

simply by their own weight and that of the pulleys attached to their axles, would constantly remain in their proper positions, but rise and fall with the jarring of the implement, especially on rough ground.

To obviate these difficulties, another improvement has recently been made, viz., the friction surfaces of the front rollers are now about 2½ or 3 inches in from the outer circumference, i. e., the diameter of the roller proper is between 5 and 6 inches greater than that of the portion of it which comes against and drives the seed pulley. And again, short iron levers with heavy heads are so adjusted, one at each seed-box, that they keep the canisters invariably in their places, whatever the nature of the ground may be. We might mention that an implement constructed on this last principle took the first prizes at the Provincial, Central, and Western Fairs, last year.

Grasses and Forage Crops.

Turnip Culture.

It might reasonably be supposed that, at this time of day, argument in favor of a turnip crop, was quite unnecessary. But the public is a dull scholar, needing much and frequent instruction. The fact is patent, that comparatively few of our farmers raise this valuable root, while a still smaller number understand what they are about, so as to do it well. The majority of Canadian farmers are still innocent of a turnip field; and where such a thing is to be found, it is, in many cases, so badly cultivated that it might almost as well be wanting altogether. Nevertheless, there are those who appreciate the turnip crop, and know right well how to grow it. We are happy to believe that this class of farmers is on the increase. They are to be found chiefly in those parts of the country in which intelligent British farmers have settled. Having witnessed the excellent effects of turnip growing in their native land, they have practised it with like results in the land of their adoption, and have thus disproved the idea entertained by some, that the climate of this country is not adapted to this crop. It is remarkable to how small an extent the turnip is grown in the United States. Doubtless one great reason for this, is the prevalence of the idea just mentioned. There can be no doubt that the moist and equable climate of Britain is peculiarly favorable to this crop. Nor need it be denied, that the summer droughts to which we are liable, constitute a difficulty, perhaps the greatest we have to surmount in turnip-growing. But the success of multitudes in all parts of Canada has been so marked, that it ought completely to dissipate the idea that this climate is unsuited to the turnip. Competitions instituted by Agricultural Societies, have proved that with careful culture, in an ordinary season, from six hundred to one thousand bushels per acre can be grown, while examples are on record of even larger yields having been obtained. We remember an instance reported in this journal some years since, of a Markham farmer who grew, on six acres of land, 6840 bushels, or 1140 bushels per acre, a quantity which at ten cents per bushel—a moderate valuation—amounted to the handsome sum of 684 dollars. What some have done, others may do. It is matter of regret, not only that turnip-growing is so infrequent, but that it is so sectional. There are localities where this crop receives a fair share of attention, while there are many more, equally suitable, where it is lost sight of altogether. In view of the present state of agriculture in this country, we know of nothing so likely to promote improvement as turnip-growing. It has well high revolutionized British Agriculture. Mr J. C. Morton, a very high authority, says, "Had the turnip continued to be what it originally was, a mere garden plant, cultivated only for culinary purposes, it is no exaggeration to say that Britain would not have occupied the high position she now enjoys among the nations of the earth, whether as regards agriculture or com-

merce." Turnip growing would be as life from the dead, to our exhausted lands, and its general adoption would mark a new era in the history of Canadian agriculture.

Advantages of the Turnip Crop.

Turnips in Britain have superseded the old fashioned summer fallow, and for this reason are often called a fallow crop. What an immense gain there must be in permitting no land to be idle. Experience has shown that it is highly advantageous to raise alternately a deep-rooted plant like the turnip, and a surface-rooted crop like wheat and other grains. The deep-rooted plants draw up from the lower strata of the soil valuable nutriment, and leave a portion of it on the surface, where it can readily be reached by the shallow-rooted plants. Moreover the broad turnip leaf attracts and absorbs moisture and fertilizing material from the atmosphere, which it returns to the land along with the nutriment obtained from the sub-soil, in the form of manure. The clean and high culture necessary to this crop, rid the soil of weeds, and leaves it well mellowed, rich and in the best possible condition for a grain crop. Turnips furnish a welcome, wholesome, nourishing, green food for stock at a time of year when there is nothing else of the kind to be had. Growing stock will do better on straw and turnips, than on hay alone. The manurial value of the straw is greatly increased thus, while its decomposition is hastened by the pectic acid of the turnip. Hence to mix turnips and straw is an excellent method of feeding. It is not the least advantage of this crop, that it may be attended to after the hurry of the spring's work is over. Our season is a hurried and short one. Swede turnips do well put in in the middle or latter part of June, and the white varieties in July. We say then to all our farming readers, do not fail to put in some turnips. A small patch is better than none. Who cannot, if so minded, prepare and sow at least one acre? Should that yield but six hundred bushels, it will suffice to feed three milch cows, or other cattle, a bushel per day from the 1st. of December to the last of May. Or it will furnish half the quantity to double the number of animals. A single trial will decide any sensible farmer never again to miss the opportunity of raising this valuable root.

