

1922

STATE OF NEW JERSEY
DEPARTMENT OF AGRICULTURE

ALVA AGEE, Secretary

BULLETIN

No. 33

Seventh Annual Report
of the
New Jersey State
Department of Agriculture

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Seventh Annual Report of the New Jersey State Department of Agriculture

REPORT OF THE SECRETARY

ALVA AGEE

THE STATE'S AGRICULTURE

The farmers of New Jersey share in the agricultural depression that followed the great war and that was most severe in the great grain and livestock and cotton areas. This condition should not be reflected in an undue cutting down of land prices. Our farms lie near the best markets of this country, and their products always will be needed. The men who help to finance farmers in their heavy seasonal investments in fertilizers, seeds, labor and other supplies should realize the great intrinsic value of this highly productive land. Reaction easily carries farm prices below true value. As farmers return to former acreages of special crops and thus reduce overhead charges, agriculture will continue one of our safest fields of financing.

DISTRIBUTION OF FARM PRODUCTS

New Jersey possesses skill in food production. The public gets the benefit of the highly specialized knowledge possessed by thousands of farmers. Some areas were not well stored by nature with potential plant food, but fertilizers are freely bought and yields per acre in fruits and vegetables are high. The State Department of Agriculture, in a part of its constructive work, deals with distribution. Its policy has been to encourage cooperative effort so that products would be standardized and sent with more directness to consumers. There must be assurance for the consumer that he can obtain the quality for which he pays before any great elimination of distribution expense is possible.

Cooperative action on the part of producers is necessary to standardization, and a large body of any kind of food must be brought together under a single brand if the brand would be made to mean

something in market. New Jersey farmers have made rapid progress in organization and are availing themselves of the grades established by the Department of Agriculture under state law. These grades are adopted in cooperation with the Federal Bureau of Markets, so that they will have standing in other states. The Bureau of Markets has an inspection service in order that the brands which it has established may be protected. An illustration of the carefulness with which farm products may be graded is found in a recent experience of our Bureau of Markets, only one car out of 1,200 inspected by its men being found below grade by a federal inspector at the receiving point in another state. The cost of inspection is borne by shippers, and the fees received are turned into the State Treasury and reappropriated to the Bureau for payment of inspectors' salaries and expenses.

Attention is called to the report of the Chief of the Bureau of Markets, which is submitted herewith, and to Bulletin No. 32 of the Department, which gives a cross-section view of many of the Bureau's activities which are so very largely in response to demands by associations, groups and individual producers and shippers. All of its work tends to reduce the spread between farm and retail prices which remain far too great and cannot be wholly corrected until there is the fullest cooperation on the part of consumers themselves.

DISEASES OF ANIMALS

The Bureau of Animal Industry has brought the infectious diseases of swine under control, saving an immense sum to producers. Much has been done in the case of infectious diseases of cattle. The report of the Bureau of Animal Industry gives a summary of its work. Much effort is centered upon herds of men that want to eradicate tuberculosis. Applications come in far greater number than can receive attention, even though the state's appropriation is liberal. We are stopping the entry of diseased cattle into the state more effectively than was possible years ago. It is a long, hard fight, but the Bureau is making gains. We are using the best knowledge obtainable, and the law is administered without fear or favor.

THE GIPSY MOTH INVASION

The gipsy moth yielded to the method of treatment of the Bureau of Inspection the past year in a degree surprising to a layman. The scouting of 1,400 square miles and the necessary spraying was a huge task. Comparatively few of the moths escaped destruction. Some egg masses were found, and the spraying this year was again thorough. It is necessary to follow up the work another year with

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the same thoroughness, but it is a pleasure to report such progress that there is now no danger that New Jersey will suffer the huge loss and annoyance that seems to have come permanently to one or two New England states where thorough work did not continue to be done in the early stages of the invasion. The cooperation of the Federal government has been complete in every way.

THE JAPANESE BEETLE

The Japanese beetle is a greater menace than many anticipated. Its control presents obstacles that have not been overcome, but we dare not relax effort. The Federal government is expending a large sum of money in cooperative effort with New Jersey to secure control of this pest. It is now known that fruit and other farm interests are jeopardized in much higher degree than could be known two or three years ago. The best skill available to the Federal government and the state has been used in a study of the beetle in its new environment, and in developing methods of control. The failure to hold this menace in check is the most disturbing feature of the Department's control work.

STATISTICAL SERVICE

The crop reports of the Bureau of Statistics gain in accuracy and value. The cooperation with the Federal government is most satisfactory, and the service freely rendered by the hundreds of reporters in the Bureau's staff is the basis on which the present success rests. More attention should be given to our trucking and small fruit industry. Producers and consumers want to know area and condition of our special crops that now receive little attention, and a trained reporter should be provided for this special field of production.

FARMERS' INSTITUTES

The Department has believed that the need of farmers' institutes would grow less as farmers became organized along special interest lines. This is now true in many counties, but a demand for institutes continues in many sections and should be met. The Department desires to yield control to the counties as far as possible, so that the money may be expended to the best advantage.

THE LOAN FUND

The Frelinghuysen Fund was placed in charge of the State Board of Agriculture to make possible the purchase of pure-bred livestock.

by all boys and girls that should become owners. The placing of loans is done in cooperation with the Extension Service at the State Agricultural College, which has boys' and girls' club work in charge. This cooperation is invaluable. Over one hundred loans have been made for pure-bred calves, and a large number of loans is being made for swine and poultry. The director of the college club work assures us that this fund has given a great impetus to the work, and the representative of the State Board that visits all the boys and girls on the Loan Fund reports that the great interest of these young people in their pure-bred livestock, and the interest of breeders that their young patrons should succeed, are our assurance that the use of this fund is yielding results greater than could well have been in the minds of the generous donors.

MANDATORY LEGISLATION

Mandatory legislation is serviceable to the Department of Agriculture only within quite definite limits. It is necessary to all of its control work. Menaces to agriculture cannot be stamped out unless the state exercises its power. On the other hand, in the constructive work of the Department it has been the policy to afford an avenue through which progressive men could better their condition and to trust to example and education for their influence upon others.

Greater prosperity will come to the farmer and the public will be better served when grading of products is universally adopted, but our present progress would be jeopardized if an attempt should be made to compel unwilling men to do that which they do not believe would be profitable to them. If the present scheme is wise, and if there is to come to agriculture a goodly degree of the same standardization that is found in other industry, our producers will discover its profitableness as rapidly as the state can find competent men to do the work of inspection.

The Department does not believe that it would be in the interest of the public to compel the pasteurization of all milk. Agricultural Colleges, Experiment Stations and Departments of Agriculture, assisted by the agricultural press, have carried on a great campaign for the improvement of dairy conditions. The requirement that all milk should be pasteurized would destroy much of the incentive to the cleanest possible production. The public wants raw milk from tuberculin tested cows that are kept under sanitary conditions. It is healthful and palatable, and its market should be extended by the favoring influence of health officers.

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APPRECIATION

The State Board of Agriculture desires to express its appreciation of the recognition that has been given to agriculture by all those in authority. They have been willing to accept the Board's judgment in large degree concerning absolute needs, and the State House Commission has placed pleasant quarters in the new office building at the disposal of the Department.

PUBLICATIONS

The Department issued the following publications during the last fiscal year:

BULLETINS

- No.
 29. Sixth Annual Report of the New Jersey State Department of Agriculture.
 30. Official Proceedings of the Seventh Annual State Agricultural Convention, together with some addresses; Report of the Marketing Conference held by the Bureau of Markets of the State Department of Agriculture; Address of Ex-Congressman A. F. Lever at the Annual Meeting of the New Jersey State Federation of County Boards of Agriculture.
 31. The State Potato Association and the State Alfalfa Association, Agricultural Week, 1922.
 32. Some Activities of the State Bureau of Markets.

CIRCULARS

- No.
 41. Additional Nursery Insects.
 42. A Graphic Presentation of the Localization of Vegetable Crops in New Jersey.
 43. A Survey of the Commercial Poultry Industry of New Jersey; New Jersey Poultry Breeders.
 44. The Milk Dealers' Licensing and Bonding Law.
 45. A Survey of the Cranberry Industry of New Jersey.
 46. The Japanese Beetle.
 47. County Boards of Agriculture and Granges.
 48. Wood-Boring Beetles of the Genus *Agrilus* Known to Occur in New Jersey.
 49. Standard Grades for Peaches.
 50. Standard Grades for White Potatoes.
 51. Standard Grades for Market Milk.
 52. Some Costs of Marketing Perishable Products in New Jersey.

REPORT OF THE BUREAU OF ANIMAL INDUSTRY

J. H. McNEIL, *Chief*

HOG CHOLERA

Hog cholera has been kept under control by following the plan as outlined in previous reports, working through the county demonstrator as agent of the county boards of agriculture. Under this plan vaccination is carried out twice annually on all animals within a given district. Where the plan has been carefully followed perfect results have been attained, but where the swine owners have become careless and have neglected to vaccinate their animals losses have occurred. Practically no losses occur as the result of the treatment if the ordinary precautions are taken.

The Federal regulations require that all animals not intended for immediate slaughter, when originating in or passing through public stock yards, must be vaccinated as a protection against cholera. The hogs which are maintained at the garbage feeding plants, both in the northeastern and southwestern sections of the state, are vaccinated regularly by private veterinarians, thus releasing the Bureau from the expense which would necessarily be incurred in rendering this service.

