

MAINE STATE LEGISLATURE

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MAINE PUBLIC DOCUMENTS

July 1, 1938 - June 30, 1940

AGRICULTURE OF MAINE

TWENTY-NINTH REPORT

OF THE

Commissioner of Agriculture

OF THE

STATE OF MAINE

July 1, 1938 to June 30, 1940



Harvest Time in the Hillside Orchards of Maine

191372

LETTER OF TRANSMITTAL

**OFFICE OF THE COMMISSIONER
MAINE DEPARTMENT OF AGRICULTURE,**

AUGUSTA, MAINE

July 1, 1940

*To His Excellency, Governor Lewis O. Barrows
and Council:*

Sirs:

I have the honor to transmit, herewith, the biennial report of the Maine Department of Agriculture covering the period from July 1, 1938 to June 30, 1940. This material includes the reports of the various divisions of the Department for the same period and of some sub-divisions or bureaus.

I trust it may merit your approval.

Respectfully submitted,

FRANK P. WASHBURN, *Commissioner*
Department of Agriculture

MAINE DEPARTMENT OF AGRICULTURE

<i>Commissioner</i>	F. P. Washburn, Perry
<i>Deputy Commissioner</i>	Vacant

Staff

<i>Chief, Division of Inspection</i>	A. M. G. Soule, Augusta
<i>Chief, Division of Plant Industry</i>	E. L. Newdick, Augusta
<i>Chief, Division of Markets</i>	C. M. White, Augusta
<i>Chief, Division of Animal Industry</i>	H. M. Tucker, Yarmouth
<i>Assistant, Division of Markets</i>	George H. Chick, Monmouth
<i>Supt. Potato Inspectors</i>	Vernon W. Palmer, Caribou
<i>Dairy Inspector</i>	Clayton P. Osgood, Hallowell
<i>Assistant Dairy Inspector</i>	Kenneth Johnson, Augusta
<i>Sheep Specialist</i>	C. H. Crawford, Dexter
<i>Horticulturist</i>	Stanley L. Painter, Monmouth
<i>Assistant Horticulturist</i>	Edward D. Johnson, Monmouth
<i>Deputy Sealer of Weights and Measures</i>	Gardner K. Heath, Augusta
<i>Field Agent, Seed Certification</i>	C. A. Stetson, Caribou
<i>Field Agent, Insect Control</i>	Nelson R. Trafton
<i>Radio, Granges, Shows</i>	C. M. Washburn, Perry
<i>Agnes M. Williams, Secretary to the Commissioner</i>	Auburn

Clerks and Stenographers

Dorothy M. Lippincott	Augusta
Rhea W. Goodwin	Augusta
Gertrude G. White	Manchester
Madeline E. Quinn	Hallowell
Alicia K. Smith	Augusta
Thelma L. Gillespie	Hallowell
Norma Nelson	Gardiner
Phyllis T. Murphy	Augusta
Doris C. Hutchings	Litchfield
M. Ethel Quinn	Hallowell
Frances B. Sanborn	Augusta
Geneva H. Williams	Augusta
Gertrude Collins	Hallowell
Dorothy Goodwin	Old Orchard Beach

FARM LANDS LOAN COMMISSION

Farm Appraiser	Lawrence W. Hersom, Winthrop
Clerk of Commission	Teresa A. Spear, Randolph

MAINE AGRICULTURE

July 1, 1938 to June 30, 1940

In presenting a report of the activities of the Department of Agriculture for this two-year period, it appears desirable to bring to the attention of all interested persons a very definite and important trend in Maine agricultural development, the fact that Maine farmers are today taking upon themselves much of the foundation work that will ultimately lead to the stabilization and perpetuation of the state's agricultural industries.

This trend is reflected in the cost of maintenance of the Maine State Department of Agriculture, in the rapid growth of the self-sustaining functions of the Department as compared with the relatively slow increase in the size of legislative appropriations during a period when governmental costs throughout the nation have increased at a great pace. Steadily down through the last decade and a half of operation, the self-sustaining activities of this Department, functions paid for by taxes upon the commodities or shipments directly affected, or by license fees, have doubled and redoubled many times. Farmers have so shown a praiseworthy willingness to assume much of the cost of operating their own governmental program, which if emulated by other groups might well relieve some of the burdens our taxpayers are asked to bear.

The present program of research in the potato industry, to be described at some length later in this report, is an example of a typical self-sustaining function of state government. Paid for by funds allocated to the Maine Agricultural Experiment Station by the Potato Tax Advisory Committee, such research has already proved its worth.

In mentioning some advances in Maine agriculture during the last biennium, it is of significance to note how many of those achieved have been made through the financial support and active work of farmers and shippers themselves. Two strong organizations in this State have made rapid advancement with modern artificial breeding of cattle. Our poultry industry has reached a high place among its competitors in other states in freedom of disease and from the disorders common to all kinds of poultry. Our pea canning industry shows a healthy advance,

the 1937 acreage at 3,480 acres, 1938 at 3,770, 1939 at 4,150, although during the same period the acreage devoted to corn and beans for canning has registered a sharp decline. A better demand for corn is in sight, however.

Gradually our orchards are recovering from the losses of the winter of 1933-34, so that all of us now have an understanding of the predictions made by some at that time to the effect that "the freeze" brought not losses but simply the passing of old-time varieties and worthless trees. More and more orchards are coming into bearing in place of those lost, and these new orchards are owned and managed by progressive men who follow up-to-date methods. There is strong likelihood that our apple production will be greatly increased during the next decade, making necessary the adoption of a modern marketing program. Maine orchardists are utilizing the research and marketing facilities of the New York and New England Apple Institute. Through such work as has already been done in popularizing the New England fruit, it is apparent that Pacific Coast competition is less effective in our markets.

While no advance is reported in the total number of sheep now in Maine flocks, for the first time in many years sheep are holding their own. Unfortunately some discouraged breeders dispose of their entire flocks, often offering good ewes and ewe lambs to the butchers, while in other parts of the State, interested parties are searching vainly for good stocks with which to augment their flocks. The Department of Agriculture suggests the use of one of the large farms sometimes taken over by the State on foreclosure proceedings by the State Farm Lands Loan Commission, as a holding ground or exchange for buyers and sellers. With such an arrangement, this Department might go much further than is now possible in bringing buyers and sellers together to their advantage and with considerable benefit to the industry as a whole.

It is now possible to predict the speedy return of home grown grains to our Maine farm program, this being made possible by the introduction of the baby combine, filling a long known need. For years we have had no facilities for grinding and threshing other than the cumbersome and worn machinery of a generation ago. Baby combines will soon be in every town and on all sizeable farms, together with small gas or electrically driven feed grinders. Progress toward the goal of home grown and ground feeds will be rapid and sure.

Research

Just as a house is no better than its foundation, so is Maine agriculture no better than the ground work upon which it is built, no better than the facts upon which its program of progress is based. In this day of generally increased competition in the markets where our farm products are sold, Maine agriculture must rely to greater extent upon such research as the investigations into potato disease control, by-products, storage, marketing and consumer preferences, conducted recently by the Maine Agricultural Experiment Station at the request of the Potato Tax Advisory Committee and the Maine Development Commission.

The growers and shippers of few Maine farm products can afford to be without the benefits of modern scientific research and the rewards of thorough study of production methods, marketing procedure and consumer preferences. Already research in potato marketing has proved its own need beyond a reasonable doubt. To quote from a report covering the Experiment Station's activities in Marketing and Consumer Preferences:

"Production of potatoes in the eleven early states has more than doubled during the last 30 years. Potatoes from this area compete with potatoes from Maine during the latter part of Maine's marketing season.

"The production of potatoes in the ten western surplus late states has increased about 75 percent since 1910-14, while the production in Maine has shown about a 40 to 50 percent increase . . .

"The production of 13 vegetable crops, not including potatoes, in the United States has nearly doubled since 1923. Receipts on the Boston market of 17 vegetables other than potatoes have increased nearly 40 percent since 1929. The production of vegetables and receipts of the same in our principal markets have increased much more rapidly than has population during the past two decades. This fact is largely responsible for the apparent decrease in the consumption of potatoes per capita."

Since the advertising of Maine agricultural products became an accomplished fact, some may have considered it a panacea, a miracle-working wand by the use of which all cares could be banished, but it becomes more and more apparent that advertising and research must go hand in hand; that aggressive salesmanship must be abetted by inquiry into our ills, their causes and the cures thereof.

Net necrosis in Maine's 1937 potato crop, resulting in tremendous losses to the industry, was made the subject of research in January 1938, with funds made available through the potato tax. The Department's Seed Inspection Service and the Maine Agricultural Experiment Station have cooperated in the maintenance of Florida test plots where Maine seed stocks are tested during the winter months to determine the best seed sources for Maine planting during the coming season. These checks help both the man who has seed in the test and the man who desires to buy good seed. The number of samples tested each year has been increased from 44 from the 1937 crop (planted January 1938) to 83 samples from the 1938 crop (planted November 1938), and to 308 samples of the 1939 crop, of which last group 83 samples were from foundation seed plots. In addition to the utilization of the winter test plots, research in disease control includes the testing of new varieties for immunity, resistance or tolerance to virus diseases; the testing of the effects of environmental conditions and variety upon the development of net necrosis from leaf roll dissemination; and the checking of aphid populations in various potential seed production areas.

Opportunities for research in potato by-products, and for the immediate use of information so obtained, have been ample in the white potato starch industry. During the last two years two modern, and large, factories have been built at Houlton. One of them, owned by Aroostook Potato Products, Inc., has been equipped to make the highest quality white potato dextrin, which will be the first to be made commercially in Maine. Several factories have been modernized. The use of sulfur dioxide in starch manufacture has aided in improving quality, helped to improve the price of potato starch, increased yield slightly and helped to reduce production costs. Since its first use at the Higgins and Lenfest factory in October 1937, sulfur dioxide has so proved its worth that it is now utilized in the production of at least 80 percent of Maine starch.

A new use of domestic white potato starch is in calico printing, for which imported starches have previously been employed. It appears desirable to inaugurate studies relating to the use of nitro starch as a military explosive. The Experiment Station reports its manufacture and use in several foreign countries, but finds only one concern engaged in its production in the United States. Wherever imported starch is replaced by the domestic

variety, the improved quality starch made in Aroostook will be in a better position to retain its market at the end of the war.

The Experiment Station has made extensive studies into the culinary use of potato starch and includes many recipes in a preliminary report. Other studies made, in the potato by-products field, include the analysis of starch and potato samples; actual baking tests of potatoes to determine the effect of differing starch, ash and nitrogen contents on flavor; the effect of weather conditions upon the composition of potatoes; the experimental growth of potatoes with potassium sulfate replacing potassium chloride fertilizer, etc.

Efforts to improve the quality of potatoes through the improvement of storage handling procedure have dealt principally with the study of practical box storage as opposed to bulk storage. In general, there seems to be some slight advantage in favor of the former, the stock stored in boxes having a brighter appearance as it reaches the market, but it is apparent that the initial cost of boxes, and the desirability of extra equipment for handling, will be limiting factors in the development of such storage.

Marketing research, as begun with funds made available by the Potato Tax Advisory Committee, includes surveys among consumers in Boston, of retail stores in Boston, of competing potato areas and food commodities, and of existing marketing organizations. An essential part of this study of markets and consumer preferences is the obtaining of information relating to the nature of the shift in consumers' food habits from potatoes to other food commodities. This data is considered basic to the potato marketing problem. Of somewhat equal importance, in view of the monies now being spent to advertise trademarked packages, is study of the kind of potatoes and packages most satisfactory to consumers.

