

This estimate is based on the probable value of the colonies which die, and the approximate loss of crop due to the weakened condition of diseased colonies. The States in which the diseases are most prevalent are California, Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, Nebraska, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin, and it is unfortunate that these are the States in which honey production is most profitable, making the future outlook of the beekeeping industry so much the worse, unless active measures are taken to control the diseases. Furthermore, the distribution of these diseases is by no means fully known, and they are constantly spreading.

The cause of American foul brood has been found by the Department to be a specific bacterium, and enough is known of the cause and nature of European foul brood, which is also a bacterial disease, to make it possible to issue reliable recommendations concerning treatment for both diseases. Both attack the developing brood, and, as the adult bees die from old age or other causes, the colony becomes depleted, since there are not enough young bees emerging to keep up the numbers. When the colony becomes weak, bees from other colonies enter to rob the honey, and the infection is spread.

Both of these diseases can be controlled with comparative ease by the progressive beekeeper, but the chief difficulty encountered in combating these diseases is the fact that the majority of beekeepers are unaware that any such diseases exist. They, therefore, often attribute their losses to other sources, and nothing is done to prevent the spread of infection. It is, therefore, necessary in most cases to point out the existence and nature of the diseases, as well as to spread information concerning the best methods of treatment. Several States and Provinces have passed laws providing for the inspection of apiaries for disease, and the beekeepers in other States are asking for the same protection, so that careless or ignorant beekeepers can be prevented from endangering their neighbor's bees. This inspection is a benefit in the spread of information concerning disease, in so far as the inspectors can cover the territory. The United States Department of Agriculture is helping in this work by sending out publications to beekeepers in infected regions, by examining sample of brood suspected of disease, and by sending out information concerning the presence of disease, so that the beekeepers will be informed that their apiaries are in danger.

In view of the fact that these diseases are so widespread, every person interested in beekeeping should find out as soon as possible how to recognize and treat these maladies, and be on the lookout for them. A publication containing a discussion of the nature of these diseases, and their treatment, will be sent on request to the United States Department of Agriculture. It is possible there might be a small charge to Canadian addresses, though as to this we are not officially advised.

GARDEN & ORCHARD.

Points from Quebec Fruit-growers' Convention.

The President of the Quebec Pomological and Fruit-growing Society, in his annual address, at the recent meeting of the Society, referred to the hail storm which passed over certain fruit sections during the last week of July, doing great damage, especially in Abbotsford, where the crop was ruined completely and the trees practically defoliated. The result has been a late wood-growth, and, if the winter is severe, much injury may still result. He urged the growers to spend more time in their orchard. Bearing orchards should have at least \$30 worth of attention paid to them each year, per acre. Feed the trees more, spray more, cultivate more, and more dollars will come in. The reason why so many small apples are grown is because the trees are starved. He stated that, with few exceptions, little thorough spraying was done. The past season was bad for spot, and only the persistent sprayer got good fruit. He advocated the application of at least one lime-sulphur spray, just before the buds open in the spring, of a strength of 1 to 10.

He thought the Association should ask the Local Government to do some practical orchard tests to show the growers in many sections the advantage of adopting up-to-date methods in growing their fruits. The time was coming when we would be faced by keen competition, and, unless the growers adopted better methods, they could not hope to hold their market. He represented that it costs \$200 per acre to develop an orchard to ten years of age, but that this cost did not represent a large cash outlay to the farmer. At the end of ten years, for the following five years a 10 per cent interest could be expected on this investment, and thereafter a 20 per cent interest is easily possible.

He pointed out that, as Montreal would likely

hold a large exhibition in the near future, the wisdom of this association taking in hand at an early date the putting up of a large show there. He also advocated that efforts be put forward to hold the second Canadian National Apple Show at Montreal next fall.

E. A. Buzzell, Abbotsford, read a timely paper on the importance of bees to the orchardist, and attributed much of the present shortage in crop to the fact that not more than one hive is found in the Province to 10 ten years ago. He also thought that a law should be passed prohibiting the spraying of trees when in bloom.

In the discussion which followed, it was pointed out that it was not advisable to spray trees at this time under any consideration, but, to make this point clear to some people, the opinion seemed to be that a law was necessary. Accordingly, a request was forwarded to the Department of Agriculture, asking that steps be taken to prevent the killing of bees in this way, and preserve, as well, for the grower his rightful crop.

L. V. Parent, Macdonald College, gave a good address on spraying, pointing out the importance of doing thorough work. He thought the growers should use more material. He advocated a rather coarse driving nozzle that would give a penetrating spray. A good man at the pump was always necessary, without which efficient work could not be done. He had found that a large tree required about five or six gallons of spray to make one good, thorough application. His observation led him to believe that the bud moth,

spot. If this is done, they would be at hand in good condition for early spring planting.

Dr. C. Gordon Hewitt interested the meeting by a talk on orchard insects. He spoke of the advisability of using lime-sulphur just before the leaves opened, which would control the apple. He also advocated a second spray just as the leaves are breaking, with the addition of arsenate of lead for the bud moth. This may be either lime-sulphur or Bordeaux. The third spray should be given soon after the blossoms have fallen, and a fourth three weeks later.