Soil and Preparation.

Excellent returns may be obtained from newly cleared land. On this the seed must of course be sown broadcast, the nature of the case preventing drill-culture. Loosening the soil with a drag, and harrowing in the seed with brush, constitute the whole process of putting in the crop on new land. In the case of older land, very thorough preparation is necessary. The turnip will grow in any good soil, but a mellow, well-pulverized loam suits it best. Land intended for this crop, should be deeply ploughed the previous fall, and either thoroughly cultivated, or re-ploughed in the spring. A liberal application of manure should be given. There is nothing better for this crop than common barnyard manure, which should be thrown together at least a month or six weeks before it is put on the land, as the turnip likes well-fermented dung, hot and strong, as the phrase is, among farmers and gardeners. When it can be so managed, we believe it is preferable to have a good supply of thoroughly rotted manure for this crop, and to add an artificial stimulant when the seed is drilled in. Bone-dust, super-phosphate of lime, and guano are excellent for this purpose. The land having been duly mellowed by ploughing or cultivating, ridges should be thrown up about two feet apart, and lightly flattened down by rolling, to facilitate the sowing of the seed. Some farmers advocate flat culture of the turnip, but the ridge system is certainly preferable. It provides a deeper bed of soil for the turnip root than can be had on the general level of the field; admits of stirring the soil for the destruction

of weeds before the turnip plants are well up; and facilitates the process of thinning out. It is a good plan, if there be time, to let the ridges remain a few days after they are first made, and then split them with a double mold-board plough, just before the seed is put in. By this means many weeds that have begun to grow are killed, and the soil is rendered mellow.

Seeding.

There are several varieties of the turnip. The Improved Purple-top, Skirving's, Laing's, Matson's King of Swedes, and Sharpe's Improved, are all good kinds. Skirving's turnip belongs to the tankard class, and is rather apt to grow long and very much out of the ground. Laing's is a good, firm, round turnip, but is thought by many to yield less heavily to the acre than some others. Sharpe's Improved has acquitted itself as one of the very best in turnip matches that have come off in the County of Wellington. The Yellow Aberdeen and White Globe may be sown somewhat later than the Swedes. They are useful to re-sow patches that have failed, but will not keep through the winter as the Swedes do. The quantity of seed per acre is from a pound and a-half to two pounds. It is well not to stint the seed, as it is cheap, and it is easier to thin out the plants, than to fill gaps. Sowing by hand is a tedious affair, especially when a large breadth is to be put in, and therefore it is advisable to make use of a seed-drill. This is not a costly implement, and is a great economist of time and labor.

After Culture.

No sooner is the seed fairly in the ground, than the fight with weeds begins. A great advantage will be gained over them by cultivating between and along the ridges, while the turnip plants are small, and even before they are up, it being of the greatest importance to prevent the weeds getting a start. So soon as the young plants are of sufficient size, the operation of thinning, or as it is sometimes called, "singling" them, should be performed. It is a very common mistake to defer this too long. When the plants have leaves that measure an inch across, thinning should be commenced. This is usually done with an eight or nine inch hoe, in the use of which, with a little practice, one becomes quite expert, so as to go over the ground very rapidly. But the best method, and that practised by the most intelligent agriculturists in Britain, is *hand thinning*. It is somewhat slower than thinning with the hoe, but it does not loosen and lay the young plants, and it gives opportunity to select the best and strongest ones for a crop. The way to do it is this, at every proper distance for a plant to be left, a good sized one is laid hold of with the left hand, while the right seizes and pulls out those that are unnecessary. This work is largely done in the old country, by children, so that the expense of it is trifling. Any farmer with a large family of boys and girls, will find his account in letting them do this job. Hand thinning will not dispense altogether with the use of the hoe. Soon after it has been performed, it is needful to go over the ground with the hoe, for the final extermination of all weeds. With favorable weather, the young plants now thinned and cleaned, make rapid growth, quickly covering and shading the land with their broad leaves and requiring no further attention until the close of the season.

The Turnip Fly

This insect pest is a great source of injury and loss to the turnip crop. It attacks the young plants, in the "brairding" or springing stage, deserting them when far enough advanced for the rough leaves to form. Various expedients have been resorted to, with a view of preventing the depredations of this insect. Steeping the seed in oil and afterwards dusting it with sulphur before sowing, has been found of use. Fresh lime thinly strewn along the rows of the young plants, is a still more effectual remedy.