Division of Plant Industry

In the promotion and regulation of Certified Seed potato growing, we find that leaf roll has become a difficult problem. The Green Mountain and Chippewa varieties are seriously affected. Hundreds of acres of the Katahdin variety have taken the place of Green Mountains, proven very susceptible to this trouble.

In addition to leaf roll, bacterial ring rot, a relatively new potato disease to us, is becoming increasingly important. More research work must be done before the situation can be cleaned up. In certified acreage the rejection is about ten percent of the total acreage entered.

Two years ago the chief of our Division of Plant Industry indicated that it would take three or four years to get over our difficulties with net necrosis. He now reports that the situation is no better than it was at that time, because two years out of four the aphid population has been high. A program for aphid control has been developed, and our certification service is studying the effect of different spray materials.

Our Division of Plant Industry feels that it will become necessary, next fall, to invoke a state law requiring individuals to clean up their own Brown-tail Moth webs. During the period of large WPA grants, it was possible for the State to handle this situation, but it is not possible with present funds.

Division of Animal Industry

The Maine poultry license law has proved of great assistance in the control of dishonest practices.

In the control of Bang's Disease, it appears that calfhood vaccination has passed the experimental stage. The chief of our Division of Animal Industry consequently feels that our state program for the protection of cattle and milk consumers should include such vaccination, as well as the test and slaughter method of control now in use. He further suggests a five-year program to include county area quarantine restrictions and intensive work to cost \$125,000 annually.

The State Dairy Inspector, in the Division of Animal Industry, reports a decided increase in the number of plants pasteurizing milk in Maine. This has brought additional problems to our inspection staff but very good compliance with the pasteurizing law has been found. During the last six-month period covered by this report, an additional inspector has devoted his entire time to quality control for creameries and to check-testing producers' composite samples.

Interest in sheep has continued to increase consistently. Many neglected farms have been purchased and are now stocked with sheep. In some instances the new operators are men

widely known in other states. The numerous islands along our coast present exceptional opportunities for sheep raising.

A campaign of education has substantially reduced losses of sheep from parasitic troubles.

The menace to sheep flocks from dogs is still serious, but it has been well demonstrated that a revised and well enforced law will encourage and stimulate Maine's sheep industry. The metal identification tags now required have been of great service. It has been demonstrated that as the number of untagged and unidentified dogs goes down, just so are the losses of sheep and lambs reduced.

Division of Markets

Definite advances in the acceptance of the Division's grading service have been noted this biennium, particularly in 1939, when we joined with other New England agencies in the grading of many thousands of turkeys for the regional market under a plan developed by the Maine and New England Turkey Growers Associations upon discovery of a demoralized market at the start of the season. Maine produced 72,000 turkeys in 1939, compared with 58,000 in 1938. A grading service for fresh blueberries was established at six factories in 1939, the previous year having seen the inception of grading service at nine snap bean canneries.

In 1938 our grading work was carried on at 30 corn factories, the largest number so far utilizing this service.

Here the United States Department of Agriculture, our State Department and the Extension Service have coöperated in preliminary work which resulted in the establishment of national standards for sweet corn for canning and snap beans. The same agencies have conducted investigational work for the development of national standards for blueberries.

The Division reports that its shipping point inspection of table stock potatoes is now so generally used by the trade that a leading banker last season commented that the discounting of drafts on inspected stock had nearly reached the disappearing point. It is important to note that substantial rebates have been made to shippers in both the 1938 and 1939 seasons, although the fee charged is still only \$3.00 per car.

Consumer confidence has been increased by the Maine Fresh Egg Law, which has discouraged the dumping of large quantities of inferior cold storage eggs in this state.

Division of Inspection

Another survey of clam flat areas along our coast was begun during the summer of 1939, upon recommendation of officials of the U. S. Public Health Service, and since a bacteriological laboratory is now available for the analysis of water samples, intensive survey work is possible. Better consumer protection is so assured.

The Division will shortly begin the taking of bacteriological swabs of beverage glasses and other utensils in hotels and restaurants.

The expected small size of the Maine sardine pack this year will work a great hardship upon the industry, which with a pack of normal size could undoubtedly serve many domestic markets now unable to buy foreign sardines. The great improvements in the quality of the Maine product now place it in a place to attract many new consumers, if the demand can be supplied.

Radio

Joining the countrywide trend, agricultural agencies in Maine are making increased use of the radio as a means of contact with the farm home. Probably few of such organizations have enjoyed more whole-hearted coöperation from the radio stations, their owners and staffs, than has this Department during recent years. When it appears necessary to reach large groups with urgent messages, the availability of radio facilities is of invaluable assistance.

At present we are participating in the New England Agriculture series, originating in Boston and carried by the Colonial Network, and during the winter months radio station WLBZ at Bangor broadcasts a half-hour Sunday afternoon program prepared by the Department. In the winter of 1939-40 we began a mid-week evening program with the coöperation of WRDO, Augusta, which may be given greater radio coverage in the near future.

Coöperating stations are deserving of especial comment and appreciation.

Public Meetings

During the period covered by this biennial report, speakers from the Department have attended more than 600 public and semi-public meetings and have been heard by audiences totaling

in excess of 50,000 people. These talks and illustrated lectures are for the most part at regular meetings of the Grange, where hearty welcomes and attentive audiences are the rule. Other meetings include those of service clubs and similar organizations, generally in the adult age group.

Fairs

The following summary of attendance at Maine fairs is presented:

No. of Agricultural Societies receiving State Aid, 1938	32	
Poultry Societies receiving State Aid, 1938	2	
Pomological Society receiving State Aid, 1938	1	
		----- 35
No. of Agricultural Societies receiving State Aid, 1939	28	
Poultry Societies receiving State Aid, 1939	2	
Pomological Society receiving State Aid, 1939	1	
		----- 31
Total Attendance reported by these Societies, 1938	261,281	
Poultry Societies	3,100	
Pomological Society	1,000	
		----- 265,384
Total Attendance reported by these Societies, 1939	352,476	
Poultry Societies	2,100	
Pomological Society	1,000	
		----- 355,576

(1937's 33 included Poultry & Pomological Societies)

Milk Control

This Department has coöperated with the Milk Control Board, as provided by law, and has made every effort to render aid and assistance to the Board in its work to secure better returns to producers.

Conclusion

It is only fitting at this time to express my personal appreciation for assistance rendered during this biennium, to Governor Lewis O. Barrows and his Executive Council, and to all the employees of this Department.

FRANK P. WASHBURN

Commissioner of Agriculture

Report of Division of Animal Industry

To Hon. Frank P. Washburn, Commissioner of Agriculture:

I herewith present the report of this Division for the two year period July 1, 1938 to July 1, 1940, covering its varied activities.

Appended is the report of Clayton P. Osgood, in charge of the Bureau of Dairy Inspection, and Charles H. Crawford, Sheep Specialist. In addition to the milk and dairy inspection under Mr. Osgood, and the promotion of the sheep industry, including the adjustment of claims for sheep and other farm animals killed by dogs and wild animals, as well as the supervision of the dog license law carried on by Mr. Crawford, the activities of this Division are the control and eradication of contagious diseases of animals, including poultry (except pullorum disease, which is handled by the Extension Service and the University of Maine at Orono), the supervision of the Maine Egg Laying Contest, the licensing of poultry dealers, and the adjusting and passing for payment claims for poultry killed by dogs and wild animals.

Tuberculosis

The following tables show in detail the work done along this line covering the two years included in this report:

July 1, 1938 to July 1, 1939

	<i>Cattle</i>	<i>Reactors</i>
Tested by cooperative and accredited veterinarians for tuberculosis	60,248	74
Tested for Interstate shipment—Tuberculosis	5,362	1
Percentage of reacting cattle—Tuberculosis11%
Amount paid for reacting cattle—Tuberculosis		\$5,233.71
Amount received and turned in to Treasury for salvage—Tuberculosis		\$1,621.00
Number of cattle brought in on permit from other States and Canada		1,283
Number of cattle permits issued		208

July 1, 1939 to July 1, 1940

	<i>Cattle</i>	<i>Reactors</i>
Tested by coöperative and accredited veterinarians		
for tuberculosis	61,603	105
Tested for interstate shipment—Tuberculosis	6,326	3
Percentage of reacting cattle—Tuberculosis16%
Amount paid for reacting cattle—Tuberculosis		\$5,685.68
Amount received and turned in to Treasury for salvage—Tuberculosis		839.18
Number of cattle brought in on permit from other States and Canada		1,428
Number of cattle permits issued		274

It will be seen from these figures that bovine tuberculosis is not now present to any extent among the herds of Maine, and while our State and Federal veterinary inspectors may test for weeks, and sometimes for months, without finding a single reactor, yet we do occasionally find a diseased spot that sometimes takes a whole herd. The cost of carrying on this work is relatively small because of the few indemnities paid, but the disease is not yet entirely eradicated, and test work must be continued to make sure it is kept in subjection.

Bang's Disease

In considering this disease and its control everyone thinks in terms of tuberculosis as a standard of accomplishment. When anyone does this it is best to remember—

1. That we were approximately twenty-five years reducing the percentage of tuberculosis to the point where the State qualified as a modified accredited area.

2. That the percentage of T.B. in our Maine cattle was probably never over half the percentage we had of Bang's disease when we commenced eradication work.

3. That the development and spread of this disease is much more rapid than with tuberculosis.

4. That it is more easily transmitted, and because of this it is more difficult to clean and disinfect infected premises to prevent a recurrence of the trouble.

These and many other phases of Bang's disease clean-up work have led to more or less confusion and misunderstanding. The test, being a tube agglutination laboratory test is not as

definitely clear-cut as the intradermic test for tuberculosis. Samples of blood drawn from the same animal by the same veterinarian on different days, or even on the same day, may show a marked difference. Since all laboratories where Federal aid in payment of indemnities is in practice have been furnished standardized antigen from the Bureau at Washington the results have shown very much less variation. The difficulties that have appeared are gradually being smoothed out as they are better understood by cattle owners and the public.

The test and slaughter method of control was accepted and put into practice by the Federal Bureau as a means of reducing the cattle population of the country, with the same object in view, it is supposed, as the slaughtering of breeding sows to reduce pork products. As a means to this end it has proven a great success, and now that it has been thoroughly tried out it must be admitted that in many cases it is the best method to pursue. However, all thinking people today admit that it has its limitations. A person with a high producing herd, that he has obtained either by breeding or by careful selection, naturally objects to seeing them slaughtered. This is doubly true with purebred herds where the owner has spent years in breeding, most likely along certain blood lines. In such cases, almost a life's work may be thrown away. To such, calfhood vaccination is hailed with enthusiasm as their only source of help. That calfhood vaccination has passed the experimental stage is clearly proven by the experiments carried on by the Federal Bureau during the past five years. I am firmly convinced that a State program must include both test and slaughter and vaccination.

In any State program it must be remembered that blood samples cannot be drawn as quickly as the intradermic test can be applied for tuberculosis. Consequently, more men will have to be employed and this will add to the cost. While it is most desirable that a State program be started and carried forward the fact that reactors found in tests for interstate shipment are not taken over by the State and slaughtered, because sufficient funds are not available, is a matter that should be corrected, but this is entirely up to the State as the Federal Bureau will not cooperate in the payment of indemnities on cattle owned by dealers. If funds could be furnished it would be of the greatest assistance in any clean-up campaign if these reactors could be taken care of, and I would like to incorporate this in the State program if funds were sufficient.

