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DEPARTMENT OF AGRICULTURE

ALVA AGEE, Secretary

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## FOREWORD

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The reports of Hon. Joseph S. Frelinghuysen, President of the State Board of Agriculture, and Alva Agee, Secretary of Agriculture, were presented in Bulletin Number 5.

The Department of Agriculture was organized July 1, 1916, and the fiscal year closed October 31, giving to the bureaus of the new Department only four months of work upon which reports are due.

The Secretary of Agriculture is the acting Chief of the Bureau of Animal Industry and reports within this Bureau are made by Chas. McNabb, Chief Inspector, who has control work in charge, and Professor F. C. Minkler, Live Stock Commissioner.

A. L. Clark, Chief of the Bureau of Land, Crops and Markets, makes report for his Bureau.

Hon. Franklin Dye, Chief of the Bureau of Statistics and Inspection; Dr. Thos. J. Headlee, State Entomologist; Dr. Mel. T. Cook, State Plant Pathologist, and Harry B. Weiss, Chief Inspector, make reports for the Bureau.

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BUREAU REPORTS OF THE NEW JERSEY STATE BOARD  
OF AGRICULTURE FOR 1916

REPORT OF DISEASE-CONTROL WORK IN THE BUREAU OF  
ANIMAL INDUSTRY

CHARLES McNABB, Chief Inspector

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I herewith present the report of the disease-control work in the Bureau of Animal Industry from July 1 to October 31, 1916.

Previous to July 1 the laws relative to contagious diseases of animals, with the exception of tuberculosis, were enforced by the State Department of Health. Under the provisions of Chapter 238 of the Laws of 1916, the enforcement of said acts was transferred from the State Department of Health to the State Department of Agriculture, and since these laws became operative on the date above-named, all work relative to contagious diseases of animals in New Jersey has been conducted under my supervision.

Under the present arrangement of carrying on the work the State is divided into 5 districts. The first district, comprising the counties of Bergen, Essex, Hudson, Union and Passaic, is under the direct supervision of Dr. William Herbert Lowe, inspector. The second district, comprising the counties of Essex, Morris and Warren, is under the direct supervision of Dr. Whitfield Gray. The third district, comprising the counties of Salem, Gloucester, Atlantic, Ocean, Cape May and Cumberland, is under the direct supervision of H. B. Richman. The inspector originally appointed to have supervision over District No. 4 resigned, and no one has yet been appointed in his place. The work in this district, which comprises the counties of Middlesex, Burlington and Monmouth, is therefore conducted personally by the Chief Inspector pending the appointment of a district inspector. The fifth district, comprising the counties of Hunterdon, Mercer and Somerset, is under the direct supervision of Dr. H. H. Bair.

Weekly reports are made by the district inspectors to the Chief Inspector on blanks provided for that purpose. These reports show the number of imported cattle tested before entering the State, the number tested after entry into the State, all appraisements of cattle, the amount and value of hides and meat sold, and the disposition of carcasses. The reports also show cases of contagious diseases of animals coming to the attention of the inspectors during each week. These reports when received are promptly checked up in the main office and careful consideration is given to all appraisements allowed and the disposition made of imported reactors and carcasses of animals slaughtered on account of tuberculosis. Cases of all other contagious diseases of animals reported are investigated at once and necessary action taken to prevent the spread of the disease.

#### ACTINOMYCOSIS

One case of this disease occurring in Sussex County was reported during the four months from July 1 to October 1. The cow was condemned and slaughtered.

#### ANTHRAX

No cases of anthrax have been reported to the Department during the four months. This is believed to be largely due to the fact that all cattle in infected areas in the State were inoculated with anti-anthrax vaccine under the direction of the State Department of Health during the past year. Action was taken to disinfect pasture lands as far as possible and cattle were prevented from pasturing on infected meadows during the past summer.

#### BLACKLEG

No cases of this disease have been reported to the State Department of Agriculture, but a few cases occurred in Sussex County during the present year previous to July first, and prompt action was taken by the State Department of Health to stamp out the infection.

#### GLANDERS

Under date of July 15, 1916, the following proclamation relative to glanders, or farcy, was issued by the Department of Agriculture of the State of New York:

#### PROCLAMATION

#### STATE OF NEW YORK—DEPARTMENT OF AGRICULTURE NOTICE AND WARNING AGAINST GLANDERS OR FARCY

#### TO WHOM IT MAY CONCERN:

Pursuant to the provisions of the Agricultural Law and in order to prevent the spread of the disease known as GLANDERS or FARCY, I, Charles S. Wilson, as Commissioner of Agriculture, by virtue of the authority vested in and duties imposed upon me as such Commissioner by the Agricultural Law, hereby order and direct as follows:

1. That no person or persons shall remove or assist in removing any equine animal from the territory covered by and included within the following geographical districts, to wit, the Counties of WEST-CHESTER, ROCKLAND, BRONX, NEW YORK, KINGS, QUEENS, NASSAU, SUFFOLK, or RICHMOND, State of New York, without a permit being first secured for such removal from the Commissioner of Agriculture or his duly qualified representatives, except as herein provided. See Section 9.
2. It is further ordered and directed that no equine animal shall be removed from the Counties of Bronx, New York, Kings, Queens, or Richmond, State of New York, to any other portion of the quarantined district above described, except upon permit referred to under Section 1.
3. That no person or persons shall bring or cause to be brought into the above described quarantined district any equine animal which is affected with the infectious or contagious disease known as glanders or farcy.
4. Any person or persons bringing an equine animal into the above-described quarantined districts shall report to the office of the Department of Agriculture, 17 Battery Place, New York City, within 48 hours, giving the following information:

Name and address of consignor.

Point from which shipped or brought.

Date of shipment.

Route or routes over which said animal or animals are to come.

Point of destination within the State and district.

Name and address of person to whom consigned.

5. Any animal so shipped or brought into the above described quarantined district, if already tested in a manner satisfactory to the Commissioner of Agriculture, may, upon receipt of an acceptable report of such test forwarded with above shipping report, be released immediately. Otherwise such animal shall be held at destination until suitable examination has been made in a manner satisfactory to the Commissioner of Agriculture, and shall not be removed from destination until due and formal permit is issued and given.

6. If such animal is to be shipped or moved to any point within New York State outside of said quarantined district, such permit will be issued only upon presentation to the official or officials above specified of satisfactory and acceptable mallein test certificate showing that test of such animal was made within 60 days prior to date of application for such removal.

7. If such animal is to be moved to a point outside the State of New York, such permit, if issued, will be subject to the requirements of the State to which the animal goes.

8. If an owner of an equine animal used in transient or daily service between a point within and a point outside said district, shall furnish the Commissioner of Agriculture or his duly qualified representative satisfactory evidence as to the freedom of such equine animal so used from the disease known as glanders or farcy, and provide sufficient means of identification, as a numbered tag or brand, acceptable to the Commissioner of Agriculture, such animal may be used in such transient service for a period of one year from date of such health certificate without further examination, unless otherwise ordered. (Such evidence of health shall be based upon a proper mallein test by a veterinarian whose work is approved by the Commissioner of Agriculture or by the proper official of the State in which the animal legally belongs.)

9. Nothing in this order shall be construed to prohibit the transportation of equine animals by common carriers through said district or to prohibit the removal therefrom of such animals unloaded within said district for feed, water, and rest only, when their unloading and care has been under proper supervision.

10. For the purpose of facilitating the movement of equine animals under this order, the local office of the Department of Agriculture, 17 Battery Place, New York City, is hereby authorized and directed to supervise the enforcement of this notice and order.

J. C. WILLS,  
*Chief Veterinarian.*

CHARLES S. WILSON,  
*Commissioner.*

In accordance with the provisions of this proclamation, it was necessary to have all horses and mules entering the city or State of New York tested by the opthalmic mallein test. Mallein for this purpose was furnished by the United States Bureau of Animal In-

dustry through our Department, and records of all tests made were transmitted by this Department to the United States Bureau of Animal Industry. In all cases of doubtful diagnoses the tests were confirmed by complement fixation tests made at the National Pathological Laboratory, in New York City, under an arrangement with this Department. Blue pass cards were furnished free of charge by our Department to all owners of horses and mules in order that the animals might be allowed to enter the State of New York pending the furnishing of tags as required by the above-mentioned proclamation. Fifteen thousand tags were later supplied by us free of charge. Seventy-eight positive reactors were condemned and destroyed. These reactors were found in the counties named as follows: Bergen, 25; Passaic, 4; Union, 2; Hudson, 17; Essex, 29, and Middlesex, 1.

Four thousand horses and mules for exportation to England and France were tested at Jersey City before shipment, and twenty were found to be reactors and were condemned and destroyed. Two camps for horses and mules purchased in this country by the Allies were established, one at Finderne, Somerset County, and the other at Teaneck, Bergen County. Many thousand horses and mules were sent to these camps from time to time throughout the four months, awaiting shipment to the said countries, and while at the camps were frequently examined by our inspectors; but as these animals had been carefully tested before being shipped to the camps, no cases of glanders were found among them. Several animals were found to be affected with strangles, ringworm and other minor ailments.

