be considered a sure crop. They will yield from three to four hundred bushels per acre. The method of preparing the seed recommended above is of great importance, as many failures arise from the slow vegetation of the seed when unprepared.

The *mangold wurtzel* ranks very high as a root for feeding cattle, especially milch cows, to whose milk it communicates no disagreeable flavour. It keeps even better than the Swedish turnip, and is more valuable in spring than in autumn. Indeed, this and other beets should not be fed largely to cattle in early winter, as they contain, until they have been a few months in store, an acrid principle which is injurious. The principal varieties are the long red, long yellow, and globe orange or yellow globe. The long varieties thrive best on deep moist soils, the globe variety is more suitable for dry and shallow soils Manure as for Sweding turnips ; sow as early as possible ; prepare the seed like that of the carrot and sow by hand, but not thickly as the plants should be thinned to fourteen inches asunder. The sugar beet is very similar in its qualities to the mangold wurtzel and is more nutritive, but of smaller size.

The *parsnip* deserves culture as a farm crop, on account of its nutritive properties, and because it may be left in the ground and dug in spring when other roots are becoming scarce. Culture much the same with that of the turnip and carrot. It prefers a deep moist soil. Sow early, and prepare the seed in the same manner with carrot seed.

In conclusion, we again urge every farmer to collect every kind of suitable manure, and enlarge as far as possible his breadth of green crop, and not to content himself with potatoes and a few turnips, but to devote a large surface to turnips, carrots, and mangold wurtzels. We hope to notice in future articles, the subjects of thinning, cleaning, pulling, and storing ; and, in the mean time, shall be glad to answer any questions that may occur to our readers, or to receive any additional hints.

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Fruit Trees.

This is the season for attention to grafting and transplanting, and the best season for pruning is approaching. The following hints on these subjects may therefore be acceptable, especially to young farmers, who should, in the planting of orchards and ornamental trees, be laying the foundation of rich crops of fruit and of the future beauty of their home-steads.

In planting fruit trees it is of the first importance to have a suitable soil and exposure. The apple prefers loams, or sandy loams. The pear does well in similar soils. The plum does not object to a stiff clay, and will not grow luxuriantly in some of the lighter soils, in which the apple flourishes. The cherry, on the contrary, prefers a light dry soil. Much can be done, however, by proper drainage and manuring, to render all ordinary soils suitable to these and other fruit trees. A good exposure should be selected ; and where there is not natural shelter, belts or rows of trees should be planted on the sides exposed to the cold winds. Cherry trees suit well for this purpose ; so do spruces. The butter-nut tree has also been recommended ; and, indeed, any rapidly-growing tree, suitable to the soil, will serve the purpose. The ground should be well tilled, drained, and manured. It is folly to plant valuable trees in a poor, cold, undrained soil ; and it is folly to plant worthless or inferior trees at all, when good sorts can be procured.

Trees should be lifted with care, so as not to injure the roots ; as these are all required to nourish the tree. They should be planted with like care—spreading out the roots in a natural form, and trimming off some of the young shoots from the top. Holes for planting should be made both larger and deeper than is absolutely necessary ; and the surface-soil, with compost or rotted manure, should be turned into the bottom of the hole. If the soil be deep and dry, the tree may be set pretty deeply ; if cold and shallow, the tree should be nearer the surface. The earth should be carefully pressed around the tree ; and a little straw, or a few sods or some grass, laid on the surface, to preserve the moisture of the soil. Bones, parings of hides and horns, hair, and similar animal matters, are excellent and permanent manures for young trees. After planting, the ground should be kept clean, and regularly manured with old compost, ashes, ditch cleanings, or animal matters ; and on no account must it be allowed to become covered with a tough grass sward, especially in the case of apple trees. Trees are often seen growing in old grass sward, regularly mowed, and seldom or never manured. Such trees must eventually become unproductive and diseased. Trees extract large quantities of matter from the soil, and require plentiful manuring, especially when another crop is being taken from the same soil. Hence it is a good plan to plant orchards very open, and to cultivate and manure the ground in regular rotation ; taking care not to damage the roots unnecessarily, and not to leave the land long in grass. The apple is much benefited by frequent stirring of the soil ;—stone fruits require less of this, and are more apt to be injured by wounds inflicted on their roots.

When is is desirable to plant out trees before the ground is properly prepared, or when it cannot be tended as it requires, seedlings or slips may be planted out, instead of grafted trees ; and such of them as become strong and vigorous, may afterwards be grafted with good sorts. In like manner, farmers who have young trees of wild or inferior kinds, my have them headed down and grafted upon ;—if skilfully done, the grafts soon come into bearing. In planting, abundance of space should be left for air and light. When early produce is desired, the trees may be planted at half the proper distance apart, and each alternate tree may be forced into early bearing, by free pruning. These trees may afterwards be cut out, when they interfere with the others.

Pruning is a most important part of orchard management. Trees should be kept open, and trained symmetrically, so as not to permit the branches to interfere with each other, and to present the greatest possible surface to air and light. There are various modes of pruning, but all depend on this principle ; and wall, espalier, round, oval, or conical training may be preferred, just as one or other may appear, in the circumstances or situation, to be more or less adapted to promote access of air and light. The perfection of pruning, is to study the growth of the tree, and cut out as early as possible every twig that interferes with the intended plan, or with the symmetry of the whole. When it becomes necessary to cut out large branches, more or less permanent injury to the tree is almost unavoidable. The cutting off a large branch, is somewhat analogous to the amputation of a limb in an animal, and more or less deranges the circulation of the whole system. Large limbs should be pruned in summer ; small twigs may be freely cut in spring. Experience has shewn, that the dangers of spring pruning, in the case of considerable limbs, are much greater in stone fruits, than in apples and pears.

There has been much controversy as to the proper time of pruning. The best time for the health of the tree, the time when it can most speedily heal the wounds of the pruning knife, is just after the opening of the leaf. This is, however, usually a busy time, and earlier pruning will not injure vigorous trees if the orchardist watches their growth and annually removes the superfluous branches while still small.

Grafting is a delicate operation, but every young farmer should learn it, and in default of better teaching, the following instructions may enable him to practice it.

You require (1) *stocks*, which may be young seedlings or suckers which have been planted out in the previous year, or old trees of inferior sorts may be headed down and grafted on. (2) *Scions or grafts*, which