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The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR THE

Year Ending November 30, 1924



DEPARTMENT OF AGRICULTURE, 1924

Commissioner of Agriculture

DR. ARTHUR W. GILBERT OF BELMONT

Advisory Board Appointed by the Governor and Council

EVAN F. RICHARDSON OF MILLIS, Term expires November 30, 1924.
LESLIE R. SMITH OF HADLEY, Term expires November 30, 1924.
PETER I. ADAMS OF HOUSATONIC, Term expires November 30, 1925.
HERBERT N. SHEPARD OF WARREN, Term expires November 30, 1925.
JOHN BURSLEY OF BARNSTABLE, Term expires November 30, 1926.
STUART L. LITTLE OF NEWBURY, Term expires November 30, 1926.

Organization of the Department

DIVISION OF DAIRYING AND ANIMAL HUSBANDRY—OSMAN M. CAMBURN OF ARLINGTON, *Director*
DIVISION OF INFORMATION—DR. CHARLES D. WOODS OF NEWTON, *Director*
DIVISION OF MARKETS—WILLARD A. MUNSON OF WALPOLE, *Director*
DIVISION OF ORNITHOLOGY—EDWARD HOWE FORBUSH OF WESTBOROUGH, *Director*
DIVISION OF PLANT PEST CONTROL—R. HAROLD ALLEN OF TAUNTON, *Director*
DIVISION OF RECLAMATION, SOIL SURVEY AND FAIRS—LESLIE R. SMITH OF HADLEY, *Director*

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The Commonwealth of Massachusetts

REPORT OF THE COMMISSIONER.

RECOMMENDATIONS FOR LEGISLATION.

I. Amendments to the Law on Plant Pest Control

At the time of the compilation of the General Laws there was no previous codification of laws concerning nursery inspection and the control of insect pests and diseases which attack agricultural crops, nursery stock, fruit trees and the like, because practically all these laws were adopted after the revision of the laws in 1902. When the laws on these subjects were codified as part of Chapter 128 of the General Laws, the language of some sections proved inconsistent and ambiguous, so that difficulties arose in the administration of these laws. It also appears that the codification omitted certain qualifying words in one section, apparently because it was supposed that these words were unnecessary, whereas in practice it proves impossible to comply with the section exactly as it is written. It is therefore recommended that Sections 22, 25 and 28 of Chapter 128 of the General Laws be amended so as to correct the present inconsistencies and ambiguities and to restore the language of the original statute.

II. Amendments to the Reclamation Law

Further experience with the administration of the law provided for the drainage and reclamation of wet lands has brought out certain deficiencies in the present language of the law which require improvement in order to make the law more workable. The proposed changes are largely in matters of detail affecting in most cases only a few words here and there. It seems unnecessary for this reason to go into each of these proposed changes in detail. Some important additions to the law to cover situations which interfere with the organization and operation of some districts are also recommended.

During the past year action by the State Reclamation Board has sometimes been delayed because it proved impossible to secure the attendance of both members for a meeting. Since there are only two members of the Board, no action can be taken unless both are present. It is therefore recommended that an additional member be designated by the Commissioners of Public Health and Agriculture, acting jointly. The term of this third member should be three years from the time of designation unless his designation is revoked by the two commissioners before the end of that period. It is believed that for the most effective conduct of the work of the Board this third member should not necessarily be a member of either of the two departments concerned, but should be selected by the two commissioners without restriction as to his qualifications. Since the work of the Board requires considerable time outside regular hours, because meetings of petitioners for reclamation of wet areas must usually be held in the evening, it is recommended that the members of the Board receive additional compensation for their services as such. As the law now stands the members of the Board receive no additional compensation.

Another situation that has given rise to numerous legal questions is the ownership of areas in certain marshes by the commonwealth, cities, towns and other districts. In its present form the law says nothing about membership by public authorities and makes no provision for the payment by these authorities of any share of the cost of district improvements. To meet such contingencies it is recommended that definite provision be made for membership in districts by the commonwealth, counties, cities, towns and other districts and for the payment by these public authorities of their proper share of the expense of district work.

Investigation of conditions affecting some areas for which petitions have been received has disclosed that the difficulties encountered by the proprietors of the proposed district areas can be solved without the organization of a district. Usually in such cases the proprietors need advice and some assistance from the Reclamation Board in order to do what is necessary. It is therefore recommended that in passing upon each petition the Board make a definite decision whether the organization of a district is necessary, and if the decision is that no district need be organized the Board would then have authority to act on behalf of the proprietors so far as may be necessary. When the Board decides that a district should be organized the requirements for organization and the method of forming a district are left the same as they now are except for changes in minor details as already mentioned.

CHANGES IN THE STAFF.

During the year the Department lost, through resignation, the services of Miss Helen W. Grant, who had been in charge of the Farm Labor Bureau for several years and had been engaged in other lines of investigational work. Miss Grant was first appointed to establish the farm labor service and her work in connection with it was of great value to farmers seeking help and farm workers seeking positions. She had also compiled each year the list of farms for sale in Massachusetts, which has proved of considerable value to persons wishing to sell or buy farm property. Miss Grant was not only a faithful and efficient employee but she possessed originality in working along new lines and her going was a decided loss to the Department.

DEVELOPMENT OF A NEW ENGLAND PROGRAM.

Much has been accomplished in the past year toward the further development of a New England food program. In January, 1923, the six New England governors called an important agricultural conference to consider the situation of agriculture in New England and to work out a ten year program. The conference selected a committee to carry on this work and since the time of the conference a widespread interest in the program has been developed.

It was finally agreed that the first necessary step was to reduce to writing a statement of the present situation, the agencies employed to further agricultural matters in New England and the ten year program worked out by committees at the original conference. A book of 273 pages was prepared with this object in view. It was written by some of the best specialists in New England under the general editorship of the writer. No state nor private funds were available for its publication, but one of the largest book publishers of national reputation was induced to undertake the work of publishing it. It is now on sale with the title "The Food Supply of New England." Its preface and table of contents follow:

Preface

This book gives a brief survey of New England agriculture with particular reference to the New England food supply. Much has been written about various phases of it, but this seems to be the first attempt to present the whole picture, although it is not intended to cover the subject exhaustively. The whole question is a complex one, and some of its phases are acute. In the presentation technical terms have been avoided.

In January, 1923, the governors of the six New England States called a conference in Boston for the purpose of beginning a concerted study of the whole food question. The conference set itself to take an inventory of the present situation and to lay out a ten-year program for New England agriculture. A summary of the programs formulated by each commodity committee forms one chapter of this book. The work of the conference is now being actively carried on by a Continuance Committee acting through a small executive committee. New England is one economic unit. It is logical that the various agencies of the six states should work together to solve the problem.

The executive committee of the conference authorized the editor to procure from persons qualified the various chapters presented herewith. I wish to acknowledge the assistance of the following persons in the preparation of this book:

R. Harold Allen, Director, Division of Plant Pest Control, Massachusetts Department of Agriculture; E. Eugene Barker, Ph.D., Former Assistant Professor of Plant Breeding, Cornell University; Dorothy H. Goodwin, Investigator, Division of Markets, Massachusetts Department of Agriculture; Sidney B. Haskell, Director, Massachusetts Agricultural Experiment Station; Joseph L. Hills, Ph.D., Director, Vermont Agricultural Experiment Station; Whitman H. Jordan, Ph.D., Former Director, New York Agricultural Experiment Station, Geneva; John W. Plaisted, Chief Inspector, Massachusetts Department of Agriculture; William J. Spillman, Ph.D., Farm Management Specialist, United States Department of Agriculture; Charles D. Woods, Ph.D., Director, Division of Information, Massachusetts Department of Agriculture.

If this book succeeds in arousing a greater public interest in the New England farmer and his problems and their relationship to our prosperity and our food supply, a great public good will have been accomplished.

ARTHUR W. GILBERT, *Editor.*

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Addendum

DAYLIGHT SAVING.

In accordance with the recommendation made in my last annual report, the 1924 session of the General Court passed an act to provide for submitting the question of daylight saving to the voters at the state election. This act was Chapter 210 and reads as follows:

An Act to Ascertain the Will of the People with Reference to the Retention of the Daylight Saving Law, so-called.

Be it enacted, etc., as follows:

For the purpose of ascertaining the will of the people of the commonwealth concerning the continuance or repeal of the daylight saving law, so-called, the secretary of the commonwealth shall cause to be placed on the official ballot to be used at the next state election the following question:—"Shall daylight saving be retained by law in Massachusetts?" The votes upon said question shall be received, sorted, counted and declared, and copies of records thereof transmitted to the secretary of the commonwealth, laid before the governor and council, and by them opened and examined, in accordance with the laws relating to votes for state officers and copies of records thereof, so far as such laws are applicable. The governor shall make known the result by declaring the number of votes in the affirmative and the number in the negative, and shall transmit a statement of such result, in writing, to the general court during the first week of the session in the year nineteen hundred and twenty-five. If it shall appear that a majority of said votes is in the affirmative, it shall be deemed and taken to be the will of the people that the daylight saving law, so-called, shall be continued in force, and if a majority of said votes is in the negative, it shall be deemed and taken to be the will of the people that said law shall be repealed.

The agricultural and other organizations in Massachusetts which believed in the repeal of the Daylight Saving Act vigorously set forth their views to the voters of the Commonwealth. The Commissioner of Agriculture felt that in his official position he would not be justified in taking an active part in the campaign for repeal of the law, but after urgent and repeated requests from farmers' organizations he made a careful study of the effect of daylight saving upon the farming business of the state and presented his conclusion to the public, believing that he was acting consistently with one of the most important of his statutory duties, namely, the encouragement of agriculture in the Commonwealth. The vote on the question at the November election, as returned by counties, was as follows:

<i>County</i>	<i>For</i>	<i>Against</i>
Barnstable	2,505	4,371
Berkshire	12,493	14,227
Bristol	42,139	27,144
Dukes	348	744
Essex	62,012	54,088
Franklin	4,185	8,294
Hampden	26,096	34,210
Hampshire	6,244	10,810
Middlesex	123,568	87,909
Nantucket	374	302
Norfolk	39,143	28,519
Plymouth	18,330	23,412
Suffolk	102,771	77,384
Worcester	52,031	55,345
Total	492,239	426,759

The vote favoring repeal of the Daylight Saving Law was larger than the most vigorous opponents of daylight saving could even have hoped to secure in an industrial state. It showed conspicuously the number of people who believed that the best welfare of the whole community is served by not injuring the business of the producer of food. There were, of course, other reasons which prompted the large vote against the law.

The geographical distribution of the vote is illuminating. The industrial cities generally favored the law but there were some conspicuous exceptions, and in several of the larger cities, such as Worcester, the vote was very close. The country districts almost invariably voted against the law, a few towns of moderate size which are primarily industrial being the only exceptions. Practically all the cities and towns in the Boston Metropolitan District favored the law, but

some by a much smaller margin than was generally expected. If the vote could have been taken by area and not by population the result would have been against the law because a much larger part of the area of the state was against the law than for it.

THE UNITY OF AGRICULTURAL ORGANIZATIONS.

