

Cultural Methods in the Orchard

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Prospects for a Bumper Crop in an Essex Co., Ont. Orchard.

orchards now planted will never produce. This has been the case in the years which are past, but we trust it will not continue.

A more important question than that of production is now before us—that of marketing. Up to the present time very little has been done in this particular line. It is true that the late Mr. McNeill did perform a most valuable work for the fruit growers of Canada in preaching cooperation from one end of the Dominion to the other. The result of his mission has been the organization of large cooperative associations, scattered throughout the various provinces, which have long ago justified their existence. To-day market conditions are so unbalanced that much fruit is left unharvested, yet the cooperative associations are, in most cases, receiving a fair return for their fruit. To my mind, the first and most important step in marketing is the organization of the producers. Now the time has come for these associations to go a step farther, that is, to proclaim to the world the quality of their fruit, or, in other words, to advertise.

Government Advertising

It has often been suggested that this work should be performed by the Government, and last fall the Government expended some \$12,000 on this work, and the advertising campaign which has been carried on over the whole of Canada brought in over 25,000 letters of inquiry. Your county has already given several thousands of dollars for advertising Lambton fruit and fruit lands. I venture to say that if \$1,000 had been spent this year in advertising Lambton apples in the north-west provinces or in the large consuming centres of the east, with definite prices and the names of associations or shippers, who would supply at these prices, every barrel of apples produced in the county would have been marketed at a price of from \$2 to \$2.25 per barrel, f.o.b. shipping point.

Would it not be possible—in fact, I know last year it would have been possible—for associations to have shipped their apples direct to some large consuming centre, and, by spending a few hundred dollars in vigorous advertising, to have marketed their whole crop straight to the consumer, thereby giving our friends in the cities a chance to enjoy the fruits of our orchards at the lowest possible cost? If, for instance, associations had loaded their apples in crates, as is being done largely in the west at the present time, and had their own representatives in Quebec, Toronto, Ottawa, or Montreal, they could have sold carloads every day at \$2 per barrel. This would have returned to the grower a reasonable amount for his fruit.

IN the early days of orcharding in Ontario, the soil, rich in humus and undepleted of its natural resources, gave satisfactory crops of fruit with trees growing in sod. As time went on, with inter-cropping of hay and grain, the soil became depleted of its humus and readily available plant food, and it became more compact and less able to hold moisture, until the trees declined in vigor and productiveness.

Many of these orchards were stimulated into vigor again by breaking up the sod and adding fertilizers mostly in the form of barnyard manure and giving cultivation through the growing season. This system, although it doubled the crop in many instances, gave unsatisfactory results in some cases. It appeared to extend the growth of the tree too late in the season and retarded the ripening of the wood and the trees were unable to endure the low temperature of winter without injury. Root killing was also observed on soils uncovered with vegetation when there is very little or no snow covering.

To obtain the good results of thorough cultivation and eliminate, as far as possible, the unsatisfactory results mentioned, cultivation should cease at or near the close of the growing season of the tree and the land should be sown to some cover crop. The length of time that cultivation may be safely continued varies in different sections of the province, but a study of the growth of the tree and the temperature in winter are the two factors to be considered when deciding to cease cultivation.

The season of growth in most woody plants extends scarcely to midsummer; most, if not all, of our native trees cease growing very early in the season. This is no doubt the reason why they endure the winter so successfully. Trees that complete their growth early in the season and mature their wood and terminal bud well are said to be "determinate" in their growth, while those of the opposite habit, like some of the Japanese plums, are said to be "indeterminate." It is, of course, apparent why plants of indeterminate growth are not hardy, as a rule.

It has been observed that practically all of our hardy apple trees are quite "determinate" in

"Extract from an address at the recent annual convention of the Ontario Fruit Growers' Association.

their growth, forming their terminal bud early in June. It has also been observed that the vigorous growth of a tree can be prolonged past its normal period by excessive cultivation and fertilization.

The active normal growth of the tree is completed early in June. Then it settles down to ripen and mature the newly made tissue and store up plant food in its cells for the early forcing of leaf and flower the following spring.

In the colder sections of Ontario cultivation should cease at or about the time that normal growth is completed, say the early part of June, and the cover crop sown. For some time after this the trees receive the full benefit of the cultivation before the cover crop has made sufficient growth to take up and hold the excess moisture and liberated plant food.

The cover crop to use is best determined by the character and the richness of the soil, and the vigor of the trees in the orchard. If the trees are growing slowly and the land is in a good state of tilth, it is advisable to use a nitrogenous crop, such as red clover or vetch, with applications of fertilizer. If on the other hand the trees are making a luxuriant growth and the soil is a heavy loam, some non-nitrogenous crop should be used, such as oats, rye, buckwheat, and others.

A good combination for most soils where the clovers do not make a good stand is six to 10 pounds Dwarf Essex rape and 20 pounds of common vetch to the acre. The rape should be cut in September, when the vetch will then grow to cover the ground for winter. A cover crop in connection with cultivation is valuable in many ways. It improves the physical condition of the soil, prevents hard or clay soils from cementing or puddling, and holds the rains or snow until they have a chance to soak into the land. It prevents, also, alternate freezing and thawing of the surface, adds humus that improves the chemical and mechanical condition of the soil and renders locked up plant food available.

Some unfavorable reports have come to my notice where cabbages or rape were used as a cover crop. In other cases the results have been very satisfactory, notably in my own orchard and at the Central Experimental Farm, Ottawa.



The Power Sprayer Came as a Result of Orcharding on an Extensive Scale.

When the orchard consisted of a dozen or so apple trees to the side of the farm house even a barrel sprayer was considered superfluous. To-day with the orchard in many cases covering the whole farm and the market demanding clean fruit, the power sprayer is essential; only with it is it possible to cover an orchard in the few days that Nature allows. The power sprayer in use near St. Thomas, Ont., enables the operators to thoroughly cover large trees with the spray solution.