THE CULTIVATION AND CARE OF ORCHARDS.

SIR,—Now that affiliated societies are being organized in almost every town and village on the St. Lawrence, a few remarks and suggestions on the care of orchards for Eastern and Northern Ontario might be of interest to some. I speak more particularly of the apple orchard, as there is very little other fruit grown in this section. There is one thought ever present with the careful orchardist, what are we to do to get our trees in the best possible condition to withstand a temperature of from 25° to 30° below zero, for we all look for and rather expect such a temperature sometime during January or February, which may last from a few hours to several days.

Now such temperatures are very severe on root-cell, branch and fruit bud. First let us take into consideration the root. If we can encourage deep rooting, and thereby partly getting below the frost line, we may largely overcome the difficulty. Now, how are we to do this? First, what are the functions and duties of the root as regards the growing and life of a tree? Briefly stated, the duty of the roots are to gather certain elements in the soil, such as potash, phosphoric acid, introgen, etc., held in solution by the water of the soil, which water or solution is carried in the form of sap to the leaves of the tree, where they are combined with carbon, which the leaves absorb from the carbonic acid gas present in the air and then returns through the tree, forming new wood, roots and buds. Now to get the food elements suluble, we must get the air into the soil to cause nitrification, and how is this most thoroughly done?

First by underdraining then by careful and frequent tilling of the surface. By deep draining we cause nitrification to a greater depth and a warming up of the soil to a corrresponding depth and the roots will follow. Now by cultivating the surface frequently, keeping it soft and mellow, we cause more rapid nitrification near the surface, and when the rains come instead of running off the land it will be absorbed by it like a sponge taking up the food elements that have been freed by the air near the surface and carrying them in solution to the roots below.

If you take a sponge and fill it full of water, then place it on a piece of wire netting, and cover over thoroughly with thick cloths to prevent evaporation you will find it as damp at the end of a week or two as it would be when freshly squeezed out from the bath. Only a certain quantity, the surplus has drained away.

Under the above conditions we cause a rapid and succulent wood growth which, however, must be checked early enough in the season to allow for it to ripen. The most approved method and the one that has given me most satisfaction is to cease cultivation about July 20 to August 1st, and to sow at that time clover seed at the rate of about 20 lbs to the acre, which, besides being a valuable fertilizer, serves to draw the moisture of the soil, thereby checking the wood growth of the tree, and thus giving it a chance to ripen. A good crop of weeds is better than no crop at all, and here is a point that is of the utmost importance in this section. We must have a cover crop to catch the first snow and ice and protect the ground from the severe frosts that are apt to come before we have sufficient snow on exposed surfaces to keep the ground from freezing to a considerable depth.

In this section I cannot recommend the practice of the orchardists in Southern Ontario of plowing the orchards late in the fall, and leaving the exposed surface to the action of the frost; it has been followed by bad results here frequently.

To summarize—underdrain thoroughly, cultivate frequently until Aug. 1st. Then grow a cover crop of clover, rye, oats or buckwheat, etc., and allow it to lay on the surface through the winter, commencing cultivation again early in April or as soon as the ground can be worked.

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