During the year the tendency of all agricultural organizations in the state to work closely together has become even more marked than in the past. These organizations are more and more getting into the habit of asking and offering help to one another, and are strengthening all their activities greatly thereby. It is gratifying to know that the Department has been of marked assistance to many of them by furnishing information and aid of various kinds and by acting as headquarters for their contacts with other state agencies. The assistance previously received from the Boston Chamber of Commerce, the Massachusetts Chamber of Commerce, the Associated Industries and other non-agricultural organizations has been continued. A number of local chambers of commerce cooperated with the Department in arranging window displays of home-grown apples in the various cities and large towns throughout the Commonwealth. Several of these local bodies supplemented the prizes offered by the Department for these displays with prizes of their own.

In recent years it has been the practice of the leading agricultural organizations of the state to hold a meeting during the fall for the purpose of discussing legislation likely to be offered at the next session of the General Court. This practice was continued in 1924, the meeting being held at Worcester. These meetings do not commit the organizations represented to any particular program, but keep them informed as to propositions likely to be presented at the coming session and as to the attitude of other agricultural organizations toward these propositions.

LEGISLATION.

The number and importance of legislative acts affecting agriculture which were passed during the session of the General Court was rather less than in preceding years. The recommendations of the Department set forth in the annual report for 1923 were all adopted substantially in the form in which they were presented. The resulting acts (1) made important amendments to the apple grading law, especially by extending some of the requirements of the law to open packages, (2) increased the authority of the Department to enforce the law regarding substitutes for butter, (3) extended the period of use for unmarked milk cans and containers used in the purchase or sale of milk or cream at wholesale until January 1, 1926, (4) authorized the completion of the drawings for the report on birds of the Commonwealth and provided for the publication and distribution of the first volume of this report, and (5) made certain perfecting amendments to the Reclamation Law, mainly to authorize proxy voting at reclamation district meetings.

Other important acts had to do with the following subjects: (1) the establishment of Penikese Island as a refuge and sanctuary for wild birds, (2) the identification of cattle which have reacted to a tuberculin test, (3) restoration of compensation by the Commonwealth when cattle are killed where they are found to be tuberculous by inspection and not by tuberculin test, (4) prohibiting admission of uninspected cattle to be used for dairy purposes, (5) providing for registration of ice cream cans and containers, (6) authorizing the Department of Public Health to make rules and regulations and establish standards for the production, processing and sale of Grade "A" Milk, (7) providing for a referendum on daylight saving. This act and the results of the vote taken under it have already been described, (8) providing for the sale of the land and buildings at the market garden field station at North Lexington and the reestablishment of the station at Waltham, (9) authorizing the issuance of permits to hunt, catch or kill ruffed grouse in certain districts. This last act was passed as a result of complaints of damage by ruffed grouse to fruit trees.

FRUIT GROWING IN MASSACHUSETTS.

In most respects fruit growing in this State is a great new industry. Of course fruit has been grown within the state from the very earliest Colonial days and many of our best varieties of fruit, including the Baldwin apple, Concord grape and Bartlett pear, were originated here. Even as previously conducted the industry has usually been profitable, but a renewed interest and much improved methods are rapidly putting this branch of agriculture on a par with other great industries of the Commonwealth. The following extract from a paper by the secretary of the Massachusetts Chamber of Commerce is significant:

"The business of raising and selling apples in Massachusetts has just begun as a real business. For many years the natural markets for our wonderful apples have gradually been taken away from our growers by the competition of other sections where the advantages of up-to-date cultural methods and of grading and packing have been more readily grasped and applied. The time has come to regain the lost ground and encourage our apple growers in developing this business to its full possibilities.

"Some interesting figures were recently given out by Dr. A. W. Gilbert, State Commissioner of Agriculture, regarding apple growing in Massachusetts. He stated that whereas the average per acre value of all crops grown in this state during a five year period, 1917 to 1921, was only \$49, the average per acre value of the apple crop was about \$86. Obviously apples are among the crops of highest economic value. By way of contrast he stated that in Kansas, Iowa and Wisconsin the average per acre value of all crops was about ten, sixteen and twenty dollars respectively.

"'Speaking of apple culture as a business,' Dr. Gilbert further stated, 'it is a large industry. In 1923 Massachusetts grew three million bushels of apples on a million and a quarter of apple trees of bearing age which occupied forty-eight thousand acres of land. Those apples were worth in December of that year, according to the Federal Bureau of Agricultural Economics, four and a half million dollars. For the five years, 1917 to 1921, the apple yield averaged two and a half million bushels with a farm value of four and one-eighth million dollars.'

"Those in a position to know say that the Massachusetts grower now furnishes 36% of the apples distributed through the Boston Market. By encouraging a steady improvement in the methods of growing, packing and distributing our Massachusetts apples the time should come when the most discriminating trade will demand and be able at all times to obtain the local product."

POULTRY RAISING.

The business of poultry keeping has also shown marked advancement during the last few years. The association of certified poultry breeders extended its operations during the year and met with marked success. Other poultry associations have become more active and this increased activity has been evidenced by larger poultry shows and improvement in the quality of exhibits of poultry at these shows and at our agricultural fairs. Although our poultry producers apparently must meet somewhat higher costs of production than producers in other sections, their situation in close contact with the best markets in the country and their unrivalled opportunity to produce high quality eggs and meat for these markets give them a marked advantage over their more distant competitors.

BEEF AND TOBACCO.

Our tobacco producers have recently been confronted with a partial failure of their supply of natural fertilizers, owing to the rapid decrease in the number of horses kept in our cities and large towns. So far no substitute for the lost supply of stable manure has been found. A suggestion has been made that many tobacco growers might readily feed beef cattle during a part of the year and thus supply themselves with a considerable quantity of good natural fertilizer. This project is being worked out by our Division of Dairying and Animal Husbandry.

IDENTIFICATION OF MASSACHUSETTS PRODUCTS.

The studies made by the Division of Markets have indicated that producers of farm products in Massachusetts have not reaped all the benefit that they should from their ability to deliver fresh goods immediately to the markets of the state. The average shopper is not able to distinguish between home grown products and products from a distance unless the home grown products can be positively identified. It is advisable, therefore, that some action be taken, possibly by the appointment of a special commission to work out methods of identifying the products of Massachusetts farms when they come to the markets of the state.

EUROPEAN CORN BORER.

The damage done by this pest has not in most places been more serious than it was in 1923. Most farmers have complied with the law requiring the destruction of corn stubble before December 1. Since a general warning was given last year after the passage of this law by publication and by personal visits to the great majority of farmers in the infested area, prosecutions will be undertaken during the coming winter against persons who raised corn during the growing season and did not dispose of the stubble within the prescribed time, as the law requires.

CONCLUSION.

The Commissioner feels that during the year marked progress has been made in meeting the problems of Massachusetts agriculture and in administering the laws for which the Department is responsible. A large measure of credit is due the members of the staff of the Department for their effective work toward the accomplishment of these results.

Respectfully submitted,

ARTHUR W. GILBERT, *Commissioner*.

REPORT OF THE DIVISION OF DAIRYING AND ANIMAL HUSBANDRY.

INSPECTION WORK.

During the past year, the dairy inspectors of the Division have made nine thousand, five hundred and sixty-three inspections of restaurants, hotels, retail stores, boarding houses and vehicles. One hundred and sixty-nine samples were taken, most of them purchased. From evidence secured from these inspections, twenty-three cases were entered in court, resulting in twenty-two convictions.

The Division has continued the policy of prosecuting only major cases where manifestly violation of the law has been either willful or persistent or both. These minor cases of technical violations have been corrected, mostly without prosecution, through helpful inspection and advice.

*Report of Inspections.**Twelve Months Ending November 30, 1924.*

	<i>Total Inspections</i>	<i>Inspections without samples</i>	<i>Inspections with samples</i>	<i>Total samples taken</i>
1923				
December	318	296	22	22
1924				
January	733	697	36	46
February	1,198	1,166	32	32
March	1,300	1,273	27	27
April	712	703	9	9
May	1,010	1,006	4	7
June	770	763	7	7
July	667	665	2	2
August	454	452	2	2
September	325	325	0	0
October	1,215	1,204	11	11
November	861	859	2	4
TOTALS	9,563	9,409	154	169

Summary of Inspections.

Total number of inspections, 9,563.
 Number of inspections where no samples were taken, 9,409.
 Number of samples taken—milk, butter and oleomargarine, 169.
 Number of samples taken during inspections, 154.
 Number of cases in court, 23.

Court Cases.

The charges in the several cases prosecuted in court during the year were as follows:

Selling oleomargarine in an unmarked wrapper, 5.
 Selling oleomargarine from an unmarked vehicle, 3.
 Selling oleomargarine in imitation of yellow butter, 7.
 Conveying oleomargarine in vehicle for purpose of sale without having registered with the local milk inspector, 2.
 Use of word "butter" on cartons of oleomargarine, 1.
 Selling oleomargarine in a store without having registered, 1.
 Selling oleomargarine from a box not properly marked, 1.
 Selling oleomargarine from a store in which was not conspicuously posted a sign, bearing in 4-inch letters the words "Oleomargarine Sold Here," 1.
 Selling milk from which a part of the cream had been removed, 1.
 Selling skimmed milk to which a foreign fat had been added, 1.

Summary of Court Cases During the Twelve Months Ending November 30, 1924.

<i>City or Town (Tried in same place)</i>	<i>Month</i>	<i>Number</i>	<i>Law Violated</i>	<i>Convictions</i>
New Bedford	January	9	Oleomargarine	9
Fall River	January	1	Oleomargarine	1
Lowell	March	1	Oleomargarine	1
Lowell	March	1	Milk	1
Cambridge	March	1	Oleomargarine	1
Lowell	April	3	Oleomargarine	3
Boston	May	1	Filled milk	0
New Bedford	June	4	Oleomargarine	4
Waltham	September	2	Oleomargarine	2
		23		22

DAIRYING.

The number of dairy cows has declined about four per cent from the number reported in 1923. However, the 157,597 cows reported is more than eight per cent greater than the low point in 1915.

During the past year the general dairy market has been lower. The price of fluid milk dropped very low in the early summer. The milk market continues lower than for the previous year. Two cooperative dairy systems have been organized. These systems sell the product of their members only at wholesale and have experienced considerable difficulty in placing all of it. The members are loyal to their organizations even in the face of the low returns. These low market prices, together with higher feed prices, are depressing to dairymen generally. To meet these conditions farmers are selling the lower producing cows. This condition has also affected the pure bred sales. A few large herds have been dispersed, while other new herds are being assembled. Taken as a whole, now is a good time to cull out the unprofitable animals and replace with pure bred. At the agricultural fairs the quality of animals exhibited is improving, showing that the trend is toward better producers rather than large numbers alone.

BOVINE TUBERCULOSIS.

The control of bovine tuberculosis has been moving forward. There are 212 herds fully accredited containing 6,457 cattle. The total number under supervision is 1,111 herds, containing 19,495 cattle. There are 745 herds with 12,487

cattle once tested and found free of reactors. The waiting list is made up of 150 herds containing almost 2,400 cattle. This is an advance during the past year.

DEMONSTRATION SHEEP FARMS.

This year interest in sheep has been noticeably more active than for several years. The price for early spring lamb has been attractive, as well as an advancing price for wool.

