

Budding cherries, plums, &c. may be done so soon as the terminal buds begin to form distinctly. Grape vines should be layered if it is desired to propagate from them. This is a very simple and sure method of multiplication. Bend down strong shoots of this year's growth, and bury the middle portion of them with a few inches of soil. Before winter, plenty of roots will have formed, and strong plants may thus be got. Old raspberry canes may be cut down so soon as the bearing season is over. Strawberries may, if desired, be transplanted during the period of partial rest that succeeds fruiting. They must be taken up carefully, the large leaves cut off, and the roots kept moist by planting them in mud, and keeping the surface well mulched. Insects of various kinds must still be watched for among the fruit, and, as far as possible, destroyed. The kitchen garden will need close attention this month. What with weeding, hoeing, making celery trenches, transplanting late cabbages, cauliflowers, &c., there will be enough to do. Encouraging returns now begin to be received in the shape of wholesome vegetables, and this, while it remunerates past labour, incites to further diligence. Swarming, the care of new stocks, and watching, from time to time, the condition of the bees, will necessitate daily visits to the apiary. Meantime "the little busy bee" is repaying the attention bestowed by "the sweet store she makes" during the short weeks of the fleeting summer time.

### Broad and Narrow Furrows.

THE English farmer thinks no ploughing good for any thing that is not narrow in the furrow, and straight as a line:—he expects every strip of soil to be turned fairly over, and laid closely and compactly against the preceding slice; and where the ploughing is on clover ley for fall wheat, the "presser" is used to follow the plough and "press" each succeeding furrow slice so close down on the preceding, as to leave no room for the seed to waste by falling between the furrow slices, and so being too deep to come up well, or be lost altogether. Clover ley land in England is preferred for wheat in all these kinds of rich land where the four-field system is used, viz., wheat, turnips, barley, clover, and then wheat again. In this system the land is never allowed to lie two years in clover, and the clover is generally sown before ploughing. It has first been mown for hay, then pastured; where manure is required, it is spread on the clover before ploughing, and then ploughed in. This in Britain forms an admirable tilth for wheat, but does not seem in such favour here. The reason we imagine is, that the season for sowing fall wheat is so much earlier here than in Britain. Here, if we hope for a crop, it must be sown during the first week in September. In Britain they constantly sow as late as the fifth of November, thus securing three months' more feed from the clover. The hay crop on clover land in Canada is much later. Here we use timothy and clover; there they use rye grass with the clover, and cut as soon as the clover flowers are well developed.

Clover ley land shows good ploughing (or what is called such) to much better effect than almost any other. There is sufficient adhesion in the furrow slice to hold well together, and as the land is always clear from obstruction, and "fared out," as it is called, with the utmost exactness, the field when finished shows a completeness and orderly appearance very seldom attained in Canada. The wheat being sown on the newly-turned-up ground, naturally falls from the sides of the ridge into the hollows, and to an unpracticed eye appears to have been drilled. The furrows are seldom more than nine inches wide, and oftener seven inches; and when the land is clear from couch grass or other weeds, the work is beautiful; but where couch grass is plentiful, it grows as fast nearly as the wheat. As the furrow slices are not turned completely over, but only partially so, the couch grass is only buried on one side, and

springs out between the furrow slices with great luxuriance. This must be wrong.—the couch grass where buried sufficiently deep is killed, where the blade can grow the root spreads equally fast, and the consequence is, that the wheat stubble (that is, the ground after the wheat is cut) is one mass and mat of couch roots. We must believe, reasoning from analogy, that the same land, if ploughed with the double Michigan plough, of which a cut will be seen on page No. 113 of Vol. 1. CANADA FARMER, would be infinitely better done. The double action of this plough would make far completer work, though not so sightly. The upper and forward or coulter plough skins off all the clover and couch roots, and deposits them at the bottom of the last furrow; the second mould-board or main plough brings up the lower soil free from roots and weeds, and thoroughly covers everything likely again to grow, and leaves it to rot and decay at the bottom of the furrow; so that when well done no one can tell, without turning over the soil, what the last crop was. We have seen wheat stubble (and that not cut short by any means) so completely buried by this double plough, that it was entirely covered out of sight, and no one not knowing the work of the plough would suppose it possible to have been a wheat stubble field, as it looked, with one ploughing only, more like a very clean old fallow.

The result of the English clover ley ploughing and its attendant couch cultivation, is seen next season. The couch grass has so spread and increased that when the land is followed by repeated ploughings, draggings, and harrowings, and all the roots of the grass are got to the surface, it has to be raked and hand-picked off and burnt on the ground, the couch heaps being often as close together nearly, if not quite, as to weight of crop, as an ordinary cut of a Canada grass field. After culture with turnips, and then for barley, goes a long way towards killing the remainder of the couch grass; but there is always sufficient left in the soil of all land favourable to it, to give a thorough crop the fourth year, and we cannot but in a great measure attribute this to the peculiar mode of ploughing the clover ley for wheat. Couch grass thoroughly buried 5 or 6 inches deep is killed; but where it is only half buried, it seems to delight in such cultivation, and increases with great rapidity.