SUMMARY FOLLOWS

	<i>Treated by Bureau Veterinarians</i>		<i>Treated by Private Veterinarians</i>	
	Double	Single	Double	Single
July	1222	17	382	0
Aug.	432	32	1502	23
Sept.	27	309	793	19
Oct.	264	27	675	241
Nov.	192	74	1295	153
Dec.	68	67	1931	25
Jan.	150	7	346	18
Feb.	102	0	87	13
March	106	20	125	25
April	172	7	114	13
May	640	0	245	84
June	579	5	348	6
	3954	565	7843	620
TOTAL DOUBLE.....			11,797	
TOTAL SINGLE.....			1,185	
GRAND TOTAL.....			12,982	

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Comparison of Summaries 1918—1922:

	1918-1919	1919-1920	1920-1921	1921-1922
Treated by Bureau Veterinarians...				
Double	2,725	4,051	4,005	3,954
Single	1,175	1,265	529	565
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	3,900	5,316	4,534	4,519
Treated by Private Veterinarians...				
Double	3,739	13,380	10,217	7,843
Single	1,739	2,106	772	620
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	5,478	15,486	10,989	8,463
TOTALS				
Double	6,464	17,431	14,222	11,797
Single	2,914	3,371	1,301	1,185
	<hr/>	<hr/>	<hr/>	<hr/>
GRAND TOTAL	9,378	20,802	15,523	12,982

Summary by Counties—Bureau and Private Veterinarians

	Double	Single
Atlantic	803	0
Bergen	0	3
Burlington	110	9
Camden	318	96
Cape May.....	783	20
Cumberland	231	50
Essex	194	239
Gloucester	3038	274
Hudson	2803	0
Hunterdon	74	39
Mercer	1086	72
Middlesex	313	0
Monmouth	912	132
Morris	4	74
Ocean	371	17
Passaic	58	18
Salem	522	44
Somerset	20	33
Sussex	0	0
Union	70	2
Warren	87	63
	<hr/>	<hr/>
	11,797	1,185
TOTAL DOUBLE.....		11,797
TOTAL SINGLE.....		1,185
		<hr/>
GRAND TOTAL.....		12,982

STALLION REGISTRATION

During the past five years there has been a marked decrease in the number of stallions presented for registration. This variation has been from six to twenty-eight per cent. During the season just closed, sixty-three stallions were registered, while in 1918 there was a total of one hundred and thirty-one.

BREED	1918		1919		1920		1921		1922	
	P. B.	Gr.	P. B.	Gr.	P. B.	Gr.	P. B.	Gr.	P. B.	Gr.
Percheron	29	1	29	7	25	6	26	9	20	7
Clydesdale	8	1	8	1	5	1	3	1	3	2
German Coach	2	1	2	2	2	1	6	1	1	—
Jacks	7	—	4	—	2	2	4	1	3	2
Suffolk	4	—	4	—	2	—	3	1	1	1
American Saddle	1	—	—	—	1	—	1	—	—	—
Thoroughbred	9	—	7	1	6	—	5	—	6	—
Standardbred	18	—	14	5	8	2	3	2	4	2
Belgian Draft	1	26	—	15	1	9	1	6	1	6
Hackney	1	2	1	2	1	1	—	—	—	—
Roadster	—	11	—	7	—	4	—	3	—	3
Shetland Pony	1	2	1	2	—	1	—	—	—	—
French Coach	1	—	—	—	—	—	—	—	—	—
Morgan	—	5	—	1	—	—	—	—	—	—
Pacer	—	—	—	1	—	—	—	—	—	—
Purebred	—	—	—	—	—	1	—	—	—	—
Grade	—	—	—	1	—	1	—	1	—	1
TOTALS	82	49	70	45	53	29	52	25	39	24
	131		115		82		77		63	

Stallion Registration by Counties

	1918	1919	1920	1921	1922
Burlington	6	15	7	6	6
Camden	2	1	2	2	2
Cape May	1	—	—	—	—
Cumberland	5	5	3	6	3
Gloucester	—	1	—	—	—
Hunterdon	25	27	19	14	12
Mercer	3	5	3	3	3
Middlesex	9	2	2	2	2
Monmouth	2	6	7	7	7
Morris	11	8	6	8	3
Ocean	1	2	—	—	—
Passaic	2	—	—	—	—
Salem	16	10	7	7	6
Somerset	10	10	7	5	4
Sussex	4	5	3	4	6
Union	3	1	1	1	—
Varren	21	17	15	12	9
	131	115	82	77	63

GLANDERS

Since the cessation of activities incident to the war, there has been a marked diminution in the number of horses and mules condemned for glanders. Reports of the local testing of animals indicated that ten head reacted to the mallein test out of a total of two hundred and seventy-seven tested. The report of the mallein testing of 5,493 horses, which are used in interstate traffic between New Jersey and New York points, indicates there were no reactors.

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Summary Follows

	Negative	Positive
July	4	—
August	7	—
September	44	1
October	71	1
November	10	—
December	19	—
January	1	—
February	24	—
March	29	1
April	22	6
May	42	1
June	4	—
	277	10

In addition reports have been received for 5,493 negative tests made of animals used in New Jersey-New York traffic.

Comparison of Summaries—1917—1922

	Private Veterinarians			N. Y.-N. J. traffic	
	Neg.	Pos.	Sus.	Neg.	Pos.
1917-1918		39		5,108	5
1918-1919	2,268	65		5,000	
1919-1920	356	17		2,670	5
1920-1921	460	70	2	3,087	4
1921-1922	277	10		5,493	

ANTHRAX

Sporadic outbreaks of anthrax occur in widely separated sections of the state, but the disease has been successfully held in check by the curative inoculation of serum for those clinically affected, and the protective inoculation for those exposed or maintained on farms in the immediate neighborhood. There are sections in the central and southern districts of the state where practically all the horses and cattle are vaccinated in April of each year, before they are turned to pasture, as this insures against loss from the disease later in the summer and fall.

SUMMARY FOLLOWS:

	Cattle	Horses	Total
1922	985	52	1037
1921	1238	32	1270
1920	1442	26	1468
1919	1456	3	1459
1918	1239	65	1304

PASTURE DISEASE

Pasture disease, or forage poisoning, which has been discussed in previous reports, continues to cause considerable loss among the

horses and mules in the eastern and southeastern sections of the state. There are isolated outbreaks in other sections, probably due to mouldy ensilage, hay or corn. The disease usually commences the last of July and continues through the summer and fall. We are advised that it is seldom diagnosed after the first heavy frost. However, the other form of the disease classed as forage poisoning may occur in any season of the year.

We are attempting to control the disease by injecting either subcutaneously or intravenously from 40 to 100 c.c. of Polyvalent Botulinus Antitoxin, and it is believed that a temporary immunity may be induced. The length of time the immunity lasts probably depends on the individual inoculated. This season we plan to make the first injection about August first, the second injection between the fourth and fifth week following the first injection; and the third at the end of a similar period, and we hope that the immunity which may be conferred as a result of the first injection will carry the animal through into the second period, and the second into the third period, and produce an immunity for the entire period.

Other forms of treatment have been tried, but at this time it is too early to make any predictions as to what the results will be. If the disease is diagnosed early 100 c.c. of Polyvalent Botulinus Antitoxin may be given intravenously together with any systemic treatment which may be indicated. If improvement is not noticed within a few hours the injection may be repeated. In a few instances it has been reported that recovery has taken place following such treatment. However, it has been our experience that when the disease is well established the curative treatment is of little value.

TUBERCULOSIS

The tuberculin testing incident to the accredited herd work has not only added materially to the wealth of the state and nation in eliminating diseased and worthless animals, but has actually stimulated the breeding of a better class of both purebreds and grades. Conditions surrounding the production of clean milk from tuberculin tested herds will in a large measure lessen the transmission of bovine tuberculosis to the human family, especially children. We quote from Doctor Park's "Public Health 1920," and in a statement he estimates that about ten per cent of all the deaths caused by tuberculosis in children under five years of age are due to infection caused by drinking raw cow's milk.

The criticism offered that the tuberculin testing of dairy herds under the state and federal accredited herd plan, and belief that the slaughter of the reactors following as a result of the testing will create

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a milk shortage is not sustained by the facts. The tuberculin testing of herds under the state and federal accredited herd plan during the period July 1, 1917 to June 30, 1922, resulted in the condemnation of only 175,000 tuberculous animals. In 1921 milch cows alone increased 350,000, or twice the number condemned under the state and federal supervision and slaughtered during the five-year period of testing. In the State of New Jersey during the period of July 1, 1920—July 30, 1921, 831 animals were condemned and appraised by the state. From July 1, 1921, until June 30, 1922, 1203 animals were condemned and destroyed. Taking as a basis 150,000 dairy cows in the state, there were condemned less than one per cent of the total cow population. The facts are that, instead of milk shortage, there has been an actual increase in the production and consumption of milk and dairy products.

The county demonstrators and the county club agents have assisted materially in stimulating the testing of herds of purebred cattle in the general clean-up preparatory to placing registered purebred calves in untested herds which have not been previously under supervision. The funds for this extension work come from the Frelinghuysen fund and other sources.

The fund appropriated by the State Legislature for tuberculosis control and eradication for the fiscal year 1922-1923 is \$75,000. The same amount was used during the year just closed. The Federal allotment to the State of New Jersey is \$40,000. The appropriation made by the National Congress to be used in the forty-eight states for the fiscal year 1922-1923 is \$2,027,600. This sum is to be used to indemnify the owners of animals which react to the tuberculin test. The demand for this work is increasing, and a much larger appropriation could be used profitably in the campaign to control and eradicate tuberculosis from our livestock.

