

The Dairy.

Cheese Making on a Small Scale.

EDITOR CANADA FARMER:—Can you give me information how to make cheese on a small scale, and tell me where I can get the necessary implements for a small farm of 100 acres?

Ottawa, Manitoba.

W. WAGNER.

There is no reason why a great many of our Canadian farmers should not make their own cheese, especially those in districts which are so sparsely settled as to forbid the institution of cheese factories. Cheese is full of nutriment and, though somewhat hard of digestion to a stomach unused to it and demoralized by a long course of pork and potatoes varied by potatoes and pork, is much preferable, as the main item of a meal, to hog-meat in any shape. It will be found that the stomach will accommodate itself to the assimilation of cheese just as it will measurably to a long-continued diet of pork. The directions here given will enable the farmer or his gudewife, with a little practice, to make cheese that will be uniformly wholesome, though not remarkably constant in appearance and quality. The various niceties which enter into the manufacture of cheese, as it is now made by the factories, are a life-long study; but the fact need not deter farmers from making cheese for their own use, and thus reducing the outgoings, though not adding to the incomings of the farm.

First, there will be the rennet to prepare. An old-fashioned and good way of doing this is—Hang the stomach of a newly-killed calf, in a cool and dry place, for about five days. Do not wash it, as the gastric juices would be weakened thereby. After hanging turn it inside out and take off the curds with the hands. Then fill it with salt in which a little saltpetre has been mixed, and put it in a vessel such as a stone jar, pouring on a teaspoonful of vinegar and putting on a handful of salt. Then cover it closely. After six weeks, take a piece four inches square, place it in a bottle with a pint of water and half a pint of proof spirits, and stop carefully. The spirit will evaporate quickly unless the bottle is well stopped. Shake well before using. A tablespoonful is enough for a quart of milk. If a well cured rennet can be procured, it will be so much the less trouble to be undergone. In that case cut a piece about the size of three fingers, and, before using, soak it for a dozen hours or more in warm water, which water is afterwards mixed with the milk.

The next step will be to provide a vessel for holding the milk. Probably the most easily got will be a large wash-tub, and, if unpainted in the inside, it will be thoroughly well-suited for the job. If the surplus milk from several days' milking is saved, it must be kept in a cold place to prevent the cream rising. If enough vessels are at hand, each day's surplus should be kept separate till enough is accumulated. When there is enough, and before the oldest begins to turn, transfer it to the large vessel, taking account of the number of gallons put in, for by this the quantity of rennet has to be regulated; and a pound of cheese should be got from each gallon or so of milk.

Take out a portion of the milk and put it in a vessel which can be placed inside another vessel, just as a carpenter's glue pot is constructed, the outside one to contain water. Put the vessels on the stove to heat. The object of using two vessels is to prevent the milk from being burnt at the bottom. When the milk is hot, empty it into the cold milk in the large vessel; take out some more, heat it, and so proceed until the temperature of the whole has been raised to 85 degrees. Then add enough rennet, the exact quantity of which will be found by experiment, to coagulate the milk in about 40 minutes. If it coagulates much sooner, use less rennet next time; if it takes longer, use more. When the milk is coagulated, raise the curd gently on the finger. If it easily parts, the mass is ready for cutting with the curd-knife, a long thin-bladed wooden implement. Cut the curd into two-inch squares, and let it remain for about ten minutes, break it up carefully with the hands, taking care not to squeeze it.

Now heat on the stove some of the whey, in the same manner in which the milk was treated in the first instance. While this is going on, keep breaking up the curd by gently lifting until the particles are about as large as a

child's marble. When, by the continual addition of the warm whey, the temperature of the whole has been raised to 98 degrees, it may be left at rest for half an hour. Then it should be stirred so that the particles will not adhere; and the stirring should be continued until the curd is firm. Take up a handful and press it together. If, on opening the hand, it readily falls apart, it is ready to be drained. Dip off as much of the whey as possible, first placing over the curd a cloth strainer. Then place the strainer over a box, in the sides and bottom of which holes have been made. Dip the curd into the strainer and allow the whey to drain off. When drained, break up the curd and return it to the tub for salting. The proportion of salt will vary according to taste; about an ounce of salt to every two and a-half pounds of curd will probably do. Mix thoroughly so as to diffuse the salt over the whole mass, and then place the cheese in the press.

