

GARDEN & ORCHARD.

Commercial Culture of Red Raspberries.

A practical thesis, by L. B. Henry, Second-year Student at the Ontario Agricultural College, Guelph.

(Concluded.)

HARVESTING.

Every berry patch should have a shanty or some such place in which to put the berries as they are picked, and to let them cool off before they are finally nailed up.

One of the worst problems which many growers have to face is the securing of pickers. Where Indians can be had, they are the most satisfactory, and can be kept right on the place if the owner will build a little house for them.

There are many methods of keeping account of their work, but the most satisfactory way is by booking the boxes as they are brought in during the day, and then at night giving them tickets, which may be cashed at any time. By this method, many mistakes and difference are avoided. The usual price paid for picking is two cents per quart all through the season.

In a large patch, it is best to let the pickers take a large crate out, and when it is filled, the man in charge can carry it in and book it to the picker's credit.

Raspberries should be picked every other day, for they spoil rapidly when overripe, and, as they are a soft berry, should be on the market as soon as possible. The longer they remain after ripening, the softer, duller in color and poorer in quality they become. They should never be picked when wet either with dew or rain, as a wet berry will become mouldy, and spoil the whole box. The overseer should be very strict to have all the ripe berries picked, because when the patch is picked next the overripe berries will be a total loss, or will spoil the good berries if put in the box.

MARKETING.

In Ontario they are usually marketed in quart boxes, but in the States pint boxes are used to a large extent. These quart boxes are usually put in crates holding twenty-four, but sometimes crates holding twenty-seven, thirty-six or forty-eight, are used. The smaller crate is the most satisfactory to use.

A home market is preferable, owing to the perishable nature of the fruit, and the best prices can be obtained by shipping to your own customers, or by putting the berries through a co-operative association. During the last few years, jam factories have been contracting large quantities, and paying good prices for them.

DISEASES.

The chief disease which attacks the red raspberry is Root or Crown Gall (*Pseudomonas tumefaciens*). It is characterized by a rough, knotty growth about the stem at the surface of the ground, or on the roots below. These knots or galls have a granular appearance, and when young resemble the callous growth on a cutting. The leaves of an affected plant will curl downwards, wrinkle, and at the same time turn a reddish-green color. The fruit will ripen about its right time, but remains very small, and seemingly dried up.

The cause is not known for certain, as yet, but it is thought to be the organism *Bacterium tumefaciens*. The disease readily spreads from plant to plant, and is rather hard to control.

Treatment.—Inspect the patch at least three times a season, and take out and burn immediately all plants found to be affected.

Anthraxnose (*Gloeosporium Venetum*) is characterized at first by small purplish spots appearing on the canes; later the center becomes gray and sunken. Petioles and veins of leaves may also be affected, and the injuries are severe.

Treatment.—Pruning out and destruction of diseased canes is essential, and thorough spraying with Bordeaux may be practiced at the beginning of the season.

Orange Rust (*Gymnoconia Peckiana*) also attacks the raspberry to some extent. The orange-red color on the under surface of the infested leaves is due to the abundance of sori, by which the disease spreads. There is no hope for a plant when once attacked, and all affected plants should be removed immediately and burned.

INSECTS.

There are many insects which attack raspberries, but only two important ones. One of these is the Snowy Tree Cricket (*Decanthus nivenis*), which is a delicate, greenish-white insect, with broad, transparent wing covers. The injury is caused by the female when depositing her eggs in the autumn. Their location is shown by a long, ragged wound, and if the cane is split open, there will be found inserted in the pith a series of oblong, yellowish, cylindrical eggs about an eighth of an inch long.

Treatment.—As the eggs are laid in the autumn and do not hatch until the following spring, the cutting out and burning of the affected canes at the

regular pruning time will keep the insect in control.

The Raspberry Cane Borer, when mature, is a long horned, slender-bodied beetle, about one-half inch long. It is a deep, black color, except the prothorax, which is yellow, with generally three black spots on it. The eggs are laid in early summer, usually during June. On an injured cane we should find two rows of punctures, about one-half inch apart, with a small hole between them, in which the egg is deposited. The larvae bore down through the cane, and at some places bore through to the surface to deposit excrement.

Treatment.—As soon as the tips begin to wither, they should be cut off below the point where they are girdled. If the larva has reached the main cane, and is causing it all to die, the infested cane should be promptly cut out and burned.

In closing this thesis, I am not going to attempt to discuss the profits of red raspberry growing. The average yield is about one hundred crates per acre, but the profits vary greatly with the locality, market and management.



Apple Tree Scrapping in Prince Edward County, Ontario.

Photo by A. P. McVannel.

Re Tree Planting.

I noticed a request by the editor in an issue of "The Farmer's Advocate," requesting experience on tree-planting. The request followed a letter by correspondent who advocated leaving trees in water till sprouted. I think that is a questionable method. Some might be inclined to do as a man did here, who put the trees in running water and set out five acres, with the result that about five trees lived.