The six Demonstration Sheep Farms report this keener interest. Seven hundred and eighty-five people have called at the farms. Demonstrations have been held at forty-eight different times, in shearing, castrating, docking, worm treatment and disease diagnosis. Outside calls have been made by the farm managers at five hundred and twenty-nine different times. These calls have been made to assist sheep raisers with their problems. The shearing machines have been used to clip even a greater number of sheep than before.

Pure bred rams have been located for several grade flocks as well as better rams for pure bred flocks. More calls have come in for assistance in locating good grade sheep to establish new flocks. Much interest is apparent in running flocks in orchards. More and more farmers are looking to sheep as an additional side line to diversify their farming operations.

The market for early spring lamb was unusually good and held out for a longer period of time. This year more farmers raised lambs for the early market. Reports indicate an increased supply of this high quality lamb for the early market of 1925.

Again in 1924 the growers made up small pools of grease wool. These pools totalled over 27,500 pounds. The sales made early in the year netted 38 cents to the growers. Those who held for the advance received net at the farm, 53 cents per pound. The all virgin wool blankets have been in good demand. The purchasers are more than pleased with the quality and opportunity to buy direct from the wool growers.

EXHIBITS AND MEETINGS.

The exhibit at the Eastern States Exposition was a story of Massachusetts Dairy Industry. The main building was devoted entirely to this special exhibit. A large map showed the source of the milk supply for the several large cities. Maps and pictures told the story of the extent of the raising of pure bred dairy animals. The importance of feeding leguminous roughage, fully matured ensilage and a liberal amount of a balanced ration were clearly demonstrated with charts and field specimens. The annual production of milk of a profitable cow was shown by a pile of milk bottles with a line dividing off the point at which the production of an average cow would come. Practical milk cooling devices were shown in a small dairy house. A long mechanical exhibit portrayed the various stages of milk from producer to consumer. In the center of the building a model milk plant was in operation, showing the pasteurizing, cooling and bottling of milk. An ice cream machine and storage room was shown.

The mechanical exhibit from producer to consumer was also shown at the Barre and Brockton Fairs.

During the year twenty-seven meetings were attended, at seventeen of which members of the division gave talks on agricultural subjects. Members of the division have served on various committees of active agricultural organizations.

POULTRY INDUSTRY.

Compared with industrial conditions in Massachusetts, our poultry industry is fairly prosperous, notwithstanding the fact that feed prices have been gradually on the increase from the beginning to the end of the year, while prices for live poultry and eggs have averaged about the same as those for 1923. There have been seasonal variations in the prices of both eggs and poultry, but these have not materially changed the general average. As a rule a decided and rapid increase in feed prices causes some poultrymen to either cut down operations or

go out of business altogether. Not many have given up poultry work during the past year, but those who have, did so because of a poorly organized project rather than because of the increase in feed prices. They attempted too much on limited capital, limited area of land or limited knowledge and experience. The tendency from now on will be for the poultry industry to gradually get into the hands of those who are permanently engaged in the business and there will be fewer adventurers of the old-time character.

Our poultrymen, especially in the western part of the state, have experienced some competition with Pacific coast eggs, but conditions have not been serious. We are beginning to see that in order to keep our present premium trade we must breed and work for superior quality; that is, our poultrymen should endeavor to make the *average* quality of eggs and poultry equal to the *best* of those that are shipped in.

During the past year there has been an improvement in economic production, more efficient methods in controlling infectious diseases, and in breeding for increased fecundity. These three, together with the production of products of superior quality already mentioned, form the four cornerstones of our poultry industry.

The progress along the line of disease control is most encouraging. The Massachusetts Association of Certified Poultry Breeders has been formed and is now functioning. This organization aims to protect its members against unscrupulous competitors with inferior stock and to distribute throughout the state disease-free, high-producing stock. Every effort possible should be made to foster this organization.

The duck industry is in about the same position as a year ago. It is in the hands of strong and efficient men and present production practically takes care of the demand.

The condition of the Massachusetts turkey industry indicates a vast improvement. Data from the United States Census of 1910 give 2,645 turkeys in Massachusetts, while in 1920 there were 4,808 turkeys reported. This is an increase of 81 per cent. General observations indicate that the increased turkey production has been greater since 1920 than during the ten year period mentioned. The increased production is due almost wholly to improved methods in controlling blackhead.

REPORT OF THE DIVISION OF INFORMATION.

The Division of Information collects and compiles agricultural information and statistics; prepares, edits and distributes the publications of the Department; has charge of the Department library; furnishes publicity material to the press; answers inquiries on agricultural matters; acts as an advertising and sale agency of farms; maintains an employment bureau of farm labor; cooperates in an advisory capacity with the State departments having charge of institutions which maintain farms; and maintains close relations with State organizations that have to do with agricultural education and with the departments of the Commonwealth which have agricultural activities.

AGRICULTURAL STATISTICS.

The collection of agricultural statistics has been chiefly concerning crop production and live stock in cooperation with the New England Reporting Service of the United States Department of Agriculture and with the Division of Dairying and Animal Husbandry of this Department. The crop and animal statistics for Massachusetts for 1923 were published jointly with the other New England States in a publication issued from the office of the New England Crop Reporting Service. Some other statistics have been gathered but their publication has not been authorized.

PUBLICATIONS.

Adhering to the policy which the Commission on Administration and Finance established when they came into office relative to publications by this Department, no publication which could be refused has been accepted by them for publication.

List of Publications in 1924.

Department publication No.

- 127 Rules and regulations governing the allotment of State money through the agricultural societies and poultry associations. 4 pp.
 128 Annual report of the Commissioner. 34 pp.
 129 Bird migration and distribution during year ending November 30, 1923. 8 pp.
 130 White pine blister rust. 8 pp.

Many mimeographed publications on various topics have been issued. These are of a fleeting nature and serve as partial substitute for the publications on agricultural subjects for which the farmers of the State make request. The mimeographed market reports keep the market men and growers in contact with the Division of Markets of the Department and the weekly L.O.I. mimeographed series of about 500 words each serve as a medium for making public some of the more general activities of the Department. These go to all of the papers of the State, to Grange lecturers, and all agricultural instructors in the State.

THE LIBRARY.

As stated in the two last preceding reports the Library has largely been combined with and shelved with the State Library. The subject index cards have been kept up to date.

DISTRIBUTION OF AGRICULTURAL INFORMATION.

The usual matter relative to Department activities has been furnished to the press. The answers to inquiries on agricultural matters from correspondents, while time consuming, are apparently helpful and appreciated. From a supply of Extension Service Publications furnished by the Massachusetts Agricultural College and of Farmers' Bulletins of the United States Department of Agriculture supplied to us through the courtesy of the United States Senators and Members of Congress from Massachusetts, we are able to furnish correspondents with both College and Federal publications on animal industry, farm home, farm labor, field and garden crops, orchard management, poultry and allied subjects.

LISTING AND ADVERTISING MASSACHUSETTS FARMS FOR SALE.

This work has been continued with as much efficiency as has been possible without permit to publish in bulletin form the description of the farms listed with the Department. Mimeograph descriptions have been used as much as is practicable. It is difficult to very accurately estimate the number of farms sold through the activities of this office. But letters of appreciation indicate that many people find the activities useful.

MASSACHUSETTS STATE INSTITUTION FARMS.

The cooperative work with State and to some extent County institution farms begun in 1922 has been continued. The relations with the farms connected with the State Departments of Correction, Public Health and Public Welfare are very close.

This year it has been possible to make a beginning in work combining the best features of the cow testing association with registers of performance of the cattle clubs. This with the institution herd books, which have been in operation for about two years, make toward unity of the dairy work at the dozen farms and the over eight hundred animals. It is hoped that it will be practicable to continue this work, which will add much to better breeding and herd development.

REPORT OF THE DIVISION OF MARKETS.

The work of the Division of Markets has been included under the same projects as during previous years. These projects are continuously growing in scope as a result of demands for enlarged and more detailed services.

A report of activities for the year is herewith submitted.

WHOLESALE MARKET NEWS.

The outstanding feature of the market news work of the Division this year has been the issuing of a Special Apple Market Report. This has been prepared at the request of the fruit growers' organizations of the State. It has been sent out twice a week. An inquiry among the growers as to the value of these reports, and also asking for criticisms and suggestions, has brought a large number of replies which have uniformly commended the news which is contained in the releases. The reports have been commented upon favorably at fruit growers' meetings. Requests have been made that the reports be continued another year. The general scope of these reports has covered price quotations and comment on market conditions at Boston, Worcester and Springfield, supplemented by timely information on receipts, storage holdings, export movement, etc.

Producers are realizing that a more complete understanding and knowledge of the factors which operate to determine the selling price of their goods is necessary to a profitable return for their labor. The market reports issued by the Department give accurate information on market price, supply, demand and movement of agricultural products.

Market reports are published and sent out from the Boston office, 136 State House; the Worcester office, Worcester County Extension Service, 11 Foster Street; and the Springfield office, Hampden County Improvement League, 244 Main Street, according to the following daily schedule of reports:

Monday, 11 A.M. Boston Produce Market Report issued.¹ Worcester Produce Market Report issued. Springfield Produce Market Report issued.

Tuesday, 11 A.M. Boston Produce Market Report issued. Worcester Produce Market Report issued. Springfield Produce Market Report issued. 3 P.M. Special Apple Market Report issued.

Wednesday, 11 A.M. Boston Produce Market Report issued. Worcester Produce Market Report issued. Springfield Produce Market Report issued.

Thursday, 11 A.M. Boston Produce Market Report issued.² Worcester Produce Market Report issued. Springfield Produce Market Report issued.

Friday, 11 A.M. Boston Produce Market Report issued. Worcester Produce Market Report issued. Springfield Produce Market Report issued. 3 P.M. Special Apple Market Report issued.

Saturday, 11 A.M. Weekly summary of Springfield Produce Market issued. Weekly summary of Worcester Produce Market issued. 11.30 A.M. Grain, Feed, Hay and Straw report issued at Boston.

The sources of information from which the reports of the Division are prepared, are as follows:

I. Local:—

1. Interviews with growers on the Farmers' Market, receivers, wholesalers, jobbers and buyers on the wholesale fruit and vegetable market for market information on condition, volume and price.
2. Reports of daily arrivals including states of origin by railroad, obtained by calling railroad offices by telephone.
3. Weather report, obtained from local office.
4. Boston report on prices and amounts of "shipped in" fruits and vegetables received from U. S. Bureau of Agricultural Economics. Prices of "shipped in" products in other cities obtained by direct interviews.

¹The Worcester and Springfield offices publish reprint of Hay, Grain, Feed and Straw Report issued Saturday previous by Boston office.

²Report on weekly market conditions on Brighton Livestock Market published with these reports.

5. Brighton Livestock Market received through Boston office U. S. Bureau of Agricultural Economics.
6. Prices on Boston Auction Market received through local company.
7. Figures on storage holdings, receipts and deliveries from storage obtained from Quincy Market Cold Storage Co. and Commonwealth Ice and Cold Storage Co.
8. Crop Reports N. E. Cooperative Crop Reporting Service, Wakefield, Mass.
9. Exchange of market information between Boston, Worcester and Springfield offices.

