this market that the state should assist in the market operation. A market master was secured by the Bureau of Markets and his services for the ten weeks that he was at Hammonton were quite satisfactory.

The greatest trouble on this market during the 1928 summer was from soft berries. This condition was caused by continuous rain over much of the harvest season. One of the duties of the market master was to detect and prevent topping of the crates with better, fresher berries. A local ordinance was adopted that made such a practice a misdemeanor. Another difficulty came from a practice of loading the trucks with crates of inferior berries in the bottom. This was difficult to detect and made some trouble. This practice was not widespread and was suppressed.

The Hammonton market is considered the best berry market in the state. There were 46 licensed buyers on the market. Each buyer paid a $10.00 license fee and wore a badge. The $460.00 thus acquired paid much of the market expenses. Both buyers and farmers were assisted by the market information posted on the bulletin board at the market office. This information consisted of the same day's prices as received on the Pittsburgh, Buffalo, Philadelphia, New York and Boston markets. It was sent to the market master by the Department's cooperating Philadelphia reporter.

The market was again opened in June, 1929, with the continued cooperation of this Bureau. During the 69 days of 1928-29 that the market was operated with a market master there were 15,762 sales made, consisting of 84,242 packages of produce. The gross sales amounted to $311,055.20. The sales consisted chiefly of blackberries and raspberries. Next in importance came strawberries and huckleberries. There were some sales of beans, cucumbers and peaches.

Cedarville—The last annual report contained a description of the crop and market possibilities of the Cedarville area and a report of the opening of an auction market with the results of the first month's work. As the year is completed we are even more pleased with the possibilities of this form of market. The market was on trial during the actual market season of 1928. As the season of 1929 begins we find much more confidence in this mode of selling with the result that the nearby farmers expect to sell all of their produce through this market. The Bureau again assists financially by paying the market supervisor $100.00 a year for which it obtains weekly reports on the market. The Bureau also supplied the market by telephone with the prices received each morning on the New York and Philadelphia markets for all commodities handled on the auction market. Cooperation is also requested by the directors of the corporation in matters of policy and in general advice and supervision.

During the fiscal year 1928-29 this market was operated 127 days. During that time there were 4,217 sales made. The total value of all sales was $176,437.94.

To obtain a basis for the statement that this market made greater returns to the farmer than would have been received had the produce been sent, as was the usual custom in the past, to New York on commission, this office made a study of the actual daily market returns of this market and compared the figures with the average market returns from New York for New Jersey produce, freight and commission deducted. The results show a very favorable balance in favor of the auction except for some commodities for which there did not appear to be interested buyers. All commodities sold on the auction were considered. The following table shows the comparison. The figures are for the 1928 crop year and do not cover the fiscal year.

CEDARVILLE AUCTION MARKET

Season of 1928

Commodity	*Number of Packages Sold*	*Value at Auction Market*	*Value at New York Market*	*Margin by Selling at Auction*	
				Profit	*Loss*
Strawberries	25,031	$98,702.24	$71,223.68	$27,478.56	.....
String Beans ...	20,345	31,202.62	27,931.95	3,270.67	.....
Lima Beans	5,517	11,458.66	9,895.48	1,563.18	.....
Squash	226	205.43	141.31	64.12	.....
Peppers (green).	1,731	834.57	785.68	48.89	.....
Lettuce	348	349.02	315.80	33.22	.....
Blackberries	45	191.25	163.80	27.45	.....
Sweet Corn	18	13.86	12.96	.90	.....
Cantaloupes	4	2.20	3.88	.....	$1.68
Beets	8	6.88	9.92	.....	3.04
Peppers (red) ..	80	40.50	46.60	.....	6.10
Cabbage	35	13.30	21.00	.....	7.70
Tomatoes	839	383.71	546.62	.....	162.91
Carrots	600	398.55	697.73	.....	299.18
Peas	3,761	5,518.86	6,120.99	.....	602.13
*Onions	3,486	3,476.90	4,501.65	.....	1,024.75
Cherries	3	10.10	10.10	.....	.....
Totals	62,077	$152,808.65	$122,429.15	$32,486.99	$2,107.49

NET PROFIT—Auction Market Sales—$30,379.50

Rosenhayn—Last year's report shows the initial steps in organizing a market at Rosenhayn and the results of the first month's work. The system employed here was that each farmer acted as his own auctioneer. The market supplied a definite place for selling the produce and supplied a market master to act as clerk. The buyers agreed to buy at this one point. This method was carried out throughout the 1928 season and was a great improvement over the system of sales in previous years.

The annual meeting of the directors was held at Rosenhayn on March 14, 1929. This meeting was attended by representatives of the Department, who showed the results of the past year's work, and under recommendations suggested the employing of an auctioneer to announce each individual sale. This recommendation was followed and when the market opened in May, 1929, an auctioneer made each sale.

The Department has cooperated on this market to the same extent as at the Cedarville market, paying a salary of $5.00 weekly for twenty

* Quality was poor due to wet weather.

weeks to a market master and supplying the market information to be placed on a bulletin board. It has in addition, as at Cedarville, supplied supervision.

During the 129 days which the market operated there were 6,007 sales made. The total value of these sales was $138,116.79.

As in the case of the Cedarville market, figures supporting the Department's statements of the value of this form of marketing are shown. The following table has been compiled to show the commodities handled on this market and the returns to the farmer. It also shows the returns based on average New York sales the next morning and the profit or loss by selling under this cooperative plan. These figures are for the 1928 crop year and do not cover the fiscal year.

ROSENHAYN AUCTION MARKET

Season of 1928

Commodity	*Number of Packages Sold*	*Value at Auction Market*	*Value at New York Market*	*Margin by Selling at Auction*	
				Profit	*Loss*
Peppers	62,669	$42,285.39	$28,626.87	$13,658.52	.....
Strawberries ...	8,272	27,184.61	22,967.50	4,217.11	.....
Blackberries	5,805	20,503.85	17,702.68	2,801.17	.....
String Beans	10,083	12,021.87	11,284.86	737.01	.....
Lima Beans	4,327	7,967.50	7,781.78	185.72	.....
Cranberry Beans.	1,012	1,570.05	1,385.35	184.70	.....
Asparagus	27	76.25	59.76	16.49	.....
Tomatoes	187	117.61	135.45	.....	$17.84
Raspberries	392	1,999.58	2,036.16	.....	36.58
Peas	5,805	8,175.73	8,437.82	.....	262.09
Totals	98,579	$121,902.44	$100,418.23	$21,800.72	$316.51

NET PROFIT—Auction Market Sales—$21,484.21

Landisville—In January, 1929, the Bureau received a request to assist farmers in the Landisville area of Atlantic County to develop a market. After preliminary meetings it was decided to form a cooperative association and to incorporate. On March 14 the association was formed and a board of directors was chosen. The decision was made to organize an auction market based on the successful Cumberland County markets.

The early part of April was very warm and forced early vegetables much faster than was anticipated. The market opened April 8 and on that day sold 700 crates of broccoli. The hot weather forced this crop out into blossom with the result that the quality was damaged

severely and prices dropped rapidly. The market continued for a six-week period and then because of lack of produce was discontinued until July 1 when it was reopened.

During the 38 days it operated there were 1,404 sales of produce made. These sales totaled 13,827 packages. The value of sales was $18,126.89.

The Bureau has followed its policy in establishing markets of this kind and contributed $100.00 to the salary of a market master. A daily telegram was also sent from this office to the market master quoting the New York and Philadelphia prices. These figures have been posted on a bulletin board and have been of considerable aid in arriving at fair prices.

A great deal of attention has been given to this market and occasionally an auctioneer has been supplied. Assistance was rendered to the growers in grading and packing their produce and this has created a great deal of interest in official inspection and certification work.

Atlantic City—This market has developed considerably during the year and is filling a very definite need for a farmers' market at Atlantic City. The Bureau has endeavored through its representative on this market to improve the quality of New Jersey farm produce sold there, and as the year closes we see prospects of very definite results along this line. Plans for demonstration packing and grading work have been formulated for this market.

The evening market which was added last year was continued for three months, July, August and September of 1928. It was then discontinued and will not be repeated this year. The morning market now fills the needs of the city distributors. The market was open 262 days during the year. During that time there were 15,324 loads of farm produce sold. This volume was made up of 462,617 bushels of farm produce, 159,412 dozens of eggs, 86,069 pounds of poultry, and 4,420 pounds of pork. The sales value of this volume handled was $724,708.85, showing a very healthy increase over any preceding year.

The following is quoted from the report of the Atlantic City Municipal Market Commission to the mayor and commissioners for the year 1928:

"The fact that the state Bureau of Markets has an interest in the welfare of this market greatly strengthens the organization. Administration problems are made lighter because of this connection, for the Bureau in its endeavor to improve means of marketing farmers' produce throughout the entire state facilitates the administration of every market in which it holds a cooperating interest.

"This market reports daily produce prices to the state office. Each week a summary report is sent to Trenton, showing the activities on the market. In return, the market receives a weekly report from the Trenton office, showing conditions as they exist throughout the state."

Trenton—A new type of service was instituted August 1, 1928, on this market. This consisted of an auction market in connection with the wharf retail market. This auction was planned so that farmers desiring to sell the entire load at wholesale could do so in an orderly manner through competitive bidding by buyers concentrated together for that purpose. The buyers on this market were made up of representatives of retail stores, speculators wishing to haul to other markets, operators of roadside stands, hucksters and wholesalers. The usual demand was for a small number of packages of a commodity. This type of buyer tended to increase prices, but to discourage the larger buyer who might wish to speculate. The combination of this system with the private wholesale and retail trading made this market unique in that there is no other such combination in the state and possibly not in the United States.

During the 79 days the auction was operated last year there were 49,565 packages of produce sold for a total value of $37,677.13. The open package or basket is the type of package commonly used.

The marketing director of the Trenton markets has in addition to his city duties assisted our market news service in a very considerable way by reporting the Trenton wholesale market and by obtaining daily the Philadelphia market reports, and featuring the market conditions by a news story printed daily in the Trenton Evening Times.

The Trenton markets were open 197 days last year and sold, in addition to the auction market already reported, 10,043 loads of farm produce. These loads consisted of 164,697 bushels of produce, 26,873 dozens of eggs, and 162,428 pounds of poultry. The value of these sales was $283,398.

REPORT OF THE BUREAU OF STATISTICS AND INSPECTION

STATISTICAL AND RELATED WORK

Crop Reports

The New Jersey Crop Report was issued monthly, as usual, in co-operation with the crop reporters and the Bureau of Agricultural Economics, United States Department of Agriculture. In addition to the crop information, it has carried indices of the purchasing power and prices of New Jersey farm products, special articles on such subjects as "Business Cycles and American Industry," "Our Debt to the Farmers and our Responsibility," "Taxation of Agricultural Land," and reviews of books on agricultural topics.

