GARDEN AND ORCHARD.

FRUIT FOR THE NORTH-WEST.

HOW TO PROCEED TO OBTAIN HARDY VARIETIES.

The following is the advice of Mr. Phœnix, a veteran American orchardist:

"Were I a farmer, I would plant fruit seed, take a farm paper, plant a sugar orchard, plenty of timber and sorghum, belong to a farmers' club, learn how, and teach my children how to bud and graft, if I knew anything about it; our farmers bitterly need more horticultural knowledge and skill.

"Sow apple seed very early, as soon as the ground will do to work in spring. Sown on ground well sheltered, thoroughly protected from wind, live stock, rabbits and mice. In light soil, fresh seed or new pomace can be sown in the fall, mulching just after ground freezes to keep the ground soft and moist over winter. Early in the spring take off the mulch, cover apple seed in rows or drills an inch deep, pressing the soil pretty firmly over the seed. When the seed is up, weed and hoe as with young vegetables, killing worms and insects as fast as they appear. The young seedlings the first fall should be, say, a foot high, root grafts rather taller. If the trees stand too thick, thin out to six or eight inches in the row, burying those taken up root and branch, covering roots a foot deep, treading the soil firmly on the root, and covering the ground after it freezes with six or eight inches of permanent mulch, to keep the roots from weather changes and extremes. Seedlings winter well in moist, not wet, dirt, in a cool frost-proof cellar, best in mice-proof box. Early in spring shorten roots to eight inches, and plant an inch deeper than they grew in the nursery, rows four feet apart, and six or eight inches apart in the row.

To winter seedlings, where they grow just before the ground freezes, haul up eight inches of dirt in the row just after the ground freezes, mulch all over with six inches of manure, or something that will keep in place and not harbour mice. Next spring take away mulch or dirt, then weed or hoe up to July 15. After that let the soil harden, and weeds will help check and ripen off growth perfectly before cold weather. Any late-growing tops pinch and drop off Sept. 15 Before the ground freezes the second fall, the trees, now about three feet high, should be well ridged up, say twelve inches in the row. To protect roots, mulch as in the first fall. To protect tops against snowdrifts, severe cold, rabbits and mice, set bundles of straw, hay, flax, or corn-stalks solid on each side of the row. In nurseries over winter I have never seen any protection for tree tops or bodies above ridges of dirt ploughed against the rows. But in farm nurseries I would prefer greatly to protect every fall, and so keep on the safe side. The first three or four winters from seed or graft, trees are most subject to (1) killing back in top; (2) blackheart in bodies; (3) root killing in dry freezing and thawing ground.

Against all three dangers we protect by (1) ironclad seedlings or ironclad grafts or ironclad roots; (2) cultivating early in season only, pinching off any late shoots Sept. 25, to secure perfect maturity of growth; (3) thorough fall ridging up in row; (4) thorough mulching in fall over winter; (5) thorough protection of bodies and tops while trees are young with bundles of straw or the like, as already mentioned—such protecting straw and dirt to be removed early every spring.

In three or four years from seed, trees should be five to seven feet high, and fit to transplant into the orchard. Trees got through the first three or four winters perfectly sound and healthy. Prune if you must in the spring, but an ounce of preventive nipping, pinching shaping tops just at the right time when shoots are starting, is worth a pound of compulsory after-pruning. In severe climates I much prefer low heads, commencing only a foot or two above ground. In handling trees do not expose the roots to the sun, air or frost. Keep roots always moist, and covered well under-ground with dirt trod on them.

Until North-Western nurserymen are well supplied with choice grafted winter ironclads, why not for orchard planting grow seedlings from best winter ironclad seeds? There need be no fear of having too many seedling winter ironclads from which to select future best cultivated varieties. To select out such varieties must take many years of trial.

I repeat, sow ironclad winter apple seed. The poorest farmer or lot-owner, or child of such, may grow only one seedling that in tree and fruit may excel all competitors.

Sow ironclad pear seed, or the hardiest you can get. Next to apple, nothing so needed, so promising in the West, as pears from hardy seed.

Sow hardy plum seeds, especially of our most delicious native plums. Large, luscious, beautiful native plums are grown in Northern Dakota along the line of the Northern Pacific Railroad. Let us get sprouts and seeds to try in our several localities.

Sow hardy cherry seed, including seeds of the best sorts of the hardy, late, prolific native black cherry. I have seen fruit of this of nearly twice the common size, and better in proportion.

Sow hardy grape seed, and seed of all other hardy edible fruits, of flowering shrubs and plants, to keep improving our assortment of cultivation.