In order that the scope of the cooperative testing in the United States, and also in New Jersey, may be more fully understood, we submit a brief summary as follows:

UNITED STATES

Fiscal Year Ending June 30, 1921

Number of herds tested	86,687
Total number of cattle tested	1,366,538
Reactors	53,768
Percentage of reactors	3.94 Per Cent

STATE DEPARTMENT OF AGRICULTURE

APPRAISEMENTS (NEW JERSEY)

			Valuation		Amount Paid	
			Pure-breds	Grades	Pure-breds	Grades
1921						
July	43	73	\$19,650.00	\$10,045.00	\$3,924.99	\$2,825.99
August	45	28	21,975.00	4,125.00	4,333.33	1,153.30
September	33	69	12,330.00	9,965.00	3,169.03	2,796.11
October	70	140	29,990.00	22,755.00	6,790.35	6,297.35
November	28	47	16,025.00	7,410.00	2,675.00	2,050.66
December	60	6	29,700.00	1,075.00	5,911.67	300.00
1922						
January	97	111	61,905.00	19,705.00	9,415.32	5,041.62
February	16	34	6,725.00	5,490.00	1,589.16	1,466.33
March	36	24	14,925.00	2,732.00	3,168.83	755.82
April	30	34	13,050.00	4,335.00	2,775.99	1,128.34
May	29	35	6,285.00	4,000.00	1,813.17	1,046.63
June	37	78	8,985.00	8,055.00	2,704.41	1,848.69
	524	679	\$241,545.00	\$99,692.00	\$48,271.25	\$26,710.84
Totals	1203		\$341,237.00		\$74,982.09	
Average			\$460.96	\$146.82	\$92.20	\$39.34

Animals slaughtered under inspection on the owner's account, receiving salvage only:

1921	
July	40
August	51
September	84
October	77
November	91
December	70
1922	
January	84
February	107
March	71
April	35
May	119
June	70
Total	899

Physical Condemnations

Reported by private veterinarians as suspected tuberculosis on physical examination and slaughtered:

August 1921.....	2
May 1922.....	1
	<u>3</u>

Reported by Board of Health as suspected tuberculosis on physical examination and slaughtered:

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September 1921.....	1
October	2
November	2
December	5
January 1922.....	2
February	10
March	4
April	—
May	4
June	17
	<hr/>
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Reported by Board of Health as tubercular as shown by tuberculin test and slaughtered:

September 1921.....	10
October	9
November	16
December	1
January 1922.....	4
February	1
March	3
April	5
May	4
June	5
	<hr/>
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Reported by Board of Health as suspected tuberculosis on physical examination and later tuberculin tested:

	Tested	Reactors	
February 1922.....	2	1	
April	1	1	
May	2	2	
June	1	1	
	<hr/>	<hr/>	
	6	5	83.33 per cent

Import Shipments of Livestock for Immediate Slaughter Entering on Permit:

	Cattle	Feeders	Hogs	Sheep
July 1921.....	1670	...	.....	....
August	2232	93	.....	....
September	1936	...	.....	....
October	1238	46	.....	....
November	1397	5	.....	264
December	1119	50	29,979	110
January 1922.....	2396	...	44,443	402
February	1975	35	25,879	577
March	1837	29	29,336	196
April	2172	56	33,241	167
May	3278	297	26,847	907
June	3883	...	35,836	2747
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	25,115	611	225,561	5370

Permits are issued for import shipments of animals for immediate slaughter, consigned to establishments having Federal inspection or designated as slaughtering points by the New Jersey Department of Agriculture, or they may be consigned to the Newark or Jersey City Stock Yards to be resold and slaughtered locally or re-shipped to New York, Philadelphia, Trenton or Perth Amboy.

Fiscal Year Ending June 30, 1922

Number of herds tested.....	195,220
Number of cattle tested.....	2,384,236
Number of reactors	82,569
Percentage of reactors.....	3.5 per cent

STATE OF NEW JERSEY

Fiscal Year Ending June 30, 1921

Number of herds under supervision.....	218
Number of cattle tuberculin tested.....	10,519
Number of reactors (making practically 8.3 per cent.....)	877
Number of herds tested in which no reactors were found.....	58
Number of cattle in these fifty-eight herds...	1210
Fully accredited herds.....	48
Twenty-five herds awaiting test.	

Fiscal Year Ending June 30, 1922

Number of herds under supervision.....	322
Number of cattle tuberculin tested.....	20,265
Number of reactors (making practically 6.7 per cent.....)	1,375
Number of herds tested in which no reactors were found.....	120
Fully accredited herds.....	72
(4 temporarily suspended)	
Fully accredited cattle.....	2,577
(136 temporarily suspended)	

ACCREDITED HERD WORK

Tested by U. S. B. A. I. veterinarians	Initial		Other Tests	
	Tested	Reactors	Tested	Reactors
1921				
July	79	1	18	0
August	—	—	53	2
September	27	4	49	8
October	2	1	182	11
November	—	—	715	2
December	—	—	—	—
1922				
January	44	0	174	0
February	—	—	116	2
March	—	—	369	7
April	—	—	301	2
May	—	—	253	1
June	—	—	—	—
Total	152	6-3.9 per cent	2230	35-1.56 per cent

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Tested by N. J. B. A. I. veterinarians	Initial		Other Tests	
	Tested	Reactors	Tested	Reactors
1921				
July	394	81	171	1
August	250	63	932	43
September	633	197	309	12
October	152	30	2115	160
November	73	12	1104	35
December	58	7	1468	93
1922				
January	—	—	1946	145
February	5	0	1385	55
March	10	5	1336	52
April	2	0	2229	62
May	403	66	1396	28
June	384	108	1124	79
Totals	2364	569-24 per cent	15,515	765-49 per cent

Tested by N. J. Private veterinarians

1922			
February		1	0
March		1	0
April		1	0
May		1	0
Totals		4	0

NATIVE CATTLE

Tested by U. S. B. A. I. veterinarians	Tested	Reactors	Per cent Reactors
1921			
July	1	0	
August	5	0	
September	2	1	50
October	3	1	33 $\frac{1}{3}$
November	—	0	
December	8	1	12 $\frac{1}{2}$
1922			
January	16	2	12 $\frac{1}{2}$
February	4	0	
March	1	0	
April	5	0	
May	2	0	
June	5	1	20
Totals	52	6	11.53

Tested by private veterinarians	Tested	Reactors	Per cent
1921			
July	184	4	2.1
August	302	10	3.3
September	648	30	4.6
October	694	45	6.48
November	926	46	4.96
December	1124	167	14.85
1922			
January	520	25	5
February	376	33	8.77
March	1165	54	4.63
April	1002	46	4.59
May	1012	73	7.21
June	546	32	5.86
Totals	8,499	566	6.66
Tested by Bureau veterinarians	Tested	Reactors	
1921			
July	2	0	
August	11	0	
September	13	0	
October	—	—	
November	3	0	
December	—	—	
1922			
January	—	—	
February	—	—	
March	—	—	
April	—	—	
May	11	0	
June	—	—	
Totals	40	0	
Tested for Export	Tested	Reactors	Per cent
1921			
July	7	0	
August	11	0	
September	2	0	
October	33	4	12.12
November	9	0	
December	4	0	
1922			
January	10	0	
February	15	4	26.66
March	80	7	8.75
April	41	2	4.87
May	13	3	23
June	49	3	6.1
Totals	274	23	8.39

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Total number of *NATIVE* cattle tested
(including ACCREDITED)

	Tested	Reactors	Per cent
1921			
July	856	87	10.16
August	1564	118	7.5
September	1683	252	14.9
October	3181	252	7.9
November	2830	95	3.55
December	2662	268	10.06
1922			
January	2710	173	6.38
February	1902	94	4.94
March	2962	125	4.22
April	3581	112	3.12
May	3090	171	5.5
June	2109	223	10.5
Totals	29,130	1,970	6.76

IMPORT CATTLE

Tested by U. S. B. A. I. veterinarians	Before Tested	Entering Reactors	Per cent	After Tested	Entering Reactors	Per cent
1921						
July	386	4	1	12	3	25
August	375	0		45	0	
September	618	0		31	3	9.6
October	322	0		30	1	3.33
November	247	4	1.61	31	1	3.22
December	222	1	.45	46	3	6.5
1922						
January	146	1	.68	83	7	8.4
February	91	0		34	3	8.82
March	150	0		119	10	8.4
April	200	0		68	5	7.35
May	194	7	3.6	108	8	7.4
June	509	14	2.75	194	18	9.2
Totals	3460	31	.89	801	62	7.74
Tested by private veterinarians						
1921						
July	677	36	5.3	2	0	
August	1940	85	4.3	41	10	24.3
September	1957	115	5.8	—	—	
October	1554	73	4.69	34	2	5.88
November	1469	99	6.73	—	—	
December	1029	57	5.53	—	—	
1922						
January	520	29	5.57	—	—	
February	512	24	4.68	36	0	
March	813	48	5.9	8	0	
April	823	62	7.53	20	1	5
May	1172	50	4.26	—	—	
June	1261	51	4	—	—	
Totals	13,727	729	5.31	141	13	9.21

Tested by N. J. B. A. I. veterinarians	Tested	Reactors	Per Cent
April 1922.....	1	0	
May 1922.....	20	1	5
Tota's	21	1	4.75

CATTLE SLAUGHTERED

Reactors slaughtered July 1921	quarantined in July	45
Reactors slaughtered August	quarantined in August	54
Reactors slaughtered September	quarantined in September	93
Reactors slaughtered October	quarantined in October	148
Reactors slaughtered November	quarantined in November	52
Reactors slaughtered December	quarantined in December	50
Reactors slaughtered January 1922	quarantined in January	134
Reactors slaughtered February	quarantined in February	70
Reactors slaughtered March	quarantined in March	81
Reactors slaughtered April	quarantined in April	63
Reactors slaughtered May	quarantined in May	89
Reactors slaughtered June	quarantined in June	106
		985

Reactors slaughtered July 1921	quarantined last fiscal year	111
Reactors slaughtered August	quarantined last fiscal year	23
Reactors slaughtered September	quarantined last fiscal year	17
Reactors slaughtered October	quarantined last fiscal year	6
Reactors slaughtered November	quarantined last fiscal year	14
Reactors slaughtered December	quarantined last fiscal year	9
Reactors slaughtered January 1922	quarantined last fiscal year	1
Reactors slaughtered February	quarantined last fiscal year	2
Reactors slaughtered March	quarantined last fiscal year	1
Reactors slaughtered April	quarantined last fiscal year	1
Reactors slaughtered May	quarantined last fiscal year	0
Reactors slaughtered June	quarantined last fiscal year	3

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Reactors slaughtered July 1921	quarantined this fiscal year	0
Reactors slaughtered August	quarantined this fiscal year	45
Reactors slaughtered September	quarantined this fiscal year	75
Reactors slaughtered October	quarantined this fiscal year	131
Reactors slaughtered November	quarantined this fiscal year	98
Reactors slaughtered December	quarantined this fiscal year	72
Reactors slaughtered January 1922	quarantined this fiscal year	155
Reactors slaughtered February	quarantined this fiscal year	75
Reactors slaughtered March	quarantined this fiscal year	45
Reactors slaughtered April	quarantined this fiscal year	35
Reactors slaughtered May	quarantined this fiscal year	89
Reactors slaughtered June	quarantined this fiscal year	91