The most important step in a State clean-up program is area work, placing a county under quarantine restrictions by forbidding the movement of any cattle across the border of that county unless they had passed a negative Bang's disease test within thirty days or sixty days if coming from a herd that the test showed was free from disease. I would then proceed to test every animal over six months of age in every herd in the quarantined area. When a herd was found diseased the owner and the State official in charge would have to decide whether he would have the reactors slaughtered or whether he would keep them and vaccinate his calves until such time as he could replace his reactor herd with a vaccinated herd. If he chose this latter method his herd would be quarantined and he would have to keep them on his farm in such a manner that they would not be a menace to other cattle owners and he could sell only for immediate slaughter and then only on permit from this Department.

To carry this out would require at least a five year program and to carry it out along all the details I have outlined so as to cover the State within this five year limit would, I believe, call for a yearly appropriation of \$125,000 for Bang's disease control alone, or \$160,000 for the total activities of this Division.

The tables following will give an idea of the work done in Bang's disease control during the two years covered by this report:

July 1, 1938 to July 1, 1939

Number of coöperative tests and retests for Bang's disease	22,268
Number of cattle reacting—Coöperative tests and retests for Bang's disease	1,158
Percentage of reactors—Coöperative tests and retests for Bang's disease	5.2%
Number of cattle tested for Bang's disease—Private tests	17,095
Number of cattle reacting—Bang's disease—Private tests	2,108
Percentage of reactors—Bang's disease—Private tests	12.3%
Total amount paid for Bang's disease reactors—Coöperative test	\$36,101.07

July 1, 1939 to July 1, 1940

Number of coöperative tests and retests for Bang's disease	27,147
Number of cattle reacting—Coöperative tests and retests for Bang's disease	1,444
Percentage of reactors—Coöperative tests and retests for Bang's disease	5.3%
Number of cattle tested for Bang's disease—Private tests	18,787
Number of cattle reacting—Bang's disease—Private tests	1,906
Percentage of reactors—Bang's disease—Private tests	10.1%
Total amount paid for Bang's disease reactors—Coöperative test	\$41,449.42

Glanders

No cases of glanders have been found during the past two years. Quite a few cases of horses suspected of glanders have been reported to this office, and while in most cases the symptoms given proved quite conclusively that it was not glanders, yet to allay suspicion of both the owner and his neighbors it has been my policy to send a veterinarian to diagnose the case and advise treatment.

The number of horses brought in on permit during the fiscal year July 1, 1938 to July 1, 1939 was 1,645, while the number of horse permits issued was 134 for the same period. During the year July 1, 1939 to July 1, 1940 2,312 horses were brought in to Maine on permit, and 127 horse permits were issued.

Hog Cholera

Only occasionally is an outbreak of hog cholera reported as in most places where it has existed the owners realize that they must immunize for their own protection. Also, where garbage is collected and fed to hogs the same is true. The largest and most serious outbreaks have occurred in Aroostook County. The law requiring that all swine brought into Maine except for immediate slaughter must be accompanied by a permit and health certificate from an approved veterinarian has been a great help in preventing the introduction of this disease from other States.

During the first year of this period, namely, July 1, 1938 to July 1, 1939, 569 swine were brought in to this State on permit, while 276 permits were issued. For the fiscal year July 1, 1939 to July 1, 1940 462 swine were brought in to Maine on permit, with 175 permits issued.

The Maine Egg Laying Contest

There is a feeling that this Contest is not supported as it should be by Maine poultrymen, and unquestionably this is true. However, this same condition exists with other contests. Any contest, to be a standard contest and have the results tabulated and published in the poultry press in competition with other contests of the country, must open its entries to the world. A record made in any other way would be valueless from an advertising viewpoint. In the Maine Contest this

year 26.66% of the pens came from Maine breeders. In the Rhode Island Contest the percentage was 21.43, in Connecticut 28.00 and in Pennsylvania, 40.50.

There is no question about Maine poultry breeders suffering from inferiority complex. Many do not dare put in a pen because they feel they will not land at or near the top. Other timid ones may try it once, and if they do not land high in the list they drop out, never to return. That a certain amount of luck enters into it must be acknowledged, and one year's trial is not enough to prove what a strain of birds is really capable of. It is true that the largest and best breeders of the country use egg laying contests constantly as an advertising medium. At our Contest we have many pens yearly from the best breeders that have made many national records, but let's compare the standing of our Maine pens last year with the out-of-State pens. In mortality, Maine pens showed 81.6% livability, out-of-State 74.5%. In production, R.I.Red class, Maine birds averaged 200.1 eggs, 203.3 points—out-of-State, 191.0 eggs, 197.1 points. Barred Rocks, Maine birds laid 178.5 eggs, scoring 181.1 points, out-of-State birds, 161.2 eggs and 162.4 points. White Plymouth Rocks, Maine birds 191.4 eggs, 195.6 points, out-of-State birds 158.6 eggs and 160.9 points. Average production, all competitive breeds, Maine birds 192.1 eggs, 194.7 points out-of-State birds 175.0 eggs, 179.4 points. Does this look as though Maine poultry breeders need be afraid? Two years ago, the pen of Rhode Island Reds owned by Gardner Hayden of Raymond, Maine led all Maine pens with a score of 2915 eggs and 2959.70 points, and had all 13 birds alive at the close of the Contest. His pen stood second in the entire Contest. This last year, the Rhode Island Red pen of Raymond P. Potter of Medway, Maine led all Maine pens with a score of 3288 eggs and 3361.80 points, with 12 birds alive at the close of the Contest. His record was second for the whole Contest, and only 82 eggs and 142.3 points behind the leading pen.

There are many Maine breeders that would like to have a breeding house added to the main plant at Monmouth for a hen contest. Then if a breeder put in two pens of pullets in the regular Contest he could pick one pen of his best and enter in the hen contest the next year. Then by adding R.O.P. male birds to these trapnested hens he could raise his own R.O.P. breeding stock by having the eggs from his pen sent home where they could be hatched and wing-banded. This is a good idea and worthy of careful consideration.

Licensing Poultry Dealers

So far this year (the poultry license year commences July 1) this office has issued 134 licenses. No one can estimate the amount of good this poultry license law has done for the poultrymen of the State. There is no law that can stop all dishonest practices in any line. Among some poultry dealers prior to this license law their largest channel of income seemed to be through these dishonest methods. This law has been a great help to straighten out this condition. When any dishonesty or deferred payment is reported to this office it is investigated and in most cases the buyer makes a satisfactory settlement rather than have a hearing with the chance of losing his license. Many of the dealers need no license. They would deal honestly, anyway, but with others using dishonest methods they were working under a handicap. This, under present conditions, is pretty well eliminated making a much healthier market for all concerned.

I earnestly request that any dishonesty by any poultry dealer be promptly reported to this office with full particulars. We will do everything possible to get a satisfactory adjustment and stop such methods in the future.

Claims for Poultry Killed by Dogs and Wild Animals

During the fiscal year 1938-39, five hundred and ninety-six claims were received that were passed for payment either in full or in part, and during the fiscal year 1939-40 six hundred and seventy-six such claims were received and passed. The number of birds killed and the amount paid is explained in the following tabulation:

July 1, 1938 to July 1, 1939--Average cost per bird \$.66

No. killed by foxes	10,590	Amount paid by State	\$ 7,704.77
No. killed by dogs	2,875	Amount paid by State	1,807.79
No. killed by skunks	1,806	Amount paid by State	821.18
No. killed by misc. animals	1,894	Amount paid by State	964.48
Total number	17,165	Total amount paid	\$11,298.22

July 1, 1939 to July 1, 1940--Average cost per bird \$.73

No. killed by foxes	12,591	Amount paid by State	\$10,304.58
No. killed by dogs	2,017	Amount paid by State	1,369.64
No. killed by skunks	2,044	Amount paid by State	925.97
No. killed by misc. animals	2,087	Amount paid by State	990.47
Total number	18,742	Total amount paid	\$13,590.66

It will be seen from the above how destructive foxes are to poultry. It must also be remembered that because of the nature of fox work a great number are taken when the owner is unaware of his losses. At other places oftentimes great losses are known, yet the fox has not left sufficient evidence so that the loss can be paid for in full, and in many cases not fifty percent. Since fox pelts do not bring very much these days there is not the incentive to hunt or trap them that there was several years ago and they have multiplied at a rapid rate. All protection should be removed from foxes, and even then they would continue a menace to poultry for a long time. It is not logical to protect foxes for a few hunters at a cost of over \$10,000 to the State, and probably as much more to the poultrymen where claims were not put in or were only paid in part.

Respectfully submitted,

H. M. TUCKER
Chief, Division of Animal Industry

To H. M. Tucker, Chief of the Division of Animal Industry:

I submit, herewith, a summary of the work done by the Dairy Division for the fiscal years July 1, 1938 to June 30, 1940.

The routine work of the Division has been carried on in accordance with the Statutes. Samples of milk and cream have been purchased by inspectors for analysis and the same have been analyzed at the Maine Experiment Station at Orono. Inspections of all dairies producing milk have been made as often as possible with the limited funds available.

As predicted two years ago, there has been a decided increase in the number of plants pasteurizing milk. This has brought on new problems for the inspectors for it is necessary to have close supervision over the raw supply for the pasteurizing plants and also to keep careful check on the equipment used in the plants. On the whole our pasteurizing plants are very well equipped. Practically all dealers purchased new equipment to start with and we have had a very good compliance with the pasteurizing law. Dealers beginning to pasteurize milk have many new problems and it has been necessary for the inspectors to spend considerable time in the plants helping the operators.

There have been very few dealers, as mentioned two years ago, who have taken advantage of the opportunity to produce and distribute grade A milk. I still believe the law is justifiable in that all persons or corporations wishing to sell grade A milk are properly protected in their sales of this grade of milk.

For the past six months, we have had the services of an additional inspector who has been working entirely on quality control for creameries and check-testing producers' composite samples. He has done a great deal also toward improving the supply of milk and cream for pasteurizing plants. He has accomplished this by the use of the resazurin test on producers' samples of milk and cream as received at the plant. Several thousand samples of milk have been tested by this method and in cases that warrant it, smears have been made and the same examined under a microscope. To follow up this work, inspections have been made of all producers of a number of plants and recommendations made which will insure their producing and handling their product under sanitary conditions. We have received whole hearted coöperation from plant managers in this work.

As mentioned above, there has been an increase in the number of pasteurizing plants, brought on primarily I presume, by consumer demand and partly by competition from dealers who were already pasteurizing their milk. Two years ago there were approximately seventy-five dealers in the state who were pasteurizing milk and at the present time there are one hundred and twenty-five. Practically every city and town of any size is now supplied with whatever amount of pasteurized milk the public demands. The tendency now seems to be for the dealers with a small volume of business to invest considerable sums of money in pasteurizing plants. It is hoped that not too many of these small dealers will invest what may prove to be too much money in this venture. It has seemed wise in the past to encourage the pasteurization of milk by the larger dealers, especially in cases where the milk was purchased from several producers, as an adequate supervision of the milk was a problem, but I think at the present time a word of caution to the industry is needed and that these small dealers give plenty of thought and consideration before investing fifteen hundred or two thousand dollars in plants and equipment. They should earnestly consider the size of their market and the possibility of expanding their business before taking any definite steps.

I have compiled a table which will show the results of the samples of milk and cream which have been collected by this Division for analysis during the past two years. Bulletin No. 175, Official Inspections, which may be obtained from the Maine Agricultural Experiment Station at Orono, contains a record of each individual's samples as collected and analyzed.