#### NECROTIC STOMATITIS IN HORSES

One thousand horses from St. Louis, the property of Dowler, Forbes & Co., "Allies," 21 South William St., New York City, were first inspected by Dr. H. H. Bair at Finderne, N. J., and again at the Central Union Stock Yards, Jersey City, by Dr. William H. Lowe. They both diagnosed the disease as infectious necrotic stomatitis. Five hundred horses were found to be affected. Quarantine restrictions were imposed immediately and no animals were allowed out of the yards except for immediate slaughter or for exportation. They soon recovered and were shipped to France.

## POISONING

Three horses and 11 heifers in Sussex County, and 5 heifers in Warren County were found upon investigation to be suffering from poisoning by deadly nightshade.

Examination was made on July 31 of 54 swine on a stock farm in Sussex County; five of the number were sick, and three had died. Post mortem examination was made and the result arrived at from clinical observation was that the animals had died from potash poisoning carried by dish water which was fed to the pigs.

In Warren County a number of guinea pigs were examined, some of which were sick, 200 having died a few days previous. From a clinical examination it was concluded that the animals were affected with forage poisoning. A bacteriological examination was recommended and specimens were accordingly prepared and sent to the laboratory of Squibb & Co., New Brunswick, and the Rockefeller Institute at Princeton, and the results of the examinations confirmed the diagnosis of forage poisoning.

## TUBERCULOSIS

The State Department of Agriculture has had charge of the work relating to tuberculosis in dairy cattle for many years and reports concerning this work have been published from year to year. The work this year has been conducted in the same manner as for several years past, and reports show that the number of infected animals in herds tested has decreased from year to year.

## TABULAR REPORT OF INSPECTION OF CATTLE FOR TUBERCULOSIS

July 1-October 31, 1916.

REPORT OF CHAS. M'NABB, CHIEF INSPECTOR TO COMMISSION ON  
TUBERCULOSIS IN ANIMALS

	No. of Imported Cattle Tested BE- FORE Entering State.	No. of Cattle Im- ported and Tested AFTER Entering State.
1st District—Dr. William H. Lowe, Inspector.....	2,393	804
2nd “ Dr. W. Gray, Inspector.....	345	819
3rd “ H. B. Richman, Inspector.....	12	1,210
5th “ Dr. H. H. Bair, Inspector.....	1,681	1,232
Total .....	4,431	4,065

		No. of Imported Reacting Cattle Slaughtered.	Appraisements of Native Cattle Slaughtered.
1st District—Dr. William H. Lowe, Inspector.....	19	3 Head	\$ 150
2nd “ Dr. W. Gray, Inspector.....	45	55 “	2,510
3rd “ H. B. Richman, Inspector.....	30	14 “	525
5th “ Dr. H. H. Bair, Inspector.....	41	26 “	1,048
Total .....	135	98	4,233

		Amount Received from Meat and Hides Sold, Slaughtered Un- der Inspection.	Amount Received from Shippers of Imported Cattle for Testing.
1st District—Dr. William H. Lowe, Inspector.....			
2nd “ Dr. W. Gray, Inspector.....	\$ 579.00		
3rd “ H. B. Richman, Inspector.....	20.40		
5th “ Dr. H. H. Bair, Inspector.....	568.63		\$15.00
Total .....	\$1,168.03		\$15.00

The charts of examinations of 4,065 imported cattle, tested after entering this State, show that 135 of these animals were condemned and slaughtered. The following table shows the number of domestic cattle tested:

Number of herds tuberculin-tested.....	24
“ “ animals in above herds.....	845
“ “ “ condemned in above herds.....	55
“ “ herds physically examined.....	25
“ “ animals in above herds.....	601
“ “ “ condemned on physical examination.....	26

A complete stable record of each herd, whether tuberculin-tested or physically examined, is on file in the office. All stables are disinfected where animals have been condemned, and post mortems are held in all cases where practicable.

To prevent the possible introduction of animal diseases into New Jersey and the infection of stock exhibited at the agricultural fairs held in the State, it was deemed wise to promulgate regulations pertaining to the entry of live stock for exhibition purposes; and, therefore, about a month prior to the opening of the Inter-State Fair, at Trenton, the following order was issued:

#### STATE BOARD OF AGRICULTURE

##### Regulations Pertaining to Live Stock Entering the State of New Jersey for Exhibition Purposes

In order to guard against the introduction of animal diseases into this State and possible infection of stock exhibited at the agricultural fairs to be held in New Jersey this autumn, it seems to be necessary and it is hereby required that all horses, swine, sheep and goats shipped into New Jersey from other states for exhibition, be furnished with a certificate of health, stating they are free from an infectious or contagious animal disease by an authorized veterinarian of the state from which they come. Said certificate will serve as a permit for such stock to enter this State. One copy of said certificate to be mailed to this office immediately after the examination is made, the other copy to be retained by the owner or exhibitor.

Dairy animals intended for exhibition will be admitted without the tuberculin test, subject to the Laws of 1911, Chapter 202, which requires all dairy animals remaining in the State two weeks, to be subject to the tuberculin test. A special permit for the admission of dairy animals will be furnished on application to this office.

Trenton, N. J., September 6, 1916.

(Signed) ALVA AGEE,  
*Secretary, State Board of Agriculture.*

One of our inspectors represented the Department at the Trenton Fair and was in attendance each day. He examined all cattle, sheep and swine exhibited, and issued certificates of health for 19 herds of said animals.

## REPORT OF LIVE STOCK COMMISSIONER

PROF. F. C. MINKLER

The reorganization of the State Board of Agriculture, resulting in the establishment of a Department of Agriculture, provided for the transfer of the work previously administered by the Live Stock Commission and the Stallion Examining and Registration Board to the newly-created body. The Secretary for Agriculture consented to serve as acting chief of the Bureau of Animal Industry and requested the former secretary of the Live Stock Commission to serve the new department in the capacity of live stock commissioner.

It was provided that certain activities identified as constructive work should be undertaken and directed by the commissioner; that he should continue in charge of horse breeding and stallion registration, and that he should supervise the control measures instituted to check the ravages of hog cholera.

It was the belief of the Secretary for Agriculture that it would be appropriate to effect an organization to develop the constructive work that would not be involved in or responsible for the enforcement of the so-called control measures previously administered jointly by the State Board of Health, the State Board of Agriculture or the Commission on Tuberculosis in Animals. Forthwith, Mr. Harry J. Rockafeller, Jr., a graduate from the animal husbandry department of Rutgers College, was named temporarily as field inspector and delegated to certain responsibilities involved in the enforcement of the stallion law. He served the Department, as well, in its campaign to check and control outbreaks of swine plague. Furthermore, he assembled a mass of data and information that will aid the commissioner in compiling a breeders' directory intended to identify and classify the farmers in the State interested or engaged in animal production.

## THE SWINE INDUSTRY

In our endeavors to promote interest and activity in swine feeding and breeding, it was arranged to hold a number of conferences and demonstrations in certain sections of the State where pork production was considered a profitable undertaking. To this end meetings were held in Burlington, Monmouth, Sussex, Morris,



Hunterdon, Bergen, Atlantic, Cape May, Mercer, Passaic and Warren counties, while exhibits with demonstrations involving the use and achievements of the self-feeder were made at the Inter-State Fair, the Monmouth County Fair, the Mt. Holly Fair and the Bergen County Fair. Fat barrows that had been grown and developed under the free-choice system of feeding were obtained from the Experiment Station for exhibition at such fairs. Blueprints with specifications and directions for building and operating the self-feeders and individual colony houses were distributed among those engaged in swine production. Bulletin No. 1, entitled "The Swine Industry in New Jersey," was prepared and published for general distribution.

#### HOG CHOLERA CONTROL

The law establishing the Department of Agriculture conferred the executive officer with ample authority to fix and enforce quarantine regulations. This will make it possible to isolate herds affected with cholera; compel the necessary disposal of dead carcasses and provide for the proper cleaning and disinfecting of the premises where the sick animals have been quartered. Unfortunately, the disease flourishes during seasons of the year when the farmer is busily engaged in cultivating or harvesting his farm crops, which prompts him to temporize with the disease or neglect to bury the carcasses properly, or to burn them. It was found by the commissioner that this condition was wholly responsible for several serious outbreaks of cholera during the summer season.

During the four months covered in this report, 15 cases of cholera were investigated, and 25 visitations made to premises where trouble was encountered. A total of 12,500 cubic centimeters of Squibb's serum was distributed and approximately 300 hogs treated. Two herds were subjected to the serum-simultaneous treatment, veterinarians in each case being engaged to administer the virus. In several of the counties, notably in Cape May, Atlantic, Mercer, Burlington, Monmouth and Morris, the farm demonstrators aided the Department greatly by reporting the cases promptly, and assisting in the administration of the serum. A number of demonstrations were conducted, intended to offer instruction such as might guide the owner of a small herd in diagnosing the disease and in administering the serum alone. In each instance the owner was

required to provide the serum and bear the expense of the veterinarian in case his services were engaged.

I am hopeful that the Department will be in a position to cope promptly with all outbreaks that may be encountered hereafter and especially is it important that all cases be promptly reported, in order that preventive measures may be instituted. The serum treatment is not a cure; it has absolutely no curative properties, but rather is useful in protecting well animals against the ravages of the disease, only when it is administered before there is any evidence of illness. The so-called cholera cures are pure fakes. Swine owners should avoid temporizing with the disease. A veterinarian should be consulted to diagnose the trouble and the live stock commissioner promptly notified of any and all outbreaks.