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Reactors quarantined July 1921	not slaughtered same month	45
Reactors quarantined August	not slaughtered same month	74
Reactors quarantined September	not slaughtered same month	.....	162
Reactors quarantined October	not slaughtered same month	.....	107
Reactors quarantined November	not slaughtered same month	.....	44
Reactors quarantined December	not slaughtered same month	.....	221
Reactors quarantined January 1922	not slaughtered same month	.....	46
Reactors quarantined February	not slaughtered same month	.....	27
Reactors quarantined March	not slaughtered same month	.....	54
Reactors quarantined April	not slaughtered same month	.....	55
Reactors quarantined May	not slaughtered same month	91
Reactors quarantined June	not slaughtered same month	135

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REPORT OF THE BUREAU OF MARKETS

ALEXIS L. CLARK, *Chief*

The most important development to report this year is the greatly enlarged field for service which has opened up for scientific distribution improvement. When the Bureau began to function in July 1916, there was little appreciation of its possibilities on the part of producers, dealers or consumers. Little had been done except in a national way, and while the people in the state felt that something must be done there was no recognition of definite problems and little faith that any actual progress could be made in diminishing the spread in prices from the farm to the table. Today individuals and large groups of producers and consumers are, of their own initiative, practicing methods which were only theories a few years ago. Today we have the attention and cooperation of the general public, and the calls made upon us for our time and energies present a challenge which inspires us to greater activity. We are not unmindful of the obligations resting upon us with this increased opportunity. Scores of incidents in the records of our associates' work could be cited showing thirty-six hours of steady work without sleep, or trips to both ends of the state in twenty-four hours to meet emergencies. There is something in the nature of the work which spurs one to the limit of one's ability. Aside from the fascination of new projects and of actual service to perform, there is the satisfaction of rendering assistance and the appreciation which so often follows that cause those who come to work with us to catch the spirit and to tie themselves up to our organization in such a way as to make it an honor and a pleasure to labor with them.

STANDARDIZATION

Legal standards have now been established for white potatoes, peaches and onions, and work has been practically completed on standards for tomatoes, sweet potatoes, apples, eggs and milk.

Producers, particularly through their selling organizations, have adopted some of these legal standards for grading their market products, and a few years will see the bulk of our more important farm products graded and sold on this basis. Some municipalities have shown their recognition of the economic problems in milk distribution, as well as of the sanitary problems, in the adoption of the state market milk standard grades. Probably no other factor has

so great an influence in the costs of distributing commodities from the producer all the way down to the ultimate consumer as this factor of standards in quality. A standard grade establishes a basis for quotations and sales upon which dealers can operate with a minimum spread, so that both producers and consumers benefit.

Some assistance has been rendered to the United States Bureau of Agricultural Economics in its investigations looking towards the adoption of standard grades for market hay. Such grades have now been adopted, and this Bureau will be glad to assist hay shippers in marketing their hay in accordance with these grades.

DAIRY AND POULTRY PRODUCTS

Standard grades for milk have continued to receive the attention of the Bureau during the past year, and this has resulted in the publication of Circular 51, "Standard Grades for Market Milk," which has just been issued. This covers the investigations and conclusions on this subject leading to the adoption of three grades of milk for the state as a whole. The State Department of Health has also given recognition to these grades in a proposed milk ordinance for the use of local boards of health, which has recently been drafted and issued.

The Bureau has rendered assistance to producers distributing a high grade of raw milk from tuberculin tested cows in one of the municipalities in the northern part of the state where these producers were confronted with a loss of their market because of the adoption of a new milk ordinance which would have limited the sale of milk to certified and pasteurized. A large proportion of the consumers had confidence in the grade of raw milk which they had been in the habit of using, and finally a new ordinance was adopted which permitted the continued distribution of this grade of milk, with, however, a much lower bacterial count requirement.

It is also significant that many owners of dairy herds in the southern part of the state, whose herds have been freed of bovine tuberculosis, are demanding recognition on the part of municipal authorities of the superiority of such milk over ordinary raw milk from untested herds. In many of these municipalities, under the grades recommended by the Bureau, a market would be available for a large proportion of this milk.

The grades for eggs adopted by this Bureau in cooperation with the United States Bureau of Agricultural Economics have been slightly changed, and we believe they are now in such shape that they can be used by either individual shippers of eggs or cooperative associations engaged in marketing eggs. We believe that the adoption of these grades, recognized by state and federal governmental agencies,

would give those engaged in marketing eggs an advantage which they do not now have.

The law requiring the licensing of milk dealers, enacted as Chapter 74, Laws of 1917, has continued during the past year to be enforced by the specialist in dairy products marketing. A summary of the requirements of the law, together with a list of licensees, was published in Circular 44. During the spring of 1922 a thorough survey of the state was undertaken for the purpose of securing compliance with this law by some dealers who had not previously been informed of the law's requirements. A number of complaints against certain dealers were received and investigated, resulting in either adjustments or revocation of license. The dairymen, particularly those selling to some of the smaller dealers, have learned to place more dependence upon the responsibility of the dealer to pay for milk purchased because of the enforcement of this law.

Assistance was given by the specialist in dairy products marketing in the organization of about 40 locals of the Dairymen's League Cooperative Association, which were organized under the New Jersey law, and a copy of the by-laws of each was filed in this office in accordance with the law after incorporation had been completed. Some assistance has also been rendered to the association of milk producers marketing milk in the southern part of the state, as well as to smaller groups of dairymen in the state interested in cooperative marketing of milk. The Bureau feels that excellent progress is being made by milk producers of the state in solving their marketing problems, and it is ready to give assistance whenever desired.

COOPERATION

Steady progress has been made in cooperation, with far greater results this year than in any previous year. The fruit growers have a well-organized movement built around several local organized groups of producers. From eight to twenty growers in each group have incorporated under the state cooperative law and have equipped themselves with a suitable packing house and machinery. It is intended to sell only peaches this year, and the central association will sell the entire crop under a single brand. The individual growers have contracted to deliver their entire crop to the association. Two groups of potato growers are incorporated under this law and have some 3,000 carloads to sell this coming fall. Several smaller groups of farmers have taken advantage of the cooperative law to buy or sell collectively. We have given this subject special study during the year, and the prospects in New Jersey, as well as throughout the

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nation, are very bright for real economic improvement through co-operation.

While little new knowledge has been added to the general information on this subject, a much clearer appreciation of the fundamental principles involved is apparent.

A successful cooperative enterprise should meet the three following requirements:

- (a) Legality—It must be in line with federal and state law requirements.
- (b) Economics—It must perform certain services for its members with more efficiency than they can secure through other channels.
- (c) Human Relations—It must be so constituted as to give all members equal opportunity and equal responsibilities, thus exerting an influence of loyalty and common interest which will hold the support and maintain harmony among the membership even in times of adversity.

TRANSPORTATION

New Jersey farmers continue to enjoy exceptional transportation facilities. There is a genuine interest and a continual endeavor on the part of the freight and express carriers to make their services meet the needs of shippers. For the New York market, it is more and more apparent that some of our trains should be moved ahead an hour or so in order to insure prompt arrival on the market. The Jersey City terminal facilities and the ferry equipment are subject to greater congestion each year, as the volume of produce arriving there increases and the streets and dock capacity in the downtown market section of New York are congested on certain days past all ideas of efficient handling. A score or so of conferences have been held in different parts of the state and in railroad offices, where our produce shippers and railroad officials have laid plans for improved service.

One instance of activity toward better transportation will serve as an example of the many different ways in which we have endeavored to effect improvements. At the request of the general claim agent of one of the railroads, two of our men visited stations along their lines and by talks and demonstrations showed how losses and damage could be prevented. Standard-made packages and proper loading, with more accurate checking on the part of the agents at receiving and shipping ends, were the principal points stressed. At the end of the season the claim agent's department showed a total of 8,707 "overs" compared to 14,709 "overs" in the previous years, and 4,537 "shorts" compared to 9,994 "shorts" the year before. Terminal facilities in Jersey City and in Camden and Philadelphia have also been investigated and recommendations made to railroads, carters and others.

MARKET REPORTING

Our long-needed market reporting system has been established. Reporters now cover the markets in New York, Newark and Philadelphia every morning. The information secured from these sources, together with reports from more distant markets, is received over our leased wire, so that by nine o'clock each morning we have a fairly comprehensive knowledge of the market conditions immediately affecting New Jersey products. We are depending principally upon newspapers to carry this information. It is furnished without charge. This report is also sent out by radio from Newark and Philadelphia, and some people secure it by telegraph and telephone. A Weekly Market Letter is sent out to approximately one thousand addresses, and a Weekly City Market Letter goes to about one hundred addresses, mostly newspapers.

CITY MARKET PROBLEMS

This is a project upon which we hope to devote much time next year. So far we have done little more than to prepare the way. Producers now recognize their problems in marketing and are carrying on organized activities directed along scientific lines to overcome them. While criticisms of present methods are just as common among consumers as producers, attempts so far to start any constructive program of remedial measures have met with little success. We have some promise of cooperation and support from women's clubs, chambers of commerce and a few other local organizations. Municipal government authorities hesitate to take definite steps largely because of no organized interest from their taxpayers or voters. Frequently we have met a situation in which the city authorities viewed any work of this kind as a charity to farmers. There are a few splendid examples of municipal and consumer interest. The Jersey City farmers' markets, factory buying in quantity for employees, "Peach Week," "Milk Week" and "Potato Week" campaigns, and women's clubs' cooperative buying are only a few good examples. Our program in this project is as follows:

City Problems in Food Distribution

1. Centralize the wholesale business—Particular attention should be given to centralizing the wholesale food business. Wholesale produce merchants and wholesale grocery merchants should be encouraged to locate near a properly equipped wholesale farmers' market place. Adequate rail and highway facilities and, if possible, water shipping facilities should be available.
2. State-approved list of produce commission merchants—Commission business is sound economically and should be promoted. The nature of the business has apparently allowed the practice of questionable methods to such an extent that the confidence necessary for efficient business between the growers and the

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commission agents has been largely done away with. A voluntary listing by commission merchants with the State Bureau of Markets, by which the merchants agree to certain uniform accounting methods and to auditing by the Bureau, is proposed as a measure to rebuild this necessary confidence. This is not a new idea. It has long been considered, and a similar plan on a nationwide scope is contemplated in a bill now before Congress.

