

nothing further to be done to them—notably those which have a gravelly subsoil and those which overlay limestone rocks.

Two-year-old vines are the best to plant, and these will commence bearing in two years' time, but should not be allowed to overbear themselves, as this retards the growth of the vines. It must also be remembered that a young vine does not ripen a heavy crop so well or so early as a light one, and that almost all vines have a tendency to overbearing, and very few cultivators have sufficient nerve to remove premature grape bunches when in blossom. The greediness of the human race is proverbially opposed in these matters to the health and success of the vine.

Any one who owns a foot of land should grow grapes; it is the most interesting plant in the vegetable kingdom, and will submit to any kind of treatment if kept from extreme cold. It is believed that grape growing would be almost universal were not many people deterred from undertaking their culture simply from the fact that a certain amount of mystery has been thrown around the methods of training and pruning them. Much of this proceeds from the fact that they may be trained in any form, and if only pruned sufficiently and not in the early spring when the sap is rising, not much fear is likely to arise from a too free use of the knife. The first year, however, that vines are planted they should be allowed to make all the growth they can, and in the autumn all the new wood should be removed to about three eyes of that year's growth. The two-arm system is probably the best for amateurs to practice; these should be tied to the lower bar of the trellis the third year after planting, and the upright canes from these should be trained to the wires and pinched off as soon as they reach the top bar; these uprights should be removed in the autumn, leaving two eyes, and in the spring a shoot should be allowed to grow from the eye or bud nearest the main arm; the rest should be rubbed off almost as soon as they appear.

In pruning vines the main things to be kept in view are, firstly, to have the fruit borne on wood as near as possible to the root. Do not let the plants become what gardeners call leggy, that is, long, bare canes without fruit or leaf; and secondly, that grapes are only produced on this year's growth from one-year-old wood. It is found the vine is so easily protected from severe weather by covering it with soil that it may be grown further north than either apples, pears or cherries, and, therefore, supplies a place where a want is much felt. The right time to cover the vine is when the frost begins to harden the ground in autumn. A covering of three inches of soil will protect them through the most intense cold of the severest Canadian winters. Many people put straw or leaves over them, but from actual test I can speak strongly in favor of mother earth—it is easily obtained, and has no equal in resisting the too rapid action of the snow. This covering may be removed when warm weather sets in, in spring, from the 1st to the 15th of April. Light frosts will not hurt the vine, and they do not put out their young shoots until all danger of frost is over. The vine is easily propagated by either cuttings or layers. Cuttings take from four to five years to produce bearing vines; layers from two to three. Grape cuttings may be grown as indicated in paper No. 2, September number, where directions are given for producing young plants of the gooseberry and currant. For the multiplication of plants by layering, a long cane of the previous year's growth should be selected, and when spring opens a trench four inches deep the length of the rod should be opened, and in this it should be securely pinned down with a forked stick or wooden scewers, and as the new

shoots grow this trench may be filled up. In the autumn every upright shoot may, by dividing the original cane, be made into a separate plant. So many new varieties of grapes are now in the market, and others are still coming forward, that, perhaps, one ought to feel some diffidence in naming those most suitable for general cultivation. The following will be found both early and of good flavor:—Salem, Rogers 15, Adirondac, Delaware, Creveling and Arnold's Othello. The Barnet, which is to be distributed to the members of the Fruit Growers' Association next spring, or to any one who sends one dollar to the Secretary of that Association, at St. Catharines, by the 1st of March next, is considered to be the best out door grape in the Dominion, and if it proves as good on dissemination as it has on the grounds of the first originator, Mr. P. C. Dempsey, of Albury, it will indeed be a grand success. The Champion, though not of the first quality, is probably earlier than any of the above; and if grapes are being sold for sale, a few vines might be advantageously planted. The Adirondac, though the fruit is early and of rich flavor, is produced on slow-growing vines, and for that reason only a few should be planted, in order that disappointment may not ensue. I would plant half the ground with Salem; it is a good grower, a free bearer and a splendid red grape. Othello should hang on the vine for a touch of the frost, which much improves it. The little Delaware is well known, and has only size against its being first class.

The Season.

