

come from that quarter. It is seldom that a damaging wind comes from the south or east. In fact, to sum it up, if it is protected from the north and west, that will be all that is necessary. How to do this will depend somewhat on the lay of the land, but usually the object can be gained by leaving the wind-break along the west side and partially across the north side. Where the land is rolling, it might be necessary to have a second row, or perhaps more, in order to break the force of the wind, but this is a matter for the exercise of judgment by the planter. The question of material for the wind-break is one as to which there is no doubt a difference of opinion. There should always be a double row of trees in a wind-break, and there is nothing, perhaps, better than a mixture of maple and Norway spruce. The first row should be planted far enough apart that the limbs will slightly interlace when full grown. The second row should be eight or ten feet out from the first, and the trees planted so as to stand half way between each of the first row. The inside row may be spruce and the outside of maple, or vice versa, or they may be planted alternately in each row, as desired. This will be a matter of judgment. The hard, or sugar, maple is the most desirable for this purpose, although the soft maple has a more rapid growth; yet we would prefer the hard maple. If one wanted a quick-growing break to protect trees already in bearing, then he would have to make use of the poplars or willows; but these trees are so given to shedding their limbs, and severe winds will often whip off a lot of the small twigs, so that the ground is frequently littered about them. Their chief merit is the rapidity of their growth. In cases where this is desired. But the maple and spruce are always clean and tidy, and a thing of beauty as well as utility. We need more trees: the country is getting far too bleak, and we can see the effects of it in many ways. We want more evergreens, for they look nice and cosy in winter, and lessen the severity of the cold. We need trees about our buildings, along our lanes and cross fences. We should not grudge the time or labor it takes to get them, or the little bit of ground they occupy; they are well worth it all. But in planting shelter belts, it is well to remember that when full-grown trees occupy much more space than when young, and should be planted from forty to sixty feet away from the orchard or buildings to allow for snow drifts and over-shading.

Garden Refuse is Dangerous.

One of the most effective means of preventing the propagation of fungous diseases and insect enemies in the garden is to carefully destroy all garden refuse, either by burning or by incorporation in the manure heap. These garden pests are guided by instinct to prepare for winter conditions, and that in a place convenient to the crops upon which they live, hence the tops of potatoes, tomatoes, beans, onions, etc., are frequently made the nesting place of insects or harbor for bacterial forms of life. Nor should the cleaning up be confined to the removal of refuse. The long grass around the edges of the garden should be cut and removed, the fences examined for cocoons, and the land worked up for a crop of fall rye, or plowed up in such a manner as to expose the maximum amount of surface to the influences of frost, sun and moisture.

As to the value of cleaning up in the autumn. Dr. Halstead, of the New Jersey Station, said it was a general wonder that he was able to continue crops year after year on the same plots, especially tomatoes, one piece of land having been in this crop continuously for ten years. First, the land is kept well fed. Next, the land is kept clear of weeds, so that the plants not closely set are not robbed. Again, all decayed fruits are removed as soon as seen, thus preventing the place from becoming a propagating bed for disease germs. Then, too, the plants are frequently sprayed to keep control of leaf blights, and, finally, all the vines are removed in the autumn, and the soil sown to some cereal, as rye or oats, which makes a thick green cover for protection through the winter. "This cleaning up and covering land," he said, "after the regular crop is off is one of the points that is more than a mere hint in good gardening: it is an essential thing."

Well Pleased.

Enclosed find \$1.50 for one year's subscription to the "Farmer's Advocate" for _____, and please forward to my address the knife as premium. I have taken the "Farmer's Advocate" for a number of years, and am pleased with it.

GEORGE B. SCOTT.

Algoma, Ont., Oct. 8th, 1904.

Live stock are not made hardy by exposure. such treatment so hardens their tissues (bones and muscles) that future feeding is powerless to cause the growth it should.

Fall Care of Lawns.

