

the steam-engine, and a rapid rotatory motion is imparted to them. The juice is therefore thrown off by centrifugal force. The result of this plan was said to be that 2 or 3 per cent more sugar was obtained than could be extracted by the process of pressing. In Prussia, the manufacturer has to pay the Government duty of 14s 6d per ton on the roots, instead of 17s. 8d. per cwt. on the sugar, as in France. The Prussian maker has, therefore, a greater inducement to extract every particle of sugar. This arrangement, again, has led the German cultivator to be much more particular in the choice of his seed. The best description I met with is the "Improved Vilmorin," propagated by M. Louis Vilmorin, of Paris, who claims to have had recourse to the process of selection and the establishment of pedigree in plants long before Mr. Hallett was heard of. M. Vilmorin informs me that the Vilmorin beet is more highly prized in Germany than in France, and accounts for it by the fact of the duties being levied in the different manner I have described. The refuse of the beetroot after the sugar has been extracted forms an important article of cattle food, and is held in high estimation. About 18 to 20 per cent is the proportion of pulp left; the worse the quality of roots, the smaller the quantity of pulp. It is preserved in deep pits, generally bricked like a grave—very often the expense of bricking is avoided—a covering of earth is laid upon the top. The pulp is generally consumed within the year; but if well covered up it can be kept sweet and good for two years, or, as I was assured, even for three years.

Much controversy has taken place both as to the relative value of pulp as feeding stuff and as to its real money worth. Many practical men maintain that a ton of pulp is equal in value to a ton of roots. I think the money worth is best settled by the price it fetches. The average price at the factories I visited will amount to about 13s. per ton. Although horses do not like it, bullocks, which cannot be fattened on the root alone, can and are sometimes fattened for the English and foreign markets, without any other food than the pulp. Pigs do well upon it when cooked. Sheep will eat about 12 lbs. a day of raw pulp. It is unquestionably more easily digested than the root itself; but cows kept upon it are said not to produce much milk. I was fortunate enough to obtain a debtor and creditor account of a sugar factory upon the Continent, the locality of which, for obvious reasons, I am not at liberty to indicate. The proprietor is a large farmer. In it between 13,000 and 14,000 tons of root per annum are made into sugar. The total expenditure, exclusive of the interest upon the money embarked, was £19,500, the total receipts about £33,000, leaving, as

will be seen from the subjoined statement, over £13,000 for profit and interest of money:—

SUMMARY OF EXPENSES AND RECEIPTS OF A BEET-ROOT SUGAR FACTORY DURING ONE YEAR.

Outgoing Expenses.		
14,000 tons of beetroot at factory, including cartage, maintenance of carts, seed, at 19s. per ton.	£13,300	
2600 tons of coal, at 12s. 6d. per ton.	1,625	
130 tons of coke, at 24s. per ton.	160	
350 tons of lime, at 8s. per ton.	140	
12½ tons granulated charcoal } at £11 per ton.	165	
2½ tons powdered charcoal }	250	
1500 filtering bags for hydraulic presses.	50	
1600 pulp bags.	100	
Cloth and canvases.	25	
Baskets.	20	
Workmen's wages.	2,060	
Salaries of manager and foreman employed all the year round.	600	
Expenses of carriage outwards and in connection with sales.	450	
Gas.	80	
Grease and oil for lubrication.	75	
Acids and soda used in process of manufacture.	15	
Insurance.	70	
Various other expenses not before included.	400	
	£19,585	
Receipts.		
912 tons of sugar, at £25 per ton.	£22,800	0 0
123 tons of sugar, free of duty, at £42 10s.	5,227	10 0
49½ tons of sugar, at £36 per ton.	1,782	0 0
1084½ tons	£29,809	10 0
Pulp, 2800, at 11s. 4d. per ton.	1,586	13 4
Molasses, 105 tons, at £5 per ton.	525	0 0
" 105 " at £5 10s. per ton.	577	10 0
" 120 " at £7 per ton.	840	0 0
Scum used as manure.	50	0 0
	£33,388	13 4
Outgoing expenses.	19,585	0 0
Balance.	£13,803	13 4

In addition to the sugar factories I have alluded to, there are immense numbers of distilleries for extracting spirit from the beet. In France, the number reaches 500. The distilling of spirit is said to be far more profitable than the manufacture of sugar. On many farms both processes are carried on, and a few years ago—stimulated by the high price of raw spirit, the result of the vine disease—many sugar factories were converted into distilleries. I learned the other day, from a French engineer interested in a new patent still, that he is engaged in the erection of a large distillery near London, for extracting spirit from beetroot. The whole cost of the distillery is estimated at £16,000. As the partners are people of experience, they have doubtless satisfied themselves that the difficulties experienced by other persons are to be overcome. Hence the question as to making spirit from beetroot being a profitable process will speedily be put at rest.

THE BEST TIME TO SKIM MILK

Is a subject that still remains ill-understood. Of course we have dairy women among our readers. We advise them to cut out the following and paste it up in a conspicuous place in the dairy:—

When milk is allowed to sour before it is skimmed, the layer of cream appears more bulky and of greater consistency, but it does not produce so much nor so good a quality of butter as cream proper-

ly raised and skimmed from milk before it sours. On this point we possess some interesting experiments by Sannet, who put aside two equal quantities of milk, of which the first, skimmed after 30 hours, yielded 30 lb. of butter, and the second, skimmed after a lapse of 60 hours, only 27 lb. of butter. In another experiment, two equal quantities of milk yielded—the one skimmed after 30 hours, 31 lb. of butter; and the other, after 60 hours, 29 lb. of butter. In both experiments in which the milk was skimmed after 30 hours' standing, the skim-milk was still sweet, and the cream not so thick and in less bulk than that thrown up after 60 hours' standing. The cream which rises first is always richer in butter than that which is thrown up later, and it also possesses more of that peculiar aroma which gives to butter that rich nutty flavour and smell which impart so high a degree of pleasure in eating it. Of one thing we may all be assured—the quicker cream can be made to rise the better the quality; for cream, like all perishable substances, does not preserve its original properties for any great length of time. Choice keepable butter can only result when the milk has been kept sweet, as the souring develops curds. But while the cream should be taken from the milk before it is sour, the cream, on the contrary, is allowed to have a pleasant acid taste before churning.—*Western Rural.*

THE RAT-TAIL RADISH AGAIN.

(RAPHANUS CAUDATUS.)

In the December number of the *Gardener's Monthly* I notice the prediction of the Nova Scotian Journal of Agriculture, that the time will come when the "Rat-Tailed Radish" will be grown in every garden. My experience with this curious vegetable satisfies me that, owing to its strong propensity to hybridize with other varieties, it cannot maintain for more than one season its distinctive character when cultivated in the same garden with the common radish. The pods of the hybrid are short, stiff, tough, and utterly unfit for eating. To succeed with the *Raphanus caudatus* it will, I think, be necessary to procure imported seeds every year, or to abandon entirely the cultivation of the old and more valuable variety—the *Raphanus sativus*.—*McK, Jeffersonville, Indiana, in the Philadelphia Gardener's Monthly.*

[In reference to the preceding we may observe that this is the first instance made known of the hybridising of *Raphanus caudatus* with *R. sativus*. The circumstance that the two will form crosses can form no objection to the cultivation of either, for we know very well that all our varieties of garden vegetables are prone to become crossed if proper pre-