II. Distant:—

1. Report on hay, straw, grain and feed market received from U. S. Bureau of Agricultural Economics, Washington, D. C.
2. Crop reports released from U. S. Department of Agriculture, Washington, D. C.
3. Export market on apples from U. S. Department of Agriculture, Washington, D. C., and local agency.
4. Canadian report on foreign market by wire from Canadian fruit commissioner.
5. New York market on apples through local office, U. S. Department of Agriculture, Bureau of Agricultural Economics.

METHODS OF DISSEMINATING MARKET REPORTS.

All produce market reports, including the Boston Retail Price Report, are mimeographed and sent to subscribers, who pay a small fee covering the cost of mailing.

The Worcester Gazette and the Worcester Telegram carry the Worcester Produce Market daily, the retail report on Wednesday and Friday, and the weekly summary of the produce market on Saturday.

The Springfield Union, Springfield Republican, and Daily News carry the Springfield Produce Market daily, the retail report on Wednesday and Saturday, and the weekly summary of the produce market on Saturday.

The Boston Farmers' Produce Market Report is carried on the afternoon wire of the Associated Press and published in the New Bedford Morning Mercury, the Lowell Courier-Citizen, and the Manchester Union.

The Worcester, Springfield and Greenfield papers carry the Special Apple Market Report. Daily at 12.45 P.M. Amrad Broadcasting Station, Medford Hillside, has broadcasted the Boston Produce Market Report.

Westinghouse (WBZ), East Springfield, broadcasts the Springfield market at 12 M. daily and the Boston market of the day previous.

Sherer's Department store, Station WBDH, broadcasts the Worcester market at 11.45 A.M. daily.

MARKET NEWS SERVICE FOR HOUSEWIVES.

Even the consumer who buys in small lots for the family table may profit by keeping in mind the seasons of greatest supply. These are often also the times of most desirable quality and usually of lowest prices. To consume, preserve or store produce at the season of its greatest natural abundance is good policy for enjoyment, health and economy.

The retail price report, published weekly by the Division, enables housewives to buy food to advantage. The information is mailed to 1 090 housewives, 65 domestic science teachers, and printed in newspapers. During the past year consumers market information was broadcasted from the Edison Station WEEL, Boston, every Wednesday evening at 7.50 P.M.

Special news articles have informed Boston, Worcester and Springfield consumers of new fruits and vegetables in their season, when the height of the shipping season was at hand and lower prices expected. Suggestions for canning and general market information on supply and prices were covered in these feature articles. This benefits not only the consumer, but the producer and distributor as well.

CROP REPORTING.

Of the two price determining factors, supply and demand, supply is by far the more important. On the average, the demand for agricultural commodities is fairly stable, although it is not so stable that it is unnecessary to study it closely in order to detect changes. Accordingly, just to the extent that we regard demand as stable, relative supply becomes the principal price determining factor.

Crop statistics constitute a basis for a market reporting program. Complete and accurate crop information both currently and for a period of years is necessary to the individual who has something to sell or to the agency rendering marketing service to him.

Because of the close and fundamental relationship between crop reporting and marketing, the Department of Agriculture has entered into an agreement with the United States Department of Agriculture. "The objects of the agreement are to conduct a cooperative crop reporting service, to improve and extend it to special local needs and to coordinate, so far as practicable, all efforts directed to providing such service, thereby avoiding duplication of work by the parties."

Crop reports reach our farmers through a mimeographed summary known as the New England Crop Report, which is enclosed with or quoted from on the daily reports of the Division of Markets. The report not only deals with the local situation, but also covers crop conditions in competing areas. Crop reports are also sent out through the press and by means of radio.

The subject matter of these reports may be classified under the following headings: feed crops, potatoes, apples, cranberries, milk, livestock, certified seed potatoes, maple products, onions, sweet corn, tobacco, and truck crops.

The crop reporting service, in addition to the regular work, has taken a census of the Massachusetts onion acreage and computed the yields, production, prices and storage. A census was also taken of the tobacco acreage and average yields by varieties. A complete report was made on the hail damaged tobacco for the year. A census of the Massachusetts cranberry bog acreage was made. This report was classified by varieties and by the amount of bog which could be flowed. The base figures for commercial apple crop in Massachusetts were analyzed and a new figure arrived at.

ROADSIDE MARKETS.

Special investigations of roadside marketing were made by the Division at the request of 200 roadside owners. A report on this subject has been prepared and distributed. Farmers are finding that the roadside stand is a very satisfactory method of selling their produce. On Saturday or Sunday an average business amounts to \$35., reaching its height on Columbus Day, when certain stands sell as high as \$150. worth. The seasonal sales vary from a few hundred dollars for small stands, to as much as \$12,000. for the largest. The average of seasonal sales is between \$1,500-\$2,500.

A few years ago there were only occasional "For Sale" signs on the roadside, usually offering fresh eggs. The increasing use of the automobile, aided by improved roads, has changed the opportunities available to the small farmer and offered new methods of marketing to the large growers. Roadside selling has prompted growers to cultivate new products. Instances are common where farmers keep bees, poultry and small fruits simply because they have found a way to dispose of small lots of produce without a trip to market.

Early attempts at selling by sign advertising did not produce the results which the exhibition of fair samples of products within easy view of the automobilist has accomplished. Placards specify the prices on most of the stands. Roadside markets are becoming more popular with car owners, which has resulted in keener competition.

Massachusetts has nineteen trunk lines and many other good roads extending from her cities into productive farming sections, and bordering on these roads one can count as high as forty roadside stands within six miles, which is sufficient evidence that some farmers have found a method of disposing of their

products at home. Roadside markets are an economical asset to the State when they are conducted by actual producers. This method of selling eliminates transportation and distribution charges and enables both the grower and consumer to profit thereby. Moreover, the consumer has his choice of a supply of fresh products that have not been bruised by a trip to market.

Prices received during the past at some roadside markets were checked by the Division and found to average those received in city wholesale markets. A common mistake often made is the belief that transients are glad to buy any grade of produce direct from the farm even at an increased price over that charged in the city stores. Transactions of this kind discourage roadside buying among the public. It is the repeat orders that establish the business and insure the success of the enterprise.

APPLE GRADING LAW.

Four important amendments (Chap. 119, Acts of 1924) were made to the Apple Grading Law. The first makes possible the use of attractive labels in marking packages under the law. Formerly only a black and white stencil could be used. The second fixes the time when closed packages should be branded, namely, "At the time of packing, repacking or closing." The third brings under the provisions of the law open packages of apples marked according to the standard. The fourth prohibits the practice of "overfacing" open as well as closed packages of apples. The act was approved March 20, 1924.

Because of these important changes it became necessary to modify the rules and regulations governing the law. Practical operation under the regulations since 1915 also brought out the necessity for some changes. Six meetings (Shelburne Falls, Springfield, Worcester, West Acton, Newburyport and Boston) were arranged for the discussion of the amendments.

On May 13th the commissioner of agriculture, under authority granted by section 110, Chapter 94, General Laws, modified the rules and regulations. The new regulations represent the average opinion of the fruit growers of the state as expressed at these meetings. Two thousand copies of the amended law and regulations have been distributed to the fruit growers and trade.

During the summer and fall a series of meetings were held for the purpose of discussing and demonstrating the grading of apples in order that everyone might have an opportunity to become acquainted with the provisions of the law and also meet the men who administer its provisions. On Sept. 12th a group of county extension leaders met at the farm of Mr. John Chandler, Sterling Jet., Mass., in order that they might become sufficiently acquainted with the details of the law to answer the questions of the apple growers in their counties.

At the request of the county extension service workers of the Massachusetts Agricultural College, meetings were held in the following places: Middlesex County—Billerica, Westford, Groton, Littleton, Stow, Marlboro; Worcester County—Lunenburg, Westboro; Franklin County—Colrain, Heath; Hampden County—Granville, East Longmeadow. Exhibits of the standard grades were shown at the New England, at Worcester, Deerfield Valley, Charlemont, Franklin County at Greenfield, Acton, Groton, Barre, Brockton, and Segreganset fairs. Over 200 growers by actual count attended the demonstrations, and it is estimated that over 200,000 people witnessed the exhibits of grades.

The opinion of the trade and growers is unanimous that the grading and packing of local apples has never been as good as this year. Two factors have undoubtedly contributed to bring this about, the unusually good quality of the fruit, and the law which has forbidden "overfacing" or "deaconing" of all packages. The Division has been particularly active in its educational program on apple grading this year.

PRODUCE MARKET STUDY.

The farther we progress from the barter system to specialization in marketing, the greater becomes our interest both as producers and consumers in the efficiency of the distribution system. Massachusetts is concerned with her problem of city marketing not only because 90 per cent of her population is urban and must

therefore pay for the cost of distribution in its food bill, but also because the producers are benefited by efficient distribution methods.

It has been the practice of the Division to conduct studies on the various phases of distribution in order to shed light on the facts involved. There is under way a study on the "Cost of Distributing Selected Farm Products Based on a Retail Unit," which is being conducted cooperatively by the Massachusetts Department of Agriculture and the United States Bureau of Agricultural Economics.

As a part of the general survey of the New England milk market situation, a study has been continued to establish the importance of the various factors influencing the demand for milk in Boston with special attention to advertising and publicity.

In order that the trend of the greenhouse vegetable business might be analyzed statistically, a study has been made of the trend in the cost and selling price of garden truck to greenhouse operators located in the vicinity of Boston. A summary has been prepared and distributed to greenhouse operators, explaining the results and illustrating the work by charts. No attempt will be made here to give the complete findings. It may be stated, however, that the greenhouse operator is working under a handicap of high costs, especially labor costs.

Massachusetts producers are evidencing an increased interest in the competition which they must meet in their markets. A research project entitled "Competition Between Areas Supplying Apples, Onions, Lettuce, and Other Products to the Boston Market" is now being conducted cooperatively with the United States Department of Agriculture. Reports for most of the important fruits and vegetables on the source of supply, the amounts received, period of receipts, shipping periods of competing areas, trend of acreage and production in these areas, and other pertinent facts relative to competition have been prepared. The story of the sources of supply, the amounts shipped to Boston and the periods of supply has been prepared in graphical form for the summer, fall and winter supply of apples, for asparagus, and for strawberries. These reports have been distributed to those interested in the marketing of these commodities.

As practically one-third of the family budget is spent for food, and we now depend largely upon areas outside of Massachusetts for our food, it is of great importance to us to know of the sources of supply. Pertinent facts regarding all food commodities coming into our cities are discussed in the Boston Food Supply Bulletin, published by the Division. It is interesting to note that it takes 50,000 carloads of fruits and vegetables to supply Boston and its distributing area for one year. Of this amount New England contributed 18,000 carloads, or about 35 per cent. If we consider only the crops that can be grown in Massachusetts, we find that this state supplies but 25 per cent of the Boston market requirements. Practically all meat and meat products, as well as poultry and poultry products, originate from sources outside of Massachusetts. A large supply of our butter and cheese comes from outside of New England. We depend upon practically every state in the Union and fifty foreign ports for our fruits and vegetables, grain, meat, eggs, butter and cheese.

PUBLICITY AND ADVERTISING.

During New England Week (Sept. 15-20) the Division, in cooperation with the Boston Chamber of Commerce, aroused considerable interest among fruit growers, commission men, retailers and consumers in New England grown agricultural products.

A market window display contest featuring apples was conducted in Brockton during the Fair Week by the Division in cooperation with the Brockton Chamber of Commerce and Plymouth County Farm Bureau. Eighteen stores competed and ribbon prizes were awarded by the Massachusetts Department of Agriculture.