Cream Samples		1938-1939		1939-1940	
Total number of samples		523		480	
Bacteria					
per c.c.	Below 10,000	79	15.1 %	78	16.27%
	10,000- 25,000	68	13. %	56	11.68%
	25,000- 50,000	53	10.14%	52	10.83%
	50,000-100,000	78	14.92%	62	12.91%
	100,000-200,000	62	11.85%	41	8.54%
	200,000-300,000	27	5.16%	27	5.62%
	300,000-400,000	20	3.82%	18	3.75%
	400,000-500,000	15	2.87%	20	4.17%
	Over 500,000	121	23.14%	126	26.25%
		1938-1939		1939-1940	
Total number of samples of milk .		3,750		3,711	
Butter Fat	4% and over	2,790	74.4 %	2,998	80.79%
	3.25% to 4%	875	23.3 %	662	17.84%
	Below standard	85	2.3 %	51	1.37%
		3,750	100.0 %	3,711	100.0 %
Sediment	Clean	554	14.77%	932	25.12%
	Very Slight	1,460	38.93%	1,745	47.02%
	Slightly Dirty	1,243	33.15%	690	18.59%
	Dirty	493	13.15%	344	9.27%
		3,750	100.00%	3,711	100.00%
Bacteria per cc.	Below 10,000	1,027	27.39%	909	24.49%
	10,000- 25,000	711	18.96%	734	19.78%
	25,000- 50,000	625	16.67%	563	15.17%
	50,000-100,000	519	13.84%	552	14.88%
	100,000-200,000	336	8.96%	398	10.72%
	200,000-300,000	155	4.13%	157	4.23%
	300,000-400,000	108	2.88%	81	2.19%
	400,000-500,000	60	1.6 %	58	1.56%
Over 500,000	209	5.57%	259	6.98%	
		3,750	100.00%	3,711	100.00%

Over a thousand samples of cream have been analyzed. Over fifty per cent of the samples contained less than one hundred thousand bacteria per c.c. which is an indication of good quality cream. There were, however, altogether too many

samples containing an excessive number of bacteria. It is hoped that more time may be spent working on poor quality cream during the next year or two.

Seven thousand four hundred and sixty-one samples of milk have been analyzed during the two years ending June 30, 1940. One fact to be noted is the ever increasing percentage of samples which contain a high butter fat content. During the year 1939-1940, over eighty per cent of the samples contained more than four per cent butter fat. This can be attributed mainly to competitive conditions in the market. Yet considering the producers' standpoint, this is a tremendous tax on the industry for the consumer pays the same for a high testing milk as a lower testing milk.

Only a slight improvement has been shown as far as figures go, in the bacterial content of the milk, but I believe an explanation should be made here. The American Public Health Association's Standard Methods Committee has required the use of a new media which research has shown gives a high bacterial growth on agar plates than with the old media. So I feel quite confident should we have continued using the old media, a marked reduction in bacteria counts would have been shown.

This Division has continued to coöperate as in the past with the Milk Control Board in doing whatever seemed best for the industry. This Board is still of great service to milk producers and dealers and it seems wise to give them all the help possible.

We have held two Dairymen's Field Days at Highmoor Farm in Monmouth where cows were judged as to type and production. These shows have been great successes—successful as a show and of considerable value to the dairymen. We had nearly two hundred of the finest quality animals ever exhibited within the state. This Division will do all it can to continue these shows as long as it seems feasible and of help to the dairymen.

The Maine Dairymen's Association has held its annual meetings in connection with the new Trades Show at the Lewiston Armory in January of each year since the passing of the old Seed Show. We have been fortunate in getting from New York State, Professor Stanley J. Brownell who talked on breeding and Professor Frank B. Morrison who talked on feeding. The dairymen were very interested in these subjects and over two hundred attended the meetings and were well rewarded for the time they

spent listening to these men. It is expected that we will continue this show next year and plans are under way at the present time for securing a speaker outstanding in his field.

In conclusion I wish to express my appreciation for the advice and assistance given me by Commissioner Washburn and the other members of the Department.

Respectfully,

C. P. OSGOOD

State Dairy Inspector

H. M. Tucker, Chief, Division Animal Industry:

I, herewith, submit my biennial report for the fiscal years July 1, 1938 to June 30, 1940.

Interest in sheep has continued to improve constantly during the two year period included in this report.

There have been several flocks purchased by farmers having been sheep owners in the past years but who were compelled to dispose of their flocks because of the discouraging conditions then existing.

It is gratifying to see so many men buying up neglected farms, repairing old buildings and building new ones, clearing away unsightly and undesirable scrub bushes and trees in fields and pastures, and in some instances stocking such farms with flocks of sheep. Some of these men are widely known from other states and blazing the way and setting thrifty examples for Maine farmers.

Mr. Phillips H. Lord of New York City, better known as "Seth Parker of Jonesport" whose Sunday evening radio programs brought cheer and happiness to millions of people throughout the world, purchased a large island near Bar Harbor, in the spring of 1939, known as Bartlett's Island and after several conferences with the State Sheep Specialist decided that sheep would be a profitable investment, and 150 head were purchased and landed on the island. After carrying this number for one year Mr. Lord decided he would increase the number by 100 which will be landed on his island shortly, increasing his flock to 250 head.

Another sheep enthusiast is R. C. Holliss of New York City who purchased an old farm in South Bristol, built and repaired buildings, cleared the weeds and bushes from the fields and pastures, and after several conferences decided to start with 100 sheep that were purchased for him including 40 purebred and registered Hampshires. After one year's experience he decided that by clearing scrub trees from several acres of his pasture he would increase his flock to 200 by purchasing 30 purebred and registered Hampshires, and about 60 high grades, desiring to establish a flock that would be a credit to him, the state, and the industry generally, also a source of profit on his investment. It was decided that 30 of the 100 added should be choice Hampshires of excellent type and breeding. After considerable correspondence with some of the largest breeders of Hampshires in the country a trip was made to Crown Point, New York where out of a flock of 300 registered Hampshires we were allowed to select 30 for Mr. Holliss. After carefully culling his Hampshire purebreds last year 20 of the most choice were selected, and now his Hampshire flock consists of 50 head, and 150 high grades.

Another out of state resident having purchased a fine estate in Walpole, a section of South Bristol, purchased 20 fine cross-bred Shropshires last fall and now Mr. Ira Darling, the owner, is planning to increase his flock to 100 head in 1941.

While there were numerous other flocks started during the past two years, the above mentioned men by coming to Maine for summer vacations enjoyed so much our outstanding climatic conditions as well as our agricultural advantages decided to purchase those old farms and develop them for permanent homes in the future.

The numerous islands along our coast possess wonderful opportunities for sheep raising and some places with sufficient acreage to carry large flocks. During this year this office has had several inquiries from men out of our state about the possibilities of stocking some of these islands with sheep. Also, considerable interest is shown by business men in purchasing some of our now unused farms and stocking them with sheep.

This department has arranged many conferences, visited several farms, and in all cases proper advice and assistance has been given, and it is confidently expected that following such conferences several new flocks of sheep will be purchased during the next year.

Sheep men now are quite generally informed regarding symptoms of parasitic troubles, and because of de-worming demonstrations held in most sections of the state they are familiar with the methods of administering the various remedies. As a result of this work losses of sheep by such troubles have been greatly reduced in the last two years. Sheep men are continuously urged to systematically drench their sheep because by so doing a substantial increase in income through both the wool and lambs is sure to follow.

Dog Menace

While the dog menace is still serious and doubtless has caused many farmers to quit keeping sheep and prevented many others from buying sheep they do appreciate the strenuous effort by this department in running down and causing the destruction of sheep-killing dogs, many of them found without proper collars, license tags, etc. which are required by law.

A personal investigation has been made in cases of large or serious killings and in most cases the guilty dogs have been apprehended and killed.

That the determination of this division to give all possible protection to sheep and other livestock against dogs is greatly appreciated is demonstrated by an increasing degree of coöperation by town and city officials and livestock owners who have greatly assisted in locating guilty dogs.

It is noticeable that in most cases sheep killing dogs travel in groups of two and three. During the past year a few cases were reported to this office immediately after damage was done and discovered, and investigation resulted in the killing of two and three guilty dogs within a few hours after damage was reported. Records show that when two or three sheep-killing dogs are destroyed there is no more such damage until another crop of dogs grow up.

The present dog licensing law requiring color markings, tags, and name of owner has been of great assistance in locating guilty dogs and doubtless prevented much such damage being done. It appears that when dog owners apply to the city or town clerks for a dog license are required to give a careful description including breed, age, name, sex, color markings, last previous owner's name, etc. they realize that they are under much more responsibility than ever before and exercise much more control,

therefore, fewer dogs are roaming through the fields and pastures disturbing and destroying sheep, poultry, etc.

While the present dog licensing law has proven to be all that was claimed for it, experience shows that some changes should be made by coördinating and clarifying certain sections causing the law to become more easily understood.

It has been well demonstrated that a revised and well enforced dog law will encourage and stimulate an added interest in Maine's sheep industry. When farmers learn that there is sufficient law, together with real coöperation by the state and town officials in enforcement, they will more readily acquire confidence and increase the size of flocks and herds.

The following records show that the dog menace is still serious and requires a more determined effort to enact adequate laws to give more protection as well as a greater degree of enforcement by the state and town officials, also livestock owners must learn that they have much responsibility in the protection of their own property.

Respectfully submitted,

C. H. CRAWFORD,
State Sheep Specialist

Report on sheep and other domestic animals paid for, fiscal year 1938-1939

	NO.	Amt. Paid	By BEARS	NO.	Am't Paid
Sheep & lambs killed and injured by DOGS	1,075	\$7,135.28		574	\$3,565.00
Heifers	11	240.00		5	113.00
Cows	8	312.00		4	195.00
Calves	1	10.00		1	15.00
Pigs	46	432.00			
Hogs				2	24.00
Bulls	1	25.00			
Goats	1	25.00			
		<hr/>			<hr/>
Total amt. pd. for Sheep and Lambs		\$8,179.28			\$3,912.00
“ “ “ “ Heifers, Cows, Calves, Pigs, Hogs, Bulls, Goats.		\$10,700.28			
		<hr/>			<hr/>
Grand Total		12,091.28			

Report on sheep and other domestic animals paid for, fiscal year 1939-1940

Sheep & lambs killed and injured by DOGS	1191	\$6,983.02	By BEARS	984	\$6,970.58
Heifers	10	305.00		4	110.00
Cows	9	230.00			
Calves	4	65.00		7	108.00
Pigs	22	71.30		8	90.00
Hogs				1	10.00
Bulls				3	110.00
Goats					
Pony	1	75.00			
Horse				1	50.00
		<hr/>			<hr/>
Total amt. pd. for Sheep and Lambs		\$13,953.60			\$7,448.58
“ “ “ “ Heifers, etc.		1,321.30			
		<hr/>			<hr/>
		\$15,274.90			

By C.H. CRAWFORD,
State Sheep Specialist.

Biennial Report, Division of Plant Industry

To Hon. Frank P. Washburn, Commissioner of Agriculture:

Certification of Seed

The following tables indicate the amount of work that has been carried on during the period between July 1, 1938 and June 30, 1940.

	Ac. Entered	Ac. Passed	Bu. Certified	Bu. Sold
1938-39 Mountains . . .	11,541 $\frac{1}{2}$	4,924	1,408,264	718,107
Cobblers	10,727	6,038 $\frac{1}{2}$	1,974,589	1,396,291
Sp. Rose	860 $\frac{3}{4}$	378	102,438	63,687
Katahdin	2,637 $\frac{3}{4}$	1,153 $\frac{3}{4}$	396,890	238,246
Chippewa	4,099	593	207,000	104,824
All Others	1,446 $\frac{1}{4}$	693	212,447	81,558
	31,312 $\frac{1}{4}$	13,780 $\frac{1}{4}$	4,301,628	2,602,713
1939-40 Mountains . . .	11,939	9,024 $\frac{1}{2}$	2,581,007	802,037
Cobblers	9,555	8,137	2,237,675	1,517,186
Sp. Rose	504	387 $\frac{3}{4}$	86,904	37,978
Katahdin	7,069	2,424 $\frac{1}{4}$	640,002	345,053
Chippewa	2,910	1,643 $\frac{1}{2}$	479,080	271,133
All Others	1,678	1,083 $\frac{1}{2}$	304,788	103,868
	33,655	22,700 $\frac{1}{2}$	6,329,456	3,077,255

During the 1938 season it became necessary to reject more acres than usual. As a carry-over from the previous season, leaf roll was very much in evidence, and Green Mountains, a variety very susceptible to this trouble, failed to meet the requirements under the existing conditions. Chippewa also indicated its inability to resist the spread of leaf roll. During the growing of this crop a careful check was made for bacterial ring rot, and rejection was higher than in previous years.