Last year we set out 200 trees in different parts of Summerland. All were set immediately upon coming from the nursery, being heeled in until we were ready to put them in. The one-year-old trees were pruned to a whip headed off about 18 inches from the ground, heading off after they were planted. All broken roots were cut back past the break. The ends of all roots were clipped off, and if any discoloration appeared, were cut back till we came to a good sound root, particularly so if they showed a pink or brown on roots that should be white. Large or two-year trees were root-pruned the same, and three branches left if three occurred in good positions. These branches were pruned back to three buds, and the tree left with as nearly 18 inches of stock above the ground as seemed advisable.

The holes were dug about 18 inches across, and as we had a compact gravel subsoil from 7 to 14 inches below the surface, we loosened that and inches below the surface. If the tree had too coarse gravel to suit, bottom of the hole had too coarse gravel to suit, we put in some surface soil, seeing that the tree was set a couple of inches deeper than in the nursery row, and packing the roots well. No water was supplied until late in the season, as the ground was well moistened.

W. M. W.

Moisture Conservation in Irrigated Country.

Editor "The Farmer's Advocate":

In the "Dry Belt" of British Columbia the moisture question is accorded its full importance. Perhaps there is no other question so vitally important to the orchardist in the Okanagan Valley as the retention of all the moisture which nature provides during the fall and winter, for in Summerland and districts south in this valley the rainfall is not over 10 inches. The spring rains amount to nothing, practically speaking.

The great friend of the orchardist is "the dust blanket." Carefully he plans his work to keep every inch of space that he can in his orchard under "the dust blanket." It has been demonstrated that with a thoroughly-worked blanket of six inches in depth, there is practically no moisture lost. With four inches there is very little, and with three and less it is noticeable, and can be calculated.

The deeper the blanket used, the more expensive it is to make and keep. The question of importance is, is it not cheaper to supply by irrigation the moisture lost through a 3 or 4-inch blanket than to pay for the extra cost of keeping up the 6-inch?

The 6-inch blanket is made by plowing, followed by the straight steel cultivator, working the orchard two ways at right angles to each other, and keeping this cultivation up every ten days, following with the straight-tooth steel harrow, which thoroughly works the surface of the soil into fine powder. Here in Summerland we have a soil best described as alluvial ash, which pulverizes very readily and is very light and porous.

The most satisfactory preparation of a blanket is made in the fall, when the land should be plowed not too deeply. The snow holds fairly well on plowed land, and when it melts is readily absorbed, very little running off unless the land is rolling. The first snows melting, dampen the plowed land, and the frosts, even though light, break it up to a great extent.

In the spring, quite a number of the orchardists put the disk harrow on first, getting on to the land the very first day it will stand to be worked, for the strong winds steal the moisture at a surprising rate, and the longer a farmer lives in the dry belt, the more carefully does he watch for the day he can get out to start the making of his blanket. Many object to using the disk among the trees, as it piles the surface too much, which hinders irrigation; while others, for the sake of the thorough pulverizing of the surface, use it, and follow with the straight steel cultivator or with a spring-tooth cultivator, then nearly always following with the straight-tooth harrow to thoroughly work the surface. Some times, if the land is in good shape, they follow with the straight-tooth harrow, not bothering to work deeper by the use of the spring or straight-tooth harrow.

Many, inexperienced, think that, because the surface is dry, and because day after day there is no rain, with the sun shining bright, and the steady western winds keeping up, that surely the trees need water; but the orchardist, with his perceptive "dust blanket," does not worry. His test is just to push aside the blanket here and there over the orchard, and so long as the ground three inches below is damp enough to suit his judgment, everything is left as it is. If there should be a shower, which, when it does come, is usually at night, he sees that the moisture is carefully tucked below the blanket by running the harrows over. If he doesn't do that, he loses not only what he has, but also keeps losing some of what he has, because, no matter how slight the rain, it will always form some crust, and even though it is very slight, the escape of moisture through it is surprising.

Some orchardists use spring plowing in order to keep the ground more open to a greater depth than it is possible to with fall plowing, as the winter moisture sets the ground more or less below the surface. The spring plowing sacrifices a great deal of moisture. But the advocate of either system has good grounds to back up his methods. The fall-plowed land looses but little moisture if harrowed and worked early. The spring-plowed land loses moisture, but gives greater feeding surface to the air influences; and just which is more valuable is perhaps hard to say.

But, no matter which method is used, the time comes when advocates of either system must supply moisture. Many are adopting the deep blanket early or for the first of the season, and using a shallower one later on, as it is cheaper to supply by irrigation the moisture that is lost than to keep up the making of the deep blanket.

Since coming into the dry belt, it seems peculiar that those in the rain districts have not, during the drouths, supplied moisture by irrigation in places where they could, at very little expense, such as in truck gardens, small-fruit patches, etc. It makes but little difference whether the water is hard or soft, so long as there is nothing injurious, such as alkali.

For the benefit of those who have not seen