#### GARBAGE-FED HOGS

Vast numbers of swine in this State are being fed garbage collected from our large cities and summer resorts. Notably in the Secaucus district may be found thousands of pigs that never tasted a mouthful of grain, but rather must be content with the refuse garbage supplied them. There is reason to believe that animals thus confined and fed are more susceptible to tuberculosis and cholera than is true of animals grown on forage crops and fattened with grain or mill by-products.

The Department hopes to be in a position to aid those engaged in this enterprise more generously, and at the same time afford protection to the consumers of these pork products. It has been determined that heavy losses are encountered in this district among the swill-fed pigs following weaning, especially with young pigs weighing from 30 to 75 pounds. No doubt certain immunity has been acquired through the feeding of trimmings of meat from pork cuts obtained from animals either immune or double-treated, and possibly the losses could be largely reduced by means of adopting the double treatment. Mature animals seem to have acquired permanent immunity and few losses are reported with animals weighing 100 pounds. The feeding of garbage to pigs offers a most interesting series of problems which ought to be worked out by the Department, working in cooperation with the Experiment Station.

## BERKSHIRE BREEDERS' ASSOCIATION

The Second Berkshire Congress meeting was arranged and held at Trenton in September. The commissioner was able to persuade the directors of the Berkshire Association to hold their show and sale in connection with the Inter-State Fair, and the event interested a great many of our farmers. It is unusual that both congress meetings be held in the same state during a single year, and it only goes to show that the officials are appreciative of the splendid opportunity that is afforded in the State for extension service directed toward a revival of the swine-breeding industry.

## HORSE BREEDING

The members of the Live Stock Commission were agreed that steps should be taken such as would transfer the ownership of the stallions now owned by the State to private individuals or local breeders' associations. The acting chief of the Bureau of Animal Industry shared this belief and the commissioner was authorized to make such disposal or transfer of the animals as seemed consistent and feasible. Finding that the stallion, King's Way, offered for service in Salem County, was suffering from scrotal hernia, and that he had not settled such mares as he had mated during the last few months, he was taken to the veterinary division of the University of Pennsylvania and, upon the advice of Dr. Adams, promptly castrated and sold at public auction. The Percheron stallion, Gravina, developed a similar injury and was castrated and sold to a farmer in Camden County. Steps will be taken to dispose of the remaining seven stallions at the opening of the breeding season. While it is found that fewer colts are being raised in this State each year, it is evident that the farmers are producing a larger percentage of draft or work horses and that a larger percentage of the stallions in service are pure bred and registered in stud books recognized by the Department.

## STALLION REGISTRATION

When the announcement was made several years ago that the State was considering the purchase of stallions for distribution for breeding purposes in the State, representatives of a number of stallion-importing firms were dispatched into the State for the

purpose of placing stallions in various districts. In a few cases local companies were formed and one or more stallions purchased at fabulous prices. The Board acted promptly and ruled that such salesmen must first obtain a permit from the examining board before they could bring into the State a stallion intended to be sold or placed for breeding purposes. This spoiled the game of certain unscrupulous dealers and offered ample protection to individuals or farmers desiring to purchase or bring into the State stallions for stud purposes. In July, a firm making their headquarters at Manassas, Virginia, brought two stallions into Hunterdon County for the purpose of selling them to a group of farmers. The commissioner was notified that certain violations of the law were being made, and promptly investigated. It developed that negotiations were under way for the purchase of these stallions and that the owner had failed to comply with the conditions of entry into the State. An examination by the board's veterinarian revealed an abnormal condition of the hocks, which made it impossible to issue a regular breeding license certificate, but rather the stallion was placed under surveillance for 6 months. At the end of this period the stallion will be returned to the seller and the purchase price refunded, in case there is further evidences of unsoundness. This instance is cited to show the sort of service or protection that is afforded by the Department.

Our records show that a total of 11 license service certificates were issued from July 1 to October 30, inclusive. There was no schedule of examinations arranged for the fall season, in view of the fact that owners of stallions have indicated a preference for presenting their charges for inspection and examinations during the early spring season. A number of reported violations of the law have been investigated and in every case the owner has consented either to castrate his stallion or definitely to retire him from stud service, in case the animal is found to be ineligible for a certificate. It is especially pleasing to note the changed attitude that now prevails among the stallion owners as regards the merits and efficiency of the stallion law. Its enforcement has driven the mongrel stallion from the stud; has encouraged owners to offer for service a higher class and more useful type of stallion, and such owners have been able to collect a service fee commensurate with the value of the colts sired. It is now admitted by all that this was distinctly constructive legislation. The stallion owners are enthusiastically sup-

porting the Department in the enforcement of the law, recognizing that its provisions not only protect their business, but actually promote the horse-breeding industry.

#### BREEDERS' ASSOCIATIONS

There exist in this State a number of active breeders' associations organized for the purpose of promoting and extending various lines of live-stock breeding. The New Jersey Berkshire Breeders' Association has rendered splendid service in stimulating activity in swine breeding and has a large membership. It was instrumental in aiding both congress meetings, and holds each year one or more public sales at the Far Hills Fair Grounds. The New Jersey Guernsey Breeders' Association schedules 4 meetings each year, three being listed as summer field meetings held at the farms of prominent breeders, and the other, the annual business meeting. They have aided the Department very much, encouraging local breeders to make exhibits of their Guernseys at local fairs, all of which affords publicity to the breed. The New Jersey Holstein-Friesian Breeders' Association, the oldest breed organization in New Jersey, has accomplished a great deal for the breed in this State. Two or three public sales have been conducted; a bull exchange has been established, while great strides have been made toward enlisting breeders and dairymen to conduct advanced-registry work. Two years ago the Jersey Cattle Breeders' Association of New Jersey was organized, largely for the purpose of encouraging registry-of-merit work and inducing breeders to exhibit at the Inter-State Fair and other local shows held in this State. An active executive committee has cooperated with the live stock commissioner in accomplishing the desired end, and a great deal has resulted from such united efforts. The Department hopes to act with, and through these various breed associations, to increase their membership and usefulness, to encourage breeders to use only pure-bred sires, and to utilize only efficient animals for mating or production purposes. It is known that the majority of live-stock breeders in the State are open-minded and responsive to the suggestions made by the Department that are based on sober judgment and that may mean greater profits and more efficiency for the producer. Our aim will be to render the kind of service that will compel the confidence of the breeders, unify their endeavors, protect their interests and help solve the many perplexing problems that the industry presents.

## REPORT OF BUREAU OF LAND, CROPS AND MARKETS

A. L. CLARK, Chief

In the organization of the work of this Bureau the fact has been borne in mind that all permanent and constructive work should be based upon sound fundamentals, and all the work we have entered into since the Bureau was organized has been planned accordingly. We realized from the start that the problems relating to the marketing of farm products in New Jersey are many and varied, and that the only manner in which real help can be given to those interested is by careful consideration of the many conditions and the choosing of a few particular problems on which to concentrate our efforts.

## MUNICIPAL MARKETS

The relation between city and country interests should be close and the basic problems of distribution should be understood alike by those who are selling and those who are buying. We have, therefore, continued our interest in the establishment of municipal markets and market places, a plan which was developed in the extension division of the State Agricultural College. It is important for small growers near any of the cities and large villages in the State to know that there are several very successful markets of this kind in New Jersey. We find that when the nature of the existing conditions is studied and a market planned along modern, practical lines, its opportunities are great and its permanent success almost assured. Much of the trouble in organizing such market places in the past has come from the fact that all the interest and work were assumed by those interested in buying.

The desires and needs of all doing business in the market place should be considered when the site is selected and the rules made. Much information has been secured along this line and the Bureau now has the experience of many markets to guide it in advising with groups of farmers, consumers or municipal authorities in establishing these markets.

This is only one phase of the sympathetic understanding which should exist between buyers and sellers, between city and country interests, in order to bring about better distribution methods.

## CONSUMERS' ASSOCIATIONS

We have been very glad to meet with organizations of housewives and consumers in many places about the State where matters of interest can be discussed directly with those most interested. It is most gratifying to note the strong interest which housewives take in considering the subject of food-stuffs and marketing. We feel sure that the associations of women throughout the State which are studying many of the problems connected with this subject will bring about good results in time.

## EXHIBITS OF NEW JERSEY PRODUCTS

Plans have been made for exhibits of New Jersey-grown products for the particular benefit of buyers. We are planning to hold an exhibit of apples in Newark and of milk in Trenton in the very near future. We believe that housewives and buyers in general should realize that there is much to be known about the quality, seasons and general characteristics of the various food products on the market. The object of these exhibits is to stimulate this interest. Through the cooperation of the New Jersey State Chamber of Commerce we hope to get the business men of our cities to realize to a greater extent that the interests of farmers and business men are in many ways identical.

## EXCESSIVE COST OF DISTRIBUTION

Although New Jersey farm products are produced near the point of consumption, the cost of distribution is nearly as great as that of products coming from districts much farther away. Railroad transportation is only one item in many which make up the total cost of marketing. Slight acquaintance with the perishable nature of most farm products explains why the commission form of handling these goods at wholesale has grown to the present extent. It is impossible for buyer and seller to come to any business agreement on prices for goods of this perishable nature when they are separated by any great distance. The quality of the goods is most variable. It is changeable and the practice of farmers to send them to someone acting as their agent in a distant market place, there to be sold at their market value, is most sensible. The trouble, it seems, has arisen from the carelessness exhibited by producers and shippers in allowing these parties who should be their agents to gain

control over the situation. From an economical standpoint the producers and consumers are the parties whose interests should be considered. The middlemen or distributors, whether wholesale or retail, although absolutely necessary, are of importance only as efficient means of distributing food-stuffs from the farm to the consumer. Some investigations have been carried on along this line and the efforts of some states to regulate this commission business so as to protect all parties have been most interesting. The channels of distribution must be as clear as possible. Any factors which unnecessarily obstruct the path which products must follow from the farm to the city home should be done away with.