The celebration of National Apple Week (Oct. 31-Nov. 6) proved more successful than the previous year. Twenty-four chambers of commerce through the Massachusetts Chamber of Commerce cooperated with the Massachusetts De-

partment of Agriculture and International Apple Shippers' Association to induce consumers to purchase and eat New England apples.

Five thousand apple posters were displayed in retail stores and restaurants. Eighty thousand New England Apple Week stickers were attached to hotel menus and business letters. Window display contests were conducted throughout the State and ribbon prizes awarded by the Massachusetts Department of Agriculture.

During the Week thousands of apples were distributed free in hospitals, schools, offices, and to commuters passing through the South Station, Boston. Apple recipe books, published jointly by the Boston Chamber of Commerce and the Massachusetts Agricultural College, were also distributed. Apple talks were broadcasted by radio during the week.

The Salem Chamber of Commerce received the silver cup awarded by the Massachusetts Department of Agriculture to the chamber securing the best results during Apple Week. The Boston Chamber of Commerce because of its greater size was excluded from the contest. As a special tribute, however, for the exceptional work done by the Boston Chamber during the Week, a Blue Ribbon was presented by the Massachusetts Department of Agriculture as a token of appreciation.

Weekly and monthly articles covering the subject of marketing problems and conditions are published in newspapers, magazines, and agricultural bulletins reaching 50,000 subscribers. Two hundred reprints are sent weekly to the agricultural leaders and educators of the State, as well as to the County Agents throughout New England.

COOPERATIVE RELATIONS.

We are working very closely with all the Federal and state agencies which are endeavoring to promote better marketing methods. Among these agencies are the United States Department of Agriculture, Bureau of Agricultural Economics, the Massachusetts Agricultural College, the Boston Market Gardeners Association, the Massachusetts Department of Health, and the County Extension Services. Our market news service has been greatly assisted through the cooperation of the Associated Press, the daily press in Springfield and Worcester, the Westinghouse Radio Broadcasting Station at East Springfield, the American Radio Research Corporation at Medford Hillside, and Sherer's Broadcasting Station at Worcester.

National Apple Week was a greater success than any previous year and this was due to extended efforts of the Massachusetts Chamber of Commerce and the Boston Chamber of Commerce. Twenty-eight Chambers of Commerce and Boards of Trade responded to invitations to participate in promoting the use of Massachusetts apples during National Apple Week.

At all times the Massachusetts Fruit Growers' Association and the Nashoba Fruit Growers' Association have cooperated in all activities directed toward the improvement of the fruit growing industry of the State.

Grading and marketing apples has been materially advanced by the assistance of the Massachusetts Agricultural College through its Experiment Station, County Extension Service, Department of Pomology, and Department of Economics by its research and educational work.

The Division of Markets aims to assist individuals, and to cooperate with organizations wherever possible, in the promotion of more efficient marketing of farm products.

REPORT OF THE DIVISION OF ORNITHOLOGY.

PUBLICATIONS OF THE YEAR.

The only publication issued by the Division in 1924 was entitled "Bird Migration and Distribution During Year Ending November 30, 1923" (8 pages). In 1924 also the manuscript of the first volume of "Birds of Massachusetts and New England" was completed and made ready for the printer.

INVESTIGATIONS.

The investigations undertaken during the year were largely such as would furnish material for the publication of the second volume of the work referred to above. Many facts regarding the food of birds have been gathered and recorded. The Boston Society of Natural History, the Museum of Comparative Zoology of Harvard University, the American Museum of New York and the National Museum at Washington all have placed specimens at the disposal of the Director.

Correspondence has been maintained with a large number of observers during the year through which information has been received as usual regarding the distribution and migration of New England bird life, and a bulletin has been sent out to each observer each month.

COOPERATION.

During the year the Division cooperated with the Massachusetts State Grange Committee on Wild Birds and joined them in celebrating a bird day at Concord, where the Director was one of the speakers. The Division has joined with the New England Federation of Bird Clubs in a plan for protecting the terns along the Massachusetts coast by placing wardens upon their breeding grounds. The Division has cooperated with the Northeastern Bird Banding Association, the Fish and Game Protective Association, the Department of Conservation, the Massachusetts Audubon Society and the National Association of Audubon Societies in measures looking toward the protection of useful birds in Massachusetts.

HEATH HEN.

Investigations made during the year in regard to the Heath Hen indicate that the birds have bred during the year, as several broods of young birds have been reported, but no very definite census of the Heath Hen has been taken.

CONSULTATION AND ADVICE.

Advice has been given to many persons and organizations proposing to establish bird sanctuaries in different parts of the State and in other parts of New England. Many individuals have consulted with the Director regarding the best means of establishing such reservations and attracting birds to them. In such cases advice is always freely given.

EDUCATIONAL WORK.

Lecturers on bird life have been recommended or furnished to many organizations and in many cases lantern slides have been loaned to lecturers. Articles have been prepared for newspapers.

RECORDS.

The records of the Division have been kept up to date with one important exception. The mapping year by year of the distribution and migration of Massachusetts birds was discontinued in 1922, as the appropriation for assistance was insufficient.

REPORT OF THE DIVISION OF PLANT PEST CONTROL

NURSERY INSPECTION.

The duties of the Division of Plant Pest Control are largely protective in their nature and this year they have been principally devoted to the inspection of nurseries, scouting for the Oriental and Satin Moths, control of the European Corn Borer and the White Pine Blister Rust.

The inspection of growing stock in the nurseries is very essential. It is designed to rid the nursery of injurious insects and plant diseases. The purchaser is thereby assured of receiving apparently healthy and clean stock. It is neces-

sary for the nurseryman to hold a certificate guaranteeing the stock before it is acceptable for transportation. Therefore, the inspection is essential for the nurseryman in order that he may carry on his business as well as a protection to the purchaser.

The nurseries this year are probably freer of pests than they have been for several years and there has been a marked difference in the attitude of the nurseryman to clean up his nursery. This has been especially noticeable in the case of the Gypsy moth. The nurserymen have made a very thorough clean-up of their stock, which together with the natural enemies have greatly reduced this pest in all of the nurseries. The inspection of the stock for scale, showed that the conditions were slightly changed from a year ago. The inspectors found and probably always will find, some of the susceptible trees and shrubs infested with both San José and Oyster-shell scale. These infestations were in all cases very light and in most cases the plants were destroyed. Where especially valuable stock or specimen plants were found infested, they were quarantined and will be withheld from sale until treated as directed.

White Pine Blister Rust was found in three of the nurseries on white pine. All trees that showed any signs of infection were destroyed and all Ribes, both cultivated and wild, were removed for a distance of 900 feet from all nurseries that grow any pine. With blister rust present in 165 towns in Massachusetts, it is not surprising that it occasionally crops out in a nursery.

Careful scouting was made to determine the exact area infested by the Oriental Hag Moth. This insect was brought in from Japan in 1906, but even at the present time is limited to Boston and towns adjoining and has not been found in any of our nurseries.

The Satin Moth, another exotic insect, seems to be firmly established in Eastern Massachusetts. Twenty-seven additional towns were found infested this year, making a total of 103 in the infested area. So far this pest has only been found on willows and poplars and spraying at the proper time has proved effective in controlling it.

During the past winter a thorough inspection was made of the property surrounding each nursery that held a certificate from this department. In case the adjoining property was infested with pests that might spread to the nursery, a notice was served on the property owner notifying him of the nuisance, instructing him of the measures to abate the same and the time when this should be completed. In most cases the property owner attended to this, but where he neglected to do so, or if the work performed by him was unsatisfactory, the Department of Agriculture completed the work and charged the same to the property owner. This clean area or strip around the nursery is a great help to the nurseryman, as a source of infestation may lie immediately outside the nursery.

A ruling of the Federal Horticultural Board prohibited the shipment of nursery stock outside the gypsy moth area if a single egg mass was found on stock consigned to points outside the area until certain requirements were met. At the same time they prohibited the shipment of evergreens outside the area, "after the gypsy egg masses hatched." The nurserymen were able to have this ruling modified so that evergreens could be shipped after the egg masses hatched, providing that each shipment was sprayed under supervision of a Federal inspector. This modification was beneficial in that it gave the nurseryman a much longer shipping season.

The department was particularly interested in two hearings held before the Federal Horticultural Board—one, relative to the Oriental Hag Moth; the other to White Pine Blister Rust.

In August the Federal Horticultural Board held a hearing presumably with the intention of placing a quarantine on the area infested with the Oriental Hag Moth.

The Oriental Hag Moth was first discovered in Dorchester in 1906. It was probably imported from Japan on nursery stock, as in 1906 there was a nursery in Dorchester conducted by Japs. The infested area was scouted in 1907 by the State Board of Agriculture and the Department has kept close watch of

this insect since that date. The area has been carefully scouted the last two winters and at present the insect is known to be present in five towns immediately adjoining Boston. This pest passes the winter in a cocoon and it is easily detected. The caterpillar stage or feeding period is during August and at that time the insect is easily controlled by spraying with arsenate of lead. The State Department of Agriculture has secured the assistance of the authorities in the infested towns and spraying in these towns has been done according to our recommendations. There are no nurseries in the infested area and, therefore, very little chance of shipping the insect out. A quarantine at the present time would not directly hurt the nurserymen, but each time a new insect pest is found in Massachusetts and is given wide publicity it does hurt Massachusetts agriculture in that it calls attention to the fact that we have a new bug.

It was, therefore, suggested that the Federal Horticultural Board allow this department to continue to take charge of the situation, because the department believed it was especially capable of doing so, and fully realized the importance of the insect. If at any time the area increases so as to include any nurseries, this department will work with all necessary precaution, and if the situation warrants it, ask assistance of the Federal Government. After due consideration the Federal Horticultural Board decided that a quarantine at this time seemed unnecessary since this department appeared to have the matter well in hand.

The hearing relative to the White Pine Blister Rust quarantine was held in Washington at the request of the American Association of Nurserymen. At the conference this department recommended that the unrestricted movement of five-leaved pines from Massachusetts nurseries be permitted, provided that no *Ribes*, wild or cultivated, are present in the nurseries or within 900 feet of the nurseries and provided that no black currants, including *R. aurem* or *odoratum*, are present within one mile of the nurseries; and provided further that only such five-leaved pines as are grown in the nurseries subsequent to the establishment of the above referred to *Ribes*-free zone shall be shipped.

The *Ribes*-free areas shall be established by the State Department of Agriculture and certification of the pines grown under these *Ribes*-free conditions shall be made by the State Department.

As yet the Federal Horticultural Board have not advised us whether any change will be made.

EUROPEAN CORN BORER

We have cooperated with the U. S. Government in maintaining offices in the Boston and Worcester Markets, where the inspection is made of vegetables and flowers consigned to points outside the infested area.

