required in proportion to the length of the fence, they are cheapest in sections where rail timber is not plentiful.

Live Stock.—As the grass begins to fail, the cattle will need a little hay every day if it is desired to keep up their condition, and have them go into winter quarters full of thrift and health. The milch cows should be well looked after, and their flow of milk kept up as long as possible in the fall by artificial food, such as hay, cured corn fodder, cabbage and turnip leaves, bran mashes, &c. There is so much trouble and so little profit connected with winter butter-making, that unless a cow is an extra good milker during winter, or calves in the fall, many farmers prefer to dry all the cows off about Christmas, so that they may keep in fair condition on good hay through the winter, and be ready to come in full fleshed, with strong healthy calves, by the time spring returns, and the roots stored away are to be fed out to them. The calves of this season should be early attended to, and brought under shelter. They are too often left out till the last, and allowed to lose all their condition before they are noticed. Those who breed stock should remember that a constant state of thrift in the young growing animal is, next to good blood, of the first importance towards making good and profitable stock.

Sheep may remain out of the yards later than other stock, and being close and industrious grazers, will often keep up in condition till snow comes, especially when not too crowded on their pasture. They will pick out the corners of fences in stubbles and fallows, the borders of woodland, and eat much that other stock rejects. If improvement in the quality of the stock is desired, every faulty ewe should now be drafted out of the flock and sent to the butcher, or put up to be fed for Christmas mutton. Select to run with the flock the very best ram that your means will allow, and do not put him with the ewes too early, unless you have every facility and comfort in the way of food and buildings, for raising early lambs.

Swine.—The sows, and their fall litters of young pigs, should be well looked after, get comfortable warm quarters and abundance of food. Some cooked roots, such as potatoes, beets, or Swedes mashed up with some crushed corn or peas, will be good towards helping the sows to keep up their milk for the young ones, which should also get gradually accustomed to being fed by giving them, separate from the sow, what little milk or buttermilk can be spared from the house. There is nothing pays so well in pig breeding as keeping the stock in a state of constant health and growing thriftiness. Be particular to see that they have clean styes and abundance of clean dry litter to keep them warm. Fattening hogs had better be slaughtered and marketed as soon as they are well fatted. There is no profit in feeding beyond the point at which they will lay on fat in a fair proportion to the value of the food consumed. Extra fat hogs of great size are not now so much in favour with packers as they once were, nor is the price so much governed by size as formerly. Medium-sized hogs of 200 pounds, of the Suffolk, Essex, or Berkshire breed, ought to command better prices from ham and bacon curers than larger hogs of the old style land-pike, or of no particular breed, command from the pork-packers. Well-bred pigs always make the sweetest pork and most delicate ham and bacon, with a better admixture of fat and lean of fine quality than is found in common hogs.

Beet Root Sugar.

No. III.

EXTRACTING SUGAR FROM DRIED BEETS.

Another system which has been most extensively adopted in districts where the plantations of beet root were necessarily at considerable distances from the great sugar manufactory, and where fuel for the purposes of evaporation was scarce, has been the slicing and drying of the roots, followed by the extraction of the sugar by means of soaking the dried matter. To such an extent has this been carried, that in 1855 there was an enormous establishment in Gallicia, which in the growth and preparation of the roots, and the extraction of sugar from the dried slices, employed no less than 3,000 hands. This factory refined all the sugar that was grown within a circle of many miles in diameter. The roots were sliced and dried at fourteen different establishments located on the farm where the roots were grown, and not less than 1,200 people were employed in the cutting up and drying of the roots. By this method the liquor from the roots, macerated in a dry state, is found to contain fifty per cent. of sugar, and is free from a great many disturbing elements which are found to affect the actual juice of the root when produced from the recent bulbs. A great saving in fuel and trouble in evaporation is thus made, and the syrup produced is far purer than when the sugar is extracted at once from the recent roots. The manufacture of the sugar can go on at any season of the year, and the resulting pulp is equally good for cattle, and is obtained in far more convenient quantities.

This is one of the directions to which we must look for the small home manufacture of sugar and syrup, and the growth of demand for the root in Canada. This plan will suit many that a more elaborate one would not. The great majority of the farm population of the Continent of North America are used to the slicing and drying of apples, and other fruits, the slicing and drying of beet root is the same thing on a larger scale. One hundred pounds of beet root when sliced and dried weighs only eighteen pounds. This dried matter consists of nearly one-half sugar, and could therefore be carried from the farm to the sugar manufactory for a considerable distance, and if well prepared, would at the manufactory always command its full value, while the return teams could bring back a full load of compressed cake for use on the farm; thus the farmer willing to do so, could secure a far greater result in manure than his own crop would give. One ton of the dried roots would be equal to nearly six tons of green roots, so that it would bear carriage well.

The way the sliced and dried roots are treated for sugar is as follows: Several vessels are provided, and all are filled with the dried roots—the deeper the vessels are the better—water is poured on them so as just to cover the roots, making additions as the roots swell; the vessels are kept closely covered. As soon as the sliced matter is thoroughly softened, the contents of the vessel are drawn off and placed aside. The contents of the next are drawn off, and the liquor poured through the first, and this is repeated until the entire liquor has been through all the vessels. This plan takes up all the sugar in the least possible quantity of water, and the result ought to be a liquor containing about forty per cent. of sugar, which is then ready for evaporation into coarse syrup for the refinery, or it may be refined by the producer for his own use.

MAKING POTASH FROM FROM THE REFUSE.

In those manufactories where cattle feeding does not pay, or where the refuse from the pressed root cannot be sold, the refuse is burned in properly constructed furnaces, and yields an ash which contains a very large amount of potash, which is manufactured into the ordinary commercial article, and sold to the users of potash. It contains, however, a large proportion of salt, and although the ashes produce nearly one-half their weight in the mixture of potash and salt, yet if the salt is not taken out by chemical means, it must greatly deteriorate the value of the potash. A very large proportion of the potash used in France and Germany is produced from this source. This is, of course, a most dreadful waste for the land, and is only mentioned to show how the resulting matter can be utilized, where such utilization is necessary or advisable.

We have all long known that the leaves of the mangel crop when ploughed in make excellent manure for the following wheat, or other grain crop, the analysis of the ashes of the leaves shows the reason of this. The ashes of the leaf of the beet root contains fully fifty per cent. of a mixture of potash and salt. In the leaves of some kind of beet the potash predominates, in other kinds the salt forms the largest proportion, but all produce at this joint rate of the two substances.