3. Organization of retail dealers—This is necessary to eliminate some of the un-economic phases of competition, reduce necessary services to consumers, to secure better understanding between themselves and consumers, and to cooperate more efficiently with local producers at seasons of peak production.
4. Farmers' retail market places—One or more producers' retail market places should be established in all of our cities. Trenton, Jersey City, Elizabeth, Perth Amboy and Woodbury offer good examples of farmers' market places in cities with large and small population.
5. Market reporting—A market reporter maintained cooperatively by the city, the County Board of Agriculture and the State Bureau of Markets should be employed. It would be his duty to report supply and demand conditions, together with prices, daily for the benefit of the trade, the consumers and the producers. This market reporting work is distinctly a stabilizing influence. The work is valuable in an educational way as well as in a business way. The citizens of New Haven, Connecticut; Springfield, Massachusetts; and Detroit, Michigan, have made distinct progress in promoting better food marketing methods through market reporting and other activities.
6. Special emergency measures for handling certain crops—At seasons of peak production New Jersey consumers seldom receive material advantage of extremely low farm prices, because distributing costs are so high. Cooperative efforts between organized city dealers and producers can do much along this line. When this is found impossible the State Bureau can help producers with carloads and truckloads to sell direct to consumers, and thus give them the benefit of low prices, and secure a better price for the producers, themselves. This has been demonstrated in Jersey City, Passaic, Manville, Dunellen, Elizabeth and other cities.
7. Marketing committee—Inasmuch as this whole subject is a new one so far as constructive thought and enterprise are concerned, there should be a marketing committee appointed by the mayor in each city. The chairman should be a distinctly non-interested party, but the committee should represent the wholesale and retail trade, the consumers and the nearby producers.

Where there is a lack of interest and the committee meets little encouragement from the trade, it should go directly to the consuming public and institute an educational campaign. Farmers' markets, both wholesale and retail, have been established and have become agencies of great usefulness where the established produce dealers were too apathetic to realize that modern times necessitates modern methods. In cities where retail dealers are unorganized and where no headway can be gained toward cooperation, the Bureau has succeeded in directing scores of truckloads of fruits and vegetables to factories and women's clubs. By this method peach growers, at the glut period when farm prices were around 25 cents per basket and retail prices were \$1.25 per basket, found factory superintendents who made it possible for their employees to buy peaches at the factory door for 75 cents. Hundreds of thousands of dollars' worth of products have been handled in this way during the past two years.

Volunteer reporters in a city are given the Bureau's strongest cooperation, and a weekly comparison of retail prices in the principal cities is made, and they are also compared with farm prices.

ROADSIDE MARKETING

There has been great progress made in this line, as automobilists who toured Cape May County in August, 1921, well know. When a crop is a glut on the markets low prices prevail at roadside markets, as they did on cantaloupes in South Jersey during that month. Our recommendations are to give fair value, to build up permanent trade and to reduce overhead costs by uniting several farm interests in roadside community markets.

AUDITING

Our services in this line have been in great demand. Most of the large and small cooperative associations have adopted our standard system of accounting. Fair associations and produce dealers have also been given assistance.

EDUCATIONAL PUBLICITY

New items on marketable crops, cooperative opportunities and facts which the public should know are sent out each week to the press. Splendid cooperation has been extended by the newspapers, and it is growing continually.

COOPERATING AGENCIES

How great a proportion of the actual service rendered by this Bureau is due to the assistance of cooperating agencies, it is impossible to say; but we, in the Bureau, fully realize how limited our knowledge, our experience and our capacity for service would be without their aid. The Bureau of Agricultural Economics, previously known as the Bureau of Markets, in the United States Department of Agriculture, is relied upon for cooperation and counsel in many things. The National Association of State Marketing Officials has been a strong force in broadening our experiences. The State Federation of County Boards of Agriculture has provided new opportunities for our service through its close contact with local farm problems. The Extension Division of the State College of Agriculture, with its force of county agents, is an organization with which we seek the closest cooperation. We act almost entirely through or with the county agent when answering a call for assistance in solving

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some marketing or organization problem. The State Bankers' Association and the State Chamber of Commerce have afforded us means of presenting certain phases of marketing reforms to their members, thus laying foundations for future development. The State Federation of Women's Clubs and the New Jersey League of Women Voters have rendered much service to the public in the voluntary market reporting work which their members have done. Some heads of committees have given freely of their time, energies and money in this work. Recently we have had the cooperation of chambers of commerce and other men's organizations. Other state departments and organizations have responded to the needs of this work, and with this united support we look forward eagerly to greatly increased accomplishments next year.

NEW JERSEY STATE LIBRARY

REPORT OF ASSISTANT DIRECTOR OF FARMERS' INSTITUTES

WM. H. HAMILTON

During the past year, the State Department of Agriculture has felt that there is a lesser need for the typical farmers' institute, and for that reason has not carried on so active a campaign to organize and conduct such meetings. In fact, the work has been undertaken only in counties and localities where there has been a specific demand on the part of the people. This resulted in a somewhat smaller number of institutes than has been held in previous years, but with the decrease in regular institutes there has arisen a new demand upon the Department for assistance in the furnishing of speakers for special-interest meetings.

During the year the Department has cooperated with a number of local agricultural associations in holding educational programs. In Ocean, Atlantic and Cumberland counties poultry raising is one of the leading industries, and the Department cooperated with the local poultry associations in holding demonstrations and meetings by providing speakers of national reputation. These meetings took the place of a number of smaller local institutes and at the same time interested a large number of poultrymen of the respective counties. The Department also cooperated with local Holstein-Friesian associations in Warren, Mercer, Hunterdon, Somerset, Bergen and Essex counties in securing speakers for educational meetings. The Department also cooperated with the Jersey Black Giant Club in holding an all-day meeting at Crosswicks. The Bergen County Fruit Growers asked the assistance of the Department in securing speakers for some of its meetings. It has been found through the past year's experience that the cooperation given to such associations by the Department has resulted in a great deal of good, and there is a growing demand for such assistance.

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Regular institutes were held throughout the state as follows:

AUGUST	FEBRUARY
31, Belle Mead	6, Blackwood
OCTOBER	3, Hanover Neck
27, Allwood	7, North Caldwell
Athenia	9, Singac
NOVEMBER	21, North Haledon
11, Columbus	24, New Monmouth
15, Pemberton	24, Trenton
18, Florham Park	MARCH
18, Allentown	7, Richfield
28, Woodbury	2, Blue Anchor
29, Burlington	15, Berlin
30, Hamburg	15, Toms River
30, Roseland	16, Mays Landing
DECEMBER	16, Livingston
2, Pennington	16, Elizabeth
3, Red Bank	17, Wyckoff
13, Marlton	24, Chester
15, Vincentown	28, South Seaville
17, Cape May Court House	28, Ramsey
29, Center Grove	30, Caldwell
30, Gouldtown	
JANUARY	
17, Haddonfield	
20, Plainsboro	
26, Cross Keys	
28, Forest Grove	

In addition to these regular institutes, assistance was rendered to local poultry and cattle breeders' associations for twenty-one meetings, with a total attendance of 2,500.

As in the past no regular staff of institute speakers was employed, but use was made of speakers from the New Jersey State College of Agriculture and Experiment Station, and of the Department of Agriculture staff and good farmers in the state. For some special meetings speakers were brought in from adjoining states. Following is a list of speakers used during the year:

State College of Agriculture

1. Dr. J. G. Lipman, Dean and Director
2. L. A. Clinton, Director, Division of Extension
3. A. M. Hulbert, State Leader of Boys' and Girls' Club Work
4. M. A. Blake, Director of Horticulture
5. M. H. Keeney, Specialist in Dairying
6. W. H. Allen, Specialist in Poultry Husbandry
7. A. Freeman Mason, Specialist in Fruit Growing
8. H. R. Cox, Specialist in Soil Fertility and Agronomy
9. W. F. Knowles, Assistant State Leader of Farm Demonstration
10. L. A. Cooley, County Agricultural Agent, Gloucester County
11. C. H. Nissley, Specialist in Vegetable Gardening
12. Joseph B. Turpin, County Club Agent, Mercer County

13. R. P. Armstrong, Associate Pomologist
14. W. Raymond Stone, County Agricultural Agent, Bergen County
15. M. R. Trimmell, County Agricultural Agent, Cumberland County
16. Marion Butters, State Leader of Home Demonstration
17. Mrs. Catherine Griebel, Specialist in Sewing
18. Adaline Ely, Assistant State Leader of Home Demonstration
19. Mrs. D. S. Dilts, Home Demonstration Agent, Mercer County
20. Margaret C. Becker, Home Demonstration Agent, Bergen County
21. Florence Powdermaker, Specialist in Nutrition

State Experiment Station

1. William C. Skelley, Assistant Animal Husbandman
2. W. H. Martin, Associate Plant Pathologist
3. Robert F. Poole, Assistant Plant Pathologist

State Department of Conservation and Development

1. W. D. Baker, Assistant State Forester

Public Library Commission

1. Sarah B. Askew

State Department of Agriculture

1. Alva Agee, Secretary
2. T. J. Headlee, State Entomologist
3. C. H. Hadley, Assistant to Entomologist in charge of Japanese Beetle Control Work
4. E. G. Carr, Deputy Bee Inspector