In 1923 the Legislature passed a law which required that all corn stubble, in the area infested by the European Corn Borer, be plowed under by December 1 of each year. There was very little opposition to this law, the only cases coming to our attention being where owners desired to seed their corn field down to grass or rye at the time of the last cultivation. Last year the department conducted an educational campaign with several agents in the field acquainting the growers with this law. The results were very satisfactory and it is estimated that 75-90% of the stubble was plowed under. This year a similar plan was put into operation with eight agents in the field. Without doubt there will be some delinquents, but it is gratifying to know that most of the growers are complying with this law. A careful scouting was made this fall for the borer and no new towns were found infested. This was especially encouraging and can perhaps be partially accounted for by the fall plowing. Also, a field survey in the late summer and fall showed that there had occurred a *decrease* in intensity of infestation of about 20% as compared to 1923.

An examination of the ears of sweet corn showed only 1.2% were infested compared to 10.6% in 1923 and 20.4% in 1922. Similar decreases were noted in beets, beans, celery, dahlias, gladioli, and chrysanthemums. The infestation in weed areas was reduced to a very low point—estimated at a decrease of 75%. The experts at the Government Laboratory in Arlington have liberated over a million parasites consisting of seven different species, two of which have been

recovered in small numbers. It is hoped that these will survive our climate and be a deciding factor in controlling the European Corn Borer.

WHITE PINE BLISTER RUST.

The White Pine Blister Rust, a serious plant disease which is menacing the white pine forests of this country, has been reported to date—November 30, 1924, as attacking white pines in 165 Massachusetts towns. This is indicative of the scattering distribution of the disease throughout the State. As has been stated in previous reports, the responsibility for the prevention of the further spread of this disease in Massachusetts, was originally assigned to this division under the Nursery Inspection Law. In an endeavor to discharge this duty, the activities of the department during the fiscal year 1924 have followed the same general procedure as last year and in accordance with the plan and policy adopted in the spring of 1922. This plan is divided into three major projects—Education, Service, and Control.

The object of educational work is to furnish to the public, and more especially to the owners of white pine, the essential facts concerning blister rust, and to make clear that the further spread of the disease in local areas can be prevented in but one way, and that is, by the elimination of both wild and cultivated currant and gooseberry bushes, technically termed *Ribes*, in pine producing sections of the State. These plants and no others are the active agents in the spread of the disease. This educational work is accomplished by means of talks at local community meetings, illustrated by the use of lantern slides and motion pictures; the proper exhibition of specimens showing the damage which blister rust can do; the distribution of circulars of information; the insertion of news items in the local press; and the display of illustrated posters and notices about the disease and its control.

The second project, which has been termed Service, has for its object the rendering of a service to the persons directly concerned; that is to say, to individual pine owners. This is accomplished by private interviews and personal instruction in the means of recognizing the symptoms of the disease; demonstrations of the damage that the disease is doing; and instructions in the use of the methods whereby it can be effectively controlled in local areas.

The third project; namely, Cooperative Control, usually referred to as *Ribes* eradication work, involves the rendering of assistance to pine owners in securing the efficient and effective removal of currant and gooseberry bushes, as a protection to their white pine. This assistance takes the form of instruction and supervision only, the pine owners furnishing the necessary labor with which to carry on control work and the State Department providing supervision through the employment of temporary inspectors or foremen.

The results of the work carried on during the field season of 1924 indicate that the educational and service work have been conducted even more successfully than in the past. As a result of this work, 2,544 owners have taken some active part in cooperative control work, and have assisted in the uprooting of 1,411,166 wild and 38,777 cultivated currant and gooseberry bushes in an effort to protect the white pine now growing in the communities in which they reside or possess forest land. This represents an increase of 141% over the number of individuals cooperating in the work in 1923. In carrying on this protective work, the cooperating owners have been willing to expend the equivalent of \$11,527.04, this amount constituting an increase of 67% over last year's record.

As a further indication of the effectiveness of the educational work, it is interesting to note that 1,564 owners have been willing to or at least did actually sacrifice their fruit-producing bushes without requesting reimbursement from the State. This fact, representing a gain of 167% in this type of cooperation, speaks well for the effort which is being made to carry on this phase of the work, not by and with the authority of the law, but by means of persuasion and an appeal to the community spirit. The average individual responds to the right sort of a reasonable appeal for cooperation, but rebels at compulsion. Fifty-five claims have been received from owners who feel that they should receive some reimbursement for the loss sustained in the removal of 5,960 cultivated bushes.

These claimants, however, represent less than 4% of the total number of persons who have been called upon to destroy their bushes and in nearly every instance they were deriving a considerable income from the plants.

With the increase in the number of individuals cooperating with the department, it might be expected that the area of land examined would be larger than that of last year. Such is not the case, however, the total land area examined this year—150,876 acres—being somewhat below the unusually large acreage examined in 1923. This situation is due to the fact that many of the lots were very small and practically no areas were Ribes-free, as was the case last year.

The reduction in the area of land examined has naturally resulted in a slight increase in the average cost per acre from the unprecedented low figure of 12¢ per acre in 1923, to 19¢ per acre for 1924.

The following tabulation of data summarizes the results of the field work performed during the fiscal year 1924.

Education:

Number of local meetings attended	57
Attendance at meetings	4,564
Number of exhibits placed	65
Number of circulars distributed	11,371
Number of news items prepared	211
Number of posters placed	416

Service:

Number of initial interviews with property owners	4,466
Number of follow-up calls	1,845
Number of field demonstrations to individuals:	
Instruction in identification of the disease	919
Instruction in the practice of control work	1,248

Cooperative Control (*Ribes eradication*):

Number of owners removing cultivated Ribes only	1,564
Number of owners removing wild and cult. Ribes	980
Total amount expended by cooperating owners	\$11,527.04
Area of land (acres) examined for wild Ribes	150,876
Estimated area (acres) of white pine protected	98,318
Number of wild Ribes pulled	1,411,166
Number of cultivated Ribes pulled	38,777
Average cost per acre (total expenditures)	19¢
Number of towns in which work has been conducted	70

These activities have been conducted as heretofore under a formal written agreement between the U. S. Department of Agriculture (Bureau of Plant Industry and the Office of Cooperative Extension Work), the State Extension Service (Director of Extension and the County Agricultural Agents), and the Massachusetts Department of Agriculture (Division of Plant Pest Control). The parties to the cooperative agreement are represented by an appointee of the Bureau of Plant Industry designated as the State Blister Rust Leader. The State Leader is responsible for the carrying out of the cooperative blister rust control program within the State, but administers the work in intimate association with the Director of this division.

During the fiscal year 1924, the State Leader, Mr. C. C. Perry, has been assisted in carrying on the work by the following personnel, designated as blister rust control agents, each man being charged with the responsibility for carrying out the plan of work in a definite district in the State:

District	Agent in charge
I Essex	W. T. Roop
III Plymouth-Norfolk	E. M. Brockway
V Worcester (South)	E. J. McNerney
VI Worcester (North)	R. W. Merrick
VII Franklin-Hampshire (North)	G. S. Doore
VIII Hampden-Hampshire (South)	R. E. Wheeler

In addition to the control work performed under the direction of this department, the Division of Forestry of the Massachusetts Department of Conservation has been conducting Ribes eradication work on lands under its jurisdiction. In this work 8,900 acres have been examined during the field season. From this area 613,870 wild Ribes were removed.

The Director wishes at this time to express his appreciation of the work done by Mr. C. C. Perry, who has had charge of the white pine blister rust; to his untiring efforts and conscientiousness are due the excellent results which have been accomplished. The services rendered by Mr. Q. S. Lowry as assistant have been very helpful and his thoughtfulness has been greatly appreciated.

APIARY INSPECTION.

The first matter of the year brought to the attention of the inspector of apiaries, was the possibility of desirable legislation for the elimination of bees kept in box hives and similar containers, the purpose being to require such colonies to be transferred to hives with removable fixtures, to the end of more possible and accurate inspection for bee diseases. This proposal was made by the members of the Attleboro Beekeepers' Society. After careful consideration it was determined that the provision in the apiary inspection statute, empowering the Inspector of Apiaries to make reasonable regulations for carrying out the necessary provisions, afforded the Department plenty of authority to regulate the problem of the box hive as presented. At the annual meeting of beekeepers held in Worcester, during the Annual Union Meetings, the various angles of the problem were carefully considered. It was agreed by all, including the delegates from the Attleboro Society, that the Department should first make this a departmental regulation; then if experience showed that legislation was necessary, this should be looked for in the future. In accordance, a regulation governing the use of box hives and similar equipment was prepared.

With the commencement of the active season of inspection, this box hive regulation was enforced by the inspectors. Only a slight amount of objection was encountered, limited perhaps in most cases to the more aged beekeepers, who all of their lives had been accustomed to the old-fashioned box hive, and to foreigners, whose custom was to keep bees in similar hives in the old countries. In some instances objection to the expense of new equipment has been raised, but this objection has usually been overcome, in one way or another. Similarly other objections have been met, so that as a whole the regulation has caused a considerable number of colonies to be transferred, "taken up," sold to other beekeepers with the understanding that the colonies would be transferred, or have been otherwise satisfactorily disposed of. There are a considerable number of colonies being held, pending transfer in the spring, when the season will be more favorable than it was in middle or late summer, when these cases were encountered. The trial of the regulation can be considered highly successful thus far. It is observed that this provision in apiary inspection powers is considered one of the four legal requisites in the proposed plan for "National Foulbrood Eradication," referred to elsewhere.

As Deputy Apiary Inspectors, the following were appointed on the usual per diem basis: Mr. Fred Challet, Northampton, who served in the Connecticut Valley; Mr. Charles N. Ellis, Westwood, worked north and south of Boston; Mr. O. F. Fuller, Blackstone, covered southern Worcester County and southeastern Massachusetts toward Cape Cod; Mr. Ivan Rawson, Pittsfield, was assigned to Berkshire County; and Mr. Edwards Thorne, Worcester, inspected in northern and central Worcester County and east in Middlesex County. The writer as Inspector of Apiaries directed the work.

The diseases encountered were American foulbrood in isolated and limited districts, particularly in the east; European foulbrood in Berkshire County, the Connecticut Valley and east, but to a noticeably limited extent in most all localities; sac-brood was reported in a few apiaries, but this disease is usually of self-eliminating character. In one or two instances treatment was recommended by the inspector. Diseases of the adult bees like the so-called nosema disease were not appreciable this year.

In January at Worcester, on the occasion of the Union Agricultural Meetings, the inspector arranged an exhibition of honey in various forms, wax, honey-vinegar, and bee products for the exhibitors of the Worcester County Beekeepers' Society. A lecture on bees and beekeeping was delivered in Attleboro on November 27, before the Centenary Men's Club. A considerable number of beekeepers were present in the audience of upward of fifty.

The appropriation was \$2,500, of which a small balance of \$4.35 remained unexpended at the close of the fiscal year. It is recommended that the appropriation of \$2,500 be continued for the year of 1925.

There is being promoted by the American Honey Producers' League, a project whereby the Federal Department of Agriculture will cooperate in National bee disease control, particularly in the control of American foulbrood. This department was requested recently to consider the general features of the plan and to state whether as a whole Massachusetts law would give adequate authority or could be made to do so. After due consideration the Inspector of Apiaries with the approval of the Commissioner replied that Massachusetts is in sympathy with the plan insofar as it has been made known and that the statute affords ample authority on each of the four essentials of law outlined by the League as being necessary in order to successfully clean up bee disease. It is understood that the plan is now being informally discussed with members of Congress and that shortly a bill will be introduced asking for the necessary funds, to be appropriated to the United States Department of Agriculture.

