

as to save all the warmth given off from the animals, it has been the uniform testimony of each farmer, as he placed his cows in his new and warm stables, that he required but two-thirds of the hay to keep his cows that he did before. Among the numerous farmers who have heard speak of their experience with such barns, there never has been any less estimate of the saving of food effected. I commend their experience to the consideration of the reader, and submit whether the first item in the economy of winter food for the dairy, is not the comfortable housing of the herd?

Early Spring Feeding.

Supposing the cows to have been so well provided for as to have arrived near the milking season with flesh and strength unabated, preparation for spring may be entered upon by a moderate increase of feed, two or three weeks before the cows are expected to "come in." This is necessary to increase their vigor to sustain them in the severity of approaching labor, and supply the rapid growth of the fetus. Some kind of grain should be used for this purpose. Corn is often used, but any other of the cereals is better. Corn is a little too heating for this period. Some food richer in albuminoids should be used, a mixture of different kinds of grain in which oats form a prominent item, has proved very satisfactory in our experience. But nothing that we have ever fed at this critical season of the year has ever proved so efficient in good results as green and succulent food, beets, turnips, potatoes, carrots, apples, cabbage, ruta bagas, &c., all of which have seemed to serve the same purpose. They improve the general health of the animal; they are easily digested and assimilated; they increase the volume of the blood, making it thinner, and its circulation into the minute vessels more complete and even, and thereby aid most effectually in the relaxation of tissues and expansion of parts so necessary at this particular time. Where roots have been given two or three weeks in advance, labor has been easier and sooner recovered from, and the flow of milk has been larger than when they have not been used. Whether it will pay to raise roots to feed through the entire winter as a substitute for hay, may be a question, but that they contribute to the general health of the animals at any time when fed in reasonable quantities, is not doubted. Though good at any time, they have a special utility in the spring. They not only prepare the cow for an easier labor, but they prepare the whole system for an easy and gradual change from foddering to grazing, so that no shock is felt. They cleanse the blood, and put the milk-glands not only, but the entire glandular system, in perfect working order, and thus extend their influence through the whole summer. When cows come in during the foddering season, there is nothing that will so well prepare them for a bountiful return during the whole remaining period of lactation, as a moderate use of green food while the foddering lasts. For feeding at such a time, it pays its cost many times over, let the question of profit at other times be answered as it may.

In the early part of the season the active state of the milk-glands will enable a cow to carry off in her milk all the nutriment she can digest above what she can assimilate. If there is any profit in milking at this season, it is in making her digest all she can. To this end she should not only be supplied with all she can eat of food rich in the elements of milk, but her dry food should be selected from such materials as will digest most easily and rapidly. The propriety of providing early cut hay for feeding at this time, will suggest itself, as its easy digestion and its richer and better nutrition, have already been explained, and need not be dwelt upon now. Of course no skilful feeder will select late cut hay, or ripe stalks, or straw for cows in milk in the spring. But sometimes necessity compels their use. Though not the most profitable food, they may serve a valuable purpose to carry a herd along to grass; and if skilfully compounded with meal, will give fair results. For directions for feeding meal with coarse fodder the reader is referred to an article entitled "Mixed food for the dairy" in THE CANADA FARMER of January 30th, 1873.

We have now followed the food of the dairy through the year; and cautioning the dairyman to omit heavy feeding for milk for ten days or so after his cows have come in, and reminding him how much his pocket—if not his better nature—will be improved by kind care and watchful attention to the comfort of his stock, we leave the subject for the present.

Milk Dairies near Cities.

Near the older cities of the United States are extensive and costly buildings and appliances, for the saving and cooling of milk. In the establishments supplying the city of Chicago, but little machinery is used. The milk is procured from numerous stations lying along the railroads radiating from the city, the largest amount being brought over the lines controlled by the north-western railway. The number of cans contributed from each station within a radius of fifty miles varies according to the number engaged in the business.

In the summer, the milk is cooled by placing the cans, either in cool running water, or that from a pump or open well, in such a manner as to give the water free access to all sides. About half an hour is required to sufficiently cool the milk after which the cans are covered with blankets to prevent them from again being heated. In the late fall, the winter and early spring, of course this is not necessary. Some farmers have a vat for cooling, sufficiently large to more than hold the supply, where it may be stirred while cooling, but this practice does not meet with approbation. That these dairymen find the business profitable there is no doubt, since each cent per quart received for the milk is equal to about fourteen cents per pound for butter; fourteen quarts of milk being the average for one pound of butter during the year. This again, however, will vary, some particular cows giving milk, ten quarts of which will make a pound of butter, while others will take sixteen. The average quantity of milk per cow in dairies is said to be 1,900 quarts per year. This would give an average of over ten quarts per cow for six months in the year. 1,900 quarts of milk at two and a half cents per quart is \$47.50. The deacon calf is worth from one to two dollars if sold. 1,900 quarts of milk at the average should produce 135 pounds of butter, which to realize two and a half cents per quart of milk must be sold for over thirty-five cents per pound, fully ten cents more than the average price of the best dairy packed article in Chicago. Again 1,900 quarts of milk at the average of ten pounds or five quarts of milk to one of cheese will produce 380 pounds, which at fourteen cents per pound is \$53.20, showing a difference in favor of cheese of \$5.70 per cow, a margin sufficient to pay for the erection of buildings and machinery.

