HORTICULTURE

A Course in Horticulture

In the short course in horticulture that is offered by the Ontario Agricultural College, Guelph, an excellent opportunity is afforded farmers and their sons for gaining a greater knowledge of fruit growing and kindred pursuits. This course should be welcomed by all persons interested in horticulture, who have not the time to undertake a regular course of study at the college. The course begins on January 26th and ends on February 6th. There is no expense other than railway fares and board. Even these may be eliminated if advantage is taken of the offer to be found in the advertising section of this page of The Canadian Dairyman and Farming World.

No matter how well experienced a person is in the matter of growing fruits, vegetables, or ornamental plants, he can get much valuable information at this course. Practical pointers are given on planting, cultivating, fertilizing, pruning, spraying, and so forth. Make it a point to attend the course this winter and you will be pleased and benefited.

The New York Apple Canker*

Prof. W. Lochhead, Macdonald College

From many sections of the country come alarming reports of the effects of canker on apple trees. An examination of some of the orchards reveals the presence of the New York Apple Tree Canker. The cause of this canker is the "Black Rot" fungus which is commonly found on apples. Professor Paddock of the New York Experiment Station, Geneva, demonstrated satisfactorily by inoculation experiments that the Black Rot fungus is the cause of the cankers so common on the branches of the trees The first effect of the canker, after the infection occurs in the spring, is a discolored area of outer bark. These areas soon enlarge, and sometimes encircle the branches. The inner bark is killed, and there is noticeable a definite boundary to the diseased areas. After the disease has made considerable headway, the bark loosens and peels off, exposing the bare wood. Of course when apple girdling occurs, the portion of the branch beyond the canker dies. Professor Padock believes that the fungus effects an entrance through wounds or cracks. It is very probable also that inoculation occurs very frequently through the agency of sucking insects, as I have frequently observed the infection to begin from punctures in the bark, which were probably made by sucking insects. Professors Parrott and Stewart, of Geneva, have very cleverly shown that the Snowy Tree-Cricket (oecanthus niveus) may be the unconscious agent of inoculation of twigs by canker.

New York Apple Tree Canker is found more frequently on the larger limbs of well-grown trees than on the smaller and younger limbs of young trees. Moreover, thrifty trees are more resistant than weak and neglected ones. On the bark killed by this canker spore bodies termed pycnidia, are frequently observed in autumn and winter. The mycelium of germinating spores from these pycnidia cannot effect an entrance to the cambium through the living tissue, but can find an entrance through wounds. Paddock believes that in some cases the mycelium may live over winter in the bark, for he cannot otherwise account for the formation of the largest cankers. Paddock recommends in the line of prevention of canker, that trees should not be crowded, and that they be pruned so as to admit sunshine and air.

To sun-scald and sun-burn were previously ascribed such injuries to twigs. It is very likely, however, that the injuries due to sun-scald have been exaggerated, although it is undoubtedly true that trees suffer from this cause to some extent. The sun-scald areas are usually quite characteristic. They run longitudinally, and are usually found on the south and south-west sides of the limbs.

The treatment which has been recommended for the control of this canker is:

(1) To collect and destroy diseased fruit, which usually accumulates on the trees in orchards. These, however, often contain the spores of the Black Rot fungus, by means of which the cankers are inoculated in the spring. The destruction of such diseased fruits will greatly diminish the liability of infection of the limbs.

(2) To scrape the cankered areas on the limbs and to paint these areas with disinfectant, such as copper sulphate, and to coat it with tar or paint.

(3) To cut off the smaller cankered branches wherever possible, and to burn them.

(4) To spray with Bordeaux mixture. Observations in New York have shown fairly conclusively that cankers are most abundant in those orchards that are not sprayed with Bordeaux. Applications of Bordeaux made year after year apear to have a cumulative effect in keeping down all kinds of fungous diseases.

*Read at the last convention of the Ontario Fruit Growers' Association in Toronto.

Cultivation of Orchards

"The Cultivation of Orchards in Quebec and Eastern Ontario," was the subject of a practical address by Mr. Harold Jones, of Maitland, Ont., at the convention of the Quebec Pomological Society. The speaker stated that in most sections of the country cultivated orchards are the most profitable. This is the verdict of fruit buyers. Orchards in sod do not bear as much fruit as those under cultivation, but they suffer less from injury from cold and freezing. Mr. Jones referred to the methods adopted in his own orchards. He cultivates in spring and early summer and sows a cover crop of red clover or oats about the first of June. During the summer months, these crops do not take as much moisture from the soil as the sun and wind would were the ground left bare. When oats are sown, they are kept cut constantly so as to keep the growth green all the season. In respect to the causes of root-killing, Mr. Jones stated his theory to be that the cambium layer of the wood or the growing tissue is squeezed by the action of frost in the ground. He believed that injury is not caused directly by freezing. If this squeezing is caused three times by alternate thawing and freezing, the roots become killed.

"There are not enough young orchards set out," remarked Mr. Jones. "More of them should be found on our farms. The difficulty is that most men think that it takes too long to wait for a crop. Prepare the ground the fall before as for potatoes and have it well manured. The following spring, set out the trees and plant potatoes between them. Dig the potatoes in October. This will prevent danger of starting late growth, which happens sometimes when the inter-crop is disturbed late in season. In place of growing a cover crop, apply manure at the rate of one load to eight or ten trees." The following year, Mr. Jones plows his orchard in the spring, levels and plants a low-growing variety of corn. He cultivates to the first of July, and then sows between the corn rows 10 or 12 pounds of red clover seed an acre. The third year, the clover is cut early and the after-growth is allowed to stand. The fourth year, the sod is plowed down and the soil cultivated. The rotation is then repeated.

An interesting discussion followed Mr. Jones' paper, during which, Mr. W. T. Macoun, horticulturist of the Central Experimental Farm, Ottawa, said that the most important thing in respect to winter-killing is to have the wood of the trees perfectly ripened in autumn. When this is done they usually come through all right. "On account of the dry summer of 1908," said Mr. Macoun, "there is not enough moisture in the trees and there may be some loss this winter. Trees must not go into winter too dry. Root-killing occurs most often in dry soils, and is due also to low temperatures." Mr. N. E. Jack, of Chateauguay Basin, pointed out that air-drainage has something to do with root-killing. Trees in valleys and low places kill first. Respecting sod vs. clean cultivation, Mr. C. P. Newman, of Lachine Locks, said that the color of Fameuse, McIntosh, Wealthy and Alexander is much injured by cultivation. As these varieties are sold largely on the value of their color, it is better to grow them in sod, or at least some compromising system of culture.