New Jersey Federation of County Boards of Agriculture

1. H. E. Taylor, President
2. Frank App, Secretary

Practical Farmers

- | | |
|-----------------------|---------------------------|
| 1. A. E. Young | 12. Clarence Cornell |
| 2. Walter L. Minch | 13. F. F. Rockwell |
| 3. Elmer H. Wene | 14. Thomas R. Hunt |
| 4. John Arfman | 15. W. D. Robens |
| 5. H. M. Francis | 16. J. C. Hendrickson |
| 6. J. W. Miller | 17. R. L. Scharringhausen |
| 7. Henry Schmidt | 18. Leslie A. Platts |
| 8. W. W. Oley | 19. Charles Peck |
| 9. J. Gilbert Borton | 20. Roscoe W. DeBaun |
| 10. J. Percy VanZandt | 21. George W. Rexon |
| 11. Clement B. Lewis | |

Miscellaneous

1. Prof. Wm. F. Kirkpatrick, Storrs, Conn.
2. Prof. James E. Rice, Cornell University
3. S. L. Strivings, President, New York State Federation of County Farm Bureau Associations
4. Hon. David H. Agans, Master, New Jersey State Grange
5. Charles Bassett, Director, Field Organization, North American Fruit Exchange
6. John E. Gill, Rider College of Commerce, Trenton
7. A. H. Sutphin, Pastor, New Monmouth Church
8. Dr. Frank McDonald, Paterson Baptist Church
9. R. M. Gidney, Comptroller at Large, Federal Reserve Bank, New York

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10. Charles E. Gunnels, Washington, D. C.
11. Mrs. Rose Morgan, Leonia
12. W. B. Duryee, Walker-Gordon Laboratory Co., Plainsboro
13. Lillian Locke, Columbia University
14. Isabel Ely Lord, Brooklyn
15. Claribel Nye, Ithaca, N. Y.
16. Viola Garwood, Montclair

The following tabulation shows by counties the number of meetings, the number of sessions, total attendance and attendance per session:

COUNTIES	Number of Meetings	Number of Sessions	Attendance	
			Per Session	Total
Atlantic	1	2	137.5	275
Bergen	2	5	54.2	271
Burlington	5	7	82.1	575
Camden	4	8	59.4	475
Cape May	2	3	83.3	250
Cumberland	2	3	56.6	170
Essex	5	7	106.4	745
Gloucester	3	5	55	275
Mercer	2	7	110.7	775
Middlesex	1	1	65	65
Monmouth	3	5	190	950
Morris	3	3	61.6	185
Ocean	1	2	137.5	275
Passaic	3	3	117.3	352
Somerset	1	2	1,250	2,500
Sussex	1	1	55	55
Union	1	1	40	40
	40	65	(Average) 126.6	8,233

REPORT OF THE BUREAU OF STATISTICS AND INSPECTION

HARRY B. WEISS, *Chief*

Report of Statistical Service

As in the past, detailed figures concerning acreage, yield and production for the various crops of New Jersey can be found in our Monthly Crop Reports issued jointly with the Federal Bureau of Markets and Crop Estimates. The "barometric" feature, which was started in our May, 1921, report for the purpose of showing the general trend of the more important crop movements in the United States, has been enlarged and additional items included. At the present time monthly figures are published showing average weekly crop prices in New York, Philadelphia, Chicago, live stock prices at Chicago, wholesale prices of field seeds at New York, carload prices of feed at New York and Philadelphia, wholesale prices of fertilizer materials at New York, carlot shipments of fruits and vegetables, exports of domestic foodstuffs, stocks of foodstuffs and other commodities, wheat and flour exports, visible supplies of wheat, corn, oats, cotton, movement of butter, cheese, poultry and eggs at important markets, movement of loaded freight cars, cold storage holdings, index numbers of wholesale prices of groups of commodities, bank clearings, railroad earnings, building permits, alien migration, foreign trade and acreage and production forecasts for the important crops of the United States. In nearly all cases, comparative figures are given for previous months or years.

In addition the reports contain full information on New Jersey crops and charts dealing with phases of agriculture of interest to New Jersey growers.

No changes have been made in the number of reporters on our lists, and the Bureau appreciates the cooperation which makes the report possible.

OTHER STATISTICAL WORK

Circular 42 of this Bureau deals with the acreages and localization of vegetable crops in New Jersey. Circular 43 gives the results

of a survey of the commercial poultry industry of the state and includes information on such items as breeds, numbers, egg production, occupations, artificial illumination, etc. Circular 45 contains the results of a survey of the cranberry industry conducted in cooperation with the New Jersey Agricultural Experiment Station. This also covers varieties, acreages, yields, distribution, marketing, etc. During May and June, 1922, a survey was made of the blackberry and raspberry industry, which is confined mainly to two southern counties, and this will be reported upon in detail later.

Report of Inspection Service

Plant Inspection

HARRY B. WEISS, *Chief*

THOMAS J. HEADLEE, PH. D., *State Entomologist*

MEL. T. COOK, PH. D., *State Plant Pathologist*

During the fiscal year ending June 30, 1922, 172 cases of foreign nursery stock were inspected. Several hundred cases of foreign grown bulbs and a large number of cases of foreign stock imported under special permits entered the state during the year, but were not inspected by state inspectors. Bulbs are not likely to carry pests injurious to agriculture, and the stock imported under special permit was inspected by the Federal Horticultural Board. The 172 cases which were inspected consisted mostly of rose stocks, fruit stocks, palm nuts and fruit, tree and shrub seeds. No serious pests were intercepted. The origin of this material is shown in the following table:

SUMMARY OF FOREIGN NURSERY STOCK INSPECTED

<u>Country of Origin</u>	<u>Number of Cases</u>
Holland	101
England	21
Japan	13
France	11
Australia	11
Siam	4
Brazil	3
Ireland	5
China	1
Trinidad	1
Germany	1
Total	172

DOMESTIC STOCK INSPECTED DURING FALL OF 1921

<i>Origin</i>	<i>Number of Cases</i>	<i>Number of Carloads</i>
Alabama	1	0
California	15	2
Connecticut	9	0
Delaware	3	0
Indiana	1	0
Kansas	1	0
Maryland	13	0
Massachusetts	8	0
Missouri	3	0
New York	26	2
Ohio	49	0
Oregon	1	0
Pennsylvania	5	0
Virginia	1	0
Totals	136	4

In the above shipments, over half of which were fruit stock, there were rejected 834 apples trees, 5 peach trees and 136 raspberry plants on account of crown gall infection. A shipment of 430 apple trees was returned because it was infected with an undetermined disease of the bark.

DOMESTIC STOCK INSPECTED DURING SPRING OF 1922

<i>Origin..</i>	<i>Number of Cases</i>	<i>Number of Carloads</i>
Alabama	11	0
California	302*	8
Connecticut	4	0
Delaware	6	0
Indiana	5	0
Iowa	1	0
Kansas	20	0
Maryland	22	3
Michigan	3	0
Missouri	7	1
New York	54**	0
North Carolina	1	0
Ohio	4	0
Pennsylvania	9	0
Tennessee	6	0
Totals	456	12

During the spring inspections, 3,515 apple and 14 peach trees were condemned on account of crown gall infections. Fifty spruce trees were condemned because of a heavy infestation of gall aphid.

*Mostly ornamentals.

**Half fruit trees and half ornamentals.

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NURSERY INSPECTION

Two hundred and twelve nurseries and dealers' establishments were inspected, and certificates issued as follows:

General certificates.....	135
Dealers' certificates.....	25
Berry certificates.....	19
Greenhouse certificates.....	10
Rose certificates.....	9
Peach certificates.....	8
Dahlia certificates.....	6
Total.....	212

SPECIAL CERTIFICATES

Fifty-eight special certificates were issued to facilitate the shipment of small amounts of stock to points outside of New Jersey. Sixteen shipments were certified as being apparently free from Japanese beetle, as required by the Florida and Mississippi inspection laws.

SPECIAL INSPECTIONS

Fifty-one special inspections were made in answer to requests for information and advice concerning various insects and plant diseases where a personal visit was necessary.

WHITE PINE BLISTER RUST INSPECTION

A very light case of blister rust was found last summer on currants at Blue Anchor. All but a very few of these plants were torn up and destroyed. The Bureau of Statistics and Inspection is cooperating with the United States Department of Agriculture in experimenting on the few remaining bushes at this place to see if the disease may overwinter on the plants in New Jersey. All quarantined white pines and white pines in nurseries were inspected, with negative results in every case.

The following table shows the findings since 1916:

White Pine Blister Rust Findings

Locality	1916	1917	1918	1919	1920	1921	1922 to July 1
Rutherford	15 pines	9 pines	0	0	0	0	0
Little Silver*	1 (on currants)	1 (on currants)	0	0	0	0	0
Clementon (not near nursery)	0	0	2 pines	0	0	0	0
Eatontown	3 pines	0	0	0	0	0	0
Red Bank*	1 (on currants)	1 (on currants)	4 (on currants)	1 (on currants)	0	0	0
Millburn	1 pine	0	0	0	0	0	0
Morristown	48 pines	6 pines	3 pines	0	0	0	0
Blue Anchor*	0	0	0	1 (on currants)	1 (on currants)	1 (on currants)	0

*Number before phrase "on currants" refers to number of plantings infected.

WHITE POTATO SEED INSPECTION AND CERTIFICATION

This work, conducted jointly by the State Department of Agriculture and the New Jersey State Potato Association, showed a very remarkable growth. Eighty-five growers entered fields for certification, with a total acreage of 947.25, as compared with 21 growers with an acreage of 197 in 1920. The following tabular statement covers the results of the past year.