#### STANDARDIZATION OF FARM PRODUCTS

The standardization of farm products presents a very practical field for the efforts of this Bureau. We are now preparing a standard apple-grading law which covers practically the same ground as similar laws recently passed in neighboring states. The horticultural department of the State Agricultural College has done much to encourage peach growers to adopt standard grades in packing their products. Uniform standard grades offer perhaps the greatest opportunity of eliminating much of the present cost in distribution. It is going to be difficult to establish such standard grades for many of our perishable articles and perhaps the time will never come when any great proportion of our vegetables will be handled in this fashion. There seems to be great opportunity, however, for growers to standardize the grades of such products as apples, peaches, potatoes, tomatoes, etc. The use of standard packages for these and most other farm products also is demanding attention. These matters are not based on mere theory, but on the actual experience of farmers in other countries, in other states of our own land and in our own State. Many examples could be cited to show the great business value of standardization. The efficiency which characterizes the marketing efforts of the organizations of western fruit farmers and the success which has attended their efforts in the competition with products of equal value produced three thousand miles nearer the market is most startling. It can be readily understood why a jobber buying half a carload, or a small fruit stand owner prefers to buy products of standard grade and in standard packages to goods of equal quality and value carelessly graded and put up in packages of various styles.



To the buyer who depends upon selling again for his profit the question is one of risk. As the risk lessens, so the safety in close buying grows. In other words, goods of known quality and quantity can be handled on a smaller basis of profit than those of questionable nature. The comparison of Oregon apples with our own product as delivered in our markets, and that of Colorado cantaloupes with our own, serve as good illustrations of this point.

We hope to have the question of milk grades given some very thorough attention in the near future so that the Bureau may be in a position to offer valuable suggestions to municipal authorities, distributors or associations of producers on this question. Certain it is that with standard grades for milk, less thoughtless criticism would be heard, more efficient business relations would be promoted between producers and distributors and a more intelligent understanding developed between consumers and distributors.

#### FARMERS' COOPERATIVE ASSOCIATIONS

Farmers' cooperative associations have been promoted throughout the State. Small producers compete with larger growers at a disadvantage in marketing their goods. This is especially true where the goods are sent to a distant market. The handling of goods at wholesale is carried on with large quantities and buyers and distributing agents favor the shippers who have large and uniform supplies. The organization of associations for marketing purposes places such small growers in the same class with larger growers, and has proven of much practical benefit in several places throughout the State.

The Bureau is prepared to render assistance in several ways to groups of farmers who are interested in such cooperative market methods.

#### MARKET INSPECTION SERVICE

A market inspection service has been started by the Bureau in a small way and a representative was located in New York City September 1 for the purpose of advising with farmers on matters of various kinds. The perishable nature of our products often lead to misunderstandings and unsatisfactory relations between buyer and seller or their agents. The changing demands and customs in a large market like New York make it necessary that our growers

should have a source of reliable information to draw upon. Our New York representative will not undertake the buying or selling of goods, but will act entirely in an advisory capacity.

A comparison of prices received for New Jersey-grown peaches and tomatoes put up in different styles of packages was made by our New York inspector. This showed that during the early part of the tomato season tomatoes of good quality brought 50 per cent more when packed in Georgia peach carriers. Poor fruit or carelessly packed fruit brought no premium.

Peaches sold at some periods for over 100 per cent more when well packed in carriers than when packed in 16-quart baskets. The point seemed to be clear that those few shippers who have been disappointed with results secured from carriers did not understand the art of packing in carriers. The Bureau has carried on a few apple-packing demonstrations this fall, and will be ready to co-operate with the horticultural department of the State Agricultural College in assisting peach growers in this line next summer.

## REPORT OF BUREAU OF STATISTICS AND INSPECTION

FRANKLIN DYE, Chief

## REPORT OF STATISTICAL SERVICE

The law creating the New Jersey State Board of Agriculture, passed March 29, 1916, makes provision for a "Bureau of Statistics and Inspection," but it does not specify, in particular, the lines of work to be followed. Section 13, however, enumerates a number of subjects for investigation. It is as follows:

The Board shall in addition have power to investigate, ascertain and publish information and statistics relating to the promotion of agriculture and the advancement of agricultural interests in the various branches thereof, as it may deem proper, including the acreage under cultivation, in general and as to specific crops or agricultural use, crop adaptation of land, agricultural land for sale and its adaption, the improvement of agricultural methods tending to advance the quantity and quality of agricultural products; improvement in transportation, establishment of markets, rates, irrigation and drainage of lands used for agricultural purposes and any and all subjects connected with or related to the agricultural interests, present and future, of this State. The Board may use for the publication and distribution of the information and statistics collected by it such methods as may seem to it best adapted to the efficient dissemination thereof, either with or without charge therefor, as the Board may determine.

The section of the law referred to states that the Department is to "ascertain and publish information and statistics relating to the promotion of agriculture, etc." The Bureau has collected by all the means at its command, statistics of acreage devoted to the various crops grown in the State for the year 1916, the average yield per acre, the average market price, total values, etc.; also the number of farm animals, their estimated value, including the number of milk-producing cows, their individual average yield and total production, with the estimated total value of their product.

The Bureau has in contemplation, plans for collecting statistics of agriculture throughout the year, covering the entire State. If these plans are realized, crop statistics and conditions as reported will be as reliable as it is possible to obtain.

The criticism is occasionally heard that statistics of agriculture are not absolutely correct and therefore are misleading. To such critics our answer is: It is an absolute human impossibility to collect

*exactly* figures on every bushel of grain, every basket or bushel of fruit and vegetables, every egg produced by our flocks of poultry, etc. Let it suffice reasonable men that after many years of careful work by the United States Department of Agriculture, with its thousands of agents throughout the country collecting estimates of crop yields; and with our own State Department of Agriculture, with its 21 secretaries of county boards of agriculture, more than 40 delegates to the State Board Convention, and now, valuable assistance from superintendents of farm demonstration in several counties, who are continually on the field, and estimates and approximations of crop and stock yields and values as shown by subsequently reported total yields, have been proved to be about as near the actual yields as it is possible to obtain.

In the matter of prices the year 1916 has been unusual in that a continuous advance in prices for most farm produce has been obtained, even down to March 1, 1917. The fixing of prices for this report has, therefore, required more than ordinary consideration. The figures given are made up from our own reporters and those furnished by the United States Department of Agriculture in the Monthly Crop Report for December, 1916. We believe that they are conservative.

Complying with the provision, "Agricultural lands for sale," the Bureau has collected and published in Circular No. 1 a list of over fifty farms for sale throughout the State. The demand for such information is increasing, which would seem to indicate that farmers from other states are looking to New Jersey for a future farm and home. Whether another and a larger list shall be published will depend upon the number of farms offered and the demand for such information.

The Bureau has endeavored to obtain a fair approximation of the yields of the general farm crops of the State and their value, with the amount of farm live stock and its value per head for the year 1916. In order to secure the most reliable estimates possible, appeal was made to the secretaries of county boards of agriculture to the delegates attending the Forty-third Annual Meeting of the first State Board, and to the superintendents of farm demonstration. Of the county secretaries, 17 reported in whole or in part to the questions sent. Of the 42 delegates, 15 responded; and of the county superintendents of farm demonstration, 7 replied. The

Government Crop Reports for December, 1916, and January, 1917, also were used in making final estimates. While in some cases the estimates differ somewhat, the most of them are in substantial accord. The acreage in each case is that given in the Government Crop Report for December 15, 1916.

### *Cereals*

*Corn*—The government-estimated area devoted to this crop in this State is 270,000 acres. Our reporters make the yield of this crop for the past year 40 bushels per acre; total yield, 10,800,000 bushels; average price, \$1; total value of crop, \$10,800,000.

*Wheat*—Estimated acreage, 90,000; estimated yield per acre, 21 bushels; total yield, 1,890,000 bushels; price per bushel, \$1.51; total value, \$2,853,900.

*Rye*—Estimated acreage, 70,000; estimated yield per acre, 19 bushels; total yield, 1,330,000 bushels; value per bushel, \$1.09; total value, \$1,449,700.

*Oats*—Estimated acreage, 69,000; yield per acre, 33 bushels; total yield, 2,277,000 bushels; average price per bushel, 62 cents; total value, \$1,391,740.

*Buckwheat*—Estimated acreage, 15,000; yield per acre, 21 bushels; total yield, 315,000 bushels; average price per bushel, \$1.17; total value of crop, \$368,550.

*Hay*—Estimated acreage, 375,000; estimated yield per acre, 1.8 tons; total yield, 675,000 tons; average price per ton, \$18.80; total value, \$12,690,000.

*Potatoes*—Estimated acreage, 85,000; estimated average yield per acre, 126 bushels; total yield, 10,710,000 bushels; average price per bushel, \$1.34; total value of crop, \$14,351,400.