1939 saw the start of the so-called Foundation Seed Program by the Maine Agricultural Experiment Station. In substance, the rogueing of isolated tuber-unit plots was taken over by the Station, and it seemed to be a step in the right direction.

In 1939 the entry indicated that the seed growers were on their toes and tremendously interested. While many acres failed to pass certification, the percentage of rejections was not

as high as in the previous year, and the sales reached a volume in keeping with that of the best years. The average yield per acre was extremely low because of a poor growing season. Maine had its smallest crop of potatoes in many years. This was favorable from the standpoint of seed grading, but was very injurious to the table stock shipper. In January there was a time when table stock was higher than certified seed. The market was asking for U. S. 1, Size A, and it was difficult to find supplies. During this season 2,700 acres were rejected for bacterial ring rot, and at the winter meeting of certification officials it developed that this disease was prevalent in about thirty states.

Present Situation. It may be interesting for those who look over these reports at some future time to learn that at the end of twenty-six years of certified seed work our problems were just as numerous and probably more difficult to solve than some others we had during these years. Until 1937 we had coasted along, believing that Aroostook County was north of the so-called "leaf roll area." We have, however, become conscious of the fact that there has been an increase in the aphid population, and that when aphid are plentiful enough they can go to Ft. Kent just as easily as we thought they could go to northern Penobscot County. The result of this is that leaf roll has become a difficult problem. The Green Mountain and Chippewa varieties are seriously affected. So much so, in fact, that the Mountain, which is the best quality potato in the northeast, is in some danger of passing out of the picture. Hundreds of acres of Katahdins have taken the place of this variety.

In addition to leaf roll, bacterial ring rot, a relatively new potato disease to us, is becoming increasingly important, and more research work must be done before we can clean up the situation. There are those who believe that half of the potato fields in the state have this trouble to some extent. A survey, however, has never been made, and definite facts are not known. We do know the facts in certified acreage: the rejection is about ten per cent of the total acreage entered. This, among the better growers of the state. It is only a guess what the situation is among the rank and file. It is hoped that definite steps may be taken to provide more money for ring rot, and no doubt there will be.

Only recently more funds have been made available for the study of leaf roll, and bins are being constructed at Aroostook Farm so that temperature and humidity studies may be made

under controlled conditions. We believe that a great deal of good will come from this work. In addition to this a bio-chemist has been put on potato work for the first time. All these are hopeful signs that Maine intends to find out all about its difficulties and reduce them to a minimum as soon as possible.

In our last report we commented on the fact that the Experiment Station did not have as strong a pathological section as it needed. We have given of our time and effort to help strengthen that department, and will continue to do so. We hope that within a year funds may be made available for a new greenhouse at Aroostook Farm, as well as some new money for bacterial ring rot. We cannot refrain from mentioning the inadequacy of space at the Experiment Station in Orono. We cannot hope to get the best results from our plant staff until they have a decent place in which to work. At the present time they do not have space enough to keep their working literature where it is readily available.

I indicated two years ago that it would take us three or four years to get over our net necrosis difficulty. The situation is no better than it was when I made the statement because two years out of four the aphid population has been high. Our Station has developed a program for aphid control, and our certification service is watching with interest just what may occur from the use of different spray materials to aid in checking the spread of leaf roll. It was my privilege to attend the field meeting on Long Island in June, and we were pleased at the report regarding Maine certified seed. The President of the Farm Bureau complimented our state on the quick clean-up we have made following our disastrous leaf roll epidemic of 1937. There is still, however, too much leaf roll in our state, and more attention than ever must be paid to growing seed in isolated areas. I am convinced that the Chippewa variety, from a leaf roll standpoint, will always be a menace on the table stock farm to anyone in that area who wants to grow certified seed. Again we are obliged to repeat an old statement: the production of high grade seed is an insect problem, and it is true that the state is as good a seed bed as the table stock grower will allow.

We are growing six or eight million bushels of high grade seed every year, but we are failing in our distribution in that those who need it most are not in a financial position to acquire the better seed. Instead they continue to plant seed which in many cases is not economically sound.

Insect Control

This Division is charged by law with insect control having to do with the Gypsy and the Brown-tail Moth, Japanese Beetle, and the European Corn Borer. During the past few years it has been possible, by means of WPA funds together with sponsor's funds from the State, to do work in several counties in areas where the infestation was heavy. The amount of money available has been sufficient to take care of those spots which had become a nuisance, but it is not sufficient to carry out an extermination project. Beginning next fall it will become necessary to invoke a state law requiring individuals to clean up their own Brown-tail Moth webs. During the period of large WPA grants it was possible for the state to handle this situation, but it is not possible with the present funds. The Governor and Council have from time to time made funds available for this work, and the Department of Agriculture has transferred money from various funds at its disposal in order that this work might be carried on coöperatively with the WPA office.

The Gypsy Moth has become very much at home in all of central and southern Maine. So much so that the garden clubs in one area have accepted as one of their projects the control of this pest in a given area. During the period covered by this report between six and seven thousand dollars a year have been spent for spraying, both by our own machines and by commercial machines which we have hired. Twenty-one tons of lead were used, or 675,000 gallons of wet spray in thirty-five towns and fourteen lake shore properties. We believe that much good has been done, and it is to be regretted that communities do not accept insect control work in the same spirit that they recognize the need of a fire department. A report filed with us by our field agent indicates that during the past year 1,387,000 egg clusters were treated by the workers on our WPA project, the larger part of these in Cumberland, Androscoggin, York, and Kennebec counties.

During the same period there were 1,550,000 Brown-tail webs removed. It is interesting to note that York County is not nearly as badly off as some of the other areas. Again Cumberland County shows a bad condition because more than a million webs were cut there. Auburn and Lewiston are cities where the trees demand constant attention. Gardiner, Rockland, Norway, Islesboro, and Sanford seem to be very badly infested with this

particular moth. Mr. Trafton's report just gives an idea of what the situation is in these areas. The regular Department inspectors were used as supervisors on the WPA project, and we believe helped the WPA workers to acquire more knowledge about insect control methods. It has been difficult to get men in some of the areas where they were most needed and therefore the project failed in some cases, although we tried to substitute state men in these areas. The CCC camps have continued their work within twenty-five miles of the base and have as usual painted many thousands of egg clusters and were very helpful to us. It has been possible for us to hire climbers who have been trained at these camps, and this too has been helpful. The treatment of Gypsy Moth egg clusters, where it can be followed up by a spray job, is an ideal set-up. Many towns and communities have coöperated with us by providing the lead, and the State has furnished the machines and the labor.

Two years ago we suggested that the appropriation for European Corn Borer be reduced. We hope to withdraw this eventually. A recent conference with some of the leading canners, however, leads us to believe that perhaps we should continue a reduced appropriation for another two years. We insist that we have done all the educational work that is necessary, and that our growers are fully conversant with the fact that fall plowing and a thorough clean-up of all stalks and weeds is the proper procedure. It has been and it always will be difficult to get a high percentage of corn growers to participate with us. It is not difficult to get coöperation in the sweet corn areas, but the small home gardener is not too much concerned with insects. We again repeat that the borer population is not excessively high due to the amount of work that has been done. Our only thought in looking to the future is, how long can the State be expected to police this job? A conference of all states concerned with European Corn Borer control work was held this spring, and another one will be held in December at which the problem can be discussed from a New England angle.

The Japanese Beetle situation remains about the same although we found time and money to treat four or five different places in Androscoggin and Cumberland counties this past year, believing that we could reduce the size of the colony if we couldn't completely exterminate it. There are only a few spots where the Japanese Beetle infestation has acquired much strength. We

have had about 1,400 traps out in the past two years, and by this method have been able to keep informed of the size of the colonies. We are anxious to prevent a spread because of the damage that could be done in our greenhouses during the growing season.

Varied Activities

A few words of comment on the Nursery Act passed by the last Legislature. Like every new piece of legislation there are some loopholes, due first of all to the fact that the proponents of the measure were not sure just what they were trying to do. We believe that it should be remedied at the next session, but the part which provides that the Department have control of stock not fit for sale should certainly be left in the Act. We have received more than \$2,000 as revenue from a \$5.00 license fee. This has all been put back into inspection work. The two outstanding things which the Department has done for the industry in my judgment are that we have learned something about the number of people who are really engaged in the florist business in the state, something which has never been done before, and we have been able to show a great many people how nursery stock can be handled to a better advantage, how it can be kept so that it will live; and we have also been able to stop the sale of much stock unfit for use. Two of the larger chain stores have by agreement discontinued the sale of flowers. We have learned that about half of our growers are selling to the chain stores in their local communities.

Mr. Babb, Mr. Johnson, and Mr. Painter have attended innumerable meetings of all sorts. They have talked over the radio and at service clubs, have judged at fairs, and taken part with organizations interested in their work. Mr. Painter has put in a lot of time with the New York-New England Apple Institute and the Maine Fruit Producers.

This Division, as in 1938 and 1939, again sponsored the Agricultural Trades Show in the Armory at Lewiston. This meeting, which originated in 1938, has we believe filled a need in the community by bringing the better types of farm equipment together in one hall. At the present time we have six applications for space, and unless some of those already taking part give up their space, there will be no room for any new firm. We wish to express our thanks to all the different organizations which have helped to make the Trades Show what it has grown to be.

In closing, I wish to repeat that in our seed potato certification work there are numerous problems. The Experiment Station staff, the Extension Service, and this office are all trying hard to overcome the troubles incidental to ring rot and net necrosis. Our present system of inspecting seed for certification is practical, and I cannot see how it can be improved on at the present time. We are hopeful for new information each season.

Please accept my thanks for the help you have given me in carrying on the work of my Division. It has been our pleasure to serve on some committees with other agricultural agencies. We are grateful to them for the opportunities which they have given us, and pledge anew our support. I cannot help from commenting again on how well the different agencies in this state work together for a united agriculture.

Respectfully submitted,

E. L. NEWDICK

Chief, Division of Plant Industry

To E. L. Newdick, Chief, Division of Plant Industry:

I herewith submit a brief report of the Bureau of Horticulture covering the period from July 1, 1938, to July 1, 1940.

The work of the Bureau has been conducted for the past two years in much the same manner as in previous years with the exception that more time and additional help has been required to carry out the provisions of Chapter 48 as amended by Chapter 118, §1, P. L. 1933, and Chapter 247, P. L. 1939, "Protection of Trees and Shrubs."

The law as revised by the last Legislature made it necessary to inspect all places and to license all persons dealing in any form of plant material. The law also authorized the State Horticulturist to condemn and destroy all plants which were infected with injurious insects and disease, or which were unfit for sale and would result in dissatisfaction to the purchaser.