Summary of White Potato Certification

Variety	Entered		Withdrawn or sold before final inspec- tion	Rejected	Certified	
	Acres	Growers			Acres	Growers
Irish Cobbler...	826½	73	35½	310½	480½	59
American Giants.	90	7	4	8	78	7
Norcross	15	2	0	5	10	1
Superba	5	1	0	0	5	1
Green Mountain.	9¾	6	0	9¾	0	0
Red Skin.....	½	1	0	½	0	0
Pink Eye.....	½	1	0	½	0	0
Totals	947¼	85	39½	334¼	573½	64

Rejected Acreage by Varieties and Causes

Variety	Leaf Roll	Scab	Varietal Mixture	Rhizoctonia	Weak Hills
Irish Cobbler...	52 per cent	33 per cent	1 per cent	11 per cent	3 per cent
American Giants	12½ per cent			87½ per cent	
Norcross	40 per cent	60 per cent			
Green Mountains	33 per cent		67 per cent		
Red Skin.....	100 per cent				
Pink Eye.....	100 per cent				
All Varieties...	50½ per cent	32 per cent	2½ per cent	12½ per cent	2½ per cent

SEED SWEET POTATO INSPECTION AND CERTIFICATION

The inspection of sweet potatoes grown with the view of being certified for seed purposes was carried on by the Bureau for the first time during this fiscal year. One hundred and one acres were entered by 24 growers in Atlantic County. Eighty-four and one-half acres passed all inspections and were certified. The following table shows the distribution of the fields according to variety.

Summary of Sweet Potato Certification

Variety	Entered		Withdrawn	Rejected	Certified	
	Acres	Growers			Acres	Growers
Yellow Jersey.....	65½	13	1	10	54½	10
Big Stem Jersey....	26½	8	0	2	24½	7
Jersey Red.....	3½	4	1	0	2½	3
Red Brazil.....	5	1	0	2	3	1
Gold Skin.....	½	1	0	½	0	0
Totals.....	101	24	2	14½	84½	19

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Most of the rejections were made on account of stem rot. Black rot disqualified one field after digging.

TOMATO SEED CERTIFICATION

During the past fiscal year 128 acres of tomatoes were inspected and the seed certified as being from vigorous plants free from disease. This work was done in cooperation with the Joseph Campbell Company, of Camden, New Jersey.

Fields Certified

Bonny Best.....	84 acres in 9 fields
Greater Baltimore.....	44 acres in 7 fields
Totals.....	128 acres in 16 fields

QUARANTINES

Japanese Beetle Quarantine dated January 1, 1922, supersedes that of November 1, 1920, and deals mainly with the movement of plants and plant products from the territory known to be infested by the Japanese beetle. This quarantine is entirely intrastate and is enforced in cooperation with the Federal Horticultural Board.

Gipsy Moth Quarantine dated August 1, 1921, supersedes quarantine dated October 4, 1920, and covers nursery, forestry and quarry products originating in the territory known to be infested by the gipsy moth. This quarantine is also intrastate and is enforced in cooperation with the Federal Horticultural Board.

WORK OF SPECIAL INSPECTION FORCE

This force, which is engaged mainly in making gipsy moth inspections in various parts of the state, has accomplished the following work during the year:

- Number of nurseries inspected, 150.
- Number of New England shipments inspected, 561.
- Number of miles of roadside scouted, 115. This includes a width of from $\frac{1}{4}$ to $\frac{1}{2}$ mile on each side. Most of this scouting was done in the southern part of the state.
- Number of towns scouted, 46.
- Number of special inspections made, 160. These were of places thought to be infested by the gipsy moth.
- Number of white pine blister rust inspections made, 28.
- Number of European corn borer inspections, 385.
- Acreage of strawberries inspected for *Heterostomus pulicarius*, an introduced pest, 66. This was done at Ramsey, Montville, Three Bridges, Athenia, Fairlawn, Hammonton, Riverton, Moorestown, Mantua and Haddon Heights.

With the exception of the New England shipments, the results of the inspections were negative. During the course of the New England stock inspection in the spring and early summer, the following infestations of gipsy moth were found:

<i>Consignee</i>	<i>Consignor</i>	<i>Findings and hosts</i>
Mrs. C. W. Blakestee, 112 Manor Place, Cranford, N. J.	F. & J. Farquhar, Dedham, Mass.	1 egg mass on spruce
Mrs. C. L. Bull, Oradell, N. J.	F. & J. Farquhar, Dedham, Mass.	1 untreated egg mass 1 treated egg mass 1 pupa case 1 moult skin
Plainfield Nurseries, Scotch Plains, N. J.	F. & J. Farquhar, Dedham, Mass.	3 moult skins on rhododendrons
Lodi Shade Tree Commission, Lodi, N. J.	Framingham Nurseries, Framingham, Mass.	1 treated egg mass
J. T. Lovett, Little Silver, N. J.	F. & J. Farquhar, Dedham, Mass.	1 egg mass on rhododendron
J. E. Clark, 304 Clark St., Westfield, N. J.	Little Tree Farms, Boston, Mass.	1 untreated egg mass on spruce
R. G. Kendrick, 101 Laurel Hill Road, Mountain Lakes, N. J.	American Forestry Co., Framingham, Mass.	1 untreated egg mass 1 pupa case 1 moult skin on blue spruce 3 live larvae
R. C. McCaul, 215 Euclid Ave., Ridgefield Park, N. J.	Geo. L. Mahoney, 255 Peach St., Saco, Maine.	1 full-grown live larva 1 half-grown live larva
L. DeSaussure, Washington & Edward Sts., Bergenfield, N. J.	American Forestry Co., Framingham, Mass.	4 live larvae on spruce
Mrs. F. W. Sheaf, 324 Montrose Ave., Rutherford, N. J.	Little Tree Nurseries, Boston, Mass.	3 live larvae
Robert Stewart, 311 Montrose Ave., Rutherford, N. J.	American Forestry Co., Framingham, Mass.	1 untreated egg mass on spruce
G. M. Buckingham, New Vernon, R. F. D., Morristown, N. J.	American Forestry Co., Framingham, Mass.	3 live larvae on spruce
Mrs. L. B. Hower, 175 High St., West Orange, N. J.	American Forestry Co., Framingham, Mass.	1 egg mass on spruce
J. D. Baer, 7 Porter Place, Newark, N. J.	American Forestry Co., Framingham, Mass.	1 live pupa on spruce
Mrs. A. C. Heiland, 424 Hillside Terrace, South Orange, N. J.	American Forestry Co., Framingham, Mass.	8 pupa cases 1 untreated egg mass

The above findings illustrate the necessity of inspecting all nursery stock shipped into New Jersey from areas where dangerous pests exist. If the above infestations had not been located and destroyed and had been allowed to develop unchecked, the future cost to the state would have been very great. Our special inspection force is doing good work and has justified its existence many times over.

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EUROPEAN CORN BORER SCOUTING

During the past year, 385 towns and vicinities of towns were inspected for the European corn borer. Every county in the state shared in this inspection which involved over 6,000 acres. Eighteen broom factories and their surroundings were scouted. All results were negative. In addition, federal inspectors from the New England area spent several weeks in inspecting likely places along the entire New Jersey coast and found nothing. From this, it would appear that New Jersey is probably free from this pest.

THE JAPANESE BEETLE*

(Popillia japonica Newm.)

The work connected with the Japanese beetle project has continued under the direction of Mr. C. H. Hadley, and the following statement covers briefly the activities during the past fiscal year.

INFESTED AREA

*New Jersey**Burlington County*

Beverly Township
Burlington Township
Chester Township
Cinnaminson Township
Delran Township
Evesham Township
Lumberton Township
Medford Township
Mount Holly Township
Mount Laurel Township
Northampton Township
Palmyra Township
Riverside Township
Westhampton Township
Willingboro Township

Camden County

City of Camden
Center Township
Clementon Township
Delaware Township
Gloucester Township
Haddon Township
Pensauken Township
Voorhees Township
Borough of Magnolia

Gloucester County

Deptford Township
West Deptford Township

Quarantine Work and Scouting

Federal interstate and state intrastate quarantines have been in force. Temporary suboffices have been maintained at Beverly, Moorestown and Merchantville. Inspection and certification of all products have been required, but actual inspection of vegetable products other than sweet corn has seldom been made except on farms where the infestation was heavy. On January 1, 1922, the quarantine regulations were revised, providing that only sweet corn, grapes, lettuce, cabbage and forage crops be inspected.

*Conducted in cooperation with the Bureau of Entomology, U. S. Department of Agriculture.

Scouting to determine the limits of the infestation was carried on during the summer of 1921, and in an area of approximately 400 square miles 213 square miles in New Jersey and 57 square miles in Pennsylvania were found to be infested. The enforcement of the quarantine, including scouting, required the services of 97 men for various periods throughout the season. The quarantine situation is rapidly reaching a point where more money must be spent in order to make the work effective.

Insecticide Investigations

Data obtained during the summer of 1921 seem to indicate that the use of lead arsenate in doses heavier than commonly recommended will result in killing from 50 to 60 per cent of the beetles. Field tests on a large scale remain to be made. Metallic cyanides, organic chemicals and contact insecticides for the beetle have been studied in the laboratory. In this connection it may be stated that soybean soap gave promising results, killing approximately 90 per cent of the beetles during the tests.

Volatile chemicals were tried out against the grub, and paradichlorobenzine gave best results. A kill of about 75 per cent was obtained when this material was drilled into the sod at the rate of 300 pounds per acre at a depth of about one inch, with the drills four inches apart.

Soil fumigation studies showed that carbon bisulphide is cheap and efficient for potting soil. For best results 13 fluid ounces (1 pound) should be used to a cubic yard of soil. The exposure should be 48 hours at a temperature above 50 degrees Fahrenheit.

Vacuum and pressure studies were temporarily discontinued after it was demonstrated that neither a pressure up to 300 pounds to the square inch nor a vacuum up to between 28 and 29 inches in alternation was effective in destroying the grubs without injuring the plants at the same time.

Biological Investigations

Studies on the life history and habits of the beetle have been continued, and a great deal of information has been accumulated. Its feeding habits indicate that it is likely to become a greater pest each season. There is reason to believe that year by year the insect is showing a greater preference for cultivated varieties as compared with wild varieties.*

Cultural investigations to determine the effect of farm practices as methods of control have been made, but conclusive results have not been obtained. This work should be continued for several years.

*The ravages of the beetle after July 1 on shade and fruit trees in the vicinity of Moorestown have definitely fixed its status as a serious pest.

Parasites

Work with the imported predaceous beetle *Crespodonotus tibialis* was discontinued, as this species failed to survive two New Jersey winters. Tachinid parasites received from Japan have been placed in the field, and native parasites have been studied. Dr. J. F. Illingworth has been employed to investigate the parasitic situation in Hawaii with a view to introducing species into New Jersey.

