



**Deep Cultivation.**

Twenty years ago, a prominent English Agriculturist spoke of shallow ploughing as one of the principal curses of British Agriculture, and the same writer in a recent communication to an English paper, says:—

“I am sorry to be obliged to state, that in my opinion, formed from observation, four inches (solid) is still the full average depth of the British agricultural pie-crust, in which plants are to grow whose roots would, if permitted, descend many feet.”

We question if the “agricultural pie-crust” of Canada is any deeper on an average, and though it yields a large supply of food for man and beast, let it not be forgotten that there is something *below* the crust, which is capable of adding immensely to that supply. In point of fact, nearly every farmer in the country has a *second* farm of the possession of which he lives in total ignorance,—a new farm under the old one. Farms not only lie side by side, but in layers, and if the rage for *broad acres* could be displaced by a rage for *deep acres*, the amount of soil under cultivation might soon be doubled.

The objects of ploughing are chiefly these:—to pulverize the soil so that the air can get into it, and the roots of plants find their way through it; to mingle the different portions of it as thoroughly as possible; to cover manures; to kill weeds; and to keep the surface open and fresh. By bringing fresh portions of earth to the surface, moisture is attracted from the air, and along with moisture, various fertilizing gases are absorbed. By keeping the pores of the land, so to speak, open, this process goes on more thoroughly than it can do if the surface is suffered to grow hard and stiff. Deep ploughing extends these benefits to a greater depth. It opens a larger proportion of the soil to the beneficial action of air and moisture, and furnishes a more roomy bed for plant roots, and a more spacious store-house for plant-food. It has, to some extent, the same effect as *draining*. It carries off more or less of the surface water, warms the soil, and renders it more easy of cultivation. Land thus tilled, is not so soon exhausted. The roots of grain by penetrating farther take firmer hold, and the stalks are less liable to give way and lodge. It also saves labour. It is less work to raise thirty bushels of wheat from one acre than from two of three, to say nothing of the zest and pleasure connected with getting a large instead of a small yield. Deep culture is especially important in the growth of root crops. Those who have only a four-inch “pie-crust” to operate upon, have little idea of the size to which turnips, mangolds, carrots, &c., will attain, when they have ample scope in a rich soil. The Rev Mr Smith, of Lois Weedon, one of the most noted Agriculturists of the present day, gets his rows of Swedes to “shake hands” by their leaves at five feet intervals. He ploughs back all his topsoil, and leaving thus laid bare the poor sub-soil, puts manure on it until topsoil and sub-soil are alike rich. Dr.

Dixon, of Rivenhall, once pulled up a Parsnip with a vertical root 13 feet 6 inches long, besides a further piece left by its breaking off. This was in a bank of earth 20 feet deep, that fell over loosely when excavated. The roots of strawberry plants, grape-vines, &c., have been known to descend several feet in search of food and moisture. The exposure of a cold, barren subsoil to the action of the atmosphere without the addition of manure, will, in due time, render it capable of producing a crop. How great then must be the advantage of both loosening it up and dressing it liberally with dung. Gardeners understand this. A four-inch “pie-crust” will not raise choice vegetables. Hence the land is trenched to the depth of a couple of feet, or at least double-spaded, and manure worked in at a rate that seems almost wasteful, and yet is the very best economy of land, labour and money. Why should not the farm be as deeply tilled as the garden? The reply probably is, because of the expense. This objection would lie if we were confined to slow hand labour with the spade. But the same result can be attained by the use of team and plough. These are inadmissible to gardens because of the limited space for turning and working, and also because there are trees, plants, walks, &c., that would be injured by this mode of culture. But in the open field, team and plough can get down as deeply as the spade. There are two modes by which greater depth of tillage can be attained. One is by deeper ploughing with an ordinary surface plough, and the other by the use of the subsoil plough. The surface plough driven deeper down, throws the subsoil to the top,—the subsoil plough follows in the furrow made by the other, and simply tears up and loosens the hard pan. It stirs and mixes up what is under the “pie-crust.” The change from shallow to deep ploughing must be made gradually when it is accomplished with the common plough put in more deeply, and manure sufficient to enrich what is thrown up from beneath, must be applied. An inch at a time may be taken until by successive deepening, the plough can be driven to the depth of nine or ten inches. The subsoil plough, an implement almost unknown in this country, will effect a gradual deepening of the soil without throwing the broken hardpan to the surface. By loosening the subsoil so that the air can penetrate it, and particles of manure work and wash down into it, it will soon improve and be assimilated to the topsoil. Stronger implements and heavier teams will be needed for the deeper cultivation we are urging, but the results in heavier crops will soon justify and reward the outlay. “A little farm well tilled” is better than a large one merely skimmed over, and every consideration enforces Poor Richard’s maxim:—

“*Plow deep while sluggards sleep.*”

The subject referred to in this article is of great practical importance. We have only touched upon a few of the points connected with it, but we trust the hints we have thrown out will awake thought and suggest improvement.

**Planting Potatoes.**

The question as to the best mode of planting potatoes has afforded food for much keen discussion, and the importance of the subject entitles it to the best attention of every one owning a plot of ground. As a help in the discussion, the well-known experiment of Mr L. G. Brown, a New England farmer, is very valuable. This gentleman planted eight rows, and each row had twenty hills—all occupying the same space. He weighed the seed of each row as planted, and the produce of each row at harvest. Each row was manured and cultivated in precisely the same manner. The result he reported as follows:—

	Produce.
1st row, 2 pieces in a hill, weighed 3 lbs.	- 45 lbs.
2d row, 1 whole one, “ 10 lbs.	- 83 “
3d row, 1 “ halved, “ 10 lbs.	- 77 “
4th row, 2 whole ones in each hill, 2½ lbs.	- 56 “
5th row, 3 “ small, 1½ lbs.	- 46 “
6th row, 3 “ very small, 1 lb.	- 42 “
7th row, 3 pieces, one eye in a piece, 2½ lbs.	- 48 “
8th row, 3 pieces, seed end, 46,	2 lbs. - 46 “

The result of this experiment, therefore, was decidedly in favor of seeding with large potatoes. It showed that 1 lb. of seed divided among 20 hills gave but 42 lbs. of potatoes at harvest; while 10 lbs. of seed divided among 20 hills produced 83 lbs. of crop. Let us apply these results to an acre of ground. In an acre planted as in the above experiment, there would have been 7,260 hills. To plant 7,260 hills with 1 lb. of seed to every 20 hills would take 6 bushels of potatoes, and the product would be 254 bushels; while to plant 7,260 hills with 10 lbs of seed to every 20 hills would take 60 bushels, and the return would be 502 bushels. Valued at 30 cents per bushel, the cash return would stand thus:—

Heavy planting, seeding cost \$18.00; return, \$150.00.  
Light “ “ “ 1.80; “ 76.20.

Thus the investment of \$16 20 in additional seed, produced \$73 80 of additional crop.

**Clover.**

It is an accepted axiom of English farming that if you can raise good clover crops, you can raise good crops of everything else. But the clover must be consumed on the farm. In Canada, where produce is low, capital dear, and artificial manure little used, clover is invaluable to our farmers. It cannot be too widely cultivated. It is equally valuable as green food for stock, as hay when well cured, and as an invigorating crop for the land. It is said by good authorities that at the end of the second year, the quantity of dry vegetable matter left in the form of roots, is equal to upward of one-half the weight of the whole hay which the clover has yielded. We suspect, however, that the annual increase of clover roots, after the second year, is far less than in the