

coming so reduced, as to be scarcely worth tilling. Who is not familiar with that condition of soil which is indicated by the expressions, "worn-out," "skinned," "hard-run," and the like? To prevent this state of things, and to recover land that has been thus injured by injudicious tillage, farmers must have recourse to root-growing. Rotation of crops is the life of successful farming, and to have a really good rotation, roots must take their turn with other produce. "Yet," says an American writer, "with all the light shed on root culture abroad, our agricultural newspapers contain every season accounts of some man's little experiment with half an acre of roots, and the wonderful profit therefrom, and to-day, any man who has two acres in roots is a wonder to his neighbours. The wisecrackers dubiously shake their heads, while Englishmen have their 300 acres of roots." This is doubtless too true of many neighbourhoods in Canada as well as in the United States; but there are large sections of the country where the truth on this subject is beginning to be thoroughly understood, and the culture of root-crops is taking its proper place in the arrangements of the farm.

Turnips, mangolds, and carrots are the leading crops of the root kind which it is desirable to grow. While the two latter are valuable products, and well deserving of the farmer's attention, the turnip is especially worthy of culture. Its hardiness, its feeding properties, the readiness with which it may be kept through the winter, and particularly the time for sowing and harvesting it, are strong recommendations of it. Spring is a very hurried season in this country; but turnips do not require to be sown until the labours of spring are finished. This gives breathing time, and affords opportunity to prepare the land thoroughly—a very necessary point. Then, again, in the Fall, which is only second to spring in the pressing nature of its duties, the pulling and housing of the turnips may be deferred until every other crop is secured. From the fact that seed-time for the turnip is late, the excuse is often made for not sowing, "My ground is all full." This is seldom strictly true. There is usually some neglected corner on the farm—a bit of summer fallow, which could soon be got ready, or some little clearance near the bush, which could easily be burnt off and cleared up for a turnip patch; or the barn-yard is far larger than necessary, the lane four times too wide, or space enough is wasted elsewhere sufficient to raise a supply of roots such as would greatly help to eke out the winter stock of hay, and keep the cattle in vastly better condition than they usually are. By bestowing attention to this matter, now that the work of the year is still prospective, we hope to prevent the land being all devoted to other things. Let every one of our readers resolve to have a good-sized and well-tilled turnip field this year. Choose the mellowest piece of ground at command, pulverize it well by repeated ploughings and harrowings, manure it thoroughly broadcast and in the row with well-rotted dung and bone-dust, obtain in time the best seed, sow it carefully, thin and hoe the plants well, and not only will the crop amply reward your toil and outlay, but the ground will be left in such a state for a succeeding crop of grain, as will make you wish your entire farm were a turnip field.

Cultivating Potatoes.

A LONG letter under the title of "Precautions in Cultivating Potatoes," has reached us from Col. E. G. O'Brien, of "The Woods," which we would gladly publish in full did our space admit. It is an able criticism on a recent article from the *Belgian Journal of Agriculture*. Col. O'Brien, as his conclusions on the whole subject, recommends—

- 1st. Planting not later than the 25th May—better by the 20th.
- 2nd. Following the known rule that "like begets like," select tubers of a full, fine growth, rejecting the smaller ones, and bearing in mind that the very large are apt to be hollow.
- 3rd. Cut the sets so as to leave two, or at most three, eyes in each, well spread, rejecting rather than retaining the crown, if it does not cut up well; selecting, if the eyes are sufficiently swelled to show it, those with large full ones.
- 4th. When cut, roll the sets in plaster.
- 5th. Change seed with a distant farmer, or country where you can.
- 6th. All other matters, not of cultivation, are matters of convenience.

Col. O'Brien thus concludes his letter:—

"That the potatoe, as a crop, has generally deteriorated must be admitted; that is to say, the yield has been generally less, and the quality of one inferior, and some of our best kinds, the 'pink-eye,' for instance, appear to be running out. But I doubt

very much whether the potatoe, as a plant, has deteriorated. I mean that there are still to be found in the country as fine potatoes as any hitherto grown. The terrible disease which has lately affected the plant, and at one time nearly exterminated it, must necessarily have left its mark, and had an injurious effect. But now that the cause of the disease is ascertained, there is reason to suppose that fair care and cultivation will not only very rapidly bring the potatoe crop up to its old standard, but with our generally better farming, to a much higher one. To obtain this end, let not the farmer run off on a wrong tack, or follow theories, calling themselves science, until he knows more about them; but rather follow that course which the practical experience of years recommends, taking the aid of science as explanatory of much that he does, as well as much that he wants, and giving valuable hints and information as to future progress, but as it comes to us commonly but half fledged, refusing it as an infallible guide until experience has tested its practical application."

Deterioration of Soils.

DR. DAUBENY, Professor of Rural Economy at Oxford, recently delivered a lecture before the Oxfordshire Farmers' Club, on "The supposed deterioration of the soil of Great Britain through the exhaustion of its vegetable mould." The Professor remarked that his attention had been drawn to this subject by the perusal of a communication in the *Times* newspaper. In this communication the impoverishment of the land, and the consequent decline and ultimate ruin of the country, were predicted from the gradual diminution and final exhaustion of its vegetable mould. A leading article was also devoted to the subject, in which, without precisely adopting the views of his correspondent, the journalist seemed to adopt the idea that the earth was becoming effete, and that the gradual decrease of vegetable mould was the chief cause of the apprehended ruin. Now this erroneous conception of the causes of the sterility of soils arises from a revival of the exploded notion that vegetable mould serves the same office to plants which vegetable food does to animals, and consequently that when that storehouse which had been filled by the debris of former generations of plants is once consumed, the crops must infallibly fall off, owing to the deficiency of the necessary provender.