*Sweet Potatoes*—Estimated acreage, 23,000; estimated yield per acre, 115 bushels; total yield, 2,645,000 bushels; average price per bushel, \$1.14; total value, \$3,015,300.

*Alfalfa*—Not having reports from the entire State relating to the estimated acreage devoted to the production of alfalfa, we give the estimate of the United States Department of Agriculture, which credits New Jersey with a production of 44,000 tons. Allowing a yield of 2½ tons per acre this would give an area of 17,600 acres; 44,000 tons at \$20 a ton would give \$880,000 for this crop.

*Farm Animals*

In the estimated value per head for farm live stock there is a wide difference between that of the Government and that of the secretaries of our county boards. The estimates of the Government for January, 1917, are:

	Head	Value per Head	Total Value
Horses .....	92,000	\$149.00	\$13,708,000
Mules .....	4,000	169.00	676,000
Milch cows .....	155,000	76.00	11,780,000
Other cattle .....	74,000	34.00	2,516,000
Sheep .....	29,000	7.20	209,000
Swine .....	163,000	17.00	2,771,000

The total value of the above-named stock is \$31,660,000, according to the Government estimate. The average value per head of horses, mules, milch cows and other cattle given by our secretaries is \$185, \$190, \$90 and \$45 in the order named. We have used the Government estimate in computing total values of each, and these combined for the total State value.

The February (1917) estimates of the Department show a quite general advance in value over that for December, 1916. They are: corn per bushel, \$1.08; wheat, \$1.66; oats, \$0.63; rye, \$1.28; buckwheat, \$1.12; potatoes, \$1.70; sweet potatoes, \$1.13; hay, per ton, \$16.60; milch cows, per head, \$87.00; horses, \$173.

In computing our milk production, I have consulted with our dairy commissioner, Hon. George W. McGuire, and we have placed the production per cow per day at  $5\frac{1}{2}$  quarts, equal to 4,315 pounds per cow per year. This gives a total product for the year for our 155,000 cows of 311,162,500 quarts. Assuming that one-quarter of this is sold at retail by the producer at 9 cents per quart and the balance, three-quarters, at the wholesale price of 5 cents per quart (average of 6 cents), the total value for the milk product of the State would be \$18,669,750. This seems to be a large income. Deducting, however, the cost of production at  $4\frac{1}{2}$  cents a quart (the Agricultural Experiment Station's lowest estimate), amounting to \$14,002,312, from the total income, leaves \$4,557,437 to be divided among 10,000 milk producers, which gives each one a possible net profit of \$455.74 per year.

The average price paid for milk wholesale is 5 cents a quart. The average price retail is 10 cents a quart.

*Other Crops*

The yield of cranberries, apples, peaches, pears and tomatoes, with the season's price, is as follows:

*Cranberries*—162,750 barrels; price \$7.50 per barrel, with a total value of \$1,220,625.

*Apples*—750,000 barrels, at \$3.00 per barrel, \$2,250,000.

*Peaches*—689,000 bushels, at \$1.60 per bushel, \$1,102,400.

*Pears*—687,000 bushels, at 68 cents per bushel, \$467,160.

*Tomatoes*—24,379 tons, average price for season, \$1.01 per bushel, \$820,759.

The total value for the crops named is \$5,860,944, approximately \$6,000,000. The important crops of strawberries, raspberries, blackberries, cherries, grapes, currants, gooseberries, huckleberries, etc., are not estimated, either as to yield or value. They no doubt exceed \$1,000,000. We believe, therefore, that we are well within the maximum estimate for the fruit and market-garden crops of the State at \$12,000,000.

*Poultry*

Owing to the high price of feed, somewhat fewer birds are being kept on already well established plants. On the other hand, very many persons, new to the business, are entering the field so that the number of birds is approximately the same as a year ago. On account of more careful selection, however, and a little better care, I would estimate that the average production per flock has increased at least 10 per cent, equal to an average production per bird in the State of about 110 eggs. The average selling price per dozen has increased very materially; where last year we estimated the selling price at 25 cents per dozen for all flocks, both farm and commercial, it is no doubt over 30 cents this year. The average price for eggs on the New York market, which is the market of the commercial poultrymen of this State, has increased nearly 5 cents per dozen. Where it was 34 cents per dozen in 1915, it averaged 39 cents in 1916.

H. R. LEWIS,  
*Poultry Husbandman.*

From the foregoing statement by Professor Lewis, of the State Agricultural College, it is evident that the total value of the poultry and egg business of the State is not less, but rather greater than in 1915. We leave the estimate the same as for 1915, viz. \$6,030,000.

A few years ago a flock of turkeys was in evidence on almost every farm in the State and a Thanksgiving dinner was not complete without the roast turkey. Owing to the ravages of disease and other causes, there has been a steady decline in the production of this valuable bird in recent years. Eight county secretaries, reporting on the present supply, make it 88 per cent. The average selling price for turkeys for the past season is  $33\frac{3}{4}$  cents per pound. The proportion of chickens on farms is 98 per cent and the season's selling price,  $23\frac{1}{2}$  cents.

### *Farm Labor*

Fourteen secretaries of county boards of agriculture report a decrease in the number of farm laborers. The demand for men willing to work in manufacturing industries with wages much above what farmers could pay has deprived the farming industry of help enough to cultivate and harvest the usual acreage. It is quite probable that unless enough efficient laboring men can be induced to engage in farm work at such wages as the business can afford, production will be still further reduced and prices for farm produce to the consumer adversely affected thereby. The several reasons given for this decrease in farm help are: "Can't afford the wages," "Ammunition plants," "Higher wages in cities," "Numerous factories," "Factory work, shorter hours;" "War work," "War wages," "Making war material," etc. Wages with board, which usually included a home and bed, are given at an average of \$26.81 per month, and wages per month without board, \$43.40.

### *Summary*

For convenience of reference the foregoing estimates of crop yields and values are herewith tabulated:



TABLE I

Estimated total yield of farm products in New Jersey for the year 1916,  
with their approximate value

Crop	Acreage	Yield per		Total Yield	Price	Total Value
		Acre				
Corn .....	270,000	40 bu.		10,800,000 bu.	\$1.00	\$10,800,000
Wheat .....	90,000	21 bu.		1,890,000 bu.	1.51	2,853,900
Oats .....	69,000	33 bu.		2,277,000 bu.	0.62	1,391,740
Rye .....	70,000	19 bu.		1,330,000 bu.	1.09	1,449,700
Buckwheat .....	15,000	21 bu.		315,000 bu.	1.17	368,000
Hay .....	375,000	1.8 T.		675,000 T.	18.80	12,690,000
Alfalfa .....	<sup>1</sup> 117,600	2½ T.		44,000 T.	20.00	880,000
Potatoes .....	85,000	126 bu.		10,710,000 bu.	1.34	14,351,400
Sweet Potatoes..	23,000	115 bu.		2,645,000 bu.	1.14	3,015,300
Milch Cows..... <sup>2</sup>	155,000	<sup>3</sup> 5½ qts.		311,162,500 qts.	<sup>4</sup> 0.06	18,669,750
Cranberries .....	7,500	21.7 bbls.		162,750 bbls.	7.50	1,220,625
Apples .....				750,000 bu.	3.00	2,250,000
Peaches .....				689,000 bu.	1.60	1,102,400
Pears .....				687,000 bu.	0.68	467,160
Tomatoes .....				4,875,800 bu.	1.01	820,759
Market garden, truck farm and greenhouse crops .....						6,139,056
Poultry and Eggs						6,030,000
Wool Fleeces..... <sup>5</sup>	16,000	<sup>6</sup> 5 lbs.		80,000 lbs.	0.317	25,360

<sup>1</sup>Government estimate.

<sup>2</sup>Head.

<sup>3</sup>Average production per cow per day.

<sup>4</sup>Equal to ¼ at .09 per quart and ¾ at .05 per quart (see text).

<sup>5</sup>Number.

<sup>6</sup>Average weight.

TABLE II

Number and value of farm animals in New Jersey, January, 1917 (from  
Monthly Crop Report, U. S. Department of Agriculture).

	Number	Value per head	Total Value
Horses .....	92,000	\$149.00	\$13,708,000
Mules .....	4,000	169.00	676,000
Milch Cows .....	155,000	76.00	11,780,000
Other Cattle .....	74,000	34.00	2,516,000
Sheep .....	29,000	7.20	209,000
Swine .....	163,000	17.00	2,771,000

(Signed)

FRANKLIN DYE, Chief.

## REPORT OF INSPECTION SERVICE\*

Prior to July 1, 1916, the inspection work was carried on by the state entomologist and the state plant pathologist. The state entomologist under Chapter 249, Laws of New Jersey, 1903, was concerned with the inspection of nurseries, of nursery stock shipped into New Jersey from foreign countries and other states, and with the investigation and settlement of complaints about injurious insects which might spread from infested plants to others on public highways or upon adjoining lands; while under Chapter 54, Laws of New Jersey, 1911, the state plant pathologist was charged with similar duties in order to prevent the spread and introduction of dangerous plant diseases. Each acted within his own sphere. While these officers cooperated as fully as conditions would permit, it was at times impossible for each to avoid duplicating the other one's work, especially in the matter of assignments which the inspectors were given. There also existed in the minds of many persons an uncertainty as to the proper official to address concerning inspection and this led to unnecessary but unavoidable delays in the proper performance of the work.

