

raising this crop were those on the Island of Montreal, many of whom continue to grow them for their cows.

Such are the outlines of the rise and fall of the beet-root sugar boom in the Province of Quebec. Not only was it unsuccessful itself, but its failure has prevented the industry taking root in our land, which, on the whole, is much better suited for it physically than are many of the European countries where it now flourishes.

If tried again it should be on sound business principles, and the factory, for one is enough to start with, should be located among farmers able and willing to give to the cultivation of the root the intelligent care which it merits.

This industry was also tried in Maine in 1878, but the company suffered considerable loss at the outset, and just as the farmers were getting into the way of growing the beets it had to succumb.

The first season only about 1,000 tons of beets were obtained, which, of course, would not pay expenses. The second year, instead of following the plan adopted in Europe, the company thought they could improve on it a little, and built an oven at a great expense (\$5,000), which was to dry 25 tons of sliced beets per day, but in actual practice it was only able to dry about 7 tons per day, and the cost of working was \$6.50 per ton. This drying process was not new, but had been tried and abandoned as unprofitable. Some of the farmers were very successful in growing the beets, which were of good quality, and the industry would have gone on all right if the company had had sense enough to keep to the system so successfully followed in Europe. There is no use trying to establish such an industry as this without being thoroughly conversant with all the details.

#### Fitting Turf Ground for Potatoes.

In one of your issues a writer asked how to plant a piece of turf land to the best advantage with potatoes, says a correspondent of the Country Gentleman. As I have seen no practical answer, I will give the results of my experience. Let the man plow his turf ground in the spring or fall, as straight furrows as possible and of good depth, and when he plants his potatoes take one horse with the same plow or a smaller one, and plow the furrows the same way that he did before, three or four inches deep, and drop the pieces in these furrows every third furrow, or nearer if he likes. Be sure and follow every furrow; do not turn up the turf. If your ground is plowed six or seven inches deep at first, you can plow four inches next time and not turn any turf. Drop the pieces of potatoes along the landside of furrow, and the next furrow will cover them, but be sure and plow every furrow as you did at first. Then, if you harrow your potatoes over before they come up, say twice, you will have the nicest seed bed with the least labor you ever had. If you use fertilizer, scatter it on top of furrows before you plow the second time, and it will turn over on the potatoes when they are covered and be mixed with the soil. I think the inquirer said the ground he wished to plant was rich bottom land. He had better be careful about manuring too heavily, especially if his land is low or rather wet, for they would be likely to rot. But he has to run the risk, and had better use all the manure he can afford. This way of plowing the ground (if it is turf) the second time, is the best, quickest, easiest and most practical way to make the ground mellow I ever tried or ever saw tried. It

is a great saving of horse labor before and after planting, beside getting rid of buying so many different harrows that are regular horse killers. I would not take many of these new harrows if they were given me. The new cutaway disc harrow may be better, but I must see it work first or try it myself before I would have that. I might give some of my experiments, if you wish, as I have raised 500 bushels of potatoes per acre this summer, and have raised from 500 to 800 bushels per acre at different times.

#### Plowing.

Of all the farm operations plowing is one of the most important. On the manner in which it is done the yield of the crop very materially depends; and unless it is properly executed the crop will be materially reduced, no matter how the other operations have been done. Under varying conditions the method of plowing will have to be changed. Therefore it is not only a very important subject, but also one which requires considerable study. But as in the plowing season the work is generally crowded, it receives very little serious consideration. The lack of attention paid to this operation is by some authorities considered to be the cause of our low average yields as compared with the older countries, and it is, no doubt, one of the reasons why many farmers do not have better crops than they now realize.

In order to obtain the best results in plowing it will be necessary to consider the different soils, crops and seasons. Of these three factors, soil is the one which presents the most varying conditions requiring consideration. Deep and shallow, clean and dirty, light and heavy, wet and dry soils, as well as sod and stubble, and the amount of humus contained in the soil, have an influence upon the manner in which the field should be plowed.

The depth of the soil regulates to a large degree the depth it should be plowed. A deep soil should be plowed deep, and a shallow soil, shallow. But the time of plowing and the crop to be grown on such fields largely influence the depth. A shallow soil, having a fertile subsoil (especially if of a heavy character), if plowed in fall, can advantageously be plowed deep, moreover if a deep-rooted plant is to be cultivated on it. The action of the frost will make the stiff subsoil which is turned up friable, and the plant food locked up in it more available. The roots of the plants growing on it, finding the soil loose to a greater depth, will not only be able to descend easier, but will also find a greater store of available plant-food. If, however, a shallow soil be plowed in spring, it is necessary to plow it shallow, for otherwise the available plant-food distributed in the upper layer will be covered by inactive subsoil, which will be a very poor seed-bed for the young plant requiring very active food.

Weedy fields are generally plowed with narrower furrows, so as to be sure to cut all the roots, and, if possible a jointer-plow should be used, so that it will be impossible for the weeds plowed under to appear on the surface again. The character of the weeds regulate the depth to some extent. On no conditions should lands, on the surface of which weed seeds have been spread, be plowed deep, and if possible they should not be plowed till the seeds have germinated, which is best accomplished by

slightly covering them either by the harrow or the cultivator.

Heavy soils should be plowed as much as possible in fall, while the light soils may be left for the spring plowing; the condition of the former is much improved by the frost, while that of the latter is not much affected by this agent.

The moisture of the soil is especially of great importance in clay soils. If these soils are plowed when too wet, the plow will puddle them, the injurious effects of which may be noticed for a large number of years. This puddling consists in a complete closure of the pores of the soils and a consequent locking up of the plant food, for neither roots nor air will penetrate the particles of soils thus treated. If plowed when too dry, it will not only materially increase the labor of plowing, but the effects of it will also be very largely lost; for the soil will turn up in large lumps which cannot be completely pulverized either by the harrow or the roller. Several guides have been given to ascertain whether the soil is in the proper condition for plowing. One of these is to take a piece of soil, form it into the shape of a ball, and allow it to drop on the ground. If it breaks up into fragments the soil is in a fit condition for plowing. Another indication is to look at the turned furrow. If it has a glossy appearance the soil is too wet. The same thing is determined by introducing a smooth, round stick into the soil. If no noise is heard on its withdrawal, the soil is dry enough; but if a sucking noise be noticed, the plowing should be deferred to a more favorable time.

Sod may be plowed shallower and under more unfavorable conditions than stubble land. Soils possessing an abundance of vegetable matter are not benefited by fall plowing. They require air, heat and moisture to make their plant-food more available. Fall-plowing should be deeper than spring-plowing, and should be left as rough as possible, the object being to expose as much surface to the frost as possible. The different crops favor soils of different mechanical texture, but what we intended to draw special reference to is that deep-rooting crops require deeper cultivation than the shallow rooters. A plant with shallow roots requires its food near the surface. Deep plowing, distributing the food through a larger space, is therefore not advantageous to such crops.

The principal object of plowing is too frequently considered to be to get rid of the stubble of the previous crop and have a clean seed-bed for the reception of the new seed. Although this is an important function of plowing, yet the thorough loosening of the soil is in most cases more important, for by it the air is more freely admitted, which, circulating through the soil, performs those important actions without which the plants cannot thrive.

It is hardly necessary to state that in all plowing the furrows should be straight, of a uniform width, and as uniform a depth as is consistent with leaving the lands in a slightly arched condition. The width of the head-land should always be marked off by a light furrow. The plowman should respect this furrow, and when plowing the lands should go right up to it, but no further. Some good plowmen leave a land the width of the head-land unplowed on both sides of the field. This is done so that when plowing the head-land they can plow right