Mr. Thomas E. Davis, superintendent of the Government grounds at Ottawa, offers the following advice to those who are anxious to maintain or improve the grass in their lawns:

Give the lawns plenty of permanent meadow treatment, or, otherwise, cultivation, which is no experiment, not new, and no patent on it. That is, in the autumn, before spreading on the top-dressing of manure, take a good steel-tooth harrow and a team of horses, load the harrow down with a stone secured with wire or rope—load down so the harrow will bite well into the surface, harrow and cross harrow, then diagonally. Do not be afraid; give the lawns a good tearing. Some may be of the opinion that you have gone crazy, but never mind them; they will change their opinion of the treatment the following season. The harrowing can be done the last thing in the autumn, just before spreading on the manure. I have harrowed after the manure was spread, and with good results.

A very important item in the care of lawns is feeding. Where it is a case of all-summer watering and mowing, robbing the soil, something must be done to replace what has been taken from the same. Sufficient stable manure should be procured, and soil incorporated with it so as to prevent the escape of gases and to absorb soakage. A good dressing of manure so treated may be spread on the lawns the last thing in the autumn, using a brush harrow and horse to pulverize the dressing and loosen the old grass as soon as the lawns are dry enough to work on in the spring.

Lawns properly fed, watered and treated to a liberal harrowing annually can be so maintained that there will be but a meagre chance for weeds to increase or thrive. The above treatment will apply to the eradication of most of the trouble some weeds in lawns. Keep the lawns well fed up, watered and cultivated, and weeds will not have a chance to increase or thrive. Where dandelions are troublesome, use a Daisy rake to remove the flowers, so as to prevent their ripening seed, then weed out.

How Canes and Vines are Made to Bear.

Last winter taught many a lesson. It was expensive education, but we should profit by it. To protect the larger orchard trees from severe freezing is out of the question, but the berry canes and grapevines in the colder districts can easily be laid down and covered with earth or straw. There should be more of this kind of work done. The fruit of berry canes and of the vines is a most acceptable article of diet, and the bearing plants are deserving of some especial care. Too often the canes of raspberries are set out in the edge of the garden and receive no further treatment, are never cultivated, thinned or pruned until the whole plantation becomes a tangled mass. If raspberry canes are carefully observed it will be noticed that the young wood bears the fruit, hence the necessity of cleaning out the old wood and a certain amount of the new each fall. After this is done the canes can then be laid down and held in place by a shovelful of earth until the snow falls to protect them from the frost.

With regard to the care of grapevines, E. S. Starr, writing in American Gardening, says:

"For three successive years a grapevine had dropped all its fruit from rot. The fault was in the vine, inasmuch as others of the same variety in the collection did not show the trouble; whether from inherent weakness or from defect in feeding or fault of location, it was individual. The vine was a dozen years old and trained part over a trellis and part over wire to extend the trellis arbor. Until the trouble began the vine had borne healthy fruit and good crops. Last fall it was decided to end the matter; to kill or cure, so when the leaves were off the vine was pruned carefully, and, as usual, then from ground to each furthestmost tip it was washed with whale oil soap-suds, the half pound to the gallon, the application made with a worn whisk broom. This done, the soil was hollowed out to a foot's depth at the base of the vine, and what remained of the solution poured upon the trunk below the surface and on the ground. Early in February a wash of bluestone, a teaspoonful to the gallon of water, was applied to the vine just as the soap-suds had been. The day of the application was mild and the vine was shaded from the sun by the house while the work was in progress. The vine had no other treatment. This year the grapes were harvested; the bunches were full and the quantity good. There was no rot apparent at any time. The foliage has been unusually thrifty through the year, and still hangs heavy and clean. All vines in the collection will receive this treatment this fall and next spring, the soap to clean the wood and increase the vigor, the bluestone to destroy any fungous growth and to prevent the lodgment of spores. And the trellises and posts supporting the vines will be gone over in the same fashion. Sulphate of copper (bluestone) applied in the winter when the foliage is off, in the proportion called for in the Bordeaux mixture, will clear off lichen and fungous growths. There being no foliage on the trees or shrubs, the lime of soda used in making the Bordeaux is not needed." These canes, of course, are not protected by being covered with earth or snow, but both treatments might be given where the severity of the climate demanded it.

Details of Experimental Shipment of Fruit.