In the present depressed condition of Western horticulture, whoever brings into bearing an ironclad fruit seedling is so far a public benefactor.

CAUSES OF NON-BEARING.

1. Want of proper fruit-forming food in the soil. This fruit-forming food is so small in many orchards long in bearing, that it becomes so nearly exhausted with a full crop that the tree has not strength sufficient to produce another crop the next year, the fruit buds for the crop not forming even, but when the buds form and the tree blooms it cannot perfect the fruit; so either the blossoms fall or the fruit is shed prematurely.

2. Again, when there is abundance of fruit-forming food in the soil and the tree tends to enlarge its growth of root, branches and leaves at the expense of fruit. This it may do with some varieties of apples, pears, and perhaps with other fruits, for years, until the patience of the fruit-grower is exhausted in waiting.

3. Injurious insects are sometimes destructive to the fruit crop in some localities, and some seasons more than others. The injury from insects is felt most with a light crop, or what is called non-bearing years, and usually when the fruit orchard is most neglected.

The remedy for non-productiveness must depend upon the cause.

1. If caused by lack of fruit-forming food, which we think is frequently the case with old orchards, the necessary pabulum must be supplied. Fertilizer rich in potash, phosphoric acid, soda, sulphuric and carbonic acids, should be used broadcast in the orchard, several feet from the trunk of the tree, where the extending roots will find it. Wood ashes, unleached, contains all the fruit-forming elements needed. As a substitute we use the following cheap preparation: Caustic lime slacked in a saturated solution of common salt and sulphate of potash. Apply early in the spring, at the rate of a peck to a large tree; if attainable, mix with fine charcoal. In the fall apply about one pound of ground bone.

2. If the tree tends to too great a growth of wood, and refuses to bear when in good ground, cut a trench around so as to cut off the gourmand roots about two-thirds of the distance that the branches extend. Cut the roots with a sharp instrument. Fill up the trench with surface soil in which is sprinkled the above mixture. This should be done in the autumn.

3. If insects destroy the fruit, they must be fought by destroying the fallen fruit of fruit years, and by wrapping the trunks with bandages and destroying the larvæ or by burning fire around the favourite trees.—*Ohio Farmer.*

DESTROYING CABBAGE WORMS.

Water heated to 180 degrees has been found effectual in killing cabbage worms. Where this would be too troublesome, Paris green or London purple might be used. These poisons should never be used on the cabbage, as it is impossible to be thoroughly washed before using in the kitchen. The experiment with pyrethrum is thus described by Prof. Riley: "I placed ten cabbage caterpillars (*pieris rapæ*) in two small wooden boxes, which were covered with wire gauze. In one box I dusted the least possible amount of pyrethrum, mixed with flour, in the proportion of one part of pyrethrum to two parts of flour. I sprayed those in the other box with a liquid mixture, using one teaspoonful of pyrethrum to twenty gallons of water. In five minutes all the larvæ were on their backs, nor did any of them recover A large number of caterpillars on the cabbage plants were sprinkled or dusted with pyrethrum, the proportion being the same as above. In one hour the plants were examined, and in every case the caterpillars were dead.

THE TETOFSKI APPLE.

This is one of the hardiest of the Russian apples, and well north still holds a prominent place among varieties. Some years ago it was extensively planted in Ohio, Indiana, Illinois and Missouri, but of late years comparatively few trees of this variety have been set. In Ontario, Michigan, Iowa, Wisconsin and Minnesota, it is grown as a summer or early fall apple, according to latitude. In Iowa it would seem to be especially well liked. Curiously enough, in Louisiana it seems to have been received with great satisfaction, and to have been extensively planted, probably because it is prolific, and a good early cooking apple. The curious fact, however, is that it should be reported so favourably on there, since its chief merit in the north is allowed to be contained in its hardiness. It is of Russian origin, among the most early of apples, used almost entirely in the kitchen; yellow-red in colour, and of medium size.

BEST MANURE FOR FRUIT TREES.

I prefer the manure of decayed vegetable matter to the excrement of cattle. In the latter the material that makes and supports the animal has been extracted, and the excrement or dung is not so rich on that account. If the vegetable matter be rotted and its ammonia fixed by charcoal dust, all the chemical substances are present. This rotted vegetable matter is more beneficial than the dung of cattle, quantity and quantity alike. Before I regularly manured my trees they only bore every other year. Since then they bear every year. This year—a bad one for fruit—found my manured trees full, and those not manured were barren. The drought this year was fatal to fruit; yet my manured trees had abundant moisture, and were fruitful.—*R. L. Pell* (Orchard on Hudson River, above New York).