

Discussing a series of spraying experiments which are being conducted by the Provincial Department of Agriculture. The object of the work is to test different spraying mixtures as they come upon the market, or, in fact, to test any mixture which is claimed to be an effective remedy against the San Jose scale. Six distinct experiments were carried on during the past season, covering the following spray mixtures, viz.: Crude oil, two different emulsions of crude oil, ordinary boiled lime-sulphur, Niagara Brand concentrated lime-sulphur, and VI. Solution.

The crude oil proved to be a very dangerous remedy. Although effective against the scale, there was great danger of destroying the trees; in fact, every tree in the experiment which was sprayed with the pure crude oil was so badly damaged that it is hardly likely that they will recover. However, when the quantity of crude oil was reduced and emulsified, the effect was much better; there was no burning of the foliage or bark, and the majority of the scale were killed, the fruit being quite free from scale when harvested in the fall.

This is, however, the result of but one year's experiments, and it will be necessary to watch the effect of the oil upon the condition of trees, in order to find out whether a continued use of the oil will have an injurious effect upon them.

Excellent results were obtained from the use of the boiled lime-sulphur, applied April 13th to apple trees badly affected with the scale. The trees and fruit were almost entirely free from such at the time of picking.

The Niagara Brand concentrated lime-sulphur mixture was applied April 29th to sixteen apple trees, nearly all of which were heavily encrusted with scale. This mixture comes already boiled. It is diluted, and applied cold. The strength used in these experiments was one gallon of lime-sulphur to eleven of water. The mixture proved very effective as a remedy for San Jose scale. A comparison of the trees sprayed with this mixture with those sprayed with the boiled lime-sulphur seems to indicate that, as far, at least, as these two experiments are concerned, the homemade and prepared mixtures are about equal.

This same mixture was tried as a summer remedy, applied June 25th, at a strength of one gallon of the mixture to 50 gallons of water. This strength seemed to have very little effect upon the young scale, which were running at that time. Applied at a strength of one gallon of the mixture to 25 gallons of water, considerable effect could be noticed; many of the young scale were killed, and there was no injury to the leaves, so far as could be seen. However, as only one tree, which had been formerly used as a check, was sprayed, they are not prepared to state anything definite regarding the summer spray.

The other proprietary mixture tested was the VI. fluid, of which a great deal has been heard during the past year. Twenty-five apple trees, badly encrusted with scale, were sprayed upon April 11th, and again upon April 13th, with the mixture, at a strength of one gallon to 100 gallons of water, this strength being recommended by the manufacturers. The results obtained from the use of this mixture were very disappointing. Several observations were taken of the trees at different times throughout the season, and at no time could any difference be distinguished in the condition of the scale upon the trees that were sprayed and those that were left unsprayed as a check.

The apples sprayed with VI. were, at the time of picking, literally covered with scale, and were worthless for any purpose. It might be that effect would be obtained if the VI. mixture were used at a much greater strength. However, according to the results obtained from the experiments conducted this year, using the strength recommended by the manufacturers, it proved worthless as a remedy for San Jose scale.

BLACKROT CANKER.

R. M. Winslow, B. S. A., representative of the Provincial Department of Agriculture in Prince Edward Co., Ont., has been doing some valuable investigational work regarding the black rot and canker. We summarize his address:

The black-rot fungus, which, by causing cankers on the tree, black rot on the fruit, and leaf-spot on the foliage, is one of the most serious diseases in Prince Edward County orchards, and is widespread and serious enough to warrant attention throughout the apple sections of the Province.

The cankers are familiar on the trunks of young trees and the limbs of matured ones as blackened and roughened dead areas on the bark. A single canker may cause the death of all that part of the tree or branch above the point of infection. Control will, in all probability, be secured by (1) cutting off or digging out and burning badly diseased branches or trees, and the prompt removal of rot-affected apples as they fall; (2) cutting out of small or medium-sized cankers on the trunks, followed by disinfection of the wound; (3) keeping the bark whole by preventing sunscald and other injuries; (4) re-heading of old trees where the upper branches are diseased, and the trunk and main branches in good condition; (5) keeping trees healthy, vigorous and clean; (6) spraying

to prevent further infection by use of Bordeaux or lime-sulphur wash, before the buds swell in spring, and Bordeaux mixture after the blossoms fall, and again ten days later.