Tariff on Agricultural Imports

At the request of the New Jersey Farm Bureau Federation, figures on some twenty-five New Jersey crops, supposedly affected by imports from foreign counties, were collected for the purpose of supplying information which could be used by representatives of the growers at the hearings of congressional tariff committees. Production statistics for New Jersey and the United States, imports and prices received by New Jersey farmers were compiled and submitted to the Bureau.

Principles of Cooperation

Because of the apparent absence of information on the principles of cooperation, a circular (153) was prepared for the use of persons engaged in promoting cooperative marketing. This circular entitled "The Principles of Consumers', Producers' and Credit Cooperation," is an historical outline, covering the field briefly from the time of Robert Owen to the present.

Index Numbers

In addition to the index numbers of New Jersey farm prices, published monthly in the Crop Report, index numbers of the New Jersey prices of hired farm labor, feedstuffs and fertilizer materials are now available from 1910 to the present time. These will be found, together with appropriate discussions, price tables, charts, etc., in Department Circular 155.

Statistical Handbook of New Jersey Agriculture

All available statistical information of importance on New Jersey agriculture was compiled into a handbook which will be printed sometime during the beginning of the next fiscal year. Wherever possible the information is presented on a county basis.

Motor Truck Receipts on the Newark Markets

In accordance with an agreement between the State Department of Agriculture, the Bureau of Agricultural Economics, United States Department of Agriculture, and the New Jersey State Agricultural College, a study of the motor truck as a carrier in supplying fruits and vegetables to the metropolitan area of New York was started on July 1, 1928. The State Department of Agriculture was charged with the collection of information showing the daily receipts in Newark and with their tabulation. The material was collected from both the wholesale market and the farmers' market. During the season the truck receipts figures were released daily to the newspapers and to interested shippers. A summarized account of the receipts from July 3 to December 31, 1928, will be found in Department Circular 158.

Food Consumption in New Jersey

For the purpose of having information on which estimates of the food consumption of the state might be based, surveys were conducted in South Amboy and Bridgeton as representative, or nearly so, of industrial and non-industrial areas. All retail sellers of food were visited and figures were collected showing their retail sales for one year. At both cities splendid cooperation was secured from local authorities and merchants. The results of this study will be published later.

Fruit and Vegetable Survey

Data were collected on the carload receipts of perishable food commodities of seven cities in New Jersey, truck receipts of fruits and vegetables by wholesalers for the same cities and information on the business done at farmers' markets at such cities. This information was gathered for the purpose of adding to our present knowledge of the food requirements of the New York Metropolitan Area and will be printed in part later.

Cost of Producing Honey

A study of the cost of producing honey in New Jersey was made. Approximately 300 field records were obtained from beekeepers in the cities, towns and farms. The results of this survey were published in Department Circular 159.

Dairy Statistics

Figures on the economics and statistics of the dairy industry of New Jersey were collected jointly by this Bureau and the Department of Agricultural Economics, New Jersey Agricultural Experiment Station. These were combined and published in Department Circular 162.

Statistical Study of Egg Marketing

This study, which analyzed some of the quantitative factors affecting the price of New Jersey eggs on the New York market and which was referred to in our last annual report, was published as Department Circular 148.

Japanese and Asiatic Beetle Quarantine Cost Survey

Preliminary work was started on a survey to determine the cost to farmers, nurserymen, sand shippers, hay shippers and others in meeting the provisions of the Japanese beetle and Asiatic beetle quarantines. Actual figures will be secured from the various agencies and individuals whose operations bring them within the provisions of the quarantines.

Federal Land Bank Study

During the past several years a change in policy in the administration of the farm loan system has resulted in greatly diminishing the benefits to farmers of New Jersey of the operations of the Federal Land Bank of Springfield. It is now impossible for local farm loan associations to secure loans on poultry farms and other highly specialized farms common throughout the state. Also extreme difficulty is met with in securing reasonable loans even on farms not in the highly specialized class and where the security is admittedly good. This difficulty results from an apparent inability on the part of the Federal Farm Loan Board to justify, on an agricultural basis, the high values on farm lands prevailing in the state. Data on farm incomes and costs in New Jersey are being assembled which it is believed will prove that these values generally are the result of larger money incomes on our farms due to the successful production of higher money value crops such as fruits and vegetables and to the natural advantage our farms have in their proximity to large consuming markets. A study of the loaning experience of the Federal Land Bank of Springfield to determine the nature of that experience on various classes of farms is also under way. It is hoped that this factual material may be of value in bringing about a change in attitude and in effecting a more liberal loaning policy toward agriculture in this state.

NURSERY INSPECTION SERVICE

The tables below summarize the inspection activities for the fiscal year ending June 30, 1929. The work of the Bureau in connection with the inspection of nurseries, the inspection of nursery stock from New England and the inspection of narcissus bulbs is also summarized.

FOREIGN STOCK INSPECTION

Spring of 1929

Origin	*Cases*	*Roses*	*Rhodo-dendrons*	*Dahlias*	*Palm Seed*	*Bulbs*	*Fruit*
England	22	22	..	..	..	..	..
Holland	75	62	13	..	..	..	..
Germany	7	5	..	..	..	2	..
Roumania	1	1	..	..	..	..	..
Ireland	1	1	..	..	..	..	..
Mexico	1	..	..	1	..	..	..
France	1	1	..	..	..	..	..
Brazil	2	..	..	..	2	..	..
Japan	39	..	..	..	..	39	..
France	3	..	..	..	..	..	3
Totals ..	152	92	13	1	2	41	3

DOMESTIC STOCK INSPECTION

(*Ornamental*)

Fall of 1928

Origin	*Cases*	*Bales*	*Cars*	*Shrubs*	*Boxwood and Evergreens*	*Palms and Green-House Plants*	*Perennials*	*Roses*	*Vines*	*Bulbs*
New York	6	3	1	3	1	..	..	3	2	1
California	3	..	12	..	2	8	..	5	..	..
Missouri	..	..	1	1	..	..	..	..	..	..
Ohio	194	11	..	..	..	47	156	2	..	..
Oregon	3	..	..	..	..	..	..	3	..	..
Illinois	8	..	..	..	..	..	5	..	2	1
Massachusetts	19	..	..	..	..	8	11	..	..	..
Virginia	..	..	2	..	2	..	..	..	..	..
Florida	1	..	..	..	..	..	1	..	..	..
Pennsylvania	1	1	..	..	..	..	..	..	2	..
Alabama	1	1	..	2	..	..	..	..	..	..
Connecticut	10	1	..	10	1	..	..	..	..	..
District of Columbia	..	1	..	..	1	..	..	..	..	..
Rhode Island	..	1	..	1	..	..	..	..	..	..
Tennessee	..	1	..	1	..	..	..	..	..	..
Porto Rico	1	..	..	..	..	1	..	..	..	..
Wisconsin	1	..	..	..	..	..	1	..	..	..
Michigan	5	..	..	..	..	..	5	..	..	..
Totals	253	20	16	18	7	64	179	13	6	2

DOMESTIC STOCK INSPECTION
(*Ornamental*)
Spring of 1929

Origin	*Cases*	*Bales*	*Cars*	*Bulbs*	*Roses*	*Shrubs*	*Perennials*	*Azaleas*	*Vines*	*Trees*	*Greenhouse Plants & Palms*	*Rhododendrons*	*Vegetables*	*Evergreens and Boxwood*	*Aquatics*	*Seeds*
New York	51	4	1	9	31	7	6	..	..	..	3	..	..	..	..	..
California	37	..	21	10	16	2	2	..	..	..	7	..	1	7	1	12
Oregon	8	..	1	..	4	4	..	..	..	..	..	..	..	..	1	..
Ohio	67	..	1	1	1	1	51	10	..	..	2	..	..	1	1	..
Virginia	17	..	..	..	..	16	..	..	..	..	..	..	..	..	1	..
Massachusetts	10	1	..	..	..	..	10	..	..	..	..	..	..	..	1	..
Minnesota	2	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..
New Hampshire	2	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..
Illinois	29	..	..	1	..	..	1	..	..	..	26	..	..	..	1	..
Delaware	6	1	..	..	..	1	..	..	2	1	..	..	3	..	..	..
Missouri	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
Pennsylvania	40	1	..	2	1	1	15	..	..	2	20	..	..	..	..	..
Wisconsin	16	..	..	..	..	..	16	..	..	..	..	..	..	..	..	..
Porto Rico	21	..	..	..	..	..	..	..	..	..	21	..	..	..	..	..
Florida	9	..	..	..	..	..	1	..	..	..	2	..	..	..	6	..
North Carolina	9	46	1	47	..	..	..	..	..	..	..	5	..	2	2	..
District of Columbia	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Maryland	6	1	..	..	..	2	..	5	..	..	..	..	..	..	..	..
Alabama	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Louisiana	11	..	..	..	..	..	..	..	..	..	11	..	..	..	..	..
Totals	344	54	25	72	53	35	105	15	2	4	92	5	4	10	14	12

DOMESTIC STOCK INSPECTION

(Fruit)

Fall of 1928

Origin	*Cases*	*Bales*	*Shipments with Crown Gall*	*Infected Trees Destroyed*
New York	1	6	..	..
Massachusetts	..	1	..	..
Delaware	3	..	..	..
Ohio	3	..	..	..
Totals	7	7	0	0

Spring of 1929

Origin	*Cases*	*Bales*	*Shipments with Crown Gall*	*Infected Trees Destroyed*
Delaware	3	..	..	..
Missouri	2	1	..	..
New York	8	15	..	..
Tennessee	..	1	..	..
Maryland	5	2	2	77
Minnesota	2	..	..	..
North Carolina	1	..	..	..
Michigan	..	2	..	..
Pennsylvania	7	..	..	..
Ohio	3	1	..	..
Connecticut	4	..	1	108
Totals	35	22	3	185

NURSERY INSPECTION

Five hundred and forty-nine nurseries and dealers' establishments were inspected and certificates were issued as follows:

General	397
Rose	14
Fruit	10
Greenhouse	10
Berry	9
Dahlia	7
Orchid	2
Fern	1
Privet	1
Dealers	98
Total	549

San Jose scale, oyster shell scale, pine leaf scale, juniper scale, elm scale, euonymus scale, scurfy scale, rose scale, tulip lecanium, shothole borer, lilac borer, poplar and willow borer, white pine weevil, leopard moth, boxwood leaf miner, bag worm, rhododendron lace bug, fire blight and spruce gall aphid are still somewhat troublesome, together with many other insects of lesser importance. The stock growing in the nurseries is inspected and where infestations of injurious insects are found the owners are required to either destroy or spray the infested stock. After this requirement has been complied with a reinspection is necessary. No certificates are issued until all requirements have been met.

