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## Development of Spraying Operations

IN no department of orchard operations has the advancement of recent years been so noticeable as in spraying. Constant progress from the small knapsack to the crude barrel pump worked by hand, and from the hand pump attached to the barrel to the various power devices of present-day use has been evident in all fruit sections. Although ridiculed by many when first taken up, spraying has become recognized by the more progressive growers as one of the elements which enter into successful orcharding. Its advantages have become so clear to the fruit men that now it holds a place along with cultivation, fertilizing, pruning and other cardinal operations on the up-to-date fruit farm.

Those who ridicule the practice of spraying are becoming fewer year by year. Now and then an unprogressive grower chances to have a good crop of fruit, although he never sprayed. This is held up by himself and a few neighbors who do nothing until forced, as a straight proof that spraying is not required. Or, perhaps, a thrifty fruit grower decides that he will spray his trees. Careful and thorough spraying at frequent intervals during the summer season is done, but when the crop is harvested he has no greater yield than a neighbor who went to no bother and no expense in carrying on spraying operations. Again the unprogressive fellow has a chance and spraying is pronounced "no good."

To the orchardist who reads and studies, however, such isolated cases are not taken into serious consideration. Because the grower's dwelling and fruit sheds are not burned each year, is that any reason why he should not insure his buildings? The same argument holds good in regard to spraying. Importations of nursery stock and fruits have resulted in the introduction into Canadian fruit sections of so many injurious insect and fungous pests, that it has come to be realized that scientific and thorough spraying each year is essential to success. It may be that weather conditions are unfavorable to the development of these enemies to fruit production for a season, and the man who sprays none may reap as great a harvest as the one who attends

to his trees regularly; but for certain returns year after year the man who sprays is the man who wins. Did any of those cranks who maintain that spraying is a useless innovation in fruit culture, ever consider that the man in his section who sprays most scientifically and most persistently, provided other essential orchard operations are given due attention, is in the front rank of the growers? He is making money and increasing his fruit plantations almost every year. Competition on the various fruit markets is becoming so keen that it does not pay to ship inferior fruit. Experience has shown that number one fruit cannot be guaranteed if the trees are not sprayed. Some may say spraying is no guarantee. However, the experiences of leading growers has proved that if it is done intelligently, the one who practises it never regrets the time and labor given to the work.

To answer the question, Does spraying pay? the experiences of some leading fruit growers may be cited. Mr. D. Johnson, president of the Forest Fruit Growers' Association, in a letter to THE CANADIAN HORTICULTURIST, said: "After almost 12 years' experience, I have great confidence in spraying. Previously my apple orchard was producing only 300 to 400 barrels a year. Although the orchard was cultivated and fertilized just as well then as it is now, the fruit would not set properly, and that which did set and come to maturity was often so defective with scab and worm as to be of little value. I determined to try spraying with Bordeaux mixture and Paris green and to give it a thorough test. So successful was the test, the orchard in a few years was producing 1,500 to 1,500 barrels a year, the greater part of which were XXX in quality. Some varieties, such as Spitzenburg and Snows, that at one time seemed beyond redemption, are producing excellent fruit perfectly free from scab or worm.

"My experience in spraying plums, pears, peaches and grapes has been equally successful, and has produced most astonishing results. Some years ago I lost the entire plum crop, with the exception of about 35 bushels, from the Black Rot. The next season I

sprayed with Bordeaux mixture, and although the Black Rot was as prevalent, I harvested over 1,000 bushels. The Black Rot fungus is always with us, but I have little difficulty in keeping it in check with the Bordeaux mixture. I use the strongest barrel pump I can get, with an elevated platform for the spray operator to stand on. I usually spend 12 to 14 weeks each season spraying."

Another illustration of the value of power spraying was evidenced during the past season in the orchard of Mr. A. C. Cummins, of Burlington. Regarding this orchard, Mr. A. B. Cutting, travelling representative of THE HORTICULTURIST, writes: "Perhaps the finest lot of Spy apples grown in this locality during the past season came from Mr. Cummins' orchard. Of the total crop the buyers say that 75 to 80 per cent. were XXX stock, and less than five per cent. culls. This is an exceptionally good record, and is due, as Mr. Cummins says, to persistent and thorough spraying. Three years ago in this orchard, when spraying was not practised, only 10 barrels of XXX apples were found in a total crop of 1,500 barrels.

"A very marked comparison of the merits of spraying vs. non-spraying was seen in this same orchard last season in the case of a single Spy tree standing in a raspberry patch where it could not be reached with the sprayer. Surrounding the raspberry patch are the trees that gave the good results mentioned. The lone, untreated specimen in the patch produced an excellent crop of Codling Moths and scabs, with little or nothing else. The single unsprayed tree was diseased and attacked by insects; the sprayed orchard, only 50 feet away, was clean."

The excellent results obtained by growers in various states of the Union were referred to by Mr. A. N. Brown, of Wyoming, Delaware, in an address at the annual convention of the Ontario Fruit Growers' Association held in Toronto last November. Mr. Brown pointed out the absolute necessity of having a first-class power outfit and only the best nozzles, so that a perfect mist would be given. He said that experience had shown the growers that