There is no difficulty in selling really first-class butter made under the factory system to special customers at thirty-five cents, or even forty cents per pound, if the quality is certainly guaranteed to be uniform, and of the highest grade; and the difference between the value of the buttermilk and whey ought to make the difference between the money value of the butter and cheese. It will be seen, therefore, that the manufacture of cheese and butter are among the most important of those connected with agriculture, and that these manufactures in districts far distant from our great cities may be made fully as profitable as selling milk direct is near the cities. — *Western Rural*.

When Should Cows Come In?

At a meeting of a Farmers Club, at Evans, upon the question, when should cows come in to give most milk in a year? a correspondent of the *Live Stock Journal*, of New York reports that most of the members answered, middle or last of April, or just before grass comes into full bite.

Mr. Clark thought if the cow came in in winter, and was fed well till grass came, she would give more pounds of milk during the year than if she came in on grass; but in discussing the question of profit, the extra amount of feed required for winter would have to be taken into account.

Mr. Stewart said his experience upon this question had surprised him. He had supposed that a cow coming in on grass and being well fed for the usual period of milking, would give more milk than if she came in during the cold season. Had tested it on several cows, and in every instance the same cow gave more when she came in during January than in April or May. Is milking a cow now that came in, January 19, 1871, and gave 6,287 pounds in 310 days. She came in last April 27th, has given in 258 days 4,271 pounds of milk, and is giving now eleven pounds per day; but if she could give eight pounds average for forty-two days more, she will still fall 1,671 pounds short of her production when she came in in January, and she has been fed higher during this than the previous season. This cow has in two previous instances shown as a great difference in favor of coming in during winter; and with four other cows he has found the same rule to hold. From his experience he believes more butter can be made from the same cows when they come in in fall or winter than in April or May. But they must be

well fed during milking time in winter, and then, on grass in summer, they will fall but little below those that came in in spring.

Mr. Irish had a cow that came in in November, 1871, and had given milk ever since. She made a pound of butter per day the first winter, and she is now milked with another cow that came in early last March; together they give thirty-four pounds per day, and make ten and one-half pounds of butter per week. They are both coming in again the latter part of March next. He has found it profitable to feed cows for milk in winter.

When to Dry-off Cows.

Mr. Harris Lewis, writing to the *New York Times* upon the subject of winter feed and care of cows, has the following sensible and true remarks:—"Cows in good condition, and those inclined to become fat during winter, may be milked up to within six weeks of calving time to good advantage. In most cases, milk cows which become very fat at any time after first coming in milk, will, as a rule, ever after be more inclined to lay on fat than to produce a large quantity of milk. Hence an inclination in the cow to put on fat may be regarded as an unfavorable indication, so far as her usefulness as a milker is concerned, and should be guarded against by keeping her in milk to a later period of gestation. But cows which go into winter quarters in low condition as to flesh should be dried off sooner, allowing them more time to recuperate their wasted energies. This will be less expensive than a shorter time of rest and high feeding, and much better for the cow and her offspring.

"Gentleness in the care and management of dairy cows is so essential to success, that it cannot be too highly commended, or carefully practiced. That man who is very passionate, not only passionate but ugly, not only passionate and ugly, but brutal, should never engage in the dairy business; should never become the owner of any living thing which would be subject to his control or dependent on his care. There is no law more firmly fixed and unalterable than that like produces like in our conduct toward, and treatment of, the lower as well as the higher orders of created beings. As certain as the day follows the night, kindness to the brute begets kindness in return; affection begets affection; hate begets hate, and brutality begets brutality in return. The cow is naturally a quiet, confiding animal, and becomes most profitable to that owner who carefully studies her nature and habits; who anticipates her natural wants, and gratifies all her legitimate desires."

Adulteration of Milk.

Under the Adulteration Act in Birmingham, England, several milk dealers have recently been prosecuted and fined the mitigated penalty of 20s. and costs for selling milk diluted with water. In defence of the milkmen it was urged that the article was sold without fraudulent intent, that only 20 per cent, which appears to be the usual trade dilution, was added, and that 1½d. per pint only was charged for the innocent mixture, whilst pure milk undoctored sold at 2d. or even more. But the magistrates very properly insisted that the public must be protected from imposition, and if dealers desired to dispose of milk and water with impunity they must inform their customers of the mixed nature of the article vended. Were this plan carried out to the letter the usual milk dealers sign in many shops in Birmingham and elsewhere would have to be thus amended, "Milk and water sold here."

The Cow's Teat.

In Europe, as milking is mostly done by women and girls, who have small hands, the size of the cow's teat is not so important as in America, where the milking is mostly done by men with large hands. This is a point which should be particularly attended to hereafter by breeders of dairy stock. No bull should be used by them which is not dropped by a cow with good sized teats, placed square on the bag, several inches apart, and slightly pointing outward. Of course the dairy qualities of the dam of this bull should also be extra good. Ayrshire, Devon and Jersey cows of the present day do not, as a general rule, have as long and large teats as they did twenty years ago, according to my best recollection; and the bodies of the latter, more particularly, strike me, also, as a general rule, as being of diminished size, compared to those we used to see imported by the late Messrs. Tainter and Norton, of Connecticut. The blood of these old importations is highly appreciated by the best breeders of the present day, and their descendants command high prices. These cows gave very rich milk, churning extra large quantities of butter. — A. B. ALLEN, in *Live Stock Journal*.