On July 1, however, the law enacted by the Legislature during the winter of 1916 establishing a Department of Agriculture became effective, and the inspection work was transferred to a Bureau of Statistics and Inspection operating within the Department. Under this new arrangement, a greater degree of efficiency has been made possible, the inspections formerly made independently under the direction of the state entomologist and state plant pathologist now being carried out by a chief inspector under their supervision and under the direction of the chief of the Bureau. In this manner the duplication of the work has been avoided, more work has been accomplished with the same number of men, and the confusion in the mind of the public will gradually disappear as a matter of course.

The creation of a Department of Agriculture has also opened up an avenue for the necessary expansion of the work. In 1910, 112 certificates were issued; in 1914, the number was 168, and at present the number is 220. By next year it will undoubtedly be increased to 250. Thus it is seen that the number of nurseries needing inspection is increasing every year. In addition new insect and plant

\*The introductory paragraphs of this section are mainly from Bulletin No. 2, Department of Agriculture, "Nursery Inspection; the Importance of Legislation Against Crop Pests," by Harry B. Weiss, Chief Inspector.

disease control problems are appearing and must be solved. In many cases these call for additional inspections. Every year more and more stock is being shipped into New Jersey from foreign countries and other states, and this, too, must be properly taken care of. Thus in the immediate future it will be necessary to plan for the inspection of this material imported into New Jersey to meet the demands of a growing population. More time also will have to be given to the inspection of the growing stock in nurseries and private plantings for the purpose of confirming the presence or absence of pests.

In the past, our appropriations have never been sufficient to permit a full execution of the law, but by a careful distribution of the funds and work it has been possible to regulate the inspection so that each kind came in for a share. Moreover, as the public which purchases nursery stock regards the New Jersey certificate as a guarantee of the stock's freedom from pests, it is our duty to put forth every effort to make the certificate mean exactly what it states.

Even though inspection is not an absolute "cure all" against the introduction of pests, it is the only means at our command of preventing an overwhelming rush of insects and plant diseases capable of doing considerable damage, and it is the only way we have of holding and delaying the spread of pests until means of controlling them have been found, or until they are no longer dangerous. Even in this restricted use, inspection is a necessary phase of the State's agricultural activities and has done much in the past to lessen her burdens, especially as the presence or absence of insects within the borders of a community or state may make all the difference between sickness and health, irritation and comfort, and poverty and wealth.

In order to meet the constantly growing demands of the work, more inspectors will ultimately have to be employed. We have an excellent law and an admirable organization, but more men are needed to take care of our growth.

The work of examining nursery stock involves the examination of that which is grown within the State and that which comes into it from other states and foreign lands. The home-grown stock is examined between July 1 and November 1, while the incoming stock is looked after throughout the year, the great bulk of it being inspected, however, during October, November, December, March, April and May.

*Foreign Stock Received*

TABLE III

Stock Received From Foreign Countries (July 1 to October 31, 1916).

Country of Origin	No. Shipments	No. Parcels
Mexico .....	1	1
Costa Rica .....	1	2
Cuba .....	1	3
France .....	2	7
Guatemala .....	3	5
Trinidad .....	4	4
Brazil .....	9	23
England .....	12	82
Venezuela .....	3	42
Scotland .....	3	102
Holland .....	10	238
Belgium .....	5	137
Colombia .....	18	364
	<hr/> 72	<hr/> 1010

All of this stock was inspected, with the exception of 26 shipments from Brazil, Colombia, Venezuela, Mexico and Costa Rica, which were looked after in New York City by an inspector of the Federal Horticultural Board before being shipped into New Jersey.

*Character of Foreign Stock*

The character of this stock was found to be about the same as in former years.

From Venezuela, Guatemala, Costa Rica, Mexico, Colombia and Brazil, the imported stock has consisted entirely of orchids.

From Trinidad were received palm seeds and dracena canes; from Cuba, dracena canes; from France, rose seed and palms; from England, orchids and palms; from Belgium, araucarias, azaleas, palms and aspidistra; from Holland, roses, lilacs, boxwood, aspidistra, palms, azaleas, araucarias and aucubus.

## List of Insects Taken on Foreign Stock

Insect	Host	Country of Origin
<i>Tenthecoris bicolor</i> (bug)	orchids	Colombia
<i>Blaberus discoidalis</i> (roach)	"	"
<i>Chrysomphalus perseae</i> (scale insect)	"	"
Wingless katydids	"	"
Ants	"	"
<i>Pseudococcus</i> sp. (mealy bugs)	palms	Holland
<i>Hemichionaspis aspidistrae</i> (scale insect)	aspidistra	"
<i>Lepidosaphes ulmi</i> (scale insect)	boxwood	"
<i>Psylla buxi</i> (work of)	"	"
<i>Aspidiotus hederæ</i> (scale)	palms	England
<i>Pseudococcus</i> sp. (mealy bug)	"	"
<i>Aspidiotus hederæ</i> (scale)	"	France
<i>Chrysomphalus dictyospermi</i> (scale)	"	"
<i>Tenthecoris bicolor</i> (plant bug)	orchids	Venezuela
<i>Periplaneta australasiae</i> (roach)	"	"
Springtails	"	"
Wingless katydids	"	"
Pseudoscorpions	"	"
Ants	"	"
<i>Gracilaria zachrysa</i> (leaf miner)	azaleas	Belgium
<i>Hemichionaspis aspidistrae</i> (scale)	aspidistra	"
<i>Chrysomphalus dictyospermi</i> (scale)	palms	"
<i>Aspidiotus hederæ</i> (scale insect)	"	"
<i>Aspidiotus hederæ</i> (scale insect)	"	Scotland
<i>Chrysomphalus aonidum</i> (scale insect)	"	"
<i>Pseudococcus</i> sp. (mealy bug)	"	"

*Stock From Other States*

TABLE IV

Stock Shipped into New Jersey from other States according to Railroad Notices Received (July 1 to October 31, 1916)

State of Origin	No. Shipments	No. Cases or Parcels
Connecticut .....	11	13
Rhode Island .....	1	2
Ohio .....	5	6
Iowa .....	1	1
Maryland .....	3	3
Massachusetts .....	1	2
Pennsylvania .....	26	37
New York .....	34	144
	<hr/> 82	<hr/> 178

Of the above total, 27 cases, mostly of fruit stock from New York, Maryland, Connecticut, Pennsylvania and Ohio, were inspected, the remaining being ornamental stock and bulbs, which, with our present force, it is not possible to inspect.

*Diseases Found on Domestic Shipments*

Crown gall and anthracnose were found in 3 shipments of raspberry stock from Ohio and one instance of crown gall on apple stock from Connecticut. Such infected stock is either burned or re-shipped to the consignor.

*Nursery Inspection*

During the past four months 174 nurseries were inspected, 120 of which were found clean at the first inspection.

In addition, 47 dealers were visited and their small holdings of stock looked over wherever found. Many of the dealers had not been visited for several years, and this phase of the inspection service resulted in bringing this class of men closer to the Bureau and in doing away with much worthless stock. By reason of the combined activities made possible under the new law, and the employment of an extra man, the nursery inspection work has been

practically completed and the attention of the men is now being taken up with imported and domestic inspection.

Heretofore, the nursery inspection has always extended itself throughout November and many nurseries were compelled, on account of our other duties, to wait several weeks before a reinspection could be given them. During the past season it was possible to make all reinspections promptly.

Up to the present time 201 certificates have been issued, 47 of which were given to dealers after the sources of their purchases were found satisfactory.

There still remains 20 nurseries to be reinspected, certificates still being withheld from these firms until their infested stock has been destroyed. These reinspections will be made when the owners of the infested stock are ready for them.

*List of Nurserymen and Dealers Receiving Certificates*

No.

- 1—Henry A. Dreer, Inc., Riverton (General).
- 2—T. E. Steele, Palmyra (General).
- 3—Princeton Nurseries, Princeton (General).
- 4—John McCleary & Son, Sewell (General).
- 5—Samuel C. DeCou, Mount Holly (General).
- 6—Willard H. Rogers, Mount Holly (General).
- 7—W. G. Eisele, West End (General).
- 8—Henry E. Burr, East Orange (General).
- 9—Charles Black, Hightstown (General).
- 10—George A. Shultz, Jamesburg (Peach).
- 11—Joseph H. Black, Son & Co., Hightstown (General).
- 12—Arthur J. Collins & Son, Moorestown (General).
- 13—Chas. A. Bennett, Robbinsville (General).
- 14—K. E. de Waal Malefyt, Ridgewood (General).
- 15—Wm. S. Rose, Red Bank (General).
- 16—M. O'Hagan & Son, Asbury Park (General).
- 17—Wm. O'Hagan, Asbury Park (General).
- 18—K. M. Van Genderen, Long Branch (General).
- 19—John Moore, Little Silver (General).
- 20—Frank Marra, Little Silver (General).
- 21—James Ambacher, West End (General).
- 22—Harry B. Edwards, Little Silver (General).

