

should they be stored away till they are dry, and yet they should not get exposed too much to the sun or their flavour will be injured.

GATHERING AND STORING ROOTS. Do not neglect this operation too long, and get your crop caught in the hard jaws of Jack Frost while in the ground, as was the case last year with many. Sugar-beets must be taken up and stored before frost touches them; mangels and carrots are easily injured by frost, though they will bear a slight touch of it. Swedes can stand frost till it gets severe enough to harden the ground, but in any case they are safer if made sure of in good time, as soon as they have attained their growth, and they will not grow to any extent after the first hard frost comes. If they are taken up and piled in the field in small heaps, with a slight covering of straw or earth, to sweat a little before being stored away for the winter, they will keep all the better, and as soon as the ground freezes up advantage can be taken of fine days to cart them to the root-house or barn cellar.

FATTENING HOGS.—The earlier this is begun, after the feed for them can be had, the better. If their food can be cooked, so much the better. Hogs thrive and fatten more quickly and at less cost on cooked than raw food. If that cannot be conveniently done, the next best thing is to have what grain or pulse is used soaked in water till soft and fermentation has begun. If, before putting up to fatten, every hog could be weighed, and its weight recorded, and an account kept of the weight and value of each kind of food supplied, and the state it was in when fed out, cooked or raw, and the hogs weighed alive before slaughtering, much could be done to ascertain which is the best and most profitable manner of fattening them. We hope some of our most enterprising readers will try some experiments of this kind with different foods and lots of hogs, and report results. It is well for the farmer to know by actual experience what he is about, instead of working in the dark, as too many do.

Let us have some careful and reliable facts about the difference between the live and dressed weight of hogs when slaughtered, noting the breed, so that something definite may be arrived at as to the value of each breed, and the amount of shrinkage that ought to be allowed in selling fat hogs alive. English experiments have shown that good, well fatted hogs will dress from 80 to 87½ per cent. of their live weight. It would be well to know which pays best, to sell the live hog or the dressed carcass.

CROPS IN NOVA SCOTIA.—The last number of the *Nova Scotian Journal of Agriculture* gives a favourable report of the condition of crops in that Province. Most of the cereals are said to be above an average. There is a great increase in the extent of wheat, oats, barley, roots, and especially potatoes, grown by the farmers this season. The pastures were in good condition and dairy produce was favourably reported.

Beet-root and Beet-root Sugar.

When we tell our agricultural readers that the value of the sugar and molasses which are imported into the Provinces of Ontario and Quebec yearly, (and the whole of which we could produce ourselves), amounts to nearly *Three millions of dollars*, while the wheat and flour which we export amount to only about double that value, the question seems too large to be dealt with by the agricultural community, and the farmer, with a sigh, thinks, "that is too big an affair for me; I must leave that to the Parliament of the Dominion." But when we tell the farmer there is a crop which he can raise on his own farm, which in value will amount (in addition to his other produce) to any sum from three hundred to one thousand dollars annually, he will begin to pay some attention to his advisers, and see if he cannot carry out what it is proposed he should do. This is the fact as regards beet-root sugar and the beet-root. It is a crop which every one can raise; and if once public attention can be directed to it, farmers will find it their interest to include this among their regular crops.

First, let us show what is done with beet-root and beet-root sugar in France, Germany, and Belgium; all of these countries no better adapted for growing the root than Canada is.

In the year 1866, the total sugar produced in the world from all sources was two millions three hundred and twenty thousand tons; and of this the sugar produced from the beet-root amounted to nearly one-fourth, and the whole of this beet sugar was grown in France, Belgium, Germany and the other European countries, none of which are more favourably situated for its production than Canada is. Of this enormous amount of sugar France alone produced two hundred and seventy-five thousand tons. In addition to this, an immense quantity of spirit was also distilled from the root direct, and from the molasses and other fermentable matters produced during the manufacture of the sugar, and most of which spirit is turned into French brandy. Now, if the French can grow sugar at this rate, the Canadians can also produce it when once the thing is understood, and its advantages appreciated.

Every farmer throughout Canada knows how to grow mangel-wurtzel, and consequently he knows how to grow beet, for the sugar-beet requires no other culture than the mangel; the man that can grow the one can grow the other. Undoubtedly, before we can have beet-root sugar, we must grow the sugar-beet, and it is fortunate that that root is not only as easily grown as the mangel, but is actually more profitable to grow as cattle food for the farmer. In mangels (or rather "mangolds," but the former term is now most generally used), the root consists of 91 per cent. water, and 9 of solid matter. In Silesian, or sugar beet, the root consists

of 82 per cent. water and 18 of solid matter. Now, as the only profitable, nourishing part of the root is the solid matter, (for water can be supplied at a far cheaper rate than by growing it in the shape of roots), it is clear that it must be better to grow the sugar-beet than the mangel, for there is twice the solid matter in the beet; so that no one can have any excuse for growing the mangel in place of the sugar-beet. Again, to do well, the mangel must have a great deal of room; this allows for the growth of weeds, and requires at least one extra hoeing; whereas the sugar beet can be grown far closer together, both between and in the rows, and its leaves cover the ground and smother the weeds better than the mangel does. The sugar-beet grows more under the ground than the mangel, and when grown for sugar requires to be earthed up, and is doubtless somewhat harder to get out of the ground at harvest time; but being so covered, it is far less liable to injury from frost than the mangel, should accident prevent its being harvested, or should early frost set in.

Then, again, the mangel contains two per cent. of salt, while the sugar-beet contains only one per cent. of salt, so that the sugar-beet is the least exhausting crop of the two. There can, therefore, be no reason why the sugar-beet should not be grown on every farm, even if only used for cattle. It is more nourishing, less bulky, requires less house-room, is equally easily cultivated, and, in fact, more profitable than mangel; cows are fonder of it, it makes better milk and butter; the leaves are as good for food, and the crop is both a safer crop and a more profitable one. There is, therefore, no valid reason why the raw material for the sugar manufactures should not be produced here in any quantity.

We next come to the manufacture of the sugar, and here we find that popular prejudice has already implanted in the agricultural mind an idea that beet-root sugar can only be manufactured in large and expensive buildings, and on an enormous scale. This idea has got so firm a hold on the public mind, that it will take a good many small manufactories in actual operation to banish it; but that it will be banished is as certain as that sugar-beet can be grown as easily and with greater profit than mangel-wurtzel.

The manufacture of beet-root sugar was in the first place a state necessity. The great Napoleon's policy was that France should be self-sustaining, and should be independent of British and other Colonial produce; this could not be unless sugar could be produced as a French manufacture. Napoleon called in the aid of the great chemists of the day. They pointed out starch sugar and the sugar from beets as the only substitute. The starch sugar as an edible was soon abandoned, while that from beets was as quickly brought to a moderate perfection; the necessity of the state required an immense supply, and to