Twenty-three nurseries that had spruce, pine and juniper trees infested with spruce gall aphid, pine leaf and juniper scale at the time of the annual nursery inspection were again written to and recommendations were given to the owners for the control of these insects. All of these nurseries were reinspected at a later date, after their infested trees had been sprayed. The results were very satisfactory, a complete control having been obtained where the spray was properly applied and weather conditions satisfactory.

New England Stock Inspection

The following table shows the inspection of nursery stock originating in the quarantined gipsy moth area of the New England States, by months. A total of 1,664 cars, cases and bales was inspected.

	Cases	*Carlots*
1928—		
July	36	..
August	15	..
September	68	..
October	171	1
November	224	4
December	106	..
1929—		
January	13	..
February	26	..
March	33	1
April	234	14
May	256	4
June	458	..
Totals	1,640	24

Special Inspections

During the past year forty-three special inspections were made in various parts of the state for persons requiring advice upon insect control, horticultural and nursery problems.

Special Certificates

Seventy-seven special certificates were issued during the year after the stock covered had been examined and found free from insect pests and diseases. These certificates were issued to private citizens and in some cases to nurserymen who wished to comply with the regulations of other states and foreign countries.

	Certificates Issued
1928—	
July	5
August	2
September	0
October	10
November	9
December	1
1929—	
January	1
February	3
March	7
April	4
May	23
June	12
Totals	77

Christmas Tree Inspection

Nine thousand two hundred and eight-nine Christmas trees were examined for gipsy moth. These trees originated in the slightly infested quarantined area of the New England States. Inspections were made in thirty-seven different towns throughout the state.

Potato Tuber Moth

Seed potatoes known to have originated on the Eastern Shore and shipped into New Jersey were inspected for the potato tuber moth and were found to be apparently free from this insect.

Narcissus Bulb Inspection

The inspection and certification of narcissus bulbs grown on the various bulb farms and nurseries was completed on August 30, 1928. This work was made necessary by Federal Quarantine No. 62 which requires that all narcissus bulbs moving from one state to another must either be certified as free from bulb flies and nematode or must be treated. Certification as to freedom from infestation is conditioned upon two inspections, the first during the blossoming period of the plants and the other when the bulbs are in storage. The general condition of most of the bulbs was satisfactory. Only 32,000 bulbs or 1.45 per cent had to be sterilized out of a total of 2,207,388 bulbs. These bulbs had a slight infestation of the lesser bulb fly. The usual method of sterilization was followed, which consists of submerging the bulbs in hot water maintained at a temperature of not less than 110° F. nor more than 111.5° F., for a period of one hour from the time the water regains the loss of temperature occasioned when the bulbs are submerged. For treating bulbs infested with nematode the treatment is the same except that the bulbs so infested remain in the water for a period of two and one-half hours. The stock of twelve dealers, which originated outside the state, was inspected, and one shipment from New York State was found to be slightly infested with the lesser bulb fly.

Grower	*Total Number of Bulbs*	*Number of Bulbs Not Sterilized*	*Number of Bulbs Sterilized*	*Certificates Issued*		*Number of Tags Issued*
				White	*Red*	*White*
Del-Bay Farm	282,800	282,800	....	1	..	4
Peter N. VanSteyn	143,500	143,500	....	1	..	10
John DeJager	20,000	20,000	....	1	..	1
John VanSteyn ...	47,000	47,000	....	1	..	12
Sikking Brothers ..	437,000	437,000	....	1	..	40
G. Overdevest	1,263,000	1,231,000	32,000	1	1	150
Rex D. Pearce.....	300	300	....	1	..	24
Chester J. Hunt ...	13,788	13,788	....	1	..	20
Totals	2,207,388	2,175,388	32,000	8	1	261

SEED CERTIFICATION AND RELATED WORK

White Potato Certification

General Comments

The planting operations, which were begun July 21, found the soil adequately supplied with water. The high temperatures, however, which prevailed during the last few days of July and the first week of August forced many of the growers to continue the planting in a very interrupted manner. Despite the abnormally high temperatures the plants appeared above ground within a very short time after planting, with an indication that the stand would be quite satisfactory. However, a 1.37 inch rainfall on August 12 and another of 2.76 inches on August 17 kept considerable portions of many of the fields under water for a week. The August rainfall, although only 0.85 inch above normal, destroyed many of the plants, not so much because of the total monthly precipitation, but because of a precipitation of 4.13 inches of rain within five days. Many of the low land fields with heavier soil remained waterlogged until the latter part of September, thereby greatly handicapping the spraying and cultivating operations. The September weather, although slightly more favorable to the growing crop than that of August, again delivered two heavy rains, one of 1.29 inches on September 6, and another of 1.02 inches on September 19. The rain on the latter date, accompanied by considerable wind, beat the plants to the ground. The month of October presented, in all probability, the most advantageous weather that the farmers of South Jersey have ever enjoyed. During the entire month rain fell on only three days and then for only 0.73 inch or 2.08 inches below normal. The growing plants in no way suffered from this abnormally low rainfall. On the other hand, tuber formation took place with surprising progress so that by October 27, the date of the first killing frost, a crop averaging 278 baskets per acre had been produced. The soil had by this time returned to a workable condition. Digging of the crop was not actively begun before November first. The several light rains of early November did not interfere noticeably with the digging. The digging season was completed November 22, interrupted by a 0.40 inch rain on November 19, but otherwise conditions were such that a crop of excellent quality and unusual brightness and color was harvested.

The growing popularity of the instantaneous dip treatment for potatoes is indicated by the fact that 91.5 per cent of the seed planted was disinfected by this method.

The fertilization rate per acre of the crop was approximately one ton of a 5-8-5. Experiments conducted on several of the farms with Ammophoska and Nitrophoska indicated that these fertilizers can be substituted in potato growing for those commonly used, with an appreciable saving of money and a tremendous saving of labor.

Spraying was in most cases again a much delayed operation. Fortunately weather conditions were such that late blight was not observed, and early blight, although of quite general occurrence, did not become a serious problem. Aphids and leaf hoppers were present in small numbers in almost every field. The green tomato worm, probably making its first appearance as an insect pest on the late crop, did devastate a few of the fields. The need of a vine-lifting attachment on every sprayer was very much emphasized this year.

Never in the history of seed growing in New Jersey has the roguing problem been more insignificant than during the past year. Black-leg and rhizoctonia, diseases common in fields planted with northern seed, were definitely more troublesome than leaf roll and mosaic.

The certification authorities will no longer attempt to drive the growers to acceptable grading. The respect of the grower for his present and past sales contacts should encourage him to deliver seed so graded that quality competition with northern seed will cause him no anxiety.

The behavior of Maine and Prince Edward Island seed during the past season, as compared with local seed grown a few years previous, has led many growers to the conclusion that seed grown in South Jersey one year or more has little future promise as parent seed but one need merely recall the ability of the Kandle strain to satisfactorily withstand fourteen growing seasons under South Jersey conditions with a never decreasing popularity. Seed grown in South Jersey, in a field from which not more than 3 per cent of the plants have been removed because of leaf roll, mosaic or spindle tuber, and in which field aphid were not noticeably troublesome, could be grown in the succeeding year with considerable security. The annual introduction of northern seed involves two major disadvantages, increased cost and Black-leg. The plan adopted by several of the growers to plant two-thirds of next year's acreage with their own seed and the balance with northern seed, appears to carry with it good judgment. A desirable objective for each grower could be centered in his attempt to procure a high yielding, disease-free strain, and then retain it for parent stock until such time that the roguing becomes excessive.

WHITE POTATOES

Acreage entered for certification:

County	*Acres*	*Per Cent*
Cumberland	333.75	56.94
Salem	225.50	38.46
Monmouth	20.00	3.41
Camden	5.00	.85
Burlington	2.00	.34
	586.25	100.00

Seed Source

	Bags	*Per Cent*
Maine	2,603	60.59
Prince Edward Island	1,620	37.70
South Jersey	61	1.44
New York	12	.27
	4,296	100.00

Seed Storage

	Bags	*Per Cent*
Del-Bay	2,930	68.20
Salem	934	21.74
Glassboro	171	3.99
Newark	144	3.35
Woodstown	69	1.61
Bridgeton	39	.91
Philadelphia	9	.21
	4,296	100.00

Seed Disinfection

	Bags	*Per Cent*
Dipdust	2,543	59.19
Semesan Bel	1,392	32.40
No treatment	352	8.19
Formaldehyde	9	.21
	4,296	100.00

Previous Cropping of Field

	Acres	*Per Cent*
Grain Stubble	48.00	8.18
Timothy Sod	129.25	22.46
Green Manure Crop	409.00	69.36
	586.25	100.00

Fertilization

Tons applied (586.25 acres)	576.48
Average application per acre	1,966.00 pounds
Heaviest application per acre	2,500.00 pounds
Lightest application per acre	1,000.00 pounds

Rate of Planting

Total bags of seed planted	4,296.00 bags
Average bags per acre	7.32 bags
Heaviest planting per acre	10.10 bags
Lightest planting per acre	4.50 bags

Rate of Planting—Weight of Seed Piece

(Spacing 32 x 11—17,968 hills per acre)

Bags per acre	*Weight of seed piece*
4.50	.601 oz.
7.32	.977 oz.
10.10	1.354 oz.