Previous to these revisions, it was not necessary to concern ourselves with the condition of the plant material offered for sale, but only with their freedom from disease and insects. Under the present law, it was necessary to revoke the licenses of the

dealers for violation of the law. It was also necessary to destroy thousands of shrubs and plants which were unfit for sale. Thus, the consumers in the state were protected from unknowingly purchasing these goods. The plants thus destroyed represent only a small portion of an even larger amount of plants and plant materials which should receive like treatment. It has been impossible to maintain as thorough and complete inspection of material sold because of an inadequate inspecting force, and because no funds were available for the purpose of hiring additional help. The only appropriation made for the improvement of this law was the revenue received from the licenses issued, amounting to a little over \$2,000 per year. (Five hundred eighty-four licenses were issued — only 410 persons were required to pay the fee, the remaining number being exempt by law.)

The new Act has given us an inside view and much valuable information which was not previously available, and which will be of great assistance to the industry in the future. In order to determine the value of such a law, the only recommendation is that it be continued as it is for the present with additional inspectors. If the law is revised, section three should be retained.

The annual apple tree pool, which has been conducted for the past several years, was continued during 1939 and 1940. In the 1939 pool 8,520 apple trees were purchased; and in 1940, 10,197 apple trees were purchased. During these last two pools the five leading varieties were, in order of importance: McIntosh, Cortland, Red Delicious, Northern Spy, and Baldwin. The McIntosh was far in the lead as the figures for the 1940 pool indicate. Of the 10,197 trees purchased, 4,000 were McIntosh.

I wish to call attention to the increased purchases of the 1940 pool in comparison with the purchases of the previous years, which have averaged 6,500 trees for the past five years. This very marked step-up or purchases resulted from the extremely low prices of trees. Never in the history of the State apple tree pool has the price been so low, and, to my knowledge, the quality of trees secured has never been so high.

The extremely low prices and the exceptional quality are the direct results of supply and demand. Not since the severe winter injury of 1933-34 have the nurseries been able to renew their plantings sufficiently to offer stock in quantities and at such attractive prices as they did this year. This bears out the prediction of our office made in 1934 that supply of trees would not be increased or the prices lowered before 1940. In addition

to the apple trees bought through the pool, 759 peaches, 214 plums, 121 cherries, 285 pears, and 15,000 raspberries were also purchased.

A new activity the past three years has been the close co-operation with the Experiment Station and the Department of Horticulture at the University in testing and establishing orchards where hardy interstock has been used. The interstock should prevent a recurrence of the disaster suffered during the winter of 1933-34 and, undoubtedly, will prevent the annual injury suffered by the fruit trees in this State.

The Western Maine Fruit Growers convention has been discontinued in favor of the Pomological Society's meeting at the Annual Trades Show. Instead our efforts have been to increase the value of this show.

A great deal of time has been used in helping to control rodents in the orchards and also in teaching the orchardists how to repair the damage done by these pests.

The Assistant Horticulturist has conducted demonstrations throughout the State in the making of Christmas decorations. Approximately 1,100 people attend the demonstrations. These meetings have been used in addition to the many talks on the radio, to granges, to garden clubs, and to other organizations, made by the Horticulturist and his assistant.

A great deal of time has been spent making and arranging exhibits and displays in conjunction with the advertising of Maine agricultural products. A very active part has been taken in the work of the New York and New England Apple Institute which has been of great benefit to the fruit growers of this State. The Institute has identified and offered proper treatment for hundreds of insect and disease troubles to those who have sent samples or requested aid.

Assistance has been rendered those who wished to improve their grounds, parks, and public buildings. This assistance was given through lectures on these subjects and rough plans drawn when requested.

I wish to take this opportunity to express my deep appreciation for your kind assistance and wise counsel in executing the duties assigned to me.

Respectfully submitted,

STANLEY L. PAINTER,
State Horticulturist.

To the Hon. F. P. Washburn, Commissioner of Agriculture:

I submit herewith the biennial report of the Division of Markets, covering the period of July 1, 1938 to June 30, 1940.

The aim of the various activities of this Division has been constantly to secure improvement in the marketing of farm products, and in purchasing such supplies coöperatively as the farmers may find advantageous. The producer who attempts the marketing of farm products very soon realizes that interpretations of quality are his most perplexing problem. The development of a common language describing degrees of quality is a matter of a comparatively short period. This is now generally termed standardization.

Standardization

Maine has kept pace and in some instances advanced beyond the average state in adopting national standards for the various farm crops which we produce. Maine holds the distinction of being the field in which the U. S. D. A., The Maine Department of Agriculture, and the Maine Extension Service coöperated in the investigational work, which resulted in the establishment of national standards for sweet corn for canning, snap beans, and the preliminary work looking toward the establishment of standards for blueberries.

Sweet Corn

During the 1938 season grading work was carried on at 30 corn factories, which was the largest number of factories so far using this service. Owing to a tremendous carry-over into the 1939 season, only approximately one-third of the corn factories in Maine operated, and this resulted in the grading service being confined to 11 factories. Preliminary plans indicate that 19 factories will make use of this service during the 1940 season. This service is now generally accepted as increasing the returns to both producer and canner. Several factories are paying on a graded basis so that the producer delivering the fancy tender corn receives a premium price. This enables the careful grower to realize increased returns on their crop. From the canner's viewpoint he is able to separate the loads with a high percentage of tender corn from those carrying a high percentage of dough,

and thus carry the fancy pack through his lines and into the storehouse, entirely separate from the standard grades. The results enable him to deliver satisfactory lots to the purchaser.

Snap Beans

Following the preliminary investigations carried on during 1937 the grading service at snap bean canneries was started in the 1938 season at 9 factories. This grading was continued in 1939 at 7 factories, notwithstanding the fact that several factories failed to operate on account of the surplus pack of the preceding season. This service has been of advantage to both producer and canner for the same basic reasons which apply to corn grading. The grading of the raw product at canneries has been particularly helpful to the field men who are better able to determine the most opportune time for ordering in the various crops.

Cucumber Pickles

A large packer of pickles in western Maine was confronted with the problem of fair payments to his producers. His problem not only included freedom from diseases and defects, but also a separation of different sizes. Because of the success of the State-Federal Grading Service at the corn and snap bean factories this concern asked the State Department for assistance. As a result two men worked the entire season in making the proper classifications for this packer. It is generally the opinion of both the packer and his producers that the service is the basis for a more satisfactory system of payments.

Blueberries

For the first time in the history of the Maine blueberry industry a grading service for the fresh fruit was established in six factories in 1939. This being a very perishable product and of extreme light weight the basis of sampling and grading is much different from any other product. As finally worked out, a definite measure of berries is taken for the sample. This sample is carefully counted to determine the number of leaves, sticks, clusters, green berries and other foreign matter. The packer then determines the maximum amount of each item which may be permitted in a given quantity of berries going into his fancy

pack. The results are then the same as for other cannery products. The producer who brings in clean firm fruit will receive a bonus, while the lots which carry an undue proportion of foreign matter are paid a lower price. The development of the grading system for this fruit will probably be slow, owing to the unusual conditions which surround the industry. The most encouraging feature, however, is that practically all the canners are convinced of the necessity of improving their product. With this aim in mind the details of working out improvements will take time, but the prospects are encouraging.

Turkeys

The raising of turkeys in Maine has now become a real industry; the increase in 1939 being 72,000 birds, compared with 58,000 in 1938. Unfortunately, similar increases occurred throughout the country, with the result that turkey growers were faced with demoralized market conditions at the beginning of the 1939 season. The Maine Turkey Growers' Association, through its president, Donald Staples of North Berwick, cooperating with the New England Turkey Growers' Association, set up a marketing plan. This included the agreement of several of the largest retail distributing agencies in New England to handle thousands of dressed birds, provided they would be graded by the several Departments of Agriculture. The Maine Division of Markets performed this service for the Maine Turkey Growers, and undoubtedly the same general plan will be followed in 1940. The active coöperation of the producing and distributing agencies resulted in a stabilizing of prices at which the birds were sold.

Surplus Purchases

New England came through with unusually large crops of apples and squash in 1939. These threatened to upset the price level of both commodities. In an attempt to put a bottom under the market the Federal Surplus Commodities Commission set up a purchase program. This necessitated the guarantee by State authorities that Federal-State Inspection Service would be furnished. Owing to the system established two men were assigned to this work full time from the middle of October until the first of the year, part time being necessary until the program was concluded the latter part of February. This Division consist-

ently follows the policy of rendering service to the agricultural interests of the State whenever and wherever possible. Considering the widely scattered purchases, the actual loss entailed in rendering the service was not excessive. Inspection work of all types is done on a voluntary basis and the fees are supposed to cover the cost as nearly as possible. In this particular instance the cost was approximately \$1,360 and the billings \$990.00.

Potatoes

To provide shippers with prima facie evidence of the grade and condition of their stock at time of shipment continues a major feature of the work of the Division of Markets. The service is so generally used by the trade now that a leading banker made the remark last season that the discounting of drafts on inspected stock had nearly reached the disappearing point. Thus, the service has saved hundreds of thousands of dollars to the industry as a whole, not only because there are less discounts on drafts, but also because reconditioning can be done much more economically at point of origin than after the shipments have reached the receiving markets. The fee charged for this service still remains at \$3.00 per car. Owing to more effective placing of inspectors, plus the fact that a higher price level has made collections more prompt, substantial rebates have been made to shippers in both the 1938 and the 1939 crop seasons. Supplementing the statistics given in my last biennial report, the principal points are as follows:

Season	No. of Inspections	No. of Men Employed	Average No. Insp. Per Man per Wk.
1938-1939	31,113	60	17.4
1939-1940	22,161*	54	12.0

* For first time truck inspections reduced to carlot equivalent.

In December 1939 the branch office at Caribou was moved to new quarters in the Municipal Building. With better lighting and more convenient arrangement of rooms the work has been carried on with one less clerk. In addition to the routine work of giving strictly inspection service, our office force have cooperated with shippers and producers in making contacts whenever difficulty has arisen in the receiving markets. During March 1940 the Chief of the Division spent nine days in the States of

New York, New Jersey and Pennsylvania interviewing members of the fruit and vegetable trade, as well as becoming better acquainted with State and Federal officials connected with the distribution of perishables. The immediate results of this trip was to secure closer coöperation in investigating cases of misrepresentation or misbranding of potatoes, both from Maine and other States.

Market News Service and Statistics

Since 1919 the Division of Markets has coöperated with the New England States and the Federal Bureau of Agricultural Economics in furnishing the best possible information concerning crop and market conditions. The coöperative work between the Federal Crop Reporting Service, The New England States, and Maine have been particularly valuable in furnishing monthly reports of crop conditions during the growing season.

One of the primary purposes of crop estimates is to make available relatively accurate information on production in time to be useful in connection with orderly crop marketing. Information on production plays an important part in the determination of reasonable prices from the view of both the buyer and the seller. Many related lines of business such as the railroads, banks, etc., find production information essential in many ways to economical operation.

It is of interest in this connection to note the relative accuracy of the after-harvest estimates of the Maine potato crop in recent years. Because a large part of the Maine potato crop moves in channels from which definite records can be secured, a check of the preliminary after-harvest estimates of production can be made each year after the marketing season is over. In other words, records of potato shipments by rail, truck, and boat, potatoes taken for starch, information on farm consumption for table use and seed are carefully analyzed for the purpose of determining the accuracy of the preliminary after-harvest estimates of production. After this analysis has been completed, a new estimate of production is made which is on the basis of data available after the marketing of the crop has been completed. The extent of the adjustment made is an indication of the accuracy of the preliminary after-harvest estimate which is made in December each year. The following record of the past seven years shows the results now being secured:

Estimates of Maine Potato Production
(*in thousands of bushels*)

Years	Estimates of Potato Production as Published in December After Harvest	Final Estimates of Production as Established after the Marketing of the Crop was Completed
1932	39,480	40,460
1933	42,000	42,000
1934	56,280	55,404
1935	38,640	38,400
1936	44,000	45,885
1937	48,503	47,600
1938	39,600	40,414
1939	38,250	*

* Records not yet entirely available.

