

Scotch Woman's Way of Feeding Calves.

In the dairy department of the *Scottish Farmer* a very practical article, written by a lady, we take it, from the signature, appears, from which we take extracts, omitting the rather able and interesting introduction treating of the composition of milk and its value as a food.

"Let us now suppose you have got the calves, and they must be fed. When the youngster is born it must have milk, and that milk must be its mother's own first milk, unless she is in such a state of health that it is not wise to give it. Some few farmers even now do not always give this milk to the calves; but, as it acts medicinally on them, they ought to have it. If they cannot, give them a moderate dose of castor oil; but the milk is by far the best thing for them. Do not, on any account, leave the calf all night without milk, because it happens to come into the world at an inconvenient hour; if you do you will most likely have considerable difficulty in getting it even to suck. It may be days before it can be got to take food properly at all, and such a check at this time will probably throw the calf permanently backward in its growth. Feed your calf as soon as it begins to look about it and attempts to rise. It is assumed that in all dairies the calf is removed some distance from its mother as soon as it is born. It is best not to let her see it at all if it is not to remain with her, or she will probably fret after it. If she frets, the milk supply and her health may suffer, and we must, in all our dealings with our dumb servants, be as humane as circumstances will permit. Calves are not generally fed as often as they should be. They will usually do better and be less likely to scour if they are fed often and in small quantities, beginning with about $\frac{1}{4}$ of a gallon, or a little less, divided into at least three, and, better, four meals a day for the first few days. Three meals a day should be kept up for a fortnight at least; better a month, or even longer, though, if hands are short and work heavy, the number of meals may be reduced to two after the first week or so. The quantity of milk should be increased till when the calf is five or six weeks old it should be getting two gallons a day; after that the increase may be slower, up to $2\frac{1}{2}$ gallons at three months. If the calves are well grown and strong, a change may be made in their diet when they are a fortnight old; if they are small or have received a check, they must have their mother's milk, or that of another recently-calved cow, for a month or six weeks.

"We will suppose now the calves are ready for the change in diet, from a fortnight to a month old or older. If they are ready at two weeks old they have really had very little milk, as the mother's milk is not fit to use for churning for at least a week, or for cheesemaking for ten days after calving. What the change will be will depend on what you have to give them; let us say you are separating or skimming your milk and have plenty of skim or separated milk. Separated milk is preferable, as it is available for use while quite sweet; skim milk is apt to be turned sour before it is creamed in warm weather. In separating or skimming you remove the fat and that only from the milk; therefore, to make suitable food, that fat must be replaced by some other easily-digested fat. Cod-liver oil does very well. Well-scalded linseed meal does well, or even well-made porridge. It requires, however, a good deal of skill and care to use these properly. For this reason you cannot do better than use one of the calf foods made for the purpose by those who have studied the question thoroughly and have means to get and prepare the best and most easily digested mixtures. There are several of these on the market, one of the best known of them is Bibby's Cream Equivalent. Whichever of them you choose, be sure to follow the instructions given with it carefully and exactly or you cannot expect success. Many farmers are extremely careless on this point. Having prepared the food according to instructions, mix a little—not more than say a tablespoonful—into about one pint of separated milk for each calf. Make this up to the usual quantity with whole milk and give at blood heat—about 90 degrees Fahr. The temperature should be taken with a thermometer, as it is important that it should be nearly correct. From this gradually increase the quantities of separated milk and calf food, and decrease the whole milk, till in a week's time you are giving no whole milk. The quantity of calf food will depend on what food you are using, and you must work according to instructions. If you are using linseed meal, increase it up to one pound per day when the calf is two months old. Of course, every feeder knows that different animals require different amounts of food. Some will safely take more than this; others will be better with less. The animal's condition must, therefore, be carefully noted, and the feeding regulated accordingly. If you are churning whole milk, and thus have no separated milk, buttermilk, if not too sour, will do very well. Used as above described, many good calves are reared in this way.