December 28.—Up to the time of writing we have not seen a sleigh on the road this season. Land is now being plowed; and there has hardly been frost enough to stop it up to this time. It is the mildest winter thus far ever experienced in Canada. The grass is green and growing, the fall wheat is too rank and luxuriant. In many places the roads are so bad that produce is detained on the farms, and dissatisfied humanity is crying out for frost and snow. Farmers want it to facilitate their marketing and other teaming. The merchants want it for trade and cash. We do not doubt but you will have both snow and cold before many are ready for it. Large quantities of roots have been destroyed by being kept too warm. We hear that mice are very numerous in some places this year, so look out for your fruit trees. They will do more damage than you expect. Use poison or protect your trees. Many are feeding roots at too rapid a rate to sheep and cows. An excess in their use will cause breeding stock to cast their withers.

A chemical lecturer in this county has alarmed some of our stock men that have been feeding mangels to their cows. He has told them that mangels will cause abortion. We have fed mangels liberally and never had a case that we attributed to that cause; nor had we ever heard of one. If any of our veterinary or farming correspondents have ever found any such effect on their stock we should be pleased to hear about it, as we commend the growth of mangels, and consider there is not a quarter as many grown as there should be. There has been a strong feeling among farmers to hold crops for higher prices. We would ask them to look at market quotations now and in September, and compute their profit. We have said sell; we say so still, never mind about wars or rumors of wars. That is not your business. Raise all you can, and sell as soon as it is fit to sell, is the best course for you to pursue. Clover is low, and will be low. Too large stocks were held over last year by every one that had any. The market will open low and keep low this year. There is a large quantity in the country. If you are a speculating farmer, out of debt, and have a good handsome house, well furnished, and have supplied your sons,

daughters, and those dependent on you with all the proper luxuries of life, you have your ground well planted and drained, and money to loan, you might, perhaps, continue to hold your clover for another year. You will only have a low price this, and, perhaps, no better next. Before you think of holding a crop for a year, be sure you have expended every dollar for every purpose that a person of your wealth should spend. Do not get the name of mean miser.

Our Insect Enemies—The Hessian Fly.

The most effectual way to contend with injurious insects is, doubtless, to starve them out. Wherever plant food is abundant the rapidity of their increase is almost incredible. Were farmers to cease, for a time, growing potatoes in a locality the potato bugs would soon be unknown. As with the potato bugs so it is with the Hessian fly. They swarm in our fields because they find the wheat plant prepared for the propagation of their young and supplying their required food. The starving out the fly was carried out successfully in the Genessee valley some years since. They ceased for a time growing the food for the flies and the flies were soon exterminated. Fifty years ago this pest was so destructive that no wheat could be grown within thirty miles of Philadelphia, and the only remedy seemed to be to discontinue early fall sowing. The first fortnight of October became the season for sowing fall wheat. By this simple method they overcame their insect foes. But late sowing has also its disadvantages. It is found better; were it not for this fly, that the wheat shall have attained a greater growth before winter than it can have from late sowing. Therefore, can other remedies be devised?

The Western New York Farmers' Club have been holding counsel respecting this matter, and each told the results of his own experiments in resisting the attacks of this dreaded insect. The reports from Michigan, as well as from New York, proved that the fly ravages extended over a wide extent of country. The damages were greatest wherever the wheat crop followed a wheat crop of the previous year; when sown in fallow and on bean stubble the fly was less numerous. The same remark favorably applies to wheat after rye and barley. On exhausted soils the damage appeared to be greatest.

The mildness of the season, and the consequent luxuriance of the wheat plant, was also a cause of the rapid increase of the fly.

Superphosphate has proved a partial protection to wheat against the fly. Prof. Clark had noticed two pieces of wheat in his neighborhood, one of which was dressed with phosphate and the other not. The one with phosphate was nearly free from the fly, and the other badly affected, although the phosphated one was sown four or five days before the unphosphated one. The results of other experiments with superphosphate were generally of like tendency; though in some instances little difference was observed between the plots to which phosphate had been applied and others. On the whole, the results have been so favorable that further experiments are well worth trial.

Let us note the results of late sowing—of succeeding wheat crops—of superphosphate.

A contemporary says that British India has suddenly become a great corn-exporting country. Four years ago the quantity of wheat sent abroad only reached 395,000 cwt., whilst last year in spite of the famine, it is estimated that the exports had risen to the enormous extent of 5,000,000. This is a new source of supply when the harvest in England fails.

Application will be made to the next session of the Ontario Legislature for an act to incorporate a company to build a railway, and run steamers in connection therewith on the Manitoulin Island.