In most of these years, adjustments have been to less than a million bushels and do not exceed 2-3 percent of the total of production as finally established after the marketing of the crop was completed.

The Potato Daily Market News from Presque Isle continues to be largely used by the industry. This work has been supervised during the last few years by Mr. S. W. Russell, who has done much more than perform the routine tasks required of him. Each evening he has given the public a broadcast over the Presque Isle radio station summarizing the day's market news. At the close of each shipping season a summary of the potato deal is issued from this office. In addition, certain information from the Presque Isle office, supplemented by reports from the railroad companies makes possible a mimeographed report of total potato shipments from Maine by stations and counties.

Public interest in the extent of retail preferences for Maine potatoes led to a coöperative venture with the Maine Development Commission from May 12 to May 27, 1939 on the "Retail Quality Study of Maine Potatoes." Mr. R. J. Pike of this Division took 245 samples of various types of potatoes in retail stores in thirty cities of Massachusetts, four in Connecticut and three in New York City. Briefly, this study revealed that retail prices reflected quality. In other words, where the percentage

of defects was lowest the retail price was highest. The average price per pack in chain stores was 2.4¢ lower than that of independent stores. It was also interesting to note that apparently packages of potatoes put up in the retail store from 100 lb. sacks were used as price leaders. The average price of such packages was 33.2¢ compared with 36.17¢ for packages put up at shipping point, and 39¢ for packages put up by local wholesalers.

Comments from different parties interviewed also revealed that while there was no particular objection to potatoes four inches in diameter yet the preference was that the maximum diameter should not exceed three and a half inches. These comments also expressed specific objection to tubers less than two and a quarter inches in diameter. This study incidentally revealed that the advertising program for potatoes, which has featured the blue, white and red trademark, has been favorably received by the trade. In 132 of the 245 stores covered, the trademark was found.

The review, *Maine Markets*, is being sent to the farmers of the State regularly each week. The present year is the seventeenth since the service was instituted. The mailing list remains practically unchanged at 1500 subscribers annually. New uses are being found each year. During the year just passed this complete report was printed regularly in the *Kennebec Journal* and the *Lewiston Daily Sun*, as well as being broadcast over W R D O in Augusta at noon, immediately after the information was assembled. The obvious value of this service to the producers is the fact that information from 12 or more different sources are boiled down so that the important features are available without much reading.

Cooperative Organizations

The Division of Markets continues to render service in furnishing information to coöperatives and their members which will assist them in providing improved marketing and purchasing facilities for our farmers. The Maine Poultry Coöperative, organized in 1938, continues to maintain a steady and healthy growth. The paid-up membership now stands at 250, and the financial statement as of June 30, 1940 reveals a surplus of \$1,373.41. During the year July 1, 1939 to June 30, 1940 this organization paid the producer members \$159,522.66 for eggs. The poultrymen of Maine are to be congratulated on their ability to develop and maintain this coöperative service.

Milk marketing continues to be a major headache for the dairymen of our State. Much has been accomplished through the efforts of the Federal Milk Administrator. Outstanding development in this system of federal control is the necessity for producer-controlled coöperatives. The larger milk companies are fully capable of providing defense of their position, but the individual dairyman has little chance of being heard in the present set-up. More strongly than ever does it become evident that producers must maintain strong vigorous coöperative organizations. Whether or not it is possible for the producers to make their voice heard through one organization is a moot question. They should insist, however, that producer organizations guard against strife which will weaken the actual dairyman's financial and moral prestige. Present trends favor the large well-organized milk distributors. During the Spring of 1940, three of the smaller milk handlers in Maine have become financially involved, entailing serious losses to the dairymen of the State.

Promotional and service work with established Farmers' Unions and group coöperatives are still maintained.

Increasing interest in the marketing of berries has been evidenced in two or three localities. Whatever service possible will be rendered in assisting these groups in their efforts to improve marketing conditions.

Truth in Branding

The soundness of right principles sooner or later assert themselves. This may be through voluntary trade practices or, as often happens, public sentiment demands legal support of the same. Maine has always been noted for the integrity of its people and their desire and insistence that just dealings shall be the rule rather than the exception.

The Maine Apple Packing Law conceived in 1909 was the first indication that correct trade practices be legally recognized. Since that time food and drug laws, plus fertilizer and feed acts have emphasized the right of the purchasing public to be told on the package the true contents of the same.

The Potato Branding Law and the Maine Fresh Egg Law further reflect this same principle.

Wherever possible these truth in branding legislative acts have been administered from both an educational and a legal

standpoint. During the 1938-1939 shipping season branding law men made a total of 5,899 separate checks on shipments of potatoes. During the 1939-1940 season 7,311 checks were made. Of this latter number there were found to be only 254 cases of obvious misbranding. Of this number 226 were adjusted in a coöperative spirit by the shipper or grower, either by reconditioning the loads or by remarking them. In only 28 cases was it necessary to invoke court action. It is interesting to note in the cases which were taken into court, the average percentage of defects was 20%. Obviously where the tolerance is only 6% these were cases of gross misbranding.

The Maine Fresh Egg Law was passed at the insistence of the poultry producers of the State. This has received general support not only from producers but also from distributors of eggs, and court action is seldom necessary, as only a total of three cases have been prosecuted in the last year. During the 1938-1939 season 6,884 checks were made at retail stores and in the 1939-1940 season 6,170 inspections were made.

Enforcement of the law has not only increased consumer confidence in the eggs she has been buying but it has also discouraged the dumping of large quantities of inferior quality cold storage eggs in our State. Formerly run-of-the-nest were often used as a price leader. Such lots being of all sizes the consumer often received a majority of small eggs. Under the Fresh Egg Law these must now be marked truthfully as either large, medium, pullet or pewee, as the case may be. Thus, large eggs are not brought into unfair competition with the run-of-the-nest lots. All in all the public approves of good ethics in the marking and selling of food products, including eggs and other farm commodities.

Miscellaneous

Numerous requests come to the Division for exhibits and demonstrations designed to act in an educational way. The largest in which the Division participates is the regular departmental display at the Eastern States Exposition, designed each year to sell to the consumers and purchasers of farm products those items which are of signal importance to our State. This exhibit is viewed by upwards of a quarter of a million people each year, and does much to keep the merit of Maine farm products before the purchasing public.

The Division coöperated with the Development Commission and the Maine Poultry Improvement Association in staging a specialized poultry exhibit at the World's Poultry Congress held in Cleveland in August of 1939. This Congress lived up to its slogan of "A Million Dollar Exposition For A Billion Dollar Industry." The attendance was in excess of 800,000 persons, mostly poultrymen. Twenty-eight states and over thirty foreign countries were represented at the Congress. The advantage of securing disease-free, healthy, vigorous hatching eggs and breeding stock from our Maine flocks was emphasized to the full.

Other exhibits have been made at various agricultural meetings and consumer groups, all of an educational type.

Various bulletins have been published, including the revision of both the Potato Branding Law and the Maine Fresh Egg Law pamphlets. A special bulletin was worked up for the World's Poultry Congress and another one is in the making to be distributed at the Northeastern Poultry Producers' Exposition at Atlantic City next October.

The Poultry Industry, being the third largest income producer for Maine farmers, ranks high in the program of Maine agriculture. High grain prices and low egg prices have created a difficult situation for the poultryman. Accordingly, the Division of Markets has attempted to increase consumer interest through the distribution of several thousand bulletins. One of these is entitled "What You Should Know About Eggs" and the other "EGGS—100 Tempting Ways to Serve Them." Both of these provide tempting recipes and persuasive reasons for an increased use of eggs. It is hoped thus to increase consumption of this valuable food.

Circular letters have been issued to selected groups of farmer covering information of special moment to them. This has been done both in coöperation with farm organizations and as divisional circulars.

The roadside market is now recognized as a reliable method of disposing of farm products. The consumer patronizes these stands largely because they expect to secure strictly fresh, home-grown products. In order that it may be more convenient to recognize the stands specializing in farm produce, the New England States worked out a method of identifying the markets by an official sign. Maine went along with the other States in this program and has found the results helpful to our fruit and

vegetable producers. So popular did the blue, white and red trademark become on account of the potato advertising program that it seemed wise to use this scheme for the roadside markets. Mr. Keith Field of the Development Commission redesigned the roadside market sign early in 1940, with the result that this season's official sign is both attractive and striking. Thirty-three roadside signs were displayed in 1939 and thirty-four have already been placed for the summer of 1940.

The request for lectures are frequent and requires considerable time both for the lectures themselves and in preparing such matter. Conferences are frequently held with directors of coöperatives. These calls are gladly welcomed as a means of disseminating information and suggestions for the betterment of marketing and rural conditions. A total of 78 lectures or conferences with an attendance of 5,044 persons in the 1938-39 year, and 79 meetings with a total of 5,401 in the 1939-40 season are credited to the Chief of the Division. Many other meetings have been attended and demonstrations given by members of the Division.

Carrying out the work of improving the marketing of farm products and purchasing of supplies has been possible on account of the fine coöperation received from various farm organizations and groups, as well as with other State and Federal agencies. Such coöperation is valuable not only in avoiding duplication but also in making more effective the efforts of this Division. Such team work is appreciated and the continuance of the same is much to be desired.

Respectfully submitted,

C. M. WHITE

Chief, Division of Markets

To Hon. Frank P. Washburn, Commissioner of Agriculture:

I respectfully submit my report covering the work of the Division of Inspection from July 1, 1938 to June 30, 1940.

The enforcement of the laws regulating the sale of agricultural seeds, commercial feeding stuffs, commercial fertilizer, drugs, foods, fungicides and insecticides; the enforcement of the weights and measures law; and the regulating, grading and packing of apples is the major work of this Division.

Seed Inspection

The analyses of the samples collected by inspectors together with samples from dealers may be found in Official Inspections No. 174.

	1939	1940
Number of samples collected.	129	167
Hearings arranged.	18	20

Feeding Stuffs Inspection

	1939	1940
Number of samples collected from July 1, 1938 to June 30, 1940.	795	
Number of samples collected from July 1, 1938 to June 30, 1940.		901
Number of brands registered.	1,277	1,295
Number of hearings arranged.	133	126

The analyses of the samples taken is to be found in Official Inspections No. 172.

Fertilizer Inspection

In the period covered by this report, samples of practically every registered brand of fertilizer were collected and analyzed. The endeavor was made to obtain all possible samples from the farmers.

	1939	1940
Number of brands registered.	387	358
Number of samples collected.	494	421
Number of hearings arranged.	51	47

The analyses of the samples collected is to be found in Official Inspections No. 173.

Fungicide and Insecticide Inspection

The fungicides and insecticides ordinarily employed for repelling and mitigating the attack of insect pests have been collected and analyzed.

	1939	1940
Number of brands registered.	469	493
Number of samples collected.	60	43
Number of hearings arranged.	80	16

Food Inspection

A summary showing the collection of samples is submitted herewith, although it is only fair to say that the collection of these samples represents only in a small way the great amount of work which is done by those of this Division who carry out the inspection of food and utensils.

	1939	1940
Number of samples collected	215	196
Number of hearings arranged	127	44
Number of non-alcoholic beverage licenses issued	254	226
Number of sardine licenses issued	28	28

The work of food inspection has been conducted as usual by the collection of samples, by hearings and by visiting and inspecting hotels, restaurants, grocery stores, markets, bottling establishments, canning plants and all places where food is manufactured or offered for sale.