Preliminary Expense Per Acre

Seed ..... 7.32 bags at $5.75	$42.09
Fertilizer.....1,966 pounds at $38.00	37.35
	$80.44

SUMMARY OF INSPECTION RESULTS (1928)

	Cumberland	*Salem*	*Monmouth*	*Burlington*	*Camden*	*Total*
Acreage entered	333.75	225.50	20.00	2.00	5.00	586.25
Number of growers	47.00	22.00	2.00	2.00	1.00	74.00
Average number of acres per grower	7.10	10.20	10.00	1.00	5.00	7.92
Acres rejected first inspection	4.75	.50	0.00	0.00	0.00	5.25
Per cent rejected first inspection	1.40	.22	0.00	0.00	0.00	.89
Acres rejected second inspection	0.00	1.50	0.00	0.00	0.00	1.50
Per cent rejected second inspection	0.00	.66	0.00	0.00	0.00	.21
Acres rejected third inspection	0.00	0.00	0.00	0.00	0.00	0.00
Acres rejected total	4.75	2.00	0.00	0.00	0.00	6.75
Per cent rejected total	1.40	.88	0.00	0.00	0.00	1.15
Acres certified	329.00	223.50	20.00	2.00	5.00	579.50

VARIETAL DISTRIBUTION

	Acres Entered	*Acres Rejected*			*Acres Certified*
		First	*Second*	*Third*	
Cobbler	567.50	3.50	1.50	0.00	562.50
Green Mountain	8.75	1.75	0.00	0.00	7.00
Red Skin	10.00	0.00	0.00	0.00	10.00

SUMMARY OF THE WEATHER CONDITIONS

Variety	*July*	*August*	*September*	*October*	*November to (November 20)*
Number of days during which rain fell...	11.00	12.00	9.00	3.00	6.00
Heaviest rainfall (in inches)	1.02	2.76	1.29	.18	.22
Lightest daily rainfall (in inches)	.01	.01	.01	.04	.03
Total rainfall (in inches)	3.60	5.47	3.61	.73	1.10
Deviation from normal (in inches)	—.55	+.85	+.47	—2.08	...
Average humidity at 8 A. M.	76.70	82.50	76.70	80.50	...
Normal for the month at 8 A. M.	72.00	75.00	78.00	75.00	...
Percentage of possible sunshine	73.00	50.00	55.00	76.00	...
Deviation from normal (per cent)	+9.00	—13.00	—9.00	+14.00	...
Highest temperature reached	91.00	95.00	86.00	86.00	74.00
Average of the high temperatures	85.30	84.60	71.70	68.00	...
Normal for high temperatures	84.70	82.20	76.30	64.60	...
Lowest temperature reached	64.00	59.00	44.00	36.00	36.00
Average of the low temperatures	69.40	69.70	59.00	51.80	...
Normal for low temperatures	68.10	66.50	68.00	49.00	...

NOTE—The Bridgeton and Vineland official weather bureau stations have been inactive since July, 1928. The figures presented above are from official Philadelphia weather bureau reports, these being considered the best possible substitutes.

ACREAGE AND VARIETAL DISTRIBUTION FROM 1919 TO 1928

Year	Number of Growers	Acres Entered	Percentage Rejection	Varietal Distribution	
1919	13	153.50	74.00	Cobber	127.00
				Giant	22.00
				Green Mts.	2.75
				Mills Prize	1.25
				Norcross	0.50
1920	21	197.00	9.60	Cobbler	133.00
				Giant	42.00
				Mills Prize	10.00
				Red Skin	3.00
				Green Mts.	9.00
1921	85	947.25	38.00	Cobbler	826.00
				American Giant	90.00
				Norcross	15.00
				Superba	5.00
				Green Mts.	9.25
				Red Skins	2.00
1922	82	762.00	62.00	Cobbler	658.50
				Giant	79.50
				Green Mts.	13.00
				Norcross	11.00
				Red Skin	0.25
1923	54	451.25	48.00	Cobbler	435.00
				Green Mts.	9.00
				Burbank	5.00
				Spaulding	1.00
1924	66	757.50	13.10	Cobbler	771.00
				Spaulding	20.50
				Green Mts.	4.50
				Norcross	1.50
1925	84	716.00	24.00	Cobbler	711.00
				Green Mts.	4.00
				Norcross	1.00
1926	68	640.25	13.40	Cobbler	630.25
				Green Mts.	6.00
				Red Skin	4.00
1927	150	1,217.00	99.73	Cobbler	1,194.25
				Green Mts.	13.50
				Red Skin	9.25
1928	74	586.25	1.15	Cobbler	567.50
				Green Mts.	8.75
				Red Skin	10.00

PRODUCTION AND DISTRIBUTION

	1928	*1926*
Acres of seed certified	579.50	567.75
Total yield (field run) in baskets	160,571	148,666
Total yield (field run) in bushels	100,355	92,916
Average yield per acre in baskets	278.30	261.80
Average yield per acre in bushels	173.90	163.60
Bags certified seed sold	16,966	21,651
Bags sold locally	918	2,566
Bags sold elsewhere in state	15,048	15,968
Bags shipped out of state	980	3,117
Virginia	.....	2,888
Connecticut	.....	2
Pennsylvania	980	50
Long Island	.....	177
Bags sold untagged because of grading	.....	1,460
Bags sold locally	.....	.....
Bags sold elsewhere in state	.....	1,460
Bags shipped out of state	.....	.....
Total bags of seed shipped	16,966	23,111
Bags of seed unsold December 15	11,914	1,844
Baskets of seed retained for own use	22,935	27,429
Bushels of seed retained for own use	14,334	17,143

Sweet Potatoes

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

Year	*Acres Certified*	*Growers*
1921	101	24
1922	256	51
1923	79	16
1924	50	12
1925	45	11
1926	31	8
1927	20	6
1928	41	7

Although a circular letter announcing the availability of considerable certified sweet potato seed was sent to each county agent and to twenty-two out-of-state supposedly interested individuals, only a very small percentage of the seed was sold. The present demand trend points to the extinction of this phase of the certification work. The seed certified during 1928 was grown in Gloucester, Cumberland and Atlantic counties. No rejections were found necessary.

The 1928 acreage was distributed as follows:

Variety	*Acres*	*Growers*
Yellow Jersey	38.50	6
Red Jersey	2.50	2

Tomatoes

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

Year	*Acres Certified*	*Growers*
1921	128.00	16
1922	199.00	23
1923	219.00	32
1924	327.00	40
1925	582.00	58
1926	456.00	71
1927	871.00	74
1928	743.50	68

The 1928 acreage was distributed as follows:

Variety	*Acres*
Marglobe	329.50
Bonny Best	208.50
Baltimore	150.50
J. T. D.	55.00

The tomatoes certified for seed purposes were grown in Burlington, Camden, Gloucester, Salem and Cumberland counties. The above acreage of tomatoes yielded approximately six tons of seed. The growing appreciation of the importance of good seed will encourage more extensive certification. The sale of New Jersey certified tomato seed involves about $50,000 annually. The southern states have bought heavily from this supply.

Corn

Mr. David H. Rising of Easton, Pa., who cooperates with about fifteen farmers living in the vicinity of Alpha in the growing of corn for seed purposes, requested state certification for his seed corn. As the varieties which he presented were unknown to the agronomist at the New Jersey State Experiment Station, certification could not be immediately extended. Mr. Rising was informed that it would be necessary to conduct a varietal test comparing his varieties with those which the Experiment Station has definitely established as acceptable. The tabulated information on the following page gives the results of the first year's comparative test conducted on the farm of Mr. Frank Frace at Alpha.

SUMMARY OF CORN VARIETY TEST—WARREN COUNTY 1928

Frank L. Frace Farm, near Alpha

in cooperation with D. H. Rising, Easton, Pa.

Variety	*Source of Seed*	*Per cent of Stand*	*Average Yield of Shelled Grain per Acre*	*Average Shelling Percentage*	*Average Per cent of Moisture at Harvest*	*Average Yield of Stover per Acre*
		%	*bu.*	%	%	*lbs.*
Longfellow White Cap	D. H. Rising, Easton, Pa.	100	56.77	81.81	21.00	.....
L. Kernel Gold Dollar	D. H. Rising, Easton Pa.	62.5	34.85	72.12	25.30	2622.97
Mercer White Cap	Snook Bros., Trenton, N. J.	100	54.49	79.37	24.40	4359.23
Pilot	D. H. Rising, Easton, Pa.	100	50.65	77.75	24.80	4022.68
Hulsart Yellow	C. Satterthwaite, Allentown, N. J.	100	50.32	88.15	27.70	4474.97
S. Kernel Gold Dollar	D. H. Rising, Easton, Pa.	70	34.97	79.81	24.05	2134.76
Extra Early King	D. H. Rising, Easton, Pa.	100	49.60	75.96	24.65	3967.39
Reid's White Cap	W. H. Reid, Tennent, N. J.	100	48.83	81.60	29.55	3927.85
Yellow Multiple Cross	N. J. State Experiment Station	100	47.37	78.42	24.35	4312.63
White Multiple Cross	N. J. State Experiment Station	100	45.77	81.81	26.00	4351.14
Somerset Leaming	G. S. Herder, Whitehouse, N. J.	100	45.63	80.13	25.10	3681.81
Lancaster Sure Crop	E. Croshaw, Hightstown, N. J.	100	43.87	79.37	26.35	4165.10
Early King	D. H. Rising, Easton, Pa.	100	43.12	83.78	26.55	3893.94
Early Harvest	D. H. Rising, Easton, Pa.	100	31.33	78.41	24.15	1136.88

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 field inspections for transmissible diseases. In 1928 inspections were made for six dealers, for the most part in the Hammonton section of Atlantic and Camden counties.

County	*Acreage*
Camden	50.00
Atlantic	45.50
Cumberland	4.50
Monmouth	.75
	100.75

Disease Investigational Work

During the year forty-one 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 the Experiment Station were kindly extended for this work. A trip, which has been recorded separately, was made to Georgia to investigate conditions under which tomato plants are grown before being shipped to New Jersey. The primary object of this trip was to obtain information concerning the possibility of introducing into New Jersey a tomato disease known to occur in Georgia and reported to be of epidemic possibilities.

WHITE PINE BLISTER RUST

White pine blister rust scouting work was conducted in Sussex County during the summer of 1928. The area scouted begins at the Montague-Milford bridge over the Delaware River, and extends north to the New York State line, near Port Jervis and east to Clove Road and Shaytown; then south to Dingman's Ferry between the Delaware River and the state road; then southeast to Branchville and portions of Stokes State Forest.

White pine was found quite generally scattered over the wooded areas north to the New York State line. There are small patches of mature pines which could be classed as very fair timber. There are also mature trees here and there that are responsible for more or less reproduction, some of which is very good and making good growth.

Many abandoned fields are coming up to white pines, but the white pine weevil has taken a heavy toll and the trees are very shrubby. Trees along what was the border of these old fields are in much better condition and making progress. However, there are some good pine reproduction along the river. Hardwoods are the prevailing species through most of this section scouted. In many places white pines are coming in under these hardwood stands sufficient in number to make a good stand of pine when the hardwoods are cut. Even at this time some of the pines are coming through well on potential pine land. Much of the area in this section, now producing very little or nothing of value, would grow white pines once they were established, artificially or otherwise. Much of the area in and about Shaytown and Hainesville is given over to farming and dairying.

Ribes could not be considered a factor of any size in the management of white pine in this section of the state. They are localized, and in no one place could they be considered abundant. *Ribes americanum* are more plentiful than the other species. The bushes were more frequently found along the brooks and drainages than in other sites. In some instances they were found under cultivation, and in places where farms had been abandoned they were found growing along walls and near cellar holes. *Ribes vulgare,* or escaped cultivated red currants, were next in number and were found in the wooded areas in the vicinity of residential sections. *Ribes cynosbati* were found in only two instances and these were in the vicinity of Clove Road. One place was in a rocky pasture (more rocks than pasture); about thirty bushes were seen here. The other location was along a rocky drainage, where four bushes were noted. The above constitutes all the bushes found.