All of our Canadian farmers have ingenuity enough to make a press. The hoop can be any size which fancy may dictate. Ten inches in diameter and a foot or so high is a good size. A follower must be made, and a lever contrived to force it down. The lever should be 12 or 14 feet long, and so made that heavy weights, such as large stones, can be placed on its end.

Let the cheese remain about three hours in the press. Then turn it and apply pressure again, in which stage leave it for several hours. On taking out the cheese, rub it over with a little fresh butter, and place it on the shelf to ripen.

The implements used are such as can be procured at any country store, or can be made at home. It is scarcely necessary to add that it will not pay to make cheese at home if there is a factory within reach.

Canada in the Dairy and in the Market.

At the recent convention at Belleville of the Ontario Dairymen's Association, an address was given by Prof. J. T. Bell, of Albert University, on the subject of "Canada in the Dairy and in the Market." He commenced by referring to the early history of the dairy in the Province of Ontario, and noting the steady advance of this interest. The Canadians, he said, were ready to adopt any improvement that promised to be economical and practical for the manufacture of the business. He said the number of factories in and about Belleville last year was forty, but they were increasing, and all were going on in the most prosperous manner. He gave a detailed account of the introduction of the factory system in the eastern section of the Province, tracing the history down to the present time. The cheese shipped from Belleville station of the Grand Trunk Railway during the year 1873 was 59,714 boxes, containing net 3,335,112 pounds, bearing an average price of 11½ cents per pound, and representing a value of \$442,760. The shipments of the year 1874 have been returned at 36,454 boxes, and the net amount is 3,866,076 pounds, an apparent falling off of 2,230 boxes and 69,045 pounds. But the decrease of the Belleville shipments is not occasioned by a falling off of the total quantity made in the surrounding district, which on the contrary has considerably increased, because many of the factories which used to send their cheese to Belleville for shipment, now forward it from Brighton, Colborne, Picton, Napanee, and other stations and ports in their own immediate vicinity. In proof he cited the statement of the amount of cheese shipped from all points by Mr. Watkins, which amounted to 71,266 boxes weighing net 4,861,571 pounds. Mr. Watkins is not the only dealer who purchases cheese in that section.

The total quantity of cheese produced in the tract of country of which Belleville is the centre, is not less than 100,000 boxes. This amount at 11½ cents per pound, and taking the average box as weighing net 78 pounds, both of which estimates are rather under than over the truth, will give \$916,500 as the money value of the cheese product of the area of country lying between Coburg and Kingston. In the western section of the Province the quantity shipped from Ingersoll was 55,867 boxes, containing 6,697,626 pounds; value, at 11½ cents, amounts to \$786,971. To this must be added the quantity shipped from Stratford, Woodstock, Oxford, London, and other stations along both lines of railway to Sarnia and Goderich which he estimated was at least equal to that last named, and would bring the value of the product of Western Ontario up to \$1,500,000. He valued the cheese product of Eastern Ontario and that of the western part of the Province at \$3,000,000 for the year 1874. The exports of Canadian cheese in 1873 were put at 20,000,000 pounds, which indicates a rapid development of this industry, an increase of five hundred per cent. during the five years

preceding, both in value and quantity. The consumption of cheese in Canada was not stated, but has been variously estimated at from 5,000,000 to 10,000,000 pounds. This would give the present product of cheese made in Canada at about 30,000,000 pounds.