"Orchard Cultivation" was taken up by Wm. Dreher, of Macdonald College, in an excellent paper dealing especially with the advantages of cultivation, followed by cover crops the last of June. He thought the sooner the practice of taking hay out of the orchard was stopped, the better, as the crop had not proven to be a good companion for the apple tree. His paper provoked considerable discussion, showing the necessity of clear-cut demonstration by practical illustration orchards in different sections.

"Co-operation, Packing, and Selling," by Robert Brodie, and "Co-operation," by J. O. Chapais, occupied the attention of the gathering to good purpose. While little headway had been made, so far as co-operation among the fruit-growers is concerned, all agreed that the prospects were that such associations would in the near future do for Quebec what similar organization was doing for the growers in Ontario and other places.

Prince Edward Island Fruit Industry Progressing.

Considering the bad state of the roads, there was a very good attendance at the Prince Edward Island Fruit-growers' annual meeting and winter show, held in Charlottetown, December 1st and 2nd. Besides the most prominent and successful fruit-growers of the Island, the meeting was favored with the presence of Alex. McNeill, Chief of the Fruit Division, Ottawa; Dr. Hewitt, Dominion Entomologist; T. A. Peters, Dominion Fruit Inspector. The report of the officers showed the Association to be in a good position financially.

Twenty varieties of winter apples on the plates and in boxes and barrels made as fine a showing as ever was seen in Charlottetown. Prince Edward Island fruit-growers have, after a good deal of education and experimenting, succeeded in selecting a number of the best varieties of apples that suit their soil and climate, and now they are preparing to produce them in quantities sufficient to attract the attention of the fruit trade. The Co-operative Fruit Company, organized here a few years ago, is doing a great work in the fruit-growers' interests by making trial shipments to different markets. Apple-growing seems to be more popular with farmers, as several who have always had faith in the business, by giving it considerable attention, and adopting up-to-date methods of cultivation and spraying, have succeeded in making it profitable.

The judging was done by Chief McNeill, who pronounced the fruit A-1 in almost every particular. The only criticism he could make was that some varieties were a little undersized, and lacked a little in coloring.

He commented on the cleanness of the fruit, and thought it was the result of close attention at proper times.

Chief McNeill's evening address dealt largely with the important question of suitable varieties. He recommended as some of the best varieties for Prince Edward Island: Alexander, King, Stark, Gravenstein, Baxter, Wealthy, McIntosh Red and Ben Davis; the latter variety, he said, had greatly improved here of late. The Hon. John Richards, Commissioner of Agriculture, gave a short address, in which he expressed his sympathy with the objects of the Association. Dr. Hewitt, Entomologist, from the Central Experimental Farm, by his clear and forceful manner, succeeded in holding the close attention of the audience while he talked to them about the Tussock moth, giving information of its habits and the great danger it was to ornamental and fruit trees, and also how to control and check its ravages. He said that, on examining the shade trees in the city, he had found them badly infested with it, and warned the citizens that if they did not look after it closely, their beautiful shade trees would be destroyed. This was Dr. Hewitt's first visit here, and he made a good impression; farmers and fruit-growers will be pleased to have his visits oft repeated.

A quantity of apples from British Columbia, and some from Ontario, were on show, packed in boxes. In many cases they were hardly the equal of the Island fruit on the tables.

President Dewar and Secretary Ross were unanimously re-elected, and highly complimented for their excellent management of the Association's affairs the past year. W. S.

Have you read our premium announcement on page 2035 of this issue?



R. J. Messenger, B.A.

President Nova Scotia Fruit-growers' Association.

apple-worm and curculio were on the increase. He advised arsenate of lead, in preference to Paris green, and recommended 3 pounds to 40 gallons of spray.

Prof. Lochhead gave an interesting talk on the fruit spores of fruit trees, pointing out the characteristic growth of the fruiting branches. The older wood does not readily produce fruit spurs; therefore, in all fruiting plants the aim should be to renew the wood. If this is done, in place of having so much unproductive wood in the center of our trees, and all the fruit borne on the outside branches, we would have good fruiting wood throughout the whole tree.

W. T. Macoun's paper, giving the history of pear culture in the Province to date, was extremely interesting. He collected all information on that subject as contained in various reports of horticultural societies. It would appear that the variety Flemish Beauty has always been an outstanding favorite, and is considered the best pear for the Province. The Russian pears have never done well, except as stock for grafting on. The opinion seemed to prevail that, in order to lessen the liability to blight, the trees should be grown in sod. This makes strong wood, which is much less liable to attack. The best soil was thought to be a deep, well drained loam. Protection from excessive winds was also recommended.

Orchard planning and setting out was fully dealt with by Father Leopold, La Trappe. He did not think the planting of fillers advisable, owing to the fact that after these come into bearing the grower would not cut them out. He advocated the purchase of trees in the fall, and keeping them in over winter on a well-drained