If ploughing is intended not only to move the soil, but to kill the weeds which would otherwise survive, that kind of ploughing which buries the weeds deepest and most completely must be the best; and if this is the case, such ploughing as is shown off at ploughing matches, instead of meeting with reward, ought to be universally condemned. What should we say of the gardener who conducted his digging in such a manner as to leave half the weeds and grass within the influence of the air, so as to allow their roots to increase and fill the ground during the growing of the succeeding crop? We imagine he would soon be sent to the right about, and told that a hog would root up the ground better; and yet in all good ploughing (so called) this is most certainly the case. We do not for a moment mean to decry the skill which is shown at ploughing matches. Such exhibitions lead to the best results, and create a competition which must conduce to good; but we wish that farmers would look a little farther, and consider results as well as the beauty of the present process. All, so far as we ever heard, consider that good digging is the best possible mode of cultivating the soil; and if we would at all approach the result of digging, it must be by completely and thoroughly burying all that was on the surface so deeply, that there is no chance of its again growing from the same root. We know a certain roughness or means of burying the seed is absolutely necessary, but we do not think anything like so much "seed furrow," as ordinary good ploughing bears, is absolutely necessary. We are well aware that in drill husbandry one-half or one-third of the seed will often produce as heavy a yield per acre as the quantity commonly used on the old broadcast system. The reason for this is manifestly that the seed is all evenly spread over the land at an even and regular depth; whereas, in sowing broadcast on land roughly ploughed, a great deal of the seed is buried too deeply ever to come up at all, and a good deal is left so near the surface that it perishes.

Let any one try 100 grains of wheat at 1, 2, 3, 4, 5 and 6 inches in depth. The greatest number will be found to vegetate at 2 inches, the next at 3, and

so on until at 6 inches deep none will come up at all, or if any does, it will be poor, puny, light-green blades, never likely to come to good healthy stalks. Further evidence on this head can be obtained by counting the wheat plants on a square yard; you will find by the rate of plant you have that were every seed sown to grow, a peck of wheat would be sufficient for an acre. We know that some seed will be lost by birds, and some plants will be destroyed by insects; but not more than one-fourth the number of seeds sown broadcast ever come to maturity. This, however, is not the case with drilled grain.

In American ploughing, owing to our being used to newly-cleared land, where straight, even ploughing is impossible, that plough which will go over the most ground in a day is generally (perhaps too often) considered the best. The old Polly plough throws a furrow of fourteen inches wide when forced to its work; it heaves up the ground in a very rough state, requiring the drag to level it; but many will yet argue that it saves both time and labour, and produces as good a crop as the best Scotch plough which can be obtained; whilst judging from the apparent labour of the horses (for we have never seen a dynamometer used with it) it goes no harder, if so hard, as the Scotch or best English ploughs. It certainly breaks up the ground most perfectly, and does a great deal of work, though it does not do it handsomely—according to received ideas.

We do not mean to lay down the law that either the wide or narrow furrow is the best,—our object is by discussing the matter to make farmers think of what they do, and possibly place the matter in a new and different light before them.

### Agricultural Associations and Under-draining.

To the Editor of THE CANADA FARMER:

SIR,—Our Agricultural Associations could not do better than to encourage a thorough system of drainage. There are prizes given for all kinds of produce, but none for the best mode of preparing the land to grow them. It is strange, in the face of such positive proof of the benefit of draining, as is given in Great Britain and the United States, that our Societies have not evinced a more lively interest in this direction. Some may say that our country is new, and, hence, it cannot be expected, nor is it required, that we should thorough drain. Now, since our country is old enough to show improved stock, and implements of every conceivable variety, I hold that it is high time to show improved farms. And, unquestionably, the most permanent and profitable auxiliary to this end is, a thorough system of drainage. It should also be remembered that the freshness of the soil furnishes an additional reason for draining it, as, by adopting this course, we will preserve it in its original lightness, friability, and fertility, for generations.

Your issue, of June 1st, contains an excellent communication on the subject of "Spring Seeding and Drainage," in which the writer, Mr. Osborne, makes a munificent offer to a "Drainage Prize Fund."

In reference to the terms of Mr. Osborne's proposal, I am of opinion that the competitors should not be restricted to use tiles of not less than three inch bore, as tiles of this size do not constitute ten per cent of those used in thorough draining. A bore of 2 inches is sufficiently large for lateral drains, under ordinary circumstances, say, thirty feet apart, and may extend to the length of forty rods. It is useless to drain at an expense of \$25 per acre, when it can be done at effectually for from \$18 to \$20 per acre. Three inch tiles are sold at \$10 per thousand, and two inch at \$6; while a thousand of the former makes two good loads, and the same number of the latter but one, a consideration which lessens the cost materially, when the distance of carriage is great. Hence, it is obvious, that a prize offered, under the restrictions referred to, would only hinder the object which it is designed to encourage, as farmers would be deterred from draining entirely.

I would suggest, as an amendment, that a prize should be given to the farmer who invested the greatest amount of money in drainage, which should be determined by a certain fixed price, per rod, according to the size of tiles used, and depth of drain. The size of tiles should not be less than two inches, and depth of drain, as Mr. Osborne specifies, "not less than thirty inches," but this might be left to the option of the competitor, as no sane man will commit suicide for the sake of the Insurance. This course would prevent a monopoly of the fund, by any one who might be prepossessed in favour of tiles, of any particular size, regardless of cost, and would be an additional inducement to farmers to contribute to the fund.

WILLIAM WILKINSON.

Brampton.