Dr. Daubeny very fully discussed the nature of humus, or vegetable mould, and showed that the elements of fertility in it were originally derived from plants, and hence argued that they will be reproduced in sufficient quantity wherever vegetation is proceeding in a vigorous manner. He therefore regarded the fears as to ultimate exhaustion of the soil by drawing too freely upon the vegetable matter, as chimerical. Decline of fertility wherever apparent, has arisen from causes which are capable of removal. A recent writer on Japanese agriculture remarks that the empire of Japan covers an area about equal to Great Britain and Ireland, and that owing to the hilly nature of the ground, not more than one-half is fitted for tillage. Nevertheless its population, which is greater than that of the British Islands, is maintained exclusively by the produce of their own land, whereas Great Britain annually imports corn from other countries to the extent of many millions. This fact alone is sufficient to falsify those theories which attribute the falling off of our crops to the exhaustion of the natural humus.

In speaking of the means of restoring the materials consumed by preceding crops through the aid of manures, the Professor says:—"The soundest and most efficacious method of effecting this object is the one in use from time immemorial in China and Japan, where human excrements are employed almost exclusively for the purpose of replacing what had been removed by the crops which afford subsistence to man." He styles this "the most unfailing recipe," and contends in the strongest manner "that the only method of maintaining our land for an indefinite period in a condition of undiminished fertility is by availing ourselves of the excrementitious matters not only of cattle but also of man, and in taking advantage of the latter by not allowing that derived either from the country or the town population to run to waste."

THE PRIME PRINCIPLES OF AGRICULTURE.—1. The soil ought to be kept dry; or, in other words, free from all superfluous moisture. 2. The soil ought to be kept clean; or, in other words, free from noxious weeds. 3. The soil ought to be kept rich; or, in other words, every particle of enriching material which can be collected ought to be applied, so that the soil may be preserved in a state capable of yielding good crops.—*Frederick.*

Good Flax Crop.

We are indebted to Mr. Sheriff Treadwell for the following memorandum respecting a crop of flax raised the past season by James D. Mills, Esq., of Vankleek Hill:—

"Sowed on 1½ acre of land (loam approaching to clay) with a slight depth of black mould on the surface, well manured with compost of leached ashes and barn-yard manure, ploughed-in in the fall and ploughed again in spring, 2 bushels flax-seed (grown from the Riga seed.) The produce was 29½ bushels seed which sold for \$53 91. Of fibre—It is highly probable from the best estimates that could be had under the circumstances that there was not less than four tons—being fine and of extreme length."

Mr. Treadwell states that he has personally examined the flax straw and considers the quantity underrated at five tons. Taking it however at this moderate estimate, and supposing it to be dew-rotted by the grower, it would fetch \$50, which would make the entire yield of the acre and a-half \$103 91.

We shall be glad to chronicle other facts of a like nature.

Onions.

MR. MERZER, of Westport, a famous cultivator of the onion crop, thus describes his mode of raising onions:—

"Our mode of preparing the ground is, as early as practicable in the spring, to cart on about 20 tons of manure to the acre, having previously had it thrown into a heap, that it may be well heated, and thus kill all noxious weeds. After spreading, we plough it in, turning it under so deep that the barrow will not draw it to the surface. If it will not turn under readily, a man, following the plough, pushes it into the furrow. We next cover it thoroughly with a wooden-toothed harrow, then use the brush, leaving the ground in good order for raking, which is done with a common wooden hay-rake. We then sow from 3½ to 4 pounds of seed to the acre. When the onions are up, we commence hoeing, and the weeding follows, which is continued at regular intervals, as long as required. In September, the tops become dry and fall, when onions should be pulled and spread on the ground, separating the green ones from the dry. The latter should be raked into heaps, after a few days; for, if allowed to remain too long exposed to the sun, they will assume a dull-red color, and be liable to injury. When well cured, remove them to a building for the winter, where they should be spread upon platform, about a foot from the floor, giving them a when the weather will permit. In topping them, cut about an inch from their bulbs. Hog-manure and wood-ashes are the best fertilisers for this crop."

A little sand improves clay land.

SALT ON LAND.—It begins to be understood by those who have practiced it, that salt sown broadcast at the rate of about two bushels to the acre is a benefit. Especially is it good for wheat. Like lime it is lasting, and need not be repeated every year.

Few farmers are aware that in feeding turnips they thus more effectually rot their manure, the pectic acid of the turnip having an effect upon straw, which water alone will not dissolve. To mix turnips with straw when fed, has a still greater, a more direct effect.

AN EXAMPLE.—The *Geneva Farmer* says: A day or two since, we were on the farm of John Johnston, of Geneva, N. Y., the noble old farmer of under-draining celebrity. He remarked: 'The wheat midge never did me much damage.' For thirty years he has fed out large quantities of oil-cake, corn, &c., to cattle and sheep on his farm. He has used more or less lime and any quantity of plaster. He has raised immense crops of clover, and made it into hay, and fed it out to sheep. In this way he has made his land rich. At the same time he has tiled every field on the farm, or, we might say, every rod. He has laid over fifty miles of under-draining tile. His land is dry, rich and well cultivated, and the 'midge never did him much damage.' No wonder that he is the great American apostle of high farming.