- 23—T. C. Kevitt, Athenia (General).
- 24—John Bennett, Atlantic Highland (General).
- 25—James Clinton, Morris Plains (General).
- 26—Mrs. W. S. Herzog, Morris Plains (General).
- 27—The Elliott Nursery Co., Princeton Junction (General).
- 28—Amon Heights Nurseries, Camden (General).
- 29—Madsen & Christensen, Wood Ridge (General).
- 30—Mrs. J. Wolff & Sons, Clifton (General).
- 31—Thomas Heminsley, Paterson (General).
- 32—A. B. Vanderbeek, Paterson (General).
- 33—A. J. Stolz, Clifton (General).
- 34—Smith & Haff, Plainfield (General).
- 35—August Dressel, Plainfield (General).
- 36—Charles L. Stanley, Plainfield (General).
- 37—Wm. Tricker, Arlington (General).
- 38—Marius Mutillod, Secaucus (General).
- 39—Albert Nirk, Nutley (General).
- 40—George H. Peterson, Inc., Fair Lawn (Rose and Peony).
- 41—F. T. Lange, North Bergen (General).
- 42—J. B. Duke Farm, Somerville (General).
- 43—A. G. Freer, Manasquan (General).
- 44—Wm. Bryan, Elberon (General).
- 45—H. J. Morris, Collingswood (General).
- 46—Goeller Bros., Trenton (General).
- 47—Watkis & Nicholson, Hammonton (General).
- 48—J. F. Noll & Co., Newark (General).
- 49—John Ryan, Basking Ridge (General).
- 50—Benjamin Connell, Merchantville (General).
- 51—Knickerbocker Nurseries, Lillie S. Strunsky, Englewood (General).
- 52—Walter Sage, Paterson (General).
- 53—W. A. Watts, Westfield Nurseries, Westfield (General).
- 54—The Enterprise Nursery Co., Newtonville (General).
- 55—W. Grant Schoenly, Dayton (General).
- 56—Dono Bros., Irvington (General).
- 57—M. D. Lupton, Newport (Strawberry).
- 58—W. H. Polhemus, Robbinsville (Strawberry).
- 59—Willard B. Kille, Swedesboro (Strawberry).
- 60—Walter R. Shoemaker, Swedesboro (Strawberry).



- 61—Croes Bros., Warren Point (General).
- 62—J. E. Kuhns, Cliffwood (Strawberry).
- 63—Ellsworth Pedrick, Bridgeton (Strawberry).
- 64—Seabrook Farm Co., Bridgeton (Strawberry).
- 65—J. T. Garrison & Sons, Bridgeton (Strawberry).
- 66—Silas Walton, Moorestown (Strawberry).
- 67—C. E. Field, Sewell (Strawberry).
- 68—A. D. Russel Est., Princeton (Greenhouse).
- 69—Henry Schmidt, Weehawken (Greenhouse).
- 70—Fiesser, North Bergen (Greenhouse).
- 71—Elizabeth Nursery Co., Elizabeth (General).
- 72—F. and F. Nurseries, Springfield (General).
- 73—John De Buck, Secaucus (Greenhouse).
- 74—Peter Henderson & Co., Jersey City (Greenhouse).
- 75—G. F. Neipp, Chatham (Greenhouse).
- 76—Lage & Hurrell, Summit (Greenhouse).
- 77—W. G. Badgley, Chatham (Greenhouse).
- 78—Joseph Manda, West Orange (Greenhouse).
- 79—Emile N. Savoy, Secaucus (Greenhouse).
- 80—S. A. Nadler, Rutherford (Greenhouse).
- 81—W. P. Howe, Pennington (General).
- 82—Bobbink & Atkins, Rutherford (General).
- 83—Julius Roehrs Co., Rutherford (General).
- 84—George A. Steele, Eatontown (General).
- 85—J. T. Lovett, Little Silver (General).
- 86—Wagner Bros., Trenton (Privet).
- 87—James M. Ralston, Allenhurst (General).
- 88—Charles A. Baird, Freehold (General).
- 89—G. Walter Swain, Sea Girt (General).
- 90—Hugo Kind, Hammonton (General).
- 91—Geo. W. Bassett, Hammonton (General).
- 92—J. Murray Bassett, Hammonton (General).
- 93—Edwin Allen, Jr., New Brunswick (General).
- 94—Joseph di Fabrizio, Hammonton (Berry).
- 95—Frank Scamoffo, Hammonton (Berry).
- 96—George Liepe, Cologne (Berry).
- 97—John F. Leeds, Waterford (Berry).
- 98—M. Dimeo, Hammonton (Berry).
- 99—Frank Wieland, Egg Harbor City (Berry).
- 100—James V. Clark, Cape May (Berry).

- 101—Benjamin Barrett, Blue Anchor (Berry).
- 102—John Casazza, Vineland (Berry).
- 103—Michael N. Borgo, Vineland (Berry).
- 104—J. H. O'Hagan, Little Silver (Dealer's).
- 105—S. P. Dunham & Co. (Dealer's).
- 106—Wm. Vogt, Camden (Dealer's).
- 107—W. C. Evans, Glassboro (Dealer's).
- 108—Warren Shinn, Woodbury (Dealer's).
- 109—W. M. Howey, Sewell (Dealer's).
- 110—John W. Wooton, Arlington (Dealer's).
- 111—W. R. Gross, Fort Lee (Dealer's).
- 112—Wm. Gotthardt, Jersey City (Dealer's).
- 113—Martin Boks, East Rutherford (Dealer's).
- 114—Minch Bros., Bridgeton (Dealer's).
- 115—Sebastian Hubschmidt, Jr., Paterson (Dealer's).
- 116—Wm. Henry Maule, Hightstown (Dealer's).
- 117—S. T. Hillman, Cape May (Dealer's).
- 118—Charles L. Doerrer, Plainfield (Dealer's).
- 119—Emma Clum, Dover (Dealer's).
- 120—Geo. Payne, Sunnyside Greenhouse, Dover (Dealer's).
- 121—Wetzel Bros., Springfield (Dealer's).
- 122—K. Herman Stoye, Eatontown (Dealer's).
- 123—J. G. & A. Esler, Saddle River (Dealer's).
- 124—W. A. Manda, Inc., South Orange (General).
- 125—Charles Momm & Sons, Irvington (General).
- 126—North Jersey Nurseries, Millburn (General).
- 127—H. M. Reading, Trenton (Dealer's).
- 128—Wm. Entenmann, Jersey City (Dealer's).
- 129—Paul Stier, Bayonne (Dealer's).
- 130—Gustave Freytag, West Orange (Dealer's).
- 131—W. C. & C. Emory, Irvington (Dealer's).
- 132—Plainfield Nurseries, Scotch Plains (General).
- 133—Peter Henderson & Co., Jersey City (General).
- 134—De Baun & Co., Wyckoff (General).
- 135—Samuel Brant, Madison (Peach).
- 136—Martin C. Ribsam, Trenton (Dealer's).
- 137—E. Decker & Son, Orange (Dealer's).
- 138—Geo. C. Brinkerhoff, Hackensack (Dealer's).
- 139—John R. McIntyre, Madison (Dealer's).
- 140—The Fuji Nursery, South Orange (Dealer's).

- 141—S. A. Rogers Nursery Co., Newark (Dealer's).
- 142—Guilliksen Bros., Hackensack (General).
- 143—J. & M. Brinkerhoff Co., Hackensack (General).
- 144—Mrs. E. P. McColgan, Red Bank (General).
- 145—Max. Rumprecht, Fort Lee (General).
- 146—Red Towers Nurseries, Hackensack (General).
- 147—David V. Higgins, Ringoes (Peach).
- 148—Mrs. Bernard Rowntree, Oradell (General).
- 149—J. H. Lindsley, White House (Peach).
- 150—Willard Apgar, Fairmount (Peach).
- 151—James Apgar, Fairmount (Peach).
- 152—Howard Philhower, Mountainville (Peach).
- 153—Mansfield Eick, Bissell (Peach).
- 154—Mathias Fleming, Califon (Peach).
- 155—John Fleming, Califon (Peach).
- 156—C. H. Hill, Palmyra (General).
- 157—Harold Hornor, Mount Holly (General).
- 158—Samuel N. Wilson, Annandale (Peach).
- 159—James L. Null, Farmingdale (Dealer's).
- 160—W. T. Grant Co., Newark (Dealer's).
- 161—F. W. Woolworth Co., for their New Jersey Stores (Dealer's).
- 162—Harry J. Stein, Newark (Dealer's).
- 163—New Brunswick Nurseries, New Brunswick (General).
- 164—Henry Pfeiffer, Cologne (General).
- 165—W. H. French, Hammonton (Dealer's).
- 166—S. E. Kaufman Co., Trenton (Dealer's).
- 167—Chestnut Hill Nurseries, Montclair (General).
- 168—John F. Randolph, East Rutherford (General).
- 169—Phil H. Moulter, Trenton (Dealer's).
- 170—Geo. Q. Hammell, Delanco (Dealer's).
- 171—H. W. Collingwood, Woodcliff Lake (Strawberry).
- 172—Charles H. Totty, Madison (Greenhouse).
- 173—Dirk de Hass, Plainfield (General).
- 174—Osterman & Son, Bound Brook (General).
- 175—S. S. Kriage, for their New Jersey Stores (Dealer's).
- 176—Meyer Bros., Paterson (Dealer's).
- 177—Peter V. Drake, Hopewell (Peach).
- 178—E. A. Pierce, Vineland (Dealer's).
- 179—Jacob M. Petty, Washington (Peach).