REPORT OF THE DIVISION OF RECLAMATION, SOIL SURVEY AND FAIRS.

IRECLAMATION.

As in 1923 the reclamation work of this division has been conducted by the State Reclamation Board, the Director of the Division being the official representative of the Department on the Board and Secretary of the Board. The report of the Board is therefore embodied in the report of the Division.

REPORT OF STATE RECLAMATION BOARD.

The personnel of the Board has been the same as during the last several years,—Mr. Warren C. Jewett of Worcester, Chairman, representing the Department of Public Health and Mr. Leslie R. Smith of Hadley, Secretary, representing the Department of Agriculture. The employment of Mr. P. M. Churchill of Elmwood, as Consulting Engineer, has been continued throughout the year, and Mr. John W. Plaisted, Chief Inspector for the Department of Agriculture, has acted as attorney for the Board on various legal questions.

At the beginning of the year the Board recommended to the Legislature, through the Department, that provision be made for proxy voting in reclamation districts and for the preparation of plans of districts to show their boundaries. These amendments to the law were made without opposition, appearing as Chapter 93 of the Acts of 1924. The provision for proxy voting is essential to the operation of some districts which have so many members living at a distance from the district lands that a quorum cannot be secured to attend meetings in person.

The Board has not had a sufficient appropriation to undertake general investigations of tracts of wet lands throughout the State, but has been obliged to confine itself largely to the consideration of new projects for drainage, and the supervision of projects previously undertaken. The Board has continued to furnish information about drainage questions upon application, and has given aid in some cases where the immediate organization of a district seemed unnecessary or inadvisable.

A new line of work has developed from contact with the Department of Public Works. Examination of various highway locations, which was required in connection with surveys of proposed districts, brought out the fact that the construction of highways is not always planned to provide for proper drainage of the land which the highways cross. A number of instances were found where

culverts in highway embankments are set too high to carry off any water except flood or surface water, and are of no value for removing ground water. In such cases the highway embankment acts as a dam, and sometimes aggravates the marshy condition of land through which it runs. Discussion of this condition with the Department of Public Works led to a request by the Commissioner of that Department that the Board would examine the locations decided upon each year for new highway construction, and report and recommend proper measures for taking care of the flow of water from tracts lying near the locations in question. This the Board has undertaken to do. A list of the State Highway projects for 1924 was submitted to the Board in November, 1923, and was examined by the consulting engineer for the Board before January 1, 1924. A similar list covering State Highway projects for 1925 was submitted early in November of the present year and was examined by the consulting engineer before the end of that month. A report on the 1924 projects was submitted to the Department of Public Works before construction began and a report on the 1925 projects will be prepared and submitted during the coming winter. It is expected that the examination of these projects before construction will enable the Board to bring about proper attention to drainage requirements in highway undertakings. In order to make this service fully effective the Board should also have information about projected County and Town highways long enough in advance so that these projects can be examined and recommendations made to cover the drainage features that may be involved.

During the year the Board held eight meetings, including five hearings on drainage projects. It received petitions for two new projects, and two petitions from old projects whose reorganization under the new form of law was found to be necessary. Hearings were held on all these petitions and all were approved. In each case District Commissioners were appointed.

STATUS OF RECLAMATION PROJECTS.

The projects now before the Board are in several different stages. There are three drainage districts organized under the law passed in 1918, and amended in 1922. Three districts have been organized since the complete revision of the law in 1923, and two districts formerly organized under the older law have been dissolved by act of the Legislature, and have been reorganized under the revised statute. The situation of the several projects at the end of the year were as follows:

ASSABET RIVER RECLAMATION DISTRICT (WESTBOROUGH-NORTHBOROUGH)

In accordance with the request of the Commissioners of the old drainage district, that district was dissolved by act of the Legislature during the session of the present year. A new petition for organizing a reclamation district under the revised form of the law received sufficient signatures to be presented to the Board in October. A hearing was held at Westborough on November 3d, and the organization of a Reclamation District was approved by the Board immediately after the hearing. The same Commissioners who served the drainage district have been appointed commissioners of the Reclamation District. Examination of the district area indicates that a thorough survey should be made before any construction work is undertaken. Arrangement for that survey is consequently being made. The situation in this district is complicated, because the Town of Westborough owns land within the district area, while the Commonwealth not only owns part of the land, a tract controlled by the Lyman School for Boys, but also has another institution between North Grafton and Westborough which pours a large quantity of water into the river, which flows through the district. It is not yet wholly clear under the law, how contribution to the expense of the district work can be made by the town and the Commonwealth. This problem will be pressed for solution during the coming winter.

BEAR MEADOW RECLAMATION PROJECT (WHITMAN)

The petition for this project was received just at the end of the year 1923. It covers a rather narrow strip of about 200 acres, extending from the Railroad Station at Whitman to a point near the station at North Hanson. At the lower

end an old flowage right is involved and near the upper end a stream which flows through the tract is receiving considerable quantities of water and sewage from the shoe factories. Some rubbish appears also to be finding its way into the stream from a town dump on the edge of Hobart Pond in Whitman, to which the stream serves as the outlet. Owing to the desire of some parties interested in the project to improve conditions around Hobart Pond and if possible to solve the problem of the district in connection with the construction of a sewerage system by the town of Whitman, the district has not yet been organized. Steps are being taken to bring about a line of action by all parties concerned which will settle all the difficulties involved. If it appears that the organization of a district is necessary or desirable, organization will be effected within the next few months.

CHERRY RUM BROOK DRAINAGE DISTRICT (GREENFIELD)

No construction work of any consequence has been done in this district during the year. In some places the main ditch has been partly filled up by sand brought down in times of flood. The cost of the improvement has been certified to the assessors of Greenfield, whose duty it is to make the assessments on the individual proprietors. The success of the work in this district has been made more evident by experience during the year.

CUTTER SWAMP RECLAMATION DISTRICT (ARLINGTON AND LEXINGTON)

The petition for this project was received in February and the Board held a hearing upon it in Arlington Town Hall, February 26th. The area involved is about forty acres lying along the boundary line between Arlington and Lexington near the boulevard. The work to be done is simple and inexpensive, except that it may involve a change in the location of two or three highway culverts. The project was approved by the Board and a Reclamation District duly organized. The district has been endeavoring to make arrangements for a survey and has not yet begun construction.

GREEN HARBOR RECLAMATION DISTRICT (MARSHFIELD)

The drainage district covering this area was dissolved by the Legislature during the 1924 Session, and steps were immediately taken to organize a Reclamation District under the revised law. After a hearing the Board approved the project and appointed District Commissioners. The organization meeting of the district was held in June, and later in the year the District Commissioners arrived at an agreement with the Town of Marshfield and the County of Plymouth for the construction of a bridge with tide-gates and stop planks through the dyke at a point near the old channel of the Green Harbor River. The plan for this bridge has been submitted to the Board and has been approved. It appeared, however, that the district must acquire title to the dyke and the land on which it is situated. This title now stands in the name of the proprietors of Green Harbor Marsh, an organization authorized by legislation passed in 1871. Since conditions make a conveyance impossible it is apparently necessary that the District Commissioners make a taking by eminent domain. Arrangements are now being made to put through the necessary process. It seems probable that if the proposed bridge can be constructed according to the plan, and the dyke and bridge properly maintained thereafter, the difficulties encountered by land owners in this marsh over a long period of time will be satisfactorily brought to an end.

NORTH SCITUATE RECLAMATION PROJECT (SCITUATE)

Little progress has been made on this project during the year. Only a few land owners are involved, but there is apparently no prospect that they can secure the improvements desired except with some of the powers that a district will give. As the land owners are still interested it is probable that some definite action will be taken during the coming season.

SALISBURY DRAINAGE DISTRICT (SALISBURY)

This district has not been reorganized under the revised form of the law, but such reorganization seems very desirable because many of the land owners in the area involved live at a distance, so that the affairs of the district would be much more readily handled if these members could vote by proxy. Proxy voting is, however, possible only under the revised form of the law. The District Commissioners have continued their efforts to secure an advance of money from the County of Essex, but this effort has been unsuccessful.

SHELBURNE RECLAMATION PROJECT (SHELBURNE)

The land owners in this area have found a means to secure drainage without the organization of a district and have completed the necessary work.

WAPPING RECLAMATION DISTRICT (DEERFIELD)

The area involved in this project is described in the last annual report of the Board. The District Commissioners were appointed in December, 1923, but the district was not organized until June, 1924. A further survey of the area to be drained indicated that the proper outlet was in a different location from that originally decided upon. The plan for improvements in this district does not contemplate doing all the work at one time, but taking it up by sections, as the district may decide. Bids are now being secured for constructing the first section. It is expected that the so-called Great Pasture Project in Deerfield will be combined with the Wapping Project.

WEWEANTIC RIVER DRAINAGE DISTRICT (CARVER)

No new construction has been undertaken by the district during the year. The new bridge on the location of the Old England Bridge near Tremont has proved to be much better suited to pass the water of the river than the old bridge. Near the upper end of the district the part of the bed of the river which was cleared when the district first began operations is showing a tendency to fill up again. This part of the river will need further cleaning, and some additional work should be done to remove obstructions and straighten the channel farther down stream.

INACTIVE PROJECTS

The so-called Malagasco, North Marblehead and Wessagussett Projects appear to be at a standstill. At North Marblehead the land owners appear to have lost interest, and various obstacles have prevented anything further being done on the other two projects which are situated in Boylston and North Weymouth respectively.

PENDING PROJECTS

The Board has information about several places where the land owners are interested in securing drainage. This includes a considerable area near Massapoag Lake in Sharon, a large tract in Whitman west of the Bear Meadow Project, and an area in Dedham which interferes with the development of that town and the construction of town parks and playgrounds. None of these have reached the stage of sending in a petition.

RECOMMENDATIONS

The Board regrets the necessity of asking for further changes in the Reclamation Law. In most respects the law is meeting the expectations of the Board and others interested in the State's drainage problem. It should be recognized, however, that this is a new line of State activity and that the legislation is necessarily experimental. It is not to be expected that every contingency can be met until after several years' experience with the law and with the situations which administration of the law brings to light.

To facilitate the operation of the Board, the personnel should be three members instead of two. One of the present members of the Board is not available on short notice, and without either member the Board cannot legally act. It is,

therefore, proposed that the Commissioners of Public Health and Agriculture be authorized to appoint a third member of the Board to serve for a term of three years. It is also recommended that the members of the Board be allowed compensation for their services as such, because a large part of their work must in order to meet the requirements of land owners of the various districts be done outside regular hours. The Board is convinced that it should have more information before passing on the advisability and practicability of projects and is therefore recommending an amendment to the law providing for a more thorough survey of each tract before acting upon a petition for improvements. Some other minor amendments are recommended, but those are not of enough consequence to be mentioned in detail.

Respectfully submitted,

(Signed) LESLIE R. SMITH, *Secretary*.

II. SOIL SURVEY.

The field work on the Soil Survey of the State went forward this year in Middlesex County under the same cooperative agreement as heretofore between this Department and the United States Department of Agriculture. The personnel of the field party was the same as during the two preceding seasons. Mr. W. J. Latimer represented the Bureau of Soils, United States Department of Agriculture, and Mr. M. O. Lanphear represented the Massachusetts Department. The State is fortunate in being able to secure the continued services of these men.

