

ideas of Jethro Tull, an old English agriculturist, whose methods were abandoned a hundred years ago.

Nobody denies that if the land be stirred frequently, a great quantity of fertilising matter will be set free and will be ready to fulfil its function as the purveyor of food to the plants we cultivate; but as to what the American writers say, we do not agree with them. Though we believe that a field well ploughed and well cultivated will produce during several years more abundant crops than a field whose cultivation after sowing has been neglected, we maintain that the fertilising elements of such a field would be much more rapidly exhausted than those of the latter; we maintain that a field ploughed and sown, with a slight dressing of dung and no other cultivation, will produce more abundant crops than a field, however good the cultivation after sowing may have been, but to which no manure has been given; but, to make the said field yield the most prolific crops possible, we maintain that it must unite the three desired qualities, that is, that it must have been well ploughed, well cultivated, and well manured.

Now there are two modes of insuring the perfect cultivation of the soil: the summer-fallow, and the growing of hoed-crops. The summer-fallow is almost unknown here; but, in England, the heavy-land farmers, especially when their farms are distant from large towns, are *obliged* to allow their lands to lie fallow every 5 to 6 years. Let me say, in passing, that the English heavy-land is incredibly heavy: four horses—and big horses, too—can with difficulty break up $\frac{1}{2}$ of an acre—nearly an *arpent* a day. To make a good fallow, the field must be ploughed, harrowed, rolled, grubbed, tormented in every way, and all this during a whole summer, so that the field which has borne a crop of wheat remains entirely unproductive for a whole year. Fallows are a great expense to English farmers, but where root-crops cannot be grown they must be made.

Fortunately for us, there are hardly any farms in the province of Quebec where roots and the other hoed-crops cannot be produced. The principal aim in cultivating them is to make the land yield an abundant provision for the stock, and, at the same time, to prepare the soil for the crops of grain, grass, and leguminous plants which are to succeed the hoed-crops in the intended rotation. And this is the reason why the rotation should

always begin with the member containing plants sown in rows, or, as we call them, fallow-crops.

The following is the method of treating heavy-land:

The last crop, as was said just now, was a grain-crop, the last of the rotation, and if there be any couch-grass (*Chiendent*), or any other root-weed, it must be cradicated. In England, this is the most important of all our operations. Directly the grain is carried, and sometimes even while the shocks are in the field, the grubber, or cultivator, is sent along and across the piece, the harrow and roller pulverise the grubbed surface, and the horse-rake collects the grass and root weeds into rows: this rubbish is burnt, or, preferably, carted to the corner of the field, to form the bottom of the future mixen. *Even in England*, the sun is sometimes very powerful in August and the early part of September, and we have often seen the couch-grass and other weeds so completely dried up after their exposure for a couple of days to the air at that season, that all danger of their growing anew was dissipated.

Towards the end of October, the fall-ploughing is given. Where the land has been well farmed and is not in bad condition, the furrow may be made as deep as the horses can draw the plough. As a rule, we would not bring up from the bottom-soil too much at once—say two inches. Still we must not forget the enormous pulverising effect of the frost in this climate. The descent of some of the particles of former manurings into the subsoil may have mitigated its crudities, so as to render it less hostile to the penetration of the rootlets of the future crop, especially if the heavy dunging, which we must give the land if we intend to raise a paying crop of mangels or other roots, be considered.

If we were to lay down anything so dangerous as an absolute rule, as to ploughing, we should say: always plough deeply in autumn for a root-crop, but never go below the former furrow when ploughing for a grain or a leguminous crop.

On heavy-land, not subject to spring-floods, the easiest way of growing mangels and swedes is to turn the dung down in autumn, with a ploughing done after the deep fall-furrow, and to sow in spring *on the flat*. When sowing in this way, we have only to grub, harrow, and roll, until the annual weeds are destroyed, and then sow the seed, in rows of about 24 inches apart, with the Matthews or Planet Jr. seed-barrow. We recom-