Drug Inspection

	1939	1940
Number of samples collected	265*	280
Number of hearings arranged	24	28

* The collection of samples is made by an inspector who is a registered druggist.

The analyses of the samples of Foods and Drugs collected have been published in Official Inspections Nos. 171 and 175.

Federal Agencies

The Division of Inspection in its work of safeguarding the food supply of the people of our state, enjoys the aid and coöperation of various Federal agencies, for which we wish to express our great appreciation.

Shell Fish

The clam flat areas on our coast have been resurveyed upon recommendation of the U. S. Public Health Service, this work being begun in the summer of 1939 and will be continued this fall. Additional effectiveness has been possible during recent

surveys because of the availability of a suitable bacteriological laboratory, such as has been added to the facilities of the chemical laboratory where our food and drug samples have been handled. We have again increased the efficiency of our supervision of flats and shucking houses.

The United States Public Health Service and the United States Food and Drug Administration work with us in the certification as to the quality of shellfish shipped and as to the sanitary conditions of the flats and beds.

Sardines

The 1939 sardine pack of 2,171,667 cases was considerably in excess of the poor quantity pack of 1938 which numbered only 659,584 cases.

In the two years covered by this report the number of sardine factories licensed has been the same, 28.

At this time it appears that the sardine pack for the calendar year 1940 will be small, which is unfortunate inasmuch as the European War is keeping the foreign sardines from United States markets, and this year would be a particularly opportune time for a pack of reasonable size. The improvements in quality made in the Maine sardine industry in recent years, in part brought about by the enactment of such laws as that of 1929 amended in 1935 and requiring the packing of Maine sardines in oil of no less quality than Prime Winter Yellow, have placed our packers in a position to make great gains in our domestic market. It is expected that this year the demand will far exceed the supply.

The original act of 1929 ordered the use of a sardine packing oil, vegetable or cottonseed, of a grade not below that of Prime Summer oil. The change made upon our recommendation to the legislature of 1935 was endorsed by all the Maine sardine packers and is generally recognized as a progressive step.

Blueberries

Blueberry factories licensed for the 1940 season numbered 11. In 1939, ten were licensed.

The Division's factory inspection service, a self-sustaining function of the Maine Department of Agriculture, has been supplemented in recent years by the maintenance of field stations at points where blueberries are shipped in commercial quantities.

Measures recommended by the U. S. Bureau of Entomology, following their investigation of the blueberry fly in Washington County, the dusting of blueberry bushes and growing areas with calcium arsenic as a remedial measure to prevent infestation by the blueberry fly, have been carried on during this biennium. The 1939-40 appropriation was considerably smaller than that for the preceeding fiscal year and no appropriation for the fiscal year 1940-41 has been made.

At the field stations, located at Rockland, Rockport, Cherryfield and Harrington, berries have been examined for fly infestation and the possible contamination by arsenical dusting or spraying, this examination making it possible to prevent the shipment of blueberries, either fresh or canned, with objectionable quantities of dust or spray residues.

Conclusion

In conclusion, please accept my thanks for your advice, and wise counsel in the administration of the affairs assigned to me.

Respectfully submitted,

A. M. G. SOULE, *Chief*
Division of Inspection

To Hon. Frank P. Washburn, Commissioner of Agriculture:

I respectfully submit herewith, my report covering the work of the Bureau of Weights and Measures from July 1, 1938 to July 1, 1940.

This work consists of testing of new equipment purchased by the various towns for the use of their local sealers, visiting the local sealers and assisting them in their work: re-weighing package goods and testing heavy duty scales, oil pumps, bottles, gasoline pumps and vehicle tanks.

During the past two years much new equipment has been purchased by the various towns. A stationary 100 gallon test tank was purchased by the City of Brewer. The cities of Portland and Bangor have each purchased a 100 gallon portable testing unit which has greatly added to the effectiveness of the testing of all their fuel oil equipment.

As has been pointed out in previous reports the flow of the fuel oil meters has been stepped up from 18 to 30 gallons per minute, therefore it is absolutely impossible to test, with any degree of accuracy, these meters with the usual 5 gallon test can. This is rather a bad situation as there is no check on the meters where the 100 gallon test tank is not a part of the sealer's equipment. During the past two years the Bureau has had many requests from local sealers as well as from individuals to test fuel oil and loading rack meters, which we have been unable to do because of the lack of equipment. As the expense of the 100 gallon portable testing tank is too much for the smaller towns to assume, it is becoming a great necessity for this Bureau to have one of these testing units in order to assist the sealers of the smaller towns to keep their fuel oil truck meters in accurate condition.

During the past two years I have visited the sealers in all of the sixteen counties. Most of the sealers have some special matters which need attention and it has been a pleasure to help them adjust and settle their various problems.

As usual, manufactured packed commodities, as well as the local packed, such as potatoes and beans, have been re-weighed and checked by this Bureau. During the month of November of last year most of the shippers of the peck package of potatoes were contacted in Aroostook County so that they would have enough weight in their 15 pound peck bags to allow for the shrinkage from the time of shipment until the packages got into the hands of the consumer. Last winter was the first time for a number of years when we did not receive complaints from the weight and measures officials from other states about the weight of our peck bags of potatoes.

We have had many calls to assist local sealers in the testing of heavy duty scales where the local sealer did not have enough weights to properly test the scales. We have had very satisfactory results in testing these heavy duty scales.

Each summer gasoline pumps are checked in all the sixteen counties. During the summer of 1938 two inspectors tested 3149 gasoline pumps. In 1939 with only one inspector employed 1741 gasoline pumps were checked. No large inaccuracies were found and the average error was 12 cubic inches which is rather small as there are 1155 cubic inches in the 5 gallon test can.

There are at the present time 247 Sealers of Weights and Measures who are serving in the various cities and towns of the State. In many cases one sealer is appointed to serve in several towns. The sealers are required by law to make an annual report of their work to this Bureau and a summary of their work by counties is hereby appended.

I wish to express my appreciation for your wise counsel and assistance in the administration of the duties assigned to me.

Respectfully submitted,

G. K. HEATH

Deputy State Sealer

STATE REPORT OF WEIGHTS AND MEASURES FOR THE YEAR 1938

COUNTIES	NUMBER TESTED AND SEALED											NUMBER CONDEMNED													
	Scales	Weights	Dry Measures	Liquid Measures	Yard Sticks	Gasoline Pumps	Milk Jars	Kerosene Pumps	Molasses Pumps	Taxi Meters	Measuregraphs	Vehicle Tanks	Scales	Weights	Dry Measures	Liquid Measures	Yard Sticks	Gasoline Pumps	Milk Jars	Kerosene Pumps	Molasses Pumps	Taxi Meters	Measuregraphs	Vehicle Tanks	
Androscoggin.....	569	437	0	146	8	365	8	76	9	0	0	11	10	9	0	0	0	14	0	0	0	0	0	0	0
Aroostook.....	860	897	0	116	4	529	200	146	8	0	2	1	14	12	0	15	0	17	0	6	0	0	0	0	0
Cumberland.....	2698	1303	33	118	140	1290	0	221	23	64	2	101	139	225	0	0	9	81	6	4	0	0	0	0	4
Franklin.....	293	326	0	61	2	208	12	33	7	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0
Hancock.....	548	330	26	139	29	370	196	69	6	0	0	5	5	0	0	3	0	3	0	0	0	0	0	0	0
Kennebec.....	1950	2451	130	621	190	882	0	208	46	0	21	65	33	73	5	42	8	41	0	12	1	0	3	2	
Knox.....	679	440	26	363	20	310	704	53	19	0	0	10	3	7	2	10	2	5	13	0	0	0	0	0	
Lincoln.....	409	575	0	184	15	242	640	33	7	0	0	5	2	2	0	0	0	0	0	0	0	0	0	0	0
Oxford.....	799	737	13	53	20	518	120	112	16	0	1	18	17	12	0	2	4	27	4	4	0	0	0	0	
Penobscot.....	1251	1762	24	91	18	632	661	167	48	0	11	23	7	10	0	0	0	1	2	5	1	0	0	0	
Piscataquis.....	284	200	8	21	4	179	0	4	5	0	0	0	3	4	0	0	0	1	0	0	0	0	0	0	
Sagadahoc.....	281	32	12	3	0	138	0	27	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	
Somerset.....	559	374	1	72	21	369	131	67	11	0	0	13	20	20	0	2	0	15	0	15	0	0	0	0	
Waldo.....	331	356	0	36	1	208	0	49	20	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
Washington.....	483	538	43	132	20	357	353	106	68	0	0	0	3	2	0	0	0	1	0	0	0	0	0	0	
York.....	1352	137	5	325	25	643	0	93	2	0	1	45	42	2	0	6	2	14	0	1	0	0	0	4	
Totals.....	13346	10895	321	2481	517	7240	3025	1500	295	61	41	311	300	378	7	80	25	220	25	48	2	0	3	10	

STATE REPORT OF WEIGHTS AND MEASURES FOR THE YEAR 1939

COUNTIES	NUMBER TESTED AND SEALED											NUMBER CONDEMNED													
	Scales	Weights	Dry Measures	Liquid Measures	Yard Sticks	Gasoline Pumps	Milk Jars	Kerosene Pumps	Molasses Pumps	Taxi Meters	Measuringgraphs	Vehicle Tanks	Scales	Weights	Dry Measures	Liquid Measures	Yard Sticks	Gasoline Pumps	Milk Jars	Kerosene Pumps	Molasses Pumps	Taxi Meters	Measuringgraphs	Vehicle Tanks	
Androscoggin	1427	392	6	146	6	622	0	138	10	0	0	44	17	8	0	5	0	21	0	7	0	0	0	0	0
Aroostook	923	744	0	95	29	672	247	184	24	0	2	8	28	11	0	3	0	13	0	5	0	0	0	0	0
Cumberland	2944	1087	13	258	161	1421	0	257	26	60	4	144	26	11	0	3	2	26	0	5	0	12	0	3	
Franklin	263	230	0	34	1	160	0	33	6	0	0	3	1	0	0	0	1	0	0	0	0	0	0	0	0
Hancock	529	283	33	123	29	290	263	62	8	0	0	4	3	0	0	0	5	0	0	0	0	0	0	0	0
Kennebec	1808	2618	155	441	177	798	0	217	37	0	21	72	43	93	6	30	1	50	0	7	2	2	2	2	2
Knox	711	417	18	376	30	276	631	168	11	0	0	11	8	3	0	12	1	2	17	0	7	0	0	0	0
Lincoln	397	498	1	110	11	248	12	33	5	0	0	5	1	2	0	0	0	0	0	0	0	0	0	0	0
Oxford	766	679	17	74	36	536	320	105	30	0	1	23	9	40	2	6	6	11	24	1	5	0	0	2	2
Penobscot	1436	1300	32	171	15	697	632	160	38	0	27	60	5	7	0	0	0	7	0	2	0	0	0	0	0
Piscataquis	219	292	8	22	4	143	0	22	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
Sagadahoc	294	50	0	0	0	140	0	27	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Somerset	508	376	7	61	12	359	3	69	3	0	7	2	18	14	0	2	0	12	1	3	0	0	1	0	0
Waldo	353	373	0	61	3	205	0	65	14	0	0	0	3	0	0	0	0	2	0	1	0	0	0	0	0
Washington	564	670	18	157	12	366	850	117	72	0	0	3	5	0	0	0	0	2	0	0	0	0	0	0	0
York	1129	127	0	132	30	577	0	91	2	0	5	45	45	19	0	21	0	15	0	1	0	0	0	0	0
Totals	14271	10136	308	2261	556	7510	2958	1748	298	60	67	430	212	205	8	87	10	167	42	32	7	12	3	7	

DEPARTMENT OF AGRICULTURE