Blister rust was found in three locations; twice on *Ribes americanum*, and once on *Ribes vulgare*. Infection was not located on pine. It is believed, however, that there is at least one fruiting canker in the vicinity of Shaytown, where the rust was found on Ribes in two locations about a mile apart. It was very infrequent that pines and Ribes were found together, or even near.

The area scouted could be considered representative of that part of the county, but it could not be said that it is a fair sample of the whole county.

The weather conditions and transportation facilities handicapped the work to a considerable extent; otherwise, a much larger area would have been covered in the time expended. Rainy weather was the cause of considerable lost time in the field work. Transportation was by taxi, which alone could be used in getting to some advantageous

point, and to be picked up at a given point at the end of the day. Sometimes it was necessary to walk long distances before reaching a point where actual scouting for blister rust was worthwhile. It should not be considered, however, that the time spent walking through farming districts and hardwood areas was "lost motion," as it will be of advantage in the control work in the section covered. Such areas can be eliminated, as not needing further attention from a blister rust control point of view.

Floyd I. Dewald, Assistant State Forester, was consulted regarding conditions in the Stokes State Forest as to the amount and location of white pine and Ribes. He stated that there was considerable white pine scattered over parts of the Forest, including some fair stands of mature pines and very good reproduction. A trip was made with him to see some of the reproduction which was coming up in abandoned fields and pastures, and in hardwoods. Some plantations were seen with natural reproduction and mature pines. All seemed to be growing well except the young pines that had been attacked by the white pine weevil.

Several calls were made on private owners, and their cultivated Ribes examined for the rust. No infection was found.

Control of blister rust in the section covered could not be considered a difficult problem. Much of the area growing white pine could be handled by an efficient scout, and the areas where crew work would be necessary could be gone over quickly as the Ribes are not abundant. Such areas could be covered at a low cost per acre. Control measures should be started as soon as convenient and the clean-up made before blister rust becomes established in this pine-growing region.

This work was done cooperatively with the Federal Office of Blister Rust Control and the New Jersey State Department of Agriculture.

THE EUROPEAN CORN BORER

Federal scouting for the European corn borer in New Jersey during the summer and fall of 1928, which involved about one-third of the state, resulted in the finding of infestations in Morris, Middlesex, Bergen and Warren counties. The locations of these findings are shown in the following table:

Township	*Date* 1928	*Specimens Found*	*Resident*	*Host Plant*
Madison Borough, Morris Co. ..	Aug. 27	2	Tony Masuwci, 90 Ridgedale Ave., Ridgedale	Sweet Corn
North Brunswick, Middlesex Co.	Sept. 5	12	Poorhouse Farm, North Brunswick	Sweet Corn
Riverdale, Bergen Co.	Aug. 10 & Sept. 4	17	W. Handwerg, Riverdale & John Handwerg, Riverdale	Sweet Corn
White, Warren Co.	Aug. 29	2	John W. Stout, Bridgeville	Field Corn

At a meeting attended by state and federal authorities and by representatives from the sweet corn sections of the state, it was decided that New Jersey should cooperate with the Federal Plant Quarantine and Control Administration in an effort to exterminate the infestations. As a result the Legislature appropriated $1,500 for this purpose, it being estimated that the clean-up work would cost approximately $3,000.

During April and May, 1929, Federal crews with two field burners and other accessories visited the infested areas and burned them over. The acreages cleaned up and the costs are shown below:

Township	*Acres Cleaned Up*	*Oil Consumed Gallons*	*Cost of Oil*	*Other Costs, Labor, Storage Etc.*	*Total Cost*
Riverdale	22	3,200	$304.00	$555.65	$859.65
North Brunswick	27	4,200	399.00	593.01	992.01
White	26	500	42.50	505.10	547.60
Madison	39 Sq. Yds.	Cleaned up by owner.			
Totals	75	7,900	$745.50	$1,653.76	$2,399.26

Of the total cost $2,399.26, the state paid $1,199.73. The average cost per acre of the clean-up work was $31.99.

THE GIPSY MOTH *

This report marks the ninth year of the cooperative exterminative work against the gipsy moth in New Jersey. Scouting and other work was conducted as usual, the townships involved this year being Bedminster, Bernard, Branchburg, Bridgewater, Chester, East Amwell, Hanover, Hillsboro, Mendham, Monroe, Morris, North Plainfield,

Passaic, Piscataway, Princeton, Randolph, Readington, Warren and Duke's Park. The scouting was done solidly, and in addition to the area planned for the year scouting was done around the colonies found last year in the townships of Hillsboro, North Plainfield and Warren. Regular scouting was finished on May 1 and no infestations were found. However, while checking over old colonies in Piscataway Township, two 1928 hatched egg masses were discovered at Beechwood Heights. This area was then scouted closely and as a result 100 old egg masses were found about one-quarter of a mile north. Some larvæ were present, principally on the vegetation on a vacant lot. Fifty-two acres were immediately sprayed and 5,400 burlap bands were applied. By July 1 only eight caterpillars were found.

The quarantine work was conducted as usual.

RESULTS OF SCOUTING AND OTHER WORK

	First Year	*Second Year*	*Third Year*	*Fourth Year*	*Fifth Year*	*Sixth Year*	*Seventh Year*	*Eighth Year*	*Ninth Year*
Number of colonies found	855	216	98	48	9	3**	12	5	1
Number of egg masses found (new)	3,003,039	909	1,182	723	69	54	646	70	2

THE JAPANESE BEETLE SUPPRESSION PROJECT

This project, the organization of which was noted in last year's annual report, was continued along the same lines. Meetings were addressed as follows: Camp Burton, Monmouth County; Exchange Club, Haddon Heights; Kiwanis Club, Belmar; Township Committee, Florence; Chemistry Club, Senior Girls High School, Trenton; National Shade Tree Conference, Brooklyn, New York. Conferences were held with the spray campaign officers of Moorestown, Audubon, Haddon Heights and Collingswood and these municipalities borrowed state sprayers for their shade tree spraying. Other conferences took place with the horticulturist of the Essex County Park Commission, the superintendent of the Irvington Shade Tree Commission and the

* Work conducted in cooperation with the United States Plant Quarantine and Control Administration.

** Does not include colony of caterpillars found in Duke's Park.

secretary of the Federation of New Jersey Shade Tree Commissions. Exhibits were prepared for the Atlantic County Fair; the Watchung Hill Garden Club; the Abington Fair, Pennsylvania; Paterson Public Schools; Trenton Flower Show; the Trenton Interstate Fair; Haddon Heights Public Schools; East Orange Shade Tree Commission; Cape May County Historical Society and the teachers of vocational agriculture in New Jersey.

Publications

The following Department publications were printed and distributed to interested parties, so that they could meet particular Japanese beetle problems:

Circular 146. Information concerning Japanese Bettle Traps, by F. W. Metzger.
Circular 152. Questions and Answers on the Japanese Beetle, by V. I. Safro.
Circular 156. Community Shade Tree Spraying for protection from Japanese Beetle, by V. I. Safro.
Circular 163. The Control of White Grubs in Lawns and Golf Courses, by B. R. Leach.
Circular 168. Control of the Japanese Beetle, by E. R. Van Leeuwen.
Information Sheet, July 1, 1929. "Spraying for Japanese Beetle Control."

Other activities included the dissemination of information on the control of grubs in lawns, the inspection of public property upon request, the giving of advice on control, etc.

JAPANESE AND ASIATIC BEETLE REPORT*

Area of Distribution

During the period between July 1, 1928, and June 30, 1929, the Japanese beetle greatly increased the area of its distribution. More than 5,000 beetles were found in two small parks in the business section of Springfield, Mass. Several beetles were found at Alexandria, Va.; Del Mar, Md.; Sayre, Pa., and numerous beetles were found in Washington, D. C.; and in Baltimore, Md., and in several other towns and cities in Maryland. The region of general infestation in New Jersey, Pennsylvania and Delaware showed a normal change from the condition found in 1927. The advance of the insect in a northward direction has been retarded by the relatively elevated, hilly country lying north of the Fall line, and by a rugged area located in the south-

* By L. B. Smith. Quarantine work excluded.

western part of Monmouth County, New Jersey. The beetle has extended its range by natural spread to Washington's Crossing and Pennington, N. J. In general, the beetle is still scarce along the coast of New Jersey, although it has become established in the Pine Barrens and is locally numerous in that region. West of the Delaware River the beetle has progressed with remarkable slowness. The extension of its range appears to be hampered by the presence of high ridges. In the valleys between the hills it has become exceedingly numerous, and in the suburban areas surrounding Philadelphia it has caused very severe damage.

The area of densest infestation no longer coincides with the earliest areas infested about Riverton and Moorestown, N. J. The density has moved outward, and there is a general reduction in the degree of infestation in the central part of the infested area. Both scouting for the adult beetle and larvæ surveys made during 1928 indicate that the species is decreasing in the older infested areas and is increasing rapidly in the more recently invaded areas.

In the heavily infested areas damage by the Japanese beetle was as severe as in 1927 and was somewhat more extensive. The greatest amount of damage to ornamental plants occurred in the Philadelphia suburbs, in Trenton and in Camden and Gloucester counties, New Jersey. Severe injury to both field and sweet corn occurred in New Jersey and in Pennsylvania. The so-called "Second planting" of field corn in Bucks County, Pennsylvania, was probably the most seriously damaged. Thorough and timely spraying with lead arsenate continued to afford excellent protection to fruit and ornamental trees on which this material could be used. The problem of protecting early ripening varieties of peaches, small fruits and flowering shrubs still remains to be solved.

Research

Several phases of the biological and physiological studies have been completed during the past year and have been prepared for publication. The necessity of applying control measures to the soil for the purpose of destroying larvæ led to a study of the physiological resistance of the immature stages of the insect throughout the year. This study has been completed. The results obtained are used as a basis for determining the dosage of the soil insecticides which are required by the quarantine regulations during the various seasons of the year in order to obtain the most effective control. Studies are being made of the effect on the larvæ of the Japanese and Asiatic beetles of sub-lethal dosages of various insecticides, and also on the effect of submergence

in water for varying periods of time. This information is needed primarily in connection with treatments required by the quarantine regulations. The spread of the Japanese beetle into both northern and southern districts during the past year requires additional investigations on the relation of climate to the development and biology of the species. Information is especially needed on the ability of the insect to establish itself and on its probable economic status under these new environmental conditions. The establishment of the beetle in Virginia, where a greater variety of crop conditions occurs, necessitates a careful study of the food habits of the beetle and of the extent of the damage caused in that region, in order to determine what additional control measures may be required. Detailed studies are being conducted in the areas that have been invaded longest by the beetle to determine the changes in its distribution, the density of beetle population, periodic events in its annual life cycle, and the influence of temperature and food on its development and abundance, in order to obtain all facts which may lead to improved methods of control.