The party succeeded in covering the whole of Middlesex County before cold weather made necessary the bringing of the field work to a close. The necessary inspection of the county and other detail work still remains to be done so that no extended report can be given describing the results obtained. It was found that the extensive areas of first-class orchard soils which were found in Worcester County and were there given the name of Charlton extend into Middlesex County across the Nashoba Apple Belt. The best orchards in Middlesex are on this soil and it is noticeable that orchards on other soils are less successful. The Charlton soils appear to be derived from a belt of rock of a type known as schist, which extends from Brimfield at the easterly end of Hampden County, in a northeasterly direction across Worcester and Middlesex counties, nearly to the Merrimac River. Except for this belt of good orchard soils, the survey disclosed that the average soils in Middlesex County are generally less desirable for tillage than the soils of Worcester County. Gravelly and sandy soils cover large areas and there are also extensive tracts of meadow and marsh land, a considerable part of which is too wet for agricultural use. The agricultural importance of Middlesex County, therefore, except for the apple-growing industry, depends more on the proximity of most of the county to good markets than upon the general excellence of its soils. The convenience of markets has led to the development of soils that would not be used in more remote localities.

During the summer copies of the Soil Survey Report on Barnstable, Bristol and Norfolk Counties were received from the Bureau of Soils, and some of these were distributed. This report varies from the usual practice of the Bureau of Soils, in that it covers three counties instead of one. Detailed soil maps of each of the three counties are included in the report. The Department still has some copies that will be furnished upon request. On account of vacancies in the force of inspectors employed by the Bureau of Soils, no inspection of Berkshire County could be made this year. This delay is unfortunate because it will defer the publication of the report on this county.

The field work in this State has now covered the following complete counties, which are named in the order in which the survey work was done: Plymouth, Bristol, Barnstable, Norfolk, Worcester, Berkshire, Middlesex. The Connecticut Valley was surveyed about twenty years ago, but the survey did not cover any complete county. The counties of Franklin, Hampshire and Hampden will, therefore, be surveyed before the work in Massachusetts is brought to a close. Reports have been published on the first four counties named. According to present plans the field work next year will cover the County of Essex.

III FAIRS AND EXHIBITIONS.

Prize money allotments were made to 115 agricultural societies, granges and poultry associations holding fairs and shows in Massachusetts this year. Out of this number, 96 fairs and shows held exhibitions, and 19 returned their allotments either because those in charge of the fair did not deem exhibits worthy of State prize money or because for some reason the fair could not be held.

Special exhibits were installed in connection with the Union Agricultural Meeting, Mechanics Building, Worcester; Brockton Fair; Hancock Community Fair; Worcester Fair; Eastern States Exposition and Woburn Exposition. An extensive exhibit showing the milk problem from beginning to end was shown in the Massachusetts Building at the Eastern States Exposition this year, which proved as interesting and effective as the apple industry exhibit shown a year ago. Each fair and poultry show was inspected by a representative of the Department and a detailed record of inspection, giving the number and character of exhibits, is on file.

The fairs' lecture is in good demand and many new lantern slides have been added during the year so that the lecture is kept up to date.

The fairs were very well attended and the exhibits both in quantity and quality were very good. The increased attendance at the large fairs and the quality of the exhibits would seem to indicate the continued and growing interest of the people in the agriculture of the State and to warrant an increased appropriation to carry on the work. Request has, therefore, been made for a larger appropriation for next year.

Special ribbons were awarded at all the Grange fairs for the best exhibit of canned goods, the best exhibit of fruit and the best exhibit of vegetables. In a few cases, these ribbons were given at other agricultural fairs.

MEDALS.

In 1924 the Department decided to make a permanent annual award of gold medals for outstanding agricultural achievements.

These medals, awarded to man or woman, boy or girl, as the case may be, represent the highest reward of merit that is conferred by the Department. These medals are awarded only after the most careful study by a Board of Awards, consisting of the Commissioner of the Department of Agriculture, the Director of the Division of Reclamation, Soil Survey and Fairs, the members of the Advisory Board of the Department of Agriculture, the President of the Massachusetts Agricultural College, the Master of the State Grange, the President of the Massachusetts Federated Farm Bureau and the Editor of the New England Homestead. In 1923 and again in 1924, six awards were made. A permanent record is being compiled, showing photograph of the recipient and a description of the accomplishment.

In addition, silver and bronze medals and cups are given each year at the discretion of the Commissioner of Agriculture and Director of the Division of Reclamation, Soil Survey and Fairs.

CAMP GILBERT

The Department cooperated in the conducting of Camp Gilbert at the Massachusetts Agricultural College this year and paid the expense of Boys' and Girls' Club Work amounting to \$1,747.30.

EXPENSES OF SPECIAL EXHIBITS

Union Agricultural Meeting	\$519.63
Brockton Fair	43.59
Hancock Community Fair	2.94
Worcester Fair	7.42
Eastern States Exposition	3,246.05
Woburn Exposition	81.93
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	\$3,901.56

AGRICULTURAL PRIZE MONEY AWARDED TO SOCIETIES AND FAIRS
1923-1924

Acton Agricultural Society	\$400.00
Acushnet Grange	30.00
Annarsnac Grange	15.00
Ashburnham Grange	20.00
Barnstable Agricultural Society	516.00
Becket Grange	20.00
Bedford Grange	35.00
Blackstone Valley Agricultural Society	401.50
Blue Ribbon Agricultural Club	36.50
Bourne Agricultural Society	37.00
Braintree Grange	30.00
Brimfield Grange	20.00
Bristol County Farmers' Club	200.00
Brookville Grange	21.00
Burlington Grange	15.00
Cheshire Grange	19.00
Deerfield Valley Agricultural Society	650.00
East Bridgewater Grange	20.00
Essex Agricultural Society	599.00
Flintstone Grange	13.00
Framingham Boys' and Girls' Club Work	50.00
Franklin County Agricultural Society	900.00
Gardner Agricultural Association	350.00
Gill Grange	20.00
Granby Grange	16.00
Greater Lynn Agricultural Society	450.00
Groton Farmers' and Mechanics' Club	450.00
Hampden County Improvement League	77.00
Hampshire, Franklin and Hampden Agricultural Society	900.00
Heath Agricultural Fair	125.00
Highland Agricultural Society	650.50
Hillside Agricultural Society	650.00
Hilltop Grange	15.00
Hingham Rose and Strawberry Show	72.00
Hinsdale Grange	21.00
Holliston Grange	25.00
Hoosac Valley Agricultural Society	392.50
Housatonic Agricultural Society	900.00
Lawrence Horticultural Society	36.00
Lee Grange	25.00
Lenox Grange	33.00
Littleville Community Fair	35.00
Lunenburg Grange	17.50
Lunenburg Community Fair	50.00
Mansfield Grange	25.00
Marshfield Agricultural Society	598.00
Martha's Vineyard Agricultural Society	400.00
Merrimac Grange	25.00
Milton Grange	15.00
Nantucket Agricultural Society	250.00
Natick Grange	15.00
Needham Grange	20.00
New Salem Grange	15.00
Norfolk County Fair	350.00
Norton Grange	22.50
Otis Grange	20.00
Oxford Agricultural Society	400.00
Pembroke Grange	34.00

P.D. 123.	35
Plainville Grange	15.00
Plymouth County Agricultural Society	450.00
Ponkapoag Grange	16.00
Reading Grange	20.00
Rockland Grange	20.00
Southboro Cattle Show and Fair	192.00
Southboro Grange	19.50
Sterling Farmers' Club	50.00
Stockbridge Grange	25.00
Stoughton Grange	15.00
Templeton Grange	35.00
Thrifty Grange	15.00
Union Agricultural Society	598.00
United Shoe Machinery Athletic Association	48.50
Wachusett Grange	25.00
Warren Grange	30.00
Wendell Grange	24.00
Westminster Farmers' and Mechanics' Club	50.00
West Newbury Grange	21.50
Westport Agricultural Society	500.00
West Stockbridge Grange	25.00
Worcester Agricultural Society	900.00
Worcester Northwest Agricultural and Mechanical Society	700.00
Worcester South Agricultural Society	650.00
Worcester County West Agricultural Society	700.00

TOTAL — \$16,692.50

POULTRY SHOWS 1923-1924

The Department offered prizes through thirteen poultry, pigeon and pet stock association shows during the year 1924. Each show was inspected by a representative of this Department and a record of the number and character of exhibits is on file.

The prize money was awarded as follows:

Amherst Poultry Association	\$139.00
Athol Poultry Association	75.00
Boston Poultry Association	500.50
Eastern Mass. Pigeon, Poultry and Pet Stock Assn.	175.00
Fitchburg Poultry Association	49.00
Gardner Poultry Association	92.50
Hub Poultry Association	149.00
Lenox Poultry Association	150.00
New England Poultry Association	175.00
Northampton Poultry Association	151.50
Springfield Poultry Association	200.00
Templeton Poultry Association	50.00
United Rabbit & Cavie Club	50.00

TOTAL — \$1,956.50

SUMMARY OF EXPENDITURES

Appropriation	\$28,619.82
Paid:	
Prizes at fairs	\$16,692.50
Special exhibits	3,901.56
Poultry shows	1,956.50
Boys' and Girls' Club Work (Camp Gilbert)	1,747.30
Badges and medals	900.38

Trucking	50.00	
Photography	43.00	
Postage	100.00	
		25,391.24
Balance		\$3,228.58

IV. CONTROL WORK.

The first part of the year was occupied largely with legislative matters. Early in December the Department filed its recommendations for legislation which covered five subjects. These proposals are described in detail in the previous annual report. The recommendations were referred to the joint committee on agriculture, which reported favorably on all of them, and all ultimately became law in somewhat different form than that at first proposed (Acts of 1924, Chapters 90, 93, 94, 119, Resolves of 1924, Chapter 36). During the session of the General Court a considerable number of bills in addition to those proposed by the department were considered, and representatives of the department appeared at the hearings held upon several of them.

During the year fourteen cases were prosecuted in various courts—twelve for violations of the dairy laws and two for violations of the law on apple grading and packing. Most of these cases involved two or more counts. Eleven of the twelve cases arising under the dairy laws resulted in convictions in the District Courts. Two were appealed to the Superior Court in Middlesex County, where the finding of the District Court was affirmed. One other occurring near the end of the year was appealed to the Superior Court and is still pending. This last case has developed into a test case to determine whether a certain product is oleomargarine under Massachusetts law. One case brought under the new enactment to prevent the sale of filled milk, so-called, resulted in an acquittal.

The record in the two cases under the apple grading law was one conviction and one acquittal. In the former case the defendant appealed and the appeal is still pending.

In November two cases were initiated under the apple grading law, but these had not come to trial at the end of the month.

The compilation of Agricultural Laws was completed to the end of the last legislative session. Investigations of legal questions were made for the several divisions. Assistance was given to the special Commission on Pensions in securing statistics of the value of farm products used on Massachusetts farms where they are produced. The official in charge of control work acted as attorney for the State Reclamation Board throughout the year and in October was elected Executive Officer for the Board. One reclamation district and two agricultural corporations were organized during the year.

At the close of the year legislative recommendations for the session of 1925 were in the course of preparation and bills were being drafted to accompany these recommendations.