

Have a nice, but not very strong, well-boiled pickle, made from Goderich salt; lay the pieces in the tub or pickle barrel and pour enough of the brine on when quite cold, to cover the pork entirely. In about a month the pork will be fit to use, and may be kept for any length of time in the pickle, so long as it is fresh and good. If it begins to get the least bad taste, the brine must be re-boiled, or new pickle made, and the pork taken out and put in fresh tubs or barrels, and again covered with the brine.

Bacon and hams are best cured by first well rubbing in dry salt mixed with about one part in 400 of fine saltpetre, and afterwards covering with dry salt till they have become well salted, which generally takes three weeks, after which the meat is to be hung up in the kitchen to dry, or smoked, as soon as salted enough.

DITCHING AND DRAINING.—Much work of this kind can be done even after the ground is frozen or snow falls. It may be requisite to use the pickaxe to break the frozen crust, but that done, the soil underneath will be easily dug out. If the lines of the drains have been marked out, and the surface soil loosened by the plough, it will greatly facilitate the work. Tiles may be drawn on the land during sleighing, and everything got ready for an early commencement of laying the drains as soon as spring opens and the snow is gone, before the land is dry enough to be put under crop. The value of drainage to the soil is as yet little understood by our farmers, still there is always something being done towards the improvement of the soil, and good well-made under drains soon show profitable returns in the increase of the crops and the doubling of the value of the land.

MANURE.—Every effort should be made to increase the amount of manure made on the farm. Every dollar's worth of manure judiciously added to the soil gives a return of five dollars in the increased yield of succeeding crops for years afterwards. The manure heap is the farmer's savings bank, and pays cent. per cent. per annum for every dollar's worth of material and labour put into it. Everything in the way of vegetable matter, swamp muck, and scrapings of the roads and yard lanes that can be procured, should be hauled to the compost heap; and the droppings of the stock that are confined to stables and byres are better added to the heap than lost among the litter of the straw yard, which should rather be made the absorbent of the liquids, and get decomposed in the course of time. Too much of the manure is wasted by being scattered about in the straw, where it can not become of nearly so much value as if carried to one side and properly manipulated in the compost heap.

Of Peruvian guano, the total export last year was over 500,000 tons, of which Belgium took 82,000; England, 196,000; and North America, 25,000 tons.

Beet Root Sugar.

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NO. VI.
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Having now gone fully into the reasons why it is the interest of the farmers of Canada to engage in the growth of beet root of the sugar varieties, in the place of mangel wurtzel, and as an assistant to the turnip crop, I will proceed to the best-known methods of manufacturing the sugar, at the same time offering such suggestions for the purpose of simplifying the processes, as a considerable practice in general manufacturing, and good knowledge of mechanics and the practical chemistry of the industrial arts, may suggest. I make this as broad as possible, my object being to put on record the several methods of proceeding, so as to prevent persons patenting any of the processes, and thus delaying the introduction of the manufacture of beet-root sugar into Canada.

WASHING THE ROOT

This is the first process. The washing must take place in a rolling cage, in a trough partly filled with water, the cage being slightly depressed at one end, partly open at both ends, and the lower segment of the circle—the full length of the cage—being immersed in the water; the trough turns by machinery, with hand, horse, or steam power, and the roots are thrown in at the upper end; they gradually work along the cage, as it turns in the water, and are discharged at the lower end in a clean state. A stream of water should enter at the lower end of the trough, and flow through it, and out at the upper end, thus carrying the dirty water off, and leaving the clean end of the cage constantly supplied with clean water, whereby the roots are rinsed as clean as water will make them, with the least expenditure of water. The trough should in large concerns be fitted with a rolling cloth or frame of wooden slats closely joined together, which receives most of the dirt and sand, and carries it away. The water (where it is scarce) should flow off into a long trough or ditch, and be made to traverse as great a distance as possible, during which time it will deposit the dirt and sand, and may be used again from the farthest end of the ditch, and thus a great economy of water may be secured.

GRINDING.

This is done in several ways. In small concerns, or where better cannot be had, a sheet iron grater, punched like a nutmeg-grater, but of course much coarser, and made to revolve, will cut the roots into pulp at a considerable rate, but it should never be used where better can be had.

The next cheapest rasp, and one perhaps as efficient as any, may be made of a cylindrical wooden roller, with turned iron axles and journals, all, of course, fastened in a proper frame, and of strength sufficient to

do the work without chance of breakage. From end to end of the cylinder channels are cut, into which are inserted lengthwise saw blades, similar to the blades of the common bucksaw, but thicker; these are held in their places by double wedges in the grooves, or pins into the body of the wood, and project a little more than the depth of the teeth. As many as eight or ten of these saw-blades may be inserted at intervals round the cylinder—they, of course, project equally. The saw-blades are made movable; the teeth of one should be opposite the vacancies of the next; they can be taken out and sharpened as occasion requires. They are filed in the ordinary way. The blades, where wedged into the wood, should be covered with a good varnish, or be well painted to prevent rusting. This cylinder is made to revolve rapidly, and the roots are presented to it in any convenient manner, and are thus reduced to pulp, which is received below.

A similar cylinder may be made with thick steel blades, inserted in the same manner, and ground to a thick edge, which is sharpened as occasion may require, by the removal and grinding of the blades.

Another form of cylinder is made by a number of circular saws punched out of iron plates (teeth and all are punched at one motion); there is a central hole with a key slot. A number of these are put on a turned iron axle, with intermediate smooth plates of iron of a less size, so as to allow of the teeth being set broadways like a saw, and this, though an expensive, is a very efficient tool, particularly if the saws are made of steel of the best quality. All the saws and plates are held firm on the centre by a key, or by two keys, wedge-shaped, going from end to end, along a flat place made in the spindle.

Another plan is the insertion of a series of flat cutters, like plane irons, round the circumference of a wheel, and which are set so as to shave or scrape the roots when presented to them, endwise, into the thinnest possible shavings.

Any of these plans, well carried out, will produce a pulp which can be pressed at once. The roots are presented to the grater (let it be in what form it may) by either hand power or machinery. The grater or rasp should revolve with great rapidity, and the resulting pulp be like soft wet snow, the finer the better.

PRESSING.

The pulp, when ground, may be pressed in any of the following ways:—

1st. In cloth or linen bags, with a powerful screw press. In this case the bags or cloths have only a small quantity of the pulp put in each. Cloths are best; they are put in frames to be filled, and the ends of the cloths folded in. Each parcel of pulp thus made, which should not be more than two inches thick, is then put on a board, or