

will do five times as much growing in the same time as those planted in a hole.

It is all very well to say that the soil and situation best suited ought to be so and so, but it seems to me that where one such favourable location exists, probably ten exist without the advantage, and my efforts have been directed to assist the ten, leaving the one with the favoured location to assist himself; moreover, the remedy for unsuitable soils is not given: farmers are told to drain, which half of them cannot afford to do, and to thoroughly work tenacious soils, which will certainly result in failure, if done during the growth of the young trees. In referring again to the productiveness of the land, the allowing the land to lie five years in fallow, without even clover, is not practicable to the ordinary farmer, or to 99 out of every 100 who plant orchards. Again, on this point, I refer the reader to my article on "Orchard Culture for the Million."

Again, as to "mulching," Mr. Duncan advises a quantity of long straw, with a little earth on it, as being well adapted for mulching. I should like him to state how many trees would escape destruction the first winter by being barked by field mice, with such a harbour for them at the foot of the tree. The plan may be safe enough in summer perhaps, but no directions are given to remove it when winter approaches, nor does it appear that Mr. Duncan ever thought of the evil.

Certainly, Mr. Duncan advises to avoid the use of the plough, and substitute the cultivator instead; but the cultivator will prove as bad, or nearly so, as the plough in destroying the roots. In pruning large limbs, Mr. Duncan is certainly in error. I can show in my orchard, where boughs of several years' growth have been removed, and the part entirely healed over within a very short time; whereas, if a small projection proportional to the size of the limb removed is left, under the idea that if it is trimmed close the rotch part will extend into the limb, it will never heal over at all. The fact is that all large pruning should be done so that the cut is made as close as possible to the tree, so that it may rapidly heal over: because if any projection is left of the limb so removed, the end dies, and the bark from the tree cannot cover the dead projecting part, until it has rotted completely away: you may as well expect your back to heal over a projecting splinter.

In my "Orchard Culture for the Million," I mention the plan of allowing the grass to grow up, and rot down where it grew, as an excellent plan. This is more particularly adapted to old worn-out orchards. Very young orchards would perhaps hardly be safe from mice; but if a small piece of tarred wire gauze were fastened round each tree, it would amply repay the cost by the certainty of saving the trees. My plan in planting the trees is to leave a slight depression, say 6 in. deep in

the centre, and about 3 feet in diameter, like a saucer, which I fill up with well and thoroughly rotted manure for the first two or three years after planting; then after heavy rains in the fall, I go over the orchard, and whilst the muck there formed is all wet and soft, tread it thoroughly down all round the tree. This effectually breaks up all mice runs and nests, and frosts soon follow which prevent fresh formation.

Report on Mr. Arnold's Hybrid Grapes.

TO THE DIRECTORS OF THE FRUIT GROWERS' ASSOCIATION OF ONTARIO.

GENTLEMEN:—Your Committee appointed to visit the grounds of Mr. Chas. Arnold, Sept. 17, 1868, and examine his seedling grapes, having fulfilled their duty, beg to report as follows:

Among Mr. Arnold's seedlings are five new varieties of grapes, which he has fruited for some years past, and which it was our special business to examine. These have been, until of late, known and referred to under the following numbers: 1, 2, 5, 8, and 16. We found that the vines of all these had suffered from the combined influences of the excessive dry season, and the attacks of a multitude of insects, the results of which were apparent in damaged foliage and an unusual deficiency in size of fruit. Growing alongside of Mr. Arnold's seedlings, were the Delaware, Diana, Allen's Hybrid, some of the best of Roger's Hybrids, besides other varieties, all in fruit. These having been subject to the same unfavourable influences, afforded an excellent means of comparison. Judging by the relative size and quality attained by these different varieties, we are of opinion that Mr. Arnold's grapes will, in better soil and situation, and under more favourable circumstances, far exceed anything they have ever shown on his own grounds. Here they have a very exposed position, and a soil scarcely generous enough to bring fruits to any high degree of perfection. It was frequently remarked by members of your committee that any variety which would stand the exposure to which they were here subject, might with safety be recommended as hardy in almost any portion of our province.

No. 1. ORANGE.—This is first in regard to size, and we regard it as superior in flavour to any of the other varieties; the berry is large, black, nearly round, with a beautiful bloom; sweet, with a sufficient amount of acid to prevent cloying, and a little of the peculiar fresh flavour of the frost grape. Flesh moderately firm, will bear chewing, yet tender, and breaking readily in the mouth, without astringency. Seed small compared with size of berry, skin thin, and will bear well chewing; bunch large and well shouldered; an excellent dessert fruit; we regard it as superior in flavour to the Delaware as grown by Mr. Arnold.

No. 2. CORNUCOPIA.—Vine much resembling the Clinton in appearance, but superior in size of berry and bunch, and greatly superior in flavour. Berry small to medium, round, black, sweet with a very agreeable sprightly flavour, reminding one somewhat of a cherry. Flesh melting with a little more acid than No. 1, with a little astringency. Seeds large, bearing nearly the same proportion to size of berry as in Clinton.

No. 5. ARCTIC.—Bunch long, not heavily shouldered. Berry medium size, round, white, with a moderately firm, but readily melting flesh, and an agreeable sprightly flavour something like that of No. 2, yet distinct. Skin thin without astringency, will bear chewing. Much superior to Allen's Hybrids, as grown by Mr. Arnold, and free from mildew.

No. 8. BRANT.—Much like No. 2 in bunch and berry. Berry about medium size, round, black, sweet, with a melting flesh and a little more of the frost grape flavour than No. 2. Skin also a little thicker, and slightly astringent. This variety ripens the earliest of any on Mr. Arnold's grounds.

No. 16. CANADA. Resembles No. 2 and 8 in appearance, but is a little later in ripening. Berry small to medium, round, black, with a moderately firm flesh, yet tender, and readily breaking up in the mouth; flavour, astringency, and skin very like No. 8. Mr. Arnold assured us that this 16 had not reached its full perfection, and that a few days more would greatly improve it.

We found all the varieties to have ripened their wood well, to be free from mildew, of moderately vigorous growth, and we believe they will prove perfectly hardy without winter protection in most, if not all parts of the Province. We cordially recommend them to the notice of all those interested in grape culture as well worthy of extensive trial, believing as we do, that under more favourable circumstances they would command, both in regard to size and flavour, higher commendations than those we now give. Mr. Bauer's recent and very careful experiments have proved them as valuable for wine as the best grapes in the best years in Europe. Should they succeed throughout our country, as we hope and believe they will, there is a great field before them.

D. W. BEADLE.

JOHN FREED.

WM. H. READ.

WM. SAUNDERS.

BEECH AND PINE SEEDS.—A correspondent wishes to know how to grow beech and pine from seed. We would recommend him to follow nature as closely as possible, and plant the beech seeds in the fall, lightly covering with earth. It is more difficult to raise seedling pines, as they are delicate and apt to be killed by too full exposure to sunshine. They should be kept in the shade. The seed should be sown in rich leaf mould.