"The change being thus gradually made, the calves receive no check, and they take quite kindly to the buttermilk. Sweet scalded whey may be used where it is the only available thing, but as it is deficient both in fat and nitrogen, it is not a good food, and is best used with one of the calf foods meant to replace more than merely the cream, or with well-made oatmeal porridge. The calves

may be weaned at about $2\frac{1}{2}$ to 3 months old, if necessary, but it is best to give them their drink longer. Indeed, where there is plenty of separated or butter milk, let them have it up to six or even eight months old, if they will take it, but they will generally refuse it when they get to grass. Give them a bunch of sweet hay to nibble at when they are a few days old; some calves start to nibble very young. When they are eating freely they may have a little linseed or Bibby cake. This, however, is not really necessary if you do not want to force them in any way, though they will well repay you for it. Do not put them out at all till they are about six weeks to two months old, and in districts where 'hooose' is common they are better not out at all the first summer."—*Florence E. Sexton.*

Facts Concerning the Cheese Industry.

EXPORTS OF CHEESE FROM THE UNITED STATES AND CANADA.

Year.	Ratio U. S. to Canada.	United States. Pounds.	Canada. Pounds.
1870	10 : 1	60,000,000	6,000,000
1880	—	127,000,000	40,000,000
1890	1 : 1	95,000,000	94,260,000
1895	—	60,000,000	146,000,000
1898	1 : 3	46,000,000	150,000,000

The exports of cheese from the United States have fallen off, for several reasons, the principal one of which was that our manufacturers endeavored to make a cheap cheese, and after a time a spurious one known as "filled cheese." The effect of the manufacture of filled cheese was most degrading, doing immense harm to both foreign and home demand. Wisconsin took up the matter, and passed a law prohibiting the manufacture of filled cheese. The United States followed this example in spirit by placing a tax of two cents per pound on all filled cheese, thus practically prohibiting its manufacture.

While many American cheesemakers were studying to produce cheap cheese or filled cheese, the Canadian cheesemakers continued to educate themselves, and allowed nothing but pure goods to be made. In Canada there are many dairy schools, supported by the Provincial Governments, and many traveling dairy instructors are employed. The little Province of Quebec, for example, spends twice as much money annually on dairy instruction as does the State of Wisconsin. She not only supports a dairy school, at larger expense than does Wisconsin, but employs summer traveling teachers to give instruction in the factories. Where Wisconsin employs two traveling cheese instructors in the summer time (through the State Dairymen's Association), Quebec employs twenty-eight traveling cheese instructors doing similar work. The Dominion Government also pays a bonus to factories and storage houses equipped according to Government specifications.

While America's cheese exports have fallen from a maximum of over \$10,000,000 annually to less than \$4,000,000, Canada's exports have gradually increased until they now amount to over \$16,000,000 annually.

Because of the demands of the great cities for fresh milk, the manufacture of cheese is falling off in the State of New York, which was once the great producer of that article. Wisconsin has now the opportunity of taking up the business as New York drops it and greatly extending it. There is almost no limit to the amount of cheese which can be produced in our State if we will but direct our attention to the production of goods desired by the consumers. Wisconsin now manufactures about \$6,000,000 worth of cheese annually. We could easily double or quadruple the production. American Swiss cheese is largely made in Green County and the district 'round about. Something like 10,000,000 pounds of Swiss cheese is annually shipped from Green County. Brick cheese is largely made in Dodge County. In the other portions of the State, notably the lake-shore region north of Milwaukee, the Cheddar variety of cheese prevails.

Northern Wisconsin is destined to be the great cheese district of the United States, if the industry be properly fostered. The mild summer temperature, the abundant cool waters and the presence of grasses and clovers everywhere on lands when cleared of forests offer a combination for the production of cheese which is not equalled elsewhere in our whole country.

Dairying is one of the safest and most abiding of all agricultural industries, and every good citizen interested in the upbuilding of our commonwealth should use his influence at all times in its behalf.—*Wisconsin Experiment Station.*

A Good Milking Shorthorn.

Mr. H. B. Murray, Antrim Co., Ireland, in the *Farmer's Gazette* gives the following milk record of a pure-bred Shorthorn cow, now ten years old:—"On the 1st of July, 1899, she gave birth to twin heifer calves, which were reared in the usual way—new milk for six weeks, then gradually brought on to skim milk, with meal, etc. They would now readily sell for £10 each. From the date mentioned till July 1st, 1900, the cow yielded 11,752 lbs., or 1,175 gallons, of milk, and she continued in the dairy till August 12th, giving a further 420 lbs. of milk. Her highest yield in the day was 51 lbs. On the 4th of October, 1900, she produced a heifer calf (her eighth calf); since then she has been milking nearly as well, though her highest daily yield has been 48 lbs. In the 13 weeks she has given nearly 4,000 lbs."

Dairying Up to Date---II.