The difficulty of protecting early ripening peaches, small fruits and flowering shrubs from attacks of the Japanese beetle led to the inauguration of extensive investigations for the purpose of developing a repellent material which could be used for this purpose. The results secured during the past season indicate that coal tar, creosotes, empyreumatic oils, phenyls, and the cyclic nitrogen compounds as groups have repellent properties, and that esters, ketones, ethers, aldehydes, and essential oils are more likely to be attractive than repellent to the beetle. In order to obtain a repellent effect, it is necessary to establish a relatively high concentration of vapor. In all, forty-five compounds have thus far been found promising for use in the practical development of repellents. Tests with materials of a resinous nature which leave but little visible residue on fruit or foliage indicate that they have repellent properties. As part of a basic investigation of this subject, a study is being made of the properties of extracts of those plants on which Japanese beetles do not feed. It is believed that compounds which will be distinctly repellent may be isolated from these plants. Tobacco, potato, tomato and the foliage of coniferous trees are among the more important of the plants studied.

The difficulties encountered during the past few years in the manufacture of oleate-coated lead arsenate were due in part to the lack of an accurate method for determining the proportion of lead oleate present in the mixture. A method for determining the proportion of lead oleate in coated lead arsenate has been developed, and will enable manufacturers to standardize their product to a greater degree than

has hitherto been possible. A spray that is useful in destroying la numbers of Japanese beetles has been developed. It consists of a c bination of lead arsenate and a highly refined sugar syrup. Suc spray may be used very effectively on non-economic plants when beetle population is dense.

The value of pyrethrum and derris as contact insecticides has l studied. It was found that pyrethrum is most effective when extracted with acetone, or isopropyl alcohol, and that derris is r effective when it is extracted with coal tar naphtha or ethyl alc The studies reveal that, in so far as the control of the Japanese b is concerned, pyrethrum and derris are about equally effective.

Experiments show that satisfactory control of Japanese beetle corn can be obtained by using a dust composed of nine part hydrated lime and one part of powdered lead arsenate. The applic must be made early in the morning while the dew is still present o plants.

Tests were made with many styles of Japanese beetle traps, a new type has been designed which has very high efficiency in capt beetles. This trap has not yet been developed for commercial The principle involved will render the traps much more effective means of control than they are at the present time. The use of by the suburban property owner is becoming more general each and, for this reason, it is important to increase the efficiency o trap as much as possible. Extensive studies were made of va types of baits for traps, and distinct improvements were made in composition.

Investigational work with hot water used as a dip to destro immature stages of the Japanese beetle has been about completed. immersion of the roots of certain types of nursery plants in hot for a short period of time has been found to be a simple, quic effective method for destroying infestations occurring in the cavities and masses of soil. The treatment consists in heating th about the roots to a temperature of 112° F. and maintainin temperature for a period of 70 minutes. This treatment has applied successfully to several varieties of herbaceous plants, inc *Astilbe, Baptisia, Coreopsis, Dahlia, Hosta, Limonium, Lythrum Phlox, Sedum* and *Pæonia.* It has also been used on deciduous such as *Forsythia, Syringa, Spiræa,* and *Weigelia.* The experi work with naphthalene as a soil fumigant has been developed to a where it is now possible to recommend this chemical as a disin for potting soil which is infested with the immature stages of the To fumigate potting soil, five pounds of naphthalene flakes are

little increase in the distribution of *Centeter cinerea* in the original colony which was established near Moorestown, N. J. It now occupies an area of approximately 80 square miles. Further liberations of this parasite will be made in the future in order to establish colonies throughout the range of the Japanese beetle. Additional liberations of *Prosscna siberita* were made in the vicinity of Moorestown in order to strengthen the original colony which was established at that point a year ago. A large shipment of this species has been received and will be released during the summer of 1929. The colony of *Dexia ventralis* which was established near Haddonfield, N. J., apparently maintained its strength during the past season. There was no great increase, however, in the numbers of the parasites over those recovered in 1927. Attempts are being made to establish this species at Moorestown, and Westbury, L. I., since it is believed that this species may be useful in the control of the Asiatic beetle and the Oriental Garden beetle. The *Ortalid* parasite collected in India was released at Philmont, Pa. It is too early as yet to determine whether any of these became established. *Tiphia popilliavora* which is, undoubtedly, the most promising parasite which has been introduced, extended its area of distribution to approximately two square miles near Cinnaminson, N. J. It was possible to collect from the parent colony 2,500 females which were used in establishing 25 new colonies. These were released mostly in the suburban area surrounding Philadelphia. It is planned to establish about 200 new colonies during the season of 1929 providing the original colony maintains its present strength. Four colonies of *Tiphia vernalis* are now established in New Jersey and Pennsylvania. These are growing in strength and large importations this year will enable the establishment of a number of additional colonies in Pennsylvania, New Jersey and Long Island. Additional work is being carried on with several species of parasites which have not as yet been established in this country. It is believed that further work will enable the Department to establish several additional species in the infested area. Every effort is being made to import as large numbers as possible of the parasites which are now already established in order that numerous colonies of each may be liberated throughout the range of the Japanese beetle.

JAPANESE BEETLE QUARANTINE WORK*

The Japanese beetle quarantine work in New Jersey involves many phases, such as scouting for the beetles in the vicinities of nurseries, greenhouses, sand pits, clay pits, loading points, storage points, fumigation supervision, soil and plant treatment supervision, etc., most of which can not be discussed in this report. The accompanying tables, however, will give an idea of the vast amount of inspection work involved in the quarantine program. All tables are for the calendar year 1928.

Farm Products

There was a great deal less activity in the farm products phase of the work this calendar year, as compared with that of last year. There were nineteen inspection points created and maintained in conformity with the regulations, with several subsidiary inspection points which were of an appointment nature. As will be noticed, 1,085,794 packages were certified, from which 49 beetles were removed. A majority of the beetles so removed were from cut flowers. Last year 1,793,735 packages were certified representing a decrease of 39.4 per cent. This year farm products were certified on a basis of the scouting done at the farm from which the products originated. In cases where farm products were tendered for inspection and the records indicated that no scouting had been done on this particular farm, that shipment was inspected and subsequent scoutings made. It was, however, necessary in some instances to inspect all of the products brought for certification, because several brokers would buy quantities of products from many growers.

Most of the farm products inspected this year were at the Hammonton market. The infestation in this locality was appreciably greater than last year, so a more rigid method of inspection was necessary before granting certification. On August 28, during the height of the season, notices were posted in the market informing the various brokers and growers that if it were their intention to ask for certification on berries it would be necessary for the growers to apply to the Department for the inspection of their berry field. Form 106, headed "Application for Inspection for Berry Field" was supplied and distributed among the growers. About eighty-nine requests were received for this inspection service. Since a great majority of the growers cannot read or write English and in view of the fact that

* Work conducted in cooperation with U. S. Plant Quarantine and Control Administration.

they would bring perhaps two or three crates each week to the market, it was necessary to make a general scouting survey of this section. A total of 1,456 farms was scouted, findings were duly recorded and the matter of inspection governed accordingly.

As the season advanced it was found that practically all of the berry fields, with the exception of a few very isolated ones, were heavily infested. Some adult beetles were found in berries duly certified, so that it became necessary to dump each and every box of berries for inspection. The inspectors were cautioned to be particularly careful with their method of inspection, because of the perishability of the product handled, but some damage was inevitable, and that doubtless caused the decrease in the number of applications for inspection of this commodity. This type of inspection was a great expense to the Department and after a careful survey, it was found that it cost about 5 per cent of the value of the berries to inspect them. The state inspected 11,881 crates of berries from this market, and from a reliable source it was learned that 88,785 crates of berries were shipped from the market, with a value of $308,753.00. Of this output about 13.88 per cent of the crop was certified or $41,315.15 worth. Without figuring any additional expenses, it cost $2,210.24 for salaries of inspectors to do this work.

At the Paterson Island Market 138,252 units of farm products were inspected this calendar year, as compared with 47,615 units last year. A total of 21,779 bales of hay, straw and moss was certified, after fumigation, representing an approximate decrease of 50 per cent over last year. The nature of fumigation was substantially the same as last year.

Apples, Peaches, Etc.

As was the custom last year, inspectors were dispatched from the various field offices to approve the method of pack and grade of the shippers of this type of commodity. Ninety methods of pack and grade were duly approved. From time to time inspectors were sent to the various farms where method of grade had been approved in order to ascertain whether or not there was strict compliance with the regulations.

The tomato situation this year was also disappointing as approximately 135,861 units of tomatoes were shipped and in a number of cases only one boatload from each point was sent to the south. This was due to the conditions prevailing at the time tomatoes were fit to be sold. They were of a very inferior nature and it is not believed they lasted through the trip.

INSPECTION POINTS, NUMBER OF PACKAGES CERTIFIED AND BEETLES REMOVED

Place	*Period Operated*	*Hours per day open*	*Number of Men*	*Packages Certified*	*Beetles Removed*
Bridgeton	July 5—Sept. 30	8	2	37,605	0
Cedarville	July 5—Sept. 30	2	0	52,312	0
Del-Bay Farm	July 5—Sept. 30	8	1	22,096	0
Glassboro	June 15—Oct. 15	8	7	19,388	25
Hammonton Market	July 2—Sept. 30	8	17	19,106	22
Landisville	July 5—Sept. 30	8	1	127,297	0
Malaga	July 5—Sept. 30	8	1	75,420	0
New Brunswick	June 15—Oct. 15	8	1	589	0
Newfield	July 5—Sept. 30	8	1	136,709	0
Paterson Island Mkt	July 5—Sept. 30	14	2	138,252	0
Pedricktown	July 5—Sept. 30	8	1	135,861	0
Riverton	June 15—Oct. 15	8	1	48,016	2
Rutherford	June 15—Oct. 15	8	1	8,713	0
Swedesboro	July 5—Sept. 30	8	5	161,013	0
Trenton	June 15—Oct. 15	8	1	13	0
Vineland	July 5—Sept. 30	8	1	33,904	0
Wheat Road	July 5—Sept. 30	8	1	65,910	0
Woodruff	July 5—Sept. 30	4	0	3,590	0
				1,085,794	49

TOTAL NUMBER OF PACKAGES OF FRUIT, VEGETABLES AND CUT FLOWERS CERTIFIED IN THE REGULATED AREA OF NEW JERSEY, SUMMER OF 1928, AND NUMBER OF BEETLES REMOVED