- 180—L. W. Gardner, Washington (Peach).
- 181—Jacob E. Apgar, Beatyestown (Peach).
- 182—Stevens & Tetor, Ridgewood (General).
- 183—Hartung Bros., Jersey City (General).
- 184—A. S. Wallace, Montclair (General).
- 185—David Dalrymple, Pattenburg (Peach).
- 186—Wm. Herbstreith, West Nutley (General).
- 187—Thomas Jones, Short Hills (Dealer's).
- 188—Arthur R. Heggan, Waterford (Dealer's).
- 189—F. A. Tomkinson, Hammonton (Dealer's).
- 190—Ferdinand F. Baumer, Newark (Dealer's).
- 191—W. B. Woodruff, Westfield (Dealer's).
- 192—W. F. Lacreix, Buena (Lilac).
- 193—R. D. Cole, Bridgeton (General).
- 194—G. E. Layton, Vineland (General).
- 195—Charles Bird, Arlington (General).
- 196—Frank Lenz, Irvington (General).
- 197—M. Bredemeyer, Middlebush (General).
- 198—J. D. Lindsley, Menham (General).
- 199—Frank Koehler, Camden (General).
- 200—H. C. Steinfoff, West Norwood (General).
- 201—W. H. Forristel, Plainfield (General).

### *Nursery Pests*

The species of insects found in nurseries are practically the same as in former years (see Report of State Entomologist for 1915-1916). The San José scale, oyster shell scale, European boxwood leaf miner, European pine-shoot moth, the white pine weevil, the poplar and willow borer, continue in the lead, with many others of lesser importance following.

The most important diseases of nursery stock were: Fire blight of apple and pear, crown gall, hairy root, double blossom of berries, anthracnose of berries, cane blight of roses and berries, apple and pear scab, little peach, black knot on plum and peach yellows.

### *New Nursery Pests*

During the past four months a saw-fly (*Janus abbreviatus* Say) not before recorded from New Jersey, was found in nurseries at

Rutherford, Irvington, Bound Brook, Elizabeth, South Orange and Springfield. The larvæ of this species live in the twigs of poplar and willow trees and are usually found in very young trees or shoots from the bases of old trees. Infested shoots, of course, wilt and die back.

Another new and much more destructive species, namely *Diprion simile* Hartig, which is a European species, also was found for the first time in New Jersey at Rutherford, South Orange and Elizabeth on pine trees in nurseries. This appears to be a quite destructive species, but fortunately it was heavily parasitized the past season by *Monodontomerus dentipes* Boh.

Still another species, not recorded from the State and which appears to be well distributed, is the Columbine leaf miner *Phytomyza aquilegiae* Hardy, especially active in nurseries.

### *New Diseases*

During the past summer, the following new plant diseases were found: Exobasidium galls on azaleas, cane blight of currants, blister rust of white pine, blister rust on currant, canker on poplar, anthracnose on privet and spur blight on raspberry.

### *Special Inspections*

This work includes the inspection of shade trees, private plantings, and other places upon request and complaint. During the past four months a small amount of such work has been done. In addition, various places in the State reported in the past to be infested with the gypsy moth have been inspected and the absence of this pest confirmed.

The most important of the special inspection work, however, was accomplished by Mr. Paul V. Siggers, an inspector of the Bureau of Plant Industry, United States Department of Agriculture, who cooperated with and whose activities were under the direction of the state plant pathologist. He was engaged in scouting various places in New Jersey for the white pine blister rust (*Peridermium strobi*), a serious and destructive disease of pines which bear their needles in bundles of five each.

Mr. Siggers covered many different estates, private plantings and forest tracts at Somerville, Raritan, New Market, Morristown, Boonton, Morris Plains, Millburn, Littleton, Mendham, Gladstone, Convent, Maplewood, South Orange, Bernardsville and New-

ton, in addition to all of the important nurseries in the northern part of the State. Supplemental to this, Mr. C. A. Schwarze and Mr. G. L. Walters covered points in Central and South Jersey, so that at present we have a fairly general survey of the location of the blister rust in New Jersey. Mr. Siggers found the disease present on pines at 4 different nurseries and 2 estates, and on currants at one nursery. At 2 estates one infected tree only was found on each place. At one nursery, out of a total of 1,650 trees, approximately 3 per cent were infected. At another nursery one tree out of 190 was diseased; at another there were 15 trees in a total of 1,400, and at the fourth, only one tree in several hundred had the blister rust.

All of the diseased pines found were destroyed and the remainder placed under quarantine for an indefinite period. These plantings will of course be inspected next season.

The infected currants were stripped of their foliage, and the leaves collected in this manner were burned.

Where the disease was found in nurseries, permission was given the nurserymen to sell from an infected block, trees in lots of 100 or more to one buyer, upon a permit from the Bureau and upon condition that the buyer be informed by the Bureau of the fact that the stock came from a suspected block or from one in which the blister rust had been found and that they would be subject to future inspections. Up to the present no one has availed himself of this privilege. The disease is not widely distributed in New Jersey and we have every hope of controlling the situation. In view of this, the following letter was sent to nurserymen and dealers:

*To the Nurserymen of New Jersey:*

You are no doubt aware of the prevalence of the blister rust of the white pine and its alternate stage on Ribes (currants and gooseberries) in New York and the New England States. Small infections of both forms of this disease have been found in New Jersey, but all of the infected pines have been quarantined and the currants treated. We have every reason to believe that we will be able to control the situation.

The writers have been in correspondence with the inspection officials in states referred to above and have examined maps showing the distribution and rapid spread of the disease. The indications are that this disease will prove as destructive to the white pine as the blight has been to the chestnut. The disease is not destructive to the currants and gooseberries, but is spread by them.

Neither the New Jersey nurserymen nor this office care to take the responsibility of the spread of this disease in New Jersey or other states. Therefore, we consider it inadvisable to buy white or other five-leaved pines or currants or gooseberries from New York or the New England States.

Very truly yours,

MEL. T. COOK.

### *Quarantine Orders*

In order to protect New Jersey as much as possible from an invasion of the gipsy moth through the medium of Christmas trees and greens cut in the gipsy moth area of the New England states and shipped into the State, the following quarantine was made effective on September 25, 1916:

Trenton, N. J., September 25, 1916.

#### *To Whom It May Concern:*

Inasmuch as the existence and distribution of the Gipsy Moth (*Porthetria dispar*) in parts of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut, cause the shipment of Christmas trees and greenery from this infested area into New Jersey to act as a menace to the forest and shade trees of the State, the Department of Agriculture of New Jersey hereby prohibits the shipment into New Jersey for a period of six months, coniferous trees such as spruce, fir, hemlock, pine, juniper (cedar) and arbor vitæ known and described as "Christmas trees" and parts thereof and plants such as holly and laurel known and described as "Christmas greens" from the Gipsy Moth infested area of the New England States known and described as follows: The following towns and all the territory between said towns and the Atlantic Ocean, with the exception of the town of Industry, Me., namely, Tremont, Southwest Harbor, Mount Desert, Eden, Lamoine, City of Ellsworth, Orland, Bucksport, Orrington, Hamdon, City of Bangor, Hermon, Levant, Newburgh, Dixmont, Plymouth, Palmyra, Pittsfield, Clinton, Showhegan, Cornville, Norridgewock, Stark, Anson, New Vineyard, Farmington, Willton, Dixfield, Peru, Rumford, Bethel, Mason, Stoneham, Lovell, and Frysburg, MAINE; Conway, Madison, Tamworth, Sandwich, Thornton, Ellsworth, Warren and Piermont, NEW HAMPSHIRE; Bradford and Fairlee, VERMONT; Lyme, Hanover, Lebanon, Plainfield, Cornish, Claremont, Charleston, Langdon, Acworth, Marlow, Gilsum, Surry, Westmoreland, Chesterfield and Rinsdale, NEW HAMPSHIRE; Northfield, Warwick, Orange, Athel, Petersham, Hardwick, Ware, Warren, Brinfield, Monson and Sturbridge, MASSACHUSETTS; Woodstock, Eastford, Ashford, Chaplin, Scotland, Canterbury, Griswold, North Stonington and Orono, CONNECTICUT.

ALVA AGEE,

*Secretary, Department of Agriculture.*

*New Rules and Regulations of the Bureau*

In order to obtain more information concerning nursery stock shipped into New Jersey from other states, the following notification regulation was made effective on September 6, 1916:

"All nurseries, dealers, nursery agents and others shipping nursery stock into New Jersey from other states are required to notify the Chief Inspector in advance of each shipment, stating the name and address of the consignee, number of packages and a general statement as to the contents of each package, whether it contains fruit trees, shrubs, evergreens or shade trees, etc. This does not apply to seeds, bulbs, roots, herbaceous stock and greenhouse plants."

ALVA AGEE,

*Secretary, Department of Agriculture.*

*Bee Inspection*

Mr. E. G. Carr, deputy bee inspector, reports that from July 1 to August 31, 1916, 1,835 colonies were inspected in 127 yards. European foulbrood was found in 81 colonies and American foulbrood in 9 colonies.

During October, 10 apiaries, where the recommended treatment was not reported done, were reinspected. During the celebration of the 150th anniversary of Rutgers College an exhibit was maintained at the Entomology Building. The 50 colonies of state bees were prepared and packed for winter in three ways to determine the comparative value of these methods.

(Signed) THOMAS J. HEADLEE,

*State Entomologist.*

MEL. T. COOK,

*State Plant Pathologist.*

HARRY B. WEISS,

*Chief Inspector.*