BY GEORGE RICE.

WATERING COWS—VENTILATION—EXERCISE.

We might divide dairymen into three classes for illustration: Those who continue to winter their cows on straw, with hay in the spring, to keep them from the condition known as "lifting," and requiring a couple of months on grass to recuperate, by which time flies and heat are so bad that cows under these conditions cannot be expected to average above \$20 to \$25 at the factory, just about what their board bill would come to for the year under this sort of feeding. Another man will winter his cows somewhat better, feeding more hay, and thus adding to the cost. Still, as they are in the spring in better "heart," they are in shape to do better work. The food bill may be \$30 to \$35, and the return \$35 to \$40 per cow. But a strictly up-to-date dairymen makes a far better showing. He may feed his cows \$40 to \$45 worth of feed, and receive in return \$60 to \$80, and even more. That is a handsome return for the intelligence he uses.

It is of up-to-date dairying that we are writing, to get the greatest possible return. And to do so, it is best to have the cows calve in the fall. I consider July and August the very worst months to have cows calve, and October to December the best. But cows calving at this time need good care, and to be kept out of the cold. This is all-important, even of more importance than feed, because the feed is bound to be wasted if proper care is not taken. A cow calving in the fall, well cared for and watered, will give a large quantity of milk during the whole winter, and be in fine condition, so that when she strikes grass in the "balmy month of May," it is for all the world like retapping a tree in the sugar bush—it causes a fresh "run." I get more milk, and especially butter, from a cow having her fresh in the winter and on winter food. But I know of no way of increasing a cow's milk flow after she has been milking five or six months but to put her on good grass. The grass is so very stimulating that I have had cows run up in their milk flow 18 lbs. a day in a week or ten days, and that too from cows that have had the very best care and most succulent food throughout the whole winter. It is not likely that a cow that has not had such good care would show such an increase, as she would be poor and partially dry, and so not able to respond.

In the winter care of cows giving milk, I consider that water is of the first importance, and it is too often the most neglected, all because there is no general knowledge as to the vast amount of water a good dairy cow requires. Well, I have some figures and facts to give upon that point. And as an "eye-opener," I will say I have given a cow 200 lbs. (two hundred pounds) of water every day for a week, when she made 572 lbs. milk and 25.1 lbs. butter. This seems an astonishing amount of water. Well, take another case—a cow calving in December: I find in November this cow, being dry, would not drink over 40 to 50 lbs. of water daily, but when she drew near calving time she required more water, 75 to 100 lbs. daily. After calving she required 125 to 150 lbs. water daily. This is a cow of a 60-lbs.-milk-a-day capacity. It would be hard to give the exact amount any cow might require of water daily, but I find the amount of water required bears a close relation to the amount of milk given; and a cow four or five months in milk does not require as much water as she did when fresh. I want my cows to drink all the water I can induce them to, by giving them water often and not too cold, not below 50 degrees (60 or 70 degrees is better), and I don't want a cow to have over 30 lbs. water at any one time. By giving attention to the water supply, we get more milk when fresh, but it also greatly helps to keep up the milk flow. Again, too much water given at one time will make a cow scour. A friend was in my stable the other day, and complained of his cows scouring, and wanted to know what to feed them. On learning his way of watering, I was sure it was not the feed, but the way of watering, as his cows were watered three times a day, but sometimes they drank two and three pailfuls, and probably the next time very little, and it is just this seesaw watering that causes trouble and sets a cow scouring, when she is bound to soon shrink in her milk. Another peculiarity of cows is that they want water after feeding, even when fed on the most succulent food. And a knowledge of this trait means money to the owner, because if a cow does not get the water in sufficient quantity and at the right time, she does not do so well, cannot digest and assimilate her food.

Considering the amount of water a cow requires, and the time when she requires it, it is of course bad practice to water only twice a day at a large tank outside, as sometimes she may take too much and at other times not enough, and if, in addition to this, the water is ice cold, a cow will soon become "discouraged." Hence, I say, the first thing to do in commencing winter dairying is to put a little common sense into the cow's water supply.

Now, from the amount of water a cow drinks, not to mention the succulency of her food, and her motherhood, it should be unnecessary to say that a cow wants to be kept warm and comfortable, and this can only be done here in winter by keeping her in a warm, well-ventilated and well-lighted stable. (I shall probably describe an up-to-date stable later.)

There seems to be a general belief that a cow won't do well without exercise. Now, if you study