He presented some statistics giving the amount of cheese required in Britain, and estimated that the total quantity of exports from this country and the United States could be increased to 600,000,000 pounds. The inference was that there could be no fear of over-production in this class of goods. Holland and Belgium now supply England with large quantities of cheese. The Dutch supply is mostly poor, being largely made of skimmed milk, and Canada has nothing to fear from her competition in this class of goods. The real competition is from the United States. He thought that Canada should endeavor to make a uniform product of good and useful cheese without attempting to compete with English fancy cheese. Canada cheese has obtained a good reputation in the English markets, and every effort should be made to retain that reputation.

He said the most approved breeds of dairy stock in Canada were the short-horn and Ayrshires. He eulogized the Ayrshire, believing that, for all purposes, it was the best breed for the dairy and the best adapted to the climate and soils of the Province. The treatment of dairy stock was very fully considered. Cows, in many respects, should come under the same law of treatment as that recognized with human beings. They shew pleasure toward those who treat them kindly, and enmity toward those who misuse them. The cow should be regarded as the source of milk supply, and those who wish to get the best returns must supply a sufficient amount of nutritious food. Stock should not be allowed to drink from stagnant pools, and in all cases where running streams were wanting, wells should be substituted for supplying water. A few patrons of a factory by neglecting to supply water to their stock may destroy the reputation of a factory, even though the majority of those delivering milk are well provided with water on their farms.

In fall, or at any time when grass begins to fail, the cows should have a supplement of other food, corn fodder, linseed cake, cotton, seed or rape cake, bean meal, bran or corn-meal, as most convenient or as most within the reach of the farmer. A bran mash mixed with a pint of flax-seed was recommended as an excellent food for removing constipation.

He referred at some length to the relations between farm and factory. It is the duty of the farmer to supply the best material possible to the factory. The factory must use that material to the best advantage. It is the duty of the factory manager to adopt the best methods. He must be familiar with what the markets demand, and what is the best flavor and texture of a cheese. But he should not be made to shoulder faults that plainly belong to the farmer. About Belleville the factories seemed to be on a stiff, and each was boasting in regard to the small amount of milk required to make a pound of cheese. He did not believe any good came from the strife. It led to deceit. The strife should be to make a good quality, and see the honest returns of each factory tell its own story. In the matter of pastures, it was incumbent on farmers to rid their lands from bad weeds.

He said Hon. Robert Reed, of Belleville, had affirmed that the grasses of Canada were more nutritious than those of England, and from a comparison of the quality of the two sections that idea was favored. He thought there was great necessity for improving the butter product of Canada. Butter is now scarce and high, owing to the spread of cheese factories and the consequent absorption of cream dairying in this direction. Butter now commands 12 to 15 cents per pound. Mutton and beef are much higher now than they were a few years ago. The exports of butter from Canada the past year he put at 10,000,000 pounds; in 1872 the quantity was nearly double. He thought butter factories should be established on the same plan as in the States. The manufacture of milk-sugar was recommended. Milk-sugar had many valuable qualities as a food. It does not ferment or sour on the stomach. It was made by evaporating or boiling the whey in pans over which willow twigs are placed. The sugar crystallizes on these twigs; they are then removed and washed in water, when the sugar is prepared for market.

BORDEN'S CONDENSED MILK factory in Orango County uses fourteen thousand quarts of milk daily, and pays out twenty-seven thousand dollars monthly. This condensing of milk for export might be introduced into Canada to advantage. The cost of apparatus, on a large scale, is great, but the profits also are great.

THE RIGHT TEMPERATURE FOR MILK.—A correspondent of the *Practical Farmer* says: "I have learned anything by experience in relation to this subject it is the following: 1st. Milk set and kept at a temperature of 40 deg., will not sour, and the cream will become thick before it is fit to skim. 2d. Milk set at a temperature of 50 to 52 deg., will become sour and thick in twenty-four hours, and before the cream has had time to rise. I regard these two points as established, just as certainly as water will freeze at 32 deg. or boil at 212 deg. Taking the case, it would seem reasonable, or probable, that a medium or a temperature of 55 or 56 deg. would be as near right as we can get; although 5 deg. higher or lower will not produce any disastrous result."