GEORGIAN BAY DISTRICT CONDITIONS.

R. S. Mortimer, B. S. A., reporting from Collingwood, said that if one were to depend upon the statistics at hand regarding the acreage of orchards in the Georgian Bay District, information as to establishment of cold-storage plants, canning factories, evaporators, apple-butter factories and cider mills, he might conclude that this section was one of the most distinguished fruit districts of the Province. However, while there are numerous orchards, varying in extent from one to forty acres, the spirit of the fruit-growers is not what it might be; their zeal seems to have been allowed to flag. The cause was attributed, in part, at least, to the system of selling to the apple-buyers, which has resulted in reduced prices and profits. What was needed to revive the industry was a concern to handle the products, and deal honestly and fairly with the growers, and he believed they now had such a concern in the co-operative organization known as the Georgian Bay Fruit-growers, Limited. With new ideas introduced, with the stimulus and help resulting from the co-operative association, and with the natural advantages possessed by this region, the Georgian Bay District should one day be classed as one of the best fruit-growing sections of the Province, if not as the premier one.

J. H. Hare, B. S. A., of Whitby, stated that a serious difficulty in Ontario County was the black-rot canker, though it was not so bad as in Prince Edward County.

NURSERY CONTROL.

Robt. Thompson, of St. Catharines, reported for the committee on nursery control. The committee of fruit-growers, in conjunction with representatives of the nursery interest, had drawn up a draft act, to be suggested to the law-makers. It was admitted to be a compromise, but Mr. Thompson thought that its passage might lead to stricter regulations in time. The draft act proposed to license nurserymen with an annual license, and contained provisions against misnaming stock and substitution of varieties without consent of the purchaser. Clause 6 read that, "Any nurseryman, or agent of any nurseryman, shall be liable for damage in the common courts of the Province, within twelve months after the trees come into bearing, where fraud can be shown in the substitution of varieties, or sale of stock untrue to name." The proposed act also called for publication of the names of persons or firms engaged in the nursery business, by the Provincial Department of Agriculture, and suspension or cancellation of the license in event of evidence that the holder of a license had sold nursery stock contrary to the provisions of such act.

In discussion, it was objected that the stipulation that action must be entered within twelve months after the tree came into bearing should not have been included, the point being raised, in this connection, that some varieties do not invariably evince their true characteristics in the first year or two of bearing. It was also urged that the onus of proving fraud should not be imposed on the grower, but that failure to supply trees of the proper variety should be sufficient ground for reimbursement. Another speaker noted the absence of any specification as to soundness or health of the trees. However, the resolution was passed in the innocuous form, as drafted.

PACKING AND PACKAGES.

The above was the subject of a practical and pointed address by Elmer Lick, of Oshawa, who deplored the carelessness of the apple-packing gangs. On several occasions he had employed boys who had been on such gangs, and it had taken months for them to understand that an apple was something like an egg, and not to be handled like a potato or turnip. To a proper solution of the marketing problem, we must have some system that will insure the personal interest of the producer in getting his fruit to market in good condition. In their co-operative association at Oshawa there is a man who last year sold 126 barrels of apples, mostly Ben Davis, and received \$25 for them. This year he took care of his fruit, and sprayed (using arsenate of lead), and has scarcely any wormy apples, while, in the Horticultural Exhibition, in St. Lawrence Arena, he had first on barrel and first on pyramid. As to cost of packing, Mr. Lick was not sure whether it was cheaper or not to pack in a central packing house, but it was possible to pack more apples in a better way, and with less skilled labor and superintendence. We ought to have better barrels, and he preferred basswood for heads.

VENTILATION OF APPLE BARRELS.

