

will be desirable for him to use, but no grower can afford to omit the first application. This should be given to every peach tree on the farm even though it be just freshly set out from the nursery, for such trees are subject to leaf curl, and there is also a possibility that once in a long while a live scale may chance to be found in one of them, whether the nursery stock was grown in Ontario or in the United States.

OTHER THINGS NECESSARY

The value of spraying any kind of orchard is increased by good pruning, cultivation and fertilizing of the orchard. The pruning allows the air to circulate more freely and the sunlight to get through the branches better, consequently the leaves and fruit dry off rapidly after a rain. This drying off is unfavorable to fungus diseases, most of which thrive best where the air is stagnant and moisture abundant. The removal of all dead and dying branches and trees and burning these along with any brush heap and rubbish there may be nearby before May helps against several insects and is the best means known to keep orchards free from shot-hole borers. Cultivation if continued up to about August 1st, will destroy numerous pupae of the plum curculio and leave no good hiding place for the adults over winter. Moreover it, along with fertilizers, helps to give vigor to the trees and render them less susceptible to attack by either insects or diseases.

NO CURES KNOWN

There is not space to discuss the best methods of combating the different insects or diseases that spraying is ineffective against, but it is perhaps desirable to utter a word of warning here to growers against placing much faith in the so-called cures of peach yellows and little peach. The writer has probably given more careful thought and study to these diseases than any other man in Canada, and would welcome any remedy that would be even partially helpful. He has seen the cases that have been supposed to have been cured and believes that there is not sufficient proof yet that any diseased tree has been cured. It is even doubtful whether the substances used have helped the trees at all; at any rate, at least another year must elapse before any conclusions can be drawn. There is at present only one known way of combating these diseases, namely, to take out the diseased trees promptly, and burn them.

Phosphates promote fruitfulness and early ripening. Furthermore phosphate is far more necessary in the garden and orchard than on the average farm, and an application of phosphates every year is a step in the right direction.

Fertilizer Discussion Continued

B. Leslie Emslie, C. D. A., Toronto, Ont.

A portion of the valuable space of The Canadian Horticulturist is again solicited to allow me to comment on Dr. Dandeno's letter anent "Commercial Fertilizers," in the January issue. Dr. Dandeno repudiates my assertion that he clings to "old and discredited theories" and states that his conclusions are "the result of thirteen years of research work on soils and plants, after eight years of University training for the work." With all due regard for the value of such a training, I still maintain that the old theory of "plant excretion" in its bearing on soil fertility, which Dr. Dandeno espouses, was long ago discredited. True, it has lately been revived by one or two chemists who, it would seem, desired to obtain notoriety from the promulgation of a theory in opposition to the generally accepted one.

Dr. Dandeno refers to my "definition" of "plant food," but if he will again read my previous letter on the subject, he will find that I refrained from undertaking the definition. It is obvious that plants and animals feed differently, since the latter can only utilise elaborated food substances, whereas plants possess the faculty of building up food substances from simple inorganic compounds. Since Dr. Dandeno

likes exactitude in the statements of others, I cannot forbear a criticism of his statement as to the supply of oxygen in the soil; he says, "Now, oxygen will, under these conditions, produce a better crop, and yet it does not enter the plant at all." This statement is, to say the least, ambiguous. If a plant is deprived of oxygen all vital processes are suspended. Oxygen enters the plant through the stomata of the leaves, in the form of carbon dioxide (a compound of carbon and oxygen), and through the roots in the form of water (a compound of hydrogen and oxygen). These two compounds are manufactured into starches or sugars in the chlorophyll cells of the leaves, the product being then transported to the various parts of the plants. For the sake of exactness, it may be mentioned that the prevailing theory is that formaldehyde is first formed from the carbon dioxide and water.

In his reference to the orchard experiments conducted at the Geneva, N.Y., Experiment Station, Dr. Dandeno quotes an isolated case, which has lately received prominence, on account of the fact that the results obtained were in direct contrast to those from other similarly conducted experiments at other stations. Dr. Dandeno takes exception to my statement that "the majority of



A Well Sprayed Mann Apple Tree that Yielded Large Returns

This tree, in the orchard of R. O. Fowler, Burlington, Ont., had a spread of seventy-five feet and yielded fifteen barrels of No. 1 apples. Two barrels of fruit were blown off by the wind. Only one per cent of the fruit had worms and there was no fungus. It was sprayed with the "Maga's" Brand lime-sulphur and arsenate of lead.