Articles	*Number of Packages*		*Number of Beetles Removed*
Corn	1,323		0
Beans	49,102		0
Lettuce	3,044		0
Peas	13,987		0
Vegetables with tops	147,167		0
Misc. vegetables	494,210		0
Misc. fruits	374,523		24
Bunches of bananas	833		0
Boxes of cut flowers	1,153		25
Total packages	1,085,794	Total beetles	49

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

State	*Bales of Hay*	*Bales of Straw*	*Bales of Moss*	*Total Bales*
Connecticut	111	2,152	756	3,019
District of Columbia	...	127	689	816
Delaware	...	...	273	273
Florida	...	85	100	185
Georgia	...	...	374	374
Illinois	...	...	20	20
Indiana	...	492	14	506
Louisiana	...	244	...	244
Massachusetts	...	1,333	891	2,224
Maryland	...	1,395	1,446	2,841
Maine	...	...	5	5
Michigan	...	124	3	127
Mississippi	...	...	100	100
North Carolina	...	...	1,130	1,130
New York	767	520	1,627	2,914
Ohio	199	481	212	892
Oklahoma	...	137	...	137
Pennsylvania	...	1,600	603	2,203
Rhode Island	...	260	123	383
South Carolina	...	...	54	54
Tennessee	...	...	25	25
Virginia	...	123	417	540
West Virginia	...	2,640	103	2,743
Foreign	...	...	24	24
Totals	1,077	11,713	8,989	21,779

Moss, Hay and Straw Fumigation

Practically all of this type of fumigation was done by inspectors after having first been trained under the Treating Division. There were 11,835 bales or 91 carloads of hay, straw and moss so fumigated. Before a car could be fumigated, it was necessary to see that all openings were closed and sealed and made air-tight. This was done by the use of sheathing or roofing paper and laths, one door being sealed before a car was loaded. After both ends of the car were loaded, an area of 30 square feet was left at the loading door over which paper was spread. This was provided for the application of the calcyanide. Three pounds of calcyanide was required for each car fumigated. This was dusted evenly over the area left for that purpose. A pepperpot lid

was inserted and a handle attached to the can in the open. The calcyanide was dusted from the closed door of the car toward the open door in order that the person applying same could leave as soon as the operation was completed. The door was then closed and sealed and remained so for a period of one and one-half hours. After the fumigation period one door was partly opened for five minutes to allow aeration of the car. This opening was protected with a screen to prevent reinfestation. The residue remaining after the fumigation was removed after the aeration period. The door was then closed and a warning card bearing the date of fumigation was attached to each door of the car. Several tests were made at various times by the Treating Division in cars of hay, straw and moss which were fumigated.

Total bales of hay fumigated	954
Total bales of straw fumigated	8,478
Total bales of moss fumigated	2,403
Total bales fumigated	11,835

Nursery and Ornamental Stock

Japanese beetle quarantine offices in New Jersey and the area under the jurisdiction of each are as follows:

TRENTON—(State Headquarters), Broad Street, Trenton. Field office maintained in conjunction with same takes care of Mercer County.

RUTHERFORD—Park Avenue and Glen Road.
Sussex, Morris, Passaic, Bergen, Essex and Hudson counties.

CAMDEN—1590 Pierce Avenue.
Burlington and Ocean counties and the northern half of Camden County.

NEW BRUNSWICK—Throop Avenue and Suydam Street.
Monmouth, Mercer, Middlesex, Somerset, Hunterdon, Warren and Union counties.

GLASSBORO—121 Main Street.
Lower half of Camden County, Gloucester, Atlantic, Salem, Cumberland, and Cape May counties.

Total number of classified nurseries	145
Total number of classified greenhouses	62
Total number of nurseries and greenhouses	134
Total miscellaneous dealers including brokers, laurel dealers, etc.	42
Total classified establishments	383

Total square feet of glass ..... 5,768,793 Total acres 9,452 11/16

TOTAL NUMBER OF PLANTS CERTIFIED FOR SHIPMENT TO EACH STATE EACH MONTH

State	January	February	March	April	May	June	July
Alabama	6,548	6,006	8,636	6,319	4,754	10,319	4,409
Arizona	207	72	250	381	72	73	27
Arkansas	619	526	1,262	3,767	1,296	1,182	90
California	5,718	6,975	10,107	5,406	5,102	3,276	947
Colorado	3,103	531	4,476	6,965	4,596	7,308	7,300
Connecticut	33,550	30,664	190,578	160,066	176,420	193,417	115,889
Dist. of Columbia.	31,328	11,803	75,317	63,972	34,732	31,575	10,557
Delaware	551	55,175	1,293,826	334,421	121,983	95,643	25,590
Florida	7,029	4,203	20,049	30,569	34,083	2,919	2,234
Georgia	14,322	35,263	15,220	20,193	12,980	20,909	2,864
Idaho	234	153	427	1,194	381	177	11
Illinois	92,399	106,206	159,658	802,402	150,677	165,383	84,318
Indiana	5,311	3,406	44,588	31,662	22,273	18,549	7,601
Iowa	29,541	40,233	21,526	26,646	40,345	19,098	10,119
Kansas	2,560	2,077	7,400	9,949	17,104	1,782	207
Kentucky	359	1,948	14,655	26,704	10,309	8,702	10,246
Louisiana	2,581	2,033	3,703	3,387	5,775	973	286
Massachusetts	53,614	42,606	212,024	321,005	260,516	216,414	243,395
Maryland	25,529	35,357	125,671	290,151	137,762	559,581	61,994
Maine	2,394	3,592	7,870	29,808	41,814	134,368	40,092
Michigan	6,538	11,096	109,766	93,341	76,674	34,251	43,711
Minnesota	955	7,422	16,144	58,334	13,778	19,252	6,938
Mississippi	1,237	1,237	2,332	3,191	1,510	1,905	53
Missouri	9,072	10,142	28,930	70,730	60,246	26,786	17,180
Montana	110	16	5,523	1,448	1,016	4,586	7
North Carolina	8,097	15,448	36,809	39,366	25,869	8,425	14,940
North Dakota	4	55	330	966	637	897	509
Nebraska	397	574	2,979	7,530	3,889	8,024	5,060
Nevada	1	8	61	273	116	12	12
New Hampshire	1,609	178	7,125	113,154	29,978	42,892	22,649
New Mexico	271	290	1,322	2,105	1,229	118	12
New York	107,177	1,314,123	282,498	423,075	615,515	1,788,732	444,623
Ohio	88,516	397,253	236,667	247,690	202,891	137,544	59,661
Oklahoma	1,329	2,544	14,253	5,439	2,333	1,147	2,622
Oregon	454	4,967	2,504	1,748	3,045	1,678	38
Pennsylvania	26,238	23,680	143,907	334,107	326,910	446,821	221,076
Rhode Island	6,566	3,688	68,654	56,028	52,549	41,668	26,853
South Carolina	3,835	5,409	12,955	17,138	7,976	4,727	7,001
South Dakota	117	36	390	1,863	1,982	3,413	20
Tennessee	8,108	11,799	320,316	21,409	11,259	14,266	3,041
Texas	4,605	7,134	14,345	15,597	7,349	3,703	970
Utah	46	149	1,728	923	344	101	84
Virginia	21,882	108,994	79,768	117,452	72,579	58,307	26,607
Vermont	2,726	667	7,183	17,971	20,279	36,549	35,179

TOTAL NUMBER OF PLANTS CERTIFIED FOR SHIPMENT TO EACH STATE EACH MONTH—Continued

State	*January*	*February*	*March*	*April*	*May*	*June*	*July*
Washington	148	1,635	3,691	2,999	3,016	328	1,340
West Virginia	1,034	1,111	30,586	70,142	37,640	21,379	3,682
Wisconsin	1,050	6,343	8,185	57,788	20,105	43,913	6,489
Wyoming	13	....	120	759	1,042	47	14
Foreign	2,637	3,540	6,394	29,816	22,413	46,380	37,743
Totals	622,269	2,328,367	3,662,708	3,987,349	2,707,143	4,289,499	1,616,290

TOTAL NUMBER OF PLANTS CERTIFIED FOR SHIPMENT TO EACH STATE EACH MONTH

State	August	September	October	November	December	Total
Alabama	1,232	842	7,791	10,254	13,866	80,976
Arizona	....	62	218	292	51	1,705
Arkansas	24	303	797	1,950	193	12,009
California	3,660	7,578	13,106	6,310	7,384	75,569
Colorado	4,929	387	9,004	22,448	436	71,483
Connecticut	37,078	25,295	61,221	18,401	33,799	1,076,378
Dist. of Columbia	5,549	8,488	29,141	11,597	7,940	321,999
Delaware	48,420	9,780	17,392	72,683	59,886	2,135,350
Florida	7,192	5,188	35,435	36,083	10,424	195,408
Georgia	7,005	7,191	29,280	45,203	26,800	237,230
Idaho	4,015	178	851	109	321	8,051
Illinois	101,883	132,198	409	194,985	169,931	2,344,449
Indiana	2,585	3,474	10,636	8,437	7,641	166,103
Iowa	10,636	15,118	27,188	42,650	26,104	309,204
Kansas	224	1,953	4,693	12,210	22,517	82,676
Kentucky	1,455	1,355	9,326	8,230	1,044	94,333
Louisiana	4,052	3,570	3,640	7,298	7,570	44,868
Massachusetts	50,188	42,895	85,392	67,564	33,660	1,629,273
Maryland	77,782	58,984	180,683	122,942	103,006	1,779,442
Maine	5,745	6,684	14,804	2,939	4,407	294,517
Michigan	16,663	19,512	39,290	123,508	30,493	604,843
Minnesota	2,372	6,680	5,412	9,707	1,065	148,059
Mississippi	6,121	53	1,061	1,830	2,965	23,495
Missouri	857	18,855	16,420	13,891	21,075	294,184
Montana	6	170	433	343	48	13,706
North Carolina	7,137	4,364	48,508	78,218	14,346	301,527
North Dakota	15	336	238	12	63	4,062
Nebraska	155	6,455	3,086	4,283	146	42,578
Nevada	5	....	66	122	7	683
New Hampshire	4,584	3,114	7,913	2,252	534	235,982
New Mexico	....	119	868	201	73	6,608
New York	142,708	96,264	157,102	275,009	502,216	6,149,042
Ohio	102,615	57,291	237,111	212,870	157,198	2,137,307
Oklahoma	393	2,277	961	1,706	561	35,565
Oregon	111	133	2,472	498	48	17,696
Pennsylvania	75,532	48,221	73,446	93,833	24,683	1,838,454
Rhode Island	40,310	11,600	18,680	12,521	4,732	343,849
South Carolina	2,229	1,338	48,407	63,008	8,610	182,633
South Dakota	12	106	516	41	52	8,548
Tennessee	4,876	3,055	9,143	12,402	4,731	424,405
Texas	203	932	10,520	17,475	20,851	103,684
Utah	24	1,073	460	335	33	5,300
Virginia	10,694	10,070	45,936	39,136	18,237	609,662
Vermont	20,324	4,051	4,114	3,018	1,121	153,182