Joseph B. Gault told of his experience in giving ventilation to the apple barrels by boring holes in the staves. In a year, four holes were bored around the edge of each barrel, and four near each end of the staves, not the heads. This year he bored two 1/2 inch holes near the edges of four of the staves, and four of each end of the on

either side of the bulge. The intervening edge of the stave was split out, leaving four such slits in each barrel. Apples shipped during warm weather in these ventilated barrels, both this year and last, arrived in the pink of condition, while fruit shipped in barrels not so ventilated did not ship nearly as well.

The use of a comparatively large package for tender fruits was recommended by Major H. L. Roberts, of Grimsby, because of the freedom from damage in shipment. The 24-quart berry crate was taken as an example for desirable size and weight. Collapsible crates were suitable, if the cost was not so high as to remove the profit from fruit-growing.

MARKETS.

Production and distribution, as the two main features of the fruit industry, and an even supply, at a reasonable price, leaving a fair profit for the grower and all who handled it, was the theme of F. G. H. Pattison, of Winona, in his discussion of markets. Too many growers did not pack properly. Travelling inspectors on duty at points of shipment were suggested. Three or four men for four months in the year would protect the public and assist the grower. The Fruit Marks Act was said to be a dead-letter, as far as basket fruit was concerned.

Of the various markets for fruit, the commission system demanded attention. Former conditions, whereby the commission man kept the bulk of the returns, and returned the balance to the grower, resulted in too many commission men.

The order-and-quotation system, carried on by local buyers, followed, and proved to be a system that brought greater returns to the producer. For a time, improved quality went with this system, but of recent years many growers had not acted fairly. The result was an arrangement whereby uniform quotations were sent out by the various order-and-quotation men.

Sales through co-operative associations, first established at Burlington, Ont., in 1883, had proved successful. Many now existed in different parts of the Province. They were doing a good work, not only in obtaining high prices, but in educating the growers in fruit culture and in packing. It also afforded a very favorable outlook for the future of the average fruit-grower, if good managers were placed in charge. The day of a large central organization, with the local associations co-operating, to control the sales, was anticipated.

The growers' side of the question was upheld by A. McNeill, Chief of the Fruit Division, Ottawa, who said that special inspectors had been at work this season, and he could assure the delegates that not ten per cent. of the product shipped could give any cause of complaint because of wrong packing, or any other defect. The Government could not be expected to look after any man's business. The policy was to watch for dishonest packing, and to warn the offender. If wrong practices continued, he was fined.

WESTERN MARKET FOR ONTARIO FRUIT.

A Western market for Ontario fruit was dealt with by J. W. Crow, B. S. A., of the Ontario Agricultural College. Figures received from Winnipeg showed that the quantities received in that city in a year were, 48 cars of strawberries, 430 cars of tomatoes, 680 cars of peaches, pears and other small fruits, 600 cars of oranges, and over 1,000 cars of apples. From Ontario, the shipments were 83,500 barrels of apples, 220 cars of tomatoes, and 73 cars of peaches, pears and cantaloupes. This showed that a market of considerable proportions had opened up in Western Canada. The increased shipments from Ontario to the West had been 50 per cent. in the last five years.

If growers were to find a continued development, they must grade, pack and ship properly. The average citizen of the Prairie Provinces was pleased with the fruit shown at Winnipeg Exhibition by the Ontario Department of Agriculture, but the complaint was that such fruit was not ordinarily placed on Winnipeg or other Western markets. If high quality and modern packing were the rule, the Westerners would buy Ontario fruit in greater quantities. Figures from Winnipeg fruit dealers indicated that 50 per cent. came from the United States, 35 per cent. from Ontario, and 15 per cent. from British Columbia. Ontario shipments, by freight, reached Winnipeg in five or six days, while from British Columbia seven days or more were required, and from the western parts of the United States considerably longer time. For express, too, the time taken showed Ontario to have the advantage.

The experience of E. D. Smith was that the Western market was developing rapidly. If plums could be placed there in good condition, and at a lower freight rate, which would permit of lower selling price, enormous quantities would be consumed. The Westerners were the best people on earth to pay a good price for fruit of high grade. Gold. He then advised those who purchased fruit on the Western markets to go slow, and have arrangements made for selling before large shipments were made. He considered