

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. I recommend those who practise this plan on heavyland, not to make their ridges too wide; 12 feet will be sufficient, and will allow of four rows of mangels or swedes per ridge, the two outside rows being a foot from the furrow, so that the crop will be in rows two feet apart from one side of the field to the other.

The hoed crops are

Potatoes.
Indian corn or maize.
Cabbages.
Swedes.
Carrots.
Parsnips.
Haricots.

I will not weary you by describing the different modes of growing the two first crops above named—potatoes and maize. But, I may say in passing, that the chief fault I observe in the cultivation of potatoes in this province is, that they are earthed up too high, in fact, very much too high. Plant the sets deeply—say, 4 inches—, and only earth up once, adding a very little earth to the covering of the tubers.

As to maize, to sow it broadcast is, in my opinion, to lose all chance of cultivating it after it has grown beyond the harrows, and this takes broadcasted maize altogether out of the category of hoed crops.

The Abbé Chartier, at your last year's meeting, expressed his ideas on the cultivation of corn, and I was very much surprised to see, in one of the agricultural papers of the States, that this gentleman had spoken in favour of sowing this grain broadcast! He said just the opposite, for I remember his words perfectly:

We never sow broadcast. Some who have done so have had splendid crops, but let them beware! Sooner or later they are sure to be caught in a cold spell in June, in spite of every precaution as regards previous cultivation; the grass will overcome the corn, and their crop will be a failure. For no assistance can be given to broadcasted maize.

I need not say I am of the Abbé's opinion.

THE PREPARATION OF THE LAND FOR HOED CROPS.

The more deeply the soil is worked, the better will be the crop. This does not mean that in a clay soil you are to bring up a lot of raw soil in the spring, for this would become a source of trouble in ploughing, in grubbing, in harrowing and rolling, all through the summer. It would hinder one from sowing at the proper season to insure a good crop. The principal aim of the root grower should be, to work the land to a proper depth and he should never stop until he has succeeded in doing this to at least 10 inches deep. The deep furrow should invariably be executed before winter.

SPRING PREPARATION.

The following is the usual manner of sowing root-crops, the land being, here, seldom sufficiently cleaned in the fall, and a sufficient quantity of manure being difficult to obtain at that season. The land may be cross-ploughed or grubbed. I myself would rather harrow it along and across, and grub it afterwards. If the land is in good order, you need only two harrows used, perhaps, the roller to fit it for being drilled up. If cross-ploughed, the depth should be the same as that of the

autumn-furrow, only the plough will go more steadily if it goes half-an-inch deeper—more would be dangerous. This furrow will bring to the surface all the root-weeds that escaped the autumn-cleaning, and they can be got together to be disposed of as you please.

PREPARATION OF THE SEED.

I always steep the seeds of mangels, carrots, and parsnips, and I do it thus: I tie the seed up in a bag, let it steep about 40 hours, hang the bag up to drip, keep it in a warm place till the white germ just shows itself, then dry it up with sand, charcoal in powder, &c., and it is ready for sowing. Six pounds of carrot- and mangel-seed, three pounds of swede-seed, and eight pounds of parsnip-seed, are the quantities required per acre. (1)

MANURES FOR MANGEL AND SWEDES.

The mangel requires nitrogen, the swede phosphoric acid. An addition of 120 lbs. of sulphate of ammonia for mangels, and of 200 lbs. of superphosphate of lime for swedes, to the ordinary dunging, will be found profitable. The sulphate of ammonia is to be found at a reasonable price at Mr. Vasey's, Hochelaga Ammonia Works, and the superphosphate at Mr. Nichol's Albert Mines, Capelton. To give the ammonia to swedes or the phosphoric acid to mangels is wasteful, that is, when you have enough dung to give a moderate dose of it to every acre sown: the case is different when one is obliged to use artificial manures alone.

The land is now ready for drilling. There is nothing gained by making the drills wide. My distance is 24 inches; this leaves plenty of room for the horse-hoe, and for the entrance of abundant supplies of light and air to the growing plant. Numbers of acres of land are lost by drilling up at 36 inches for roots and even for Early-rose potatoes; by this error, a third of the ground is left unoccupied.

As soon as the drills are completed, the dung is to be carefully spread, and I will take the liberty of saying that this operation is conducted far from economically by many of our best farmers. It takes more time and labour to spread a heap of dung over five rows, than over three rows. The farmer should drive the horse in the middle of the first *three* drills, and drag out enough dung into the drill in which the horse is walking without stopping him for a moment. Another man divides the dung among the *three* drills, and this, it is evident, can be done with much more care, and in much less time per acre, than if it were attempted to dung five or more drills at once.

THE SOWING OF THE SEED.

This operation varies according to the state of the seed, whether dry or steeped. In the latter case, the following is the best mode of proceeding: roll the drills, make a shallow furrow in the centre of each, with a stick or the corner of a hoe, not more than $\frac{3}{4}$ of an inch deep, sow the seed in this rut by hand, and after covering it in with a rake, pass the roller again over the drills. Rolling is a most important point in root-growing; by omitting it, a distinguished agriculturist at Lachine lost $\frac{1}{10}$ of his crop in 1888. (2)

The seed barrow will sow mangels, carrots and parsnips, if the seed be dry. Every time I use an American seeder, I open the distributor two, or even, three holes more than the

(1) 2½ lbs. of turnip-seed.

(2) This season, the drills on the said farm were all rolled down with a heavy roller, and the carrots and swedes are the proof of the utility of the practice.