TOTAL NUMBER OF PLANTS CERTIFIED FOR SHIPMENT TO EACH STATE EACH MONTH—Continued

State	*August*	*September*	*October*	*November*	*December*	*Total*
Washington	534	856	4,030	3,497	222	22,296
West Virginia ...	6,702	5,166	6,321	6,534	3,678	193,975
Wisconsin	2,644	4,178	12,963	25,001	11,676	200,235
Wyoming	12	61	221	255	1,083	3,627
Foreign	1,620	5,876	3,136	7,238	3,466	170,259
Totals	823,112	643,729	1,483,841	1,701,329	1,370,893	25,236,529

SAND, SOIL, EARTH, PEAT, COMPOST AND MANURE

Total number of carloads of each class of sand, soil, marl, peat, etc., certified for shipment from the regulated area of New Jersey, 1928:

Destination	*Construction*	*Molding*	*Glass*	*Clay*	*Marl*	*Earth, Soil, Compost*	*Peat*	*Gravel*	*Total*
Alabama	1	..	..	..	..	..	..	..	1
Arizona	..	..	..	..	1	..	..	..	1
California	..	2	..	..	15	..	4	..	21
Colorado	..	..	..	..	..	..	2	..	2
Connecticut	41	452	..	81	..	..	8	..	582
District of Columbia.	13	43	1	..	..	..	3	..	60
Delaware	3	2	..	..	..	..	1	..	6
Florida	3	..	..	..	2	..	..	..	5
Georgia	3	2	..	..	1	..	..	..	6
Idaho	..	..	..	..	..	..	1	..	1
Illinois	47	21	..	14	14	..	2	..	98
Indiana	8	2	..	..	36	..	..	..	46
Iowa	..	..	..	..	3	..	2	..	5
Kansas	..	..	..	..	1	..	..	..	1
Kentucky	1	..	..	..	1	..	..	..	2
Louisiana	1	6	..	..	1	..	..	..	8
Massachusetts	420	769	3	216	4	..	9	..	1,421
Maryland	101	522	3	16	3	..	1	..	646
Maine	9	42	..	64	..	..	..	..	115
Michigan	18	25	..	13	5	..	..	..	61
Minnesota	..	..	..	..	2	..	..	..	2
Mississippi	1	1	..	..	..	..	..	..	2
Missouri	..	..	..	..	4	..	..	..	4
North Carolina	4	5	..	..	2	..	1	..	12
New Hampshire	14	29	..	2	..	..	..	..	45
New York	593	1,047	6	210	15	14	14	101	2,000
Ohio	248	159	2	39	8	1	6	..	463
Oklahoma	..	..	..	..	3	..	..	..	3
Oregon	..	7	..	..	..	..	..	..	7
Pennsylvania	220	536	4	55	22	..	13	..	850
Rhode Island	30	121	..	39	..	..	1	.	191
South Dakota	..	..	..	..	1	..	..	..	1
Tennessee	6	14	..	..	3	..	..	..	23
Texas	..	..	..	..	3	..	..	..	3
Virginia	9	47	..	..	4	..	1	..	61
Vermont	3	5	..	3	..	..	..	..	11
Washington	..	..	..	..	2	..	..	..	2
West Virginia	16	12	..	20	2	..	1	..	51
Wisconsin	2	14	..	..	2	..	..	..	18
Foreign	67	390	5	217	8	..	..	..	687
Totals	1,882	4,275	24	989	168	15	70	101	7,524

NUMBER OF CARLOADS OF EACH CLASS OF SAND, SOIL, MARL, PEAT, ETC., CERTIFIED EACH MONTH AND TOTALS

Month	*Construction*	*Molding*	*Glass*	*Clay*	*Marl*	*Earth, Soil, Compost*	*Peat*	*Gravel*	*Totals*
January	67	160	1	16	16	..	3	..	263
February	78	186	..	40	8	..	3	..	315
March	90	249	..	32	14	2	7	..	394
April	157	267	3	54	10	2	10	..	503
May	113	366	6	147	12	4	13	75	736
June	148	470	2	80	14	..	4	26	744
July	113	408	3	90	14	1	2	..	631
August	139	367	3	64	16	1	3	..	593
September	195	295	6	154	25	1	9	..	685
October	332	730	..	182	13	2	11	..	1,270
November	281	559	..	81	17	1	3	..	942
December	169	218	..	49	9	1	2	..	448
Totals	1,882	4,275	24	989	168	15	70	101	7,524

NUMBER OF CARLOADS OF MANURE CERTIFIED FOR SHIPMENT TO EACH DIFFERENT STATE RECEIVING SHIPMENTS DURING THE YEAR AND TOTAL

State	*Carloads*
Connecticut	26
District of Columbia	5
Delaware	28
Florida	3
Massachusetts	19
Maryland	41
Maine	3
New York	3
Ohio	1
Rhode Island	1
Virginia	7
Vermont	1
Total amount certified	138 carloads

TOTAL MEN EMPLOYED AT ALL OFFICES

	January	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
Scouting	0	0	0	0	0	0	71	69	53	0	0	0
Farm products	0	0	0	0	0	0	53	61	44	16	0	0
Nursery and Greenhouse	17	18	19	22	20	20	2	2	1	26	33	28
Administrative	14	14	14	16	17	17	15	15	17	16	16	16
Totals	31	32	33	38	37	37	141	147	115	58	49	44

TOTAL AMOUNT OF ARTICLES CERTIFIED AND NUMBER OF BEETLES REMOVED IN THE STATE OF NEW JERSEY, JANUARY 1 to DECEMBER 31, 1928

	Total Amount	*Beetles Removed*
Packages of farm produce	1,085,794	49
Bales of cut flowers	1,153	25
Bales of hay, straw and moss	21,779	..
Plants certified	25,236,529	..
Carloads of sand, soil, etc.	7,524	..
Carloads of manure	138	..
Total beetles removed		74

BEE INSPECTION SERVICE

Aside from the lack of information regarding bee handling, the outstanding obstacle to greater advancement in the beekeeping industry in New Jersey is infectious bee diseases, particularly American foulbrood.

During the latter part of the bee inspection season of 1928, it became increasingly evident that closer supervision of the work of bee disease eradication by the individual beekeeper was necessary if the work was to be carried on satisfactorily. In too large a percentage of cases, from one cause or another, the beekeeper was not getting rid of bee disease.

When confronted with these facts the policy of assuming that the beekeeper would eliminate disease after he had been given directions and orders to do so was abandoned. Instead of leaving it to the beekeeper entirely, a re-examination of each infected apiary was made to make sure that a clean-up had been effected. This policy was put into effect at the beginning of the 1929 bee inspection season. It has resulted in several rechecks being made in some apiaries but will result

in more complete eradication of bee disease than was the case under the former policy.

Bee Disease Control

During the fiscal year 309 apiaries, containing 6,052 colonies of bees, were inspected. Seventy-four colonies were in box hives, 83 in immovable frame hives and the remainder, 5,948, in some type of movable comb hive.

Three hundred and sixty-nine cases of American foulbrood were found in 96 apiaries. In 10 apiaries 27 cases of European foulbrood were discovered. Three hundred and fifty-nine colonies were infected with sacbrood.

It is interesting to note that European foulbrood is no longer found in such a degree as to constitute a menace to New Jersey beekeeping.

Sacbrood continues to be plentiful but there is no evidence that it is, as yet, of economic importance aside from the possibility of its being mistaken for American foulbrood or vice versa.

Scouting Queen-Rearing Areas

In order to safeguard the interests of New Jersey queen-rearers, all discoverable hives of bees within a two-mile radius of each queen-rearing apiary have been examined twice during the inspection season and all bee diseases found in the area followed up until they were eliminated.

Queen-Rearers' Certification

Queen-rearers' apiaries were inspected, found free of disease and certified as follows: James C. Crawford, R. D. No. 6, New Brunswick, July 25, 1928, and May 18, 1929; Robert B. Spicer, R. D. Wharton, July 6, 1928, and May 17, 1929; Albert G. Hann, Glen Gardner, July 18, 1928, and May 7, 1929.

Microscope

The traveling microscope has been an invaluable aid both in examining doubtful specimens in the field and in diagnosing samples of dead larvæ sent by mail. Twenty such samples were received by mail during the fiscal year. This increases the service of the Department for beekeepers.

Bees Destroyed

Because of a preference on the part of the bee owners in some cases and on account of indifference or neglect to give the prescribed treatment for the eradication of bee disease in others, 59 colonies were killed and burned.

Mailing List

As an aid in locating all bees within an area where inspections are are being made and also to furnish literature to those interested, an attempt was made to revise the mailing list of beekeepers' names by sending to each one on the list a questionnaire, asking for a statement of their present bee holdings and the names of any other beekeepers known to them. This resulted in an addition of over 500 names and the removal of about 200, a net gain of approximately 300. To all the new names a copy of "A Manual of Bee Husbandry" was sent.

Exhibits

Educational exhibits of bees, honey and beekeepers' appliances were set up at the Trenton Fair and the Armory, Trenton, during Agricultural Week.

Mites

A beekeeper at Waterford reported mites in his bee colonies. Upon investigation no cause for alarm could be seen. A mite specialist to whom samples were submitted pronounced them harmless to bees so far as is known.

BUREAU OF STATISTICS AND INSPECTION PUBLICATIONS

The following circulars were prepared and distributed by the Bureau during the past year:

150. Results of the Eighth Year's Work against the Gipsy Moth in New Jersey.
151. Direction for the Treatment of American Foulbrood. (Revised.)
152. Questions and Answers on the Japanese Beetle.
153. The Principles of Consumers,' Producers' and Credit Cooperation—An Historical Outline.
154. The Ostomidæ of New Jersey.
155. New Jersey Prices of Hired Farm Labor, Feedstuffs and Fertilizer Materials and Their Index Numbers 1910-1927.
156. Community Shade Tree Spraying for Protection from the Japanese Beetle.
158. Motor Truck Receipts of Fruits and Vegetables at Newark, New Jersey, from July 3 to December 31, 1928.
159. The Cost of Producing Honey in New Jersey and Other Economic Data on Beekeeping.
162. The Dairy Industry of New Jersey (Economics and Statistics).
163. The Control of White Grubs in Golf Course.
168. The Control of the Japanese Beetle.