

*you recommend root pruning in the spring?*

[R., Toronto.]

The only reason for planting them under a tree that we know of is for lack of any open ground; for, grown under a tree, the fruit will likely be small and mouldy. The gooseberry likes moist soil and plenty of manure with high cultivation.

As to pruning, it is necessary to thin out the *top* every fall or spring to nearly one-half, especially the old wood, but we see no use of root pruning.

20. Grafting.—*Please state the time for cutting scions, time for grafting, and way to make best grafting wax.*

[A. C. McDONALD, Dunlop.]

Scions grow better if cut a good while before they are wanted, because they should be in a dormant condition when used. They may be cut early in spring, or they may be cut in the autumn, and packed away in fine dry soil or sawdust until needed. It is not good to cut them when frozen.

The grafting may be performed until quite late in the spring. Indeed, a neighbour of ours was top-grafting last spring until the leaves came out, and yet succeeded.

Grafting wax is usually made by melting together equal parts of tallow, beeswax and resin; or a little more of the tallow to make it easier worked.

Another good mixture is: Linseed oil, 1 pint; beeswax, 1 pound, and resin, 6 pounds.

21. Wind-Break.—*How far from an orchard should a wind-break of Spruce or Lombardy Poplar be planted?*

[F. F.]

Mr. Thos. Beall replies:—"If spruce trees are planted at the same time as the orchard, they should be planted as far from the nearest row of trees as the rows are from each other. No injury will result for forty or fifty years. Lombardy Poplar is the worst tree I

know of for that purpose, and therefore should never be used."

[The *Catalpa Speciosa* is highly spoken of for this purpose, and is quite hardy.—Ed.]

22. Half-Standard Apples.—*Would trees branching about two feet high be better than Standards for this section?*

[H. E., Napanee.]

Yes, if you can manage the cultivation. A low head is a great protection to the trunk from the scorching rays of the sun. No doubt the best way to obtain them would be by topping off two-year-olds at the desired height.

23. Spot-Free Apples.—*Please give me a list.*

[H. E.]

Yellow Transparent, Red Astracan, Duchess of Oldenburgh, Gravenstein, Wealthy, Ribston, King, Mann, Golden Russet, and others. Of these the Transparent, Duchess, Ribston, Mann and Russet are, we believe, absolutely free.

## Scientific.

### CANADIAN PHOSPHATES.

P. G. BUCKE, OTTAWA.

The following paper is principally taken from a most exhaustive and admirable essay on the phosphate beds of the world, read by H. B. Small, Department of Agriculture, Ottawa, before the Hamilton Association last summer:—

A short review of the phosphate fields of Canada may not be uninteresting to the readers of the *Horticulturist*, especially when we consider that the above ingredient is essential to all living tissues, whether vegetable or animal. This substance is repeatedly passing through its three great changes; it is found in the soil, from which it enters into the composition of plants, from them it is absorbed into animals, and again deposited in the soil to pass