With regard to the experimental shipment of fruit sent out from the Niagara district to Winnipeg, under the supervision of Prof. J. B. Reynolds, Guelph, the Professor sends the following notes from the West:

"I am pleased to be able to report that all of the fruit in our two experimental shipments arrived in prime condition. Both cars were refrigerators, and were sent by freight. The C. P. R. refrigerator car, Bohn system, from St. Catharines, contained Crawford peaches, and a few Elbertas, Bartlett pears, several varieties of grapes, Reine Calude plums, besides apples and tomatoes. The G. T. R., Hanrahan refrigerator, from Grimsby, contained, besides the above varieties, some Yellow Egg, Columbia and Grand Duke plums. For purposes of experiment, the more perishable kinds—peaches, pears and plums—were packed, some nearly mature, some firm and green. Of the peaches, those that were shipped full-sized, well colored and firm were most desirable here, having arrived in perfect condition, still firm enough to last some days, and were better flavored and presented a much more attractive appearance than those shipped under-sized and under-colored. The same is true of Bartlett pears, those reported at point of shipment as "a little too ripe for shipment" arriving here in prime market condition.

"Plums were beginning to soften, but were in good condition, those that were firm at shipping being all firm and sound here, and on the whole not more than one specimen in a basket showing any sign of decay. Grapes, of course, shipped well; the Moore's early variety only showing some loosening from the stem.

Prices all round were satisfactory, apples going 75c. to \$1.00 a bushel; pears, 75c. to \$1.10 a half bushel; plums, \$1.00 to \$1.10 per crate of 20 pounds net; grapes, \$1.40 to \$1.65 per crate of 30 pounds net; and peaches, \$1.10 to \$1.25 per box (California package).

"Altogether I attribute the success of the shipment:

- (1.) To careful selection and packing.
- (2.) To careful loading in the car, none being injured in transit.
- (3.) To good transport service, icing and despatch being properly attended to.

"Outside of these conditions, there was nothing exceptional in the circumstance, the despatch only being average time. The first car was unloaded here eight days after shipping; the second car seven days. Five days is quite possible with the present freight service, if only good connections are given. What has been done this time may be done repeatedly, with the same attention to details.

Location of Varieties in the Orchard.

In view of the recent destruction of a large part of the apple crop by heavy gales, those who are planting out new orchards should study the location of the varieties. Those that have the fault of being easily blown off should be planted in the most sheltered part of the orchard, while those that cling well to the tree should be planted around the outsides in the outside rows, and if the land is rolling, on the slopes having a western exposure. Of the varieties that are easily blown off, probably the Wealthy is the worst, but the Pewaukee, King and Blenheim Pippin are also in the same list, and will not carry their fruit to maturity if exposed to heavy gales of wind. For planting in exposed positions, there is no variety that equals the Spy. There is no apple that clings so well to the tree. Canada Red, Alexander and Ben Davis are fairly good in this respect; so the planter should try to so locate his varieties that those that are easily blown off will be protected. On level ground where there is no wind-break, the outside rows on the west and north sides should be of varieties like the Spy, that cling well, and if the other varieties are placed two or three rows back it will give them considerable advantage in the way of protection from the strong winds. This idea is worthy of attention by intending planters, as well as the question of a wind-break for the orchard. If people realized the amount of loss and damage that occurs most every year by wind storms, they would readily recognize the importance of this subject.

Export Fruit Notes.

The Dominion Fruit Inspector at Montreal writes with reference to export apples: "With the exception of Snows and a few other similar varieties the pack is coming fairly clean, and in much better condition than last year. There has been a great improvement in the barrels."

Mr. John Brown, Inspector of the Department of Agriculture at Glasgow, reports that, in connection with a recent shipment of Canadian Bartlett pears to that port: "A noticeable feature of these pears was the fact that the pears which were wrapped in paper were firmer and in much better condition than those which were bare." This tends to confirm the opinion expressed by Mr. W. A. McKinnon in his bulletin on the "Export Pear Trade" issued last year, viz., "that every pear which is shipped to Great Britain should be wrapped separately in paper."