Other Work

Suitable equipment has been obtained for making a study of the effect of the removal of the soil from the roots of balled-earth nursery plants, and for a study of the effect of low temperatures upon the larvae in the soil about the roots of coniferous nursery stock. In view of the large nurseries within and just outside of the infested area, this is an important problem.

THE GIPSY MOTH

During the past fiscal year, the gipsy moth work* was continued mainly along the lines followed during the previous year. At the beginning of the year woodland scouting on the Watchung Mountains was started, and a considerable part of the first ridge and a smaller part of the second ridge were covered. Slight, scattering infestations were found. During the fall, winter and spring, the entire infested area was scouted, this section involving some 1,400 square miles including a free border area about eight miles wide. During the course of this work 909 egg clusters were found and creosoted. This is in comparison with over 3,000,000 egg clusters found and creosoted during the previous year. It should be stated, however, that most of this reduction took place on the Duke Estate, which is the center of the infestation.

The reductions in the main area surrounding the Duke Estate and in the Duke Estate are shown in the following table:

	Duke Estate	Remainder of Area
1920-21, egg clusters found.....	3,000,000	3,039
1921-22, egg clusters found.....	53	856

No indications of the gipsy moth were found at Elizabeth, South Orange, Scotch Plains, Wyckoff or Kingston nurseries, nor at Deal Beach, Paterson, Madison or Glen Rock. These sections, while con-

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

sidered free, will be watched for several years. Detailed information concerning the findings of the past two years will be printed in a Department circular. There was no material change in the size of the infested area.

Aside from the scouting and treatment of egg clusters, 31,419 trees were banded with sticky material wherever there was a possibility of larvae being found. This necessitated the use of five tons of tree-banding material. About 7,000 yards of burlap were applied, the total number of bands being 10,869, distributed as follows in the various townships:

Bedminster	17 trees	W. Windsor	72 trees
Passaic	171 "	Madison	53 "
Branchburg	305 "	E. Brunswick	136 "
Piscataway	173 "	Raritan (Hunt. Co.)	10 "
South Brunswick	143 "	Mendham	178 "
Raritan (Mid. Co.)	106 "	Bridgewater	3571 "
North Brunswick	149 "	Fanwood	158 "
Bernards	275 "	Duke's Park	2462 "
Warren	312 "	Readington	134 "
North Plainfield	83 "	Franklin	1623 "
Hillsboro	710 "	Clinton	28 "

The number of gipsy moth larvae killed beneath bands, etc., during the year was 998, distributed as follows. Last year 5,355 larvae were found in similar situations.

Bridgewater	443
Hillsboro	273
Franklin	172
Manalapan	73
Monroe	10
Duke's Park	7
South Brunswick	19
Warren	1
Total	998

Before the spraying season started ten Federal spraying outfits, each with 2,000 feet of hose, were transferred to New Jersey, and these, together with the eleven state machines, operated in the infested area. Two machines were located on the first Watchung ridge, and water was secured from the stand pipe of the Bound Brook Water Company. A third machine was stationed about a mile away from the second ridge, and a mile of iron pipe and hose delivered the spray to this ridge. Another machine was loaded on a scow furnished by the Pennsylvania Railroad Company, and the foliage along parts of the Delaware and Raritan Canal was sprayed. The remainder of the machines operated in the balance of the infested area. Eighty-nine tons of arsenate of lead were used. The result of the spraying

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was somewhat disappointing, due to the excessive rainfall during June. Rain fell somewhere in the area during the 24 hours on twenty days in June.

Gipsy Moth Statistics

Number of Men Employed Throughout the Year

July.	Aug	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June
56	55	63	72	81	93	118	141	155	129	185	276
Approximate square miles scouted.....										1,400	
Total number of miles scouted.....										3,612	
Number of apple and fruit trees scouted.....										1,237,000	
Shade trees scouted.....										787,000	
Acres of woodland scouted.....										14,359	
Acres sprayed.....										3,757	
Trees sprayed.....										22,923	
Number of egg clusters found.....										909	
Number of burlap bands applied.....										10,869	
Number of trees banded with tree-banding material.....										31,419	
Number of larvae killed beneath bands, etc., during season.....										988	
Amount of arsenate of lead used (tons).....										89	

Quarantine Work

Under a state quarantine nursery stock originating in the infested area has been examined. Woodlands where portable sawmills existed were scouted, together with numerous lumber yards and other places where commercial shipping was taking place. Twenty-one sawmills were located in the infested area, and precautions taken where necessary to prevent the spread of the moth on lumber.

Expenditures during Fiscal Year 1921-22

State appropriation.....	\$125,000.00
Labor	78 per cent
Supplies, arsenate of lead, etc.,	17 " "
Office expense, rentals, insurance, etc.,	2 " "
Travel	3 " "
Federal expenditure in New Jersey for labor, supplies, and supervision,	\$101,500.00
Total amount expended.....	\$226,500.00

Report of the Bee Inspection ServiceHARRY B. WEISS, *Chief*THOMAS J. HEADLEE, *State Entomologist*ELMER G. CARR, *Deputy to the State Entomologist in Bee Inspection*

DISEASE CONTROL

During the fiscal year 190 apiaries, containing 3,330 colonies of bees were inspected, an average of 17.7 colonies per apiary. All except 22 were housed in some type of movable frame hive. Two hundred and eleven, or 6.3 per cent, were found to be infected with American foulbrood, and 44, or 1 per cent, were infected with European foulbrood. Seventy-eight cases of sacbrood were found. This disease has not proved to be infectious under ordinary conditions and is causing no appreciable loss to New Jersey beekeepers.

The areas about Spotswood, in Middlesex County, and Pattenburg, in Hunterdon County, still continue to remain free of infection, showing that the eradication of American foulbrood from a locality is possible.

Three new areas of infection of American foulbrood have been found—one at Vineland, Cumberland County, one at Swainton, Cape May County, and the third at Florham Park, Morris County. The first named infection centre has been reinspected, and splendid progress towards the elimination of the disease has been made. Progress is also being made at the last named place. The Swainton area has not been reinspected. The Florham Park infection came from a shipment of ten packages of bees from Georgia without certification. Seven of the ten packages were found infected with American foulbrood. The apiary in which this shipment was received contained 150 colonies, and had the disease not been promptly discovered serious loss undoubtedly would have occurred.

QUEEN REARERS' CERTIFICATES

Queen-rearing apiaries have been examined, found free of disease and certificates issued as follows: Robert B. Spicer, Wharton, Morris County, July 18, 1921, and May 16, 1922; J. Field Garretson, Bound Brook, Somerset County, July 27, 1921, and April 29, 1922; Albert G. Hann, Glen Gardner, Hunterdon County, May 16, 1922.

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CERTIFICATION FOR INTERSTATE MOVEMENT

Many states now have a law which requires that incoming shipments of bees must bear a certificate of health. Two apiaries have been certificated for interstate movement; one at Mahwah for movement into New York, and one at Upper Montclair for movement into Massachusetts.

BEE POISONING

Cases of loss to beekeepers continue to appear, no cause for which has been found except possibly poisoning. Three such cases at New Egypt, in Ocean County, one at Skillman, in Somerset County, and one at Moorestown, in Burlington County, have been investigated. Samples of sick and dead bees were sent to the Bureau of Chemistry at Washington, which reported finding in the bees much more than enough arsenic to cause the death of the bees. No clue to the manner in which the bees get the poison has been found.

ISLE OF WIGHT DISEASE

A conference was called in March by the Bee Culture Laboratory, Washington, D. C., to consider steps to prevent the introduction into this country of *Acarapis Woodii*, a parasitic mite believed to be responsible for enormous losses of bees in the British Isles. Since one shipment of bees the past year into the United States had been known to contain living mites, it seemed wise to prohibit all importation of living bees except through the United States Department of Agriculture, which could properly guard against introduction of the mites.

The Deputy Bee Inspector, together with representative bee disease control workers of the United States and Canada, took part in this conference.

EDUCATIONAL

Believing that bee disease control and the advancement of beekeeping in New Jersey is very largely dependent upon making better beekeepers, a strong educational program was carried out. Seven field meets and demonstrations were held with an attendance of 251; six lectures were given the Essex County Beekeepers' Society, attendance 151; one lecture at Washington Valley community meeting, attendance 80; one lecture at Ramsey Grange meeting, attendance, 45; school of beekeepers at Newton, attendance 8; six lectures to Fruit Course students at New Brunswick, attendance 72; four sessions of New Jersey Beekeepers' Association during "Agricultural Week,"

Trenton, attendance 187. Exhibits were made at the Armory, Trenton, during "Agricultural Week," also at Atlantic City during the annual meeting of the Horticultural Society. Two issues of "New Jersey Bee Culture," the official organ of the New Jersey Beekeepers' Association, have been issued to the six hundred paid-up members. Copy for a revised edition of the "Manual of Bee Husbandry" has been prepared.

STUDY OF BEEKEEPERS' PROBLEMS

Through the activities of the New Jersey Beekeepers' Association, of which the Deputy Bee Inspector is secretary, an appropriation of \$3,000 was secured from the last Legislature for the use of the New Jersey Agricultural Experiment Station. This is to be used for the study of three specific problems: (1) The value of bees to the horticulturists as pollinators, and the number needed; (2) The investigation of the serious loss of bees in parts of the state from some obscure cause, supposedly poisoning, and (3) Breeding more highly productive and disease-resistant bees.

STATISTICS

No accurate figures representing the bee and honey industry of New Jersey have ever been collected. Much of the New Jersey honey crop is sold near the point of production, and heretofore no figures have been available. That a fair representation of the importance of the business may be available, a survey has been partly made of the production of honey and wax in the state and will be continued as opportunity is afforded.

QUEEN BREEDING

The queens which were imported from Italy in 1921 proved to be practically valueless in resisting European foulbrood. Other stock has been secured and is being tested for disease resistance in the state apiary at New Lisbon.

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