

Milking.

Cleanliness is often lauded in reference to milking, but few appreciate the extent to which it may be applied. To keep the hands, teats, and milking utensils clean, is by far not all. It should not be supposed that it will do to strain out any refuse that may have fallen into the milk. Odors cannot be strained out. Milk being very susceptible of unpleasant odors, a double precaution is necessary—even more, for these odors cannot be prevented from affecting the quality of the butter or cheese. The foul gasses from the droppings of the cow, and even the breath or emanations from the skin, may often prove deleterious, particularly in warm weather. For these reasons the cow should be milked as quickly as possible. There are also many other reasons why the milking process should not be delayed. The cow sometimes becomes irritable and skittish, especially by a new milker, by unusual alarms, or by unnecessary delay, and she then refuses to let down her milk. The milking qualities of many fine cows have been depreciated in this way. Unkind treatment has a still more injurious effect. If a cow is naturally timid, a good plan is to give her something relishable to eat during the process of milking. This will also entice her to come home and willingly submit to be milked. Regularity in feeding and milking are greatly to be desired for similar reasons. Natural viciousness or depravity may be blamed, but most depends on the bringing up.

Butter-making in a Nutshell.

The Wisconsin Dairymen's Association offered a prize of \$15 for a short essay, not to exceed 250 words, on butter-making. There was a keen competition, and many valuable little articles were sent in. The first prize was won by Mr. D. W. Curtis, of Fort Atkinson, and is remarkable for its conciseness. It reads as follows:

COWS.—Select cows rich in butter-making qualities.

FEED.—Pastures should be dry, free from slough-holes, well seeded with different kinds of tame grasses, so that good feed is assured. If timothy or clover, cut early and cure properly. Feed corn, stalks, pumpkins, ensilage, and plenty of vegetables in winter.

GRAIN.—Corn and oats, corn and bran, oil meal in small quantities.

WATER.—Let cows drink only such water as you would yourself.

CARE OF COWS.—Gentleness and cleanliness.

MILKING.—Brush the udder to free it from impurities. Milk in a clean barn, well ventilated, quickly, cheerfully, with clean hands and pail. Seldom change milkers.

CARE OF MILK.—Strain while warm; submerge in water 48 degrees. Open setting 60 degrees.

SKIMMING.—Skim at twelve hours; at twenty-four hours.

CARE OF CREAM.—Care must be exercised to ripen cream by frequent stirrings, keeping at 60 degrees until slightly sour.

UTENSILS.—Better have one cow less than be without a thermometer. Churns without inside fixtures. Lever butter worker. Keep sweet and clean.

CHURNING.—Stir the cream thoroughly; temper to 60 degrees; warm or cool with

water. Churn immediately when properly soured, slowly at first, with regular motion, in 40 to 60 minutes. When butter is formed in granules the size of wheat kernels, draw off the butter-milk; wash with cold water and brine until no trace of butter-milk is left.

WORKING AND SALTING.—Let the water drain out; weigh the butter; salt one ounce to the pound; sift salt on the butter, and work with lever worker. Set away two to four hours; lightly re-work and pack.

Quality of Milk as Affected by Food and Breed.

In a recent lecture delivered before the students of the Royal Agricultural Society, Cirencester, England, Dr. Völker made the following remarks:—

In the year of 1862 I made some experiments with a view of finding out, if possible, how it was that some of our cows produced at that time such bad milk. Our cows were wretchedly fed, and we had rancid butter and very indifferent cheese. I wanted to find the reason of the poor milk, and I saw the cows milked, and when I analyzed the milk regularly in the laboratory I was perfectly astounded to find how, with a change of food, the character of the milk changed immediately. In the month of September, 1862, our cows gave milk that only contained 1½ per cent. of pure butter fat—you can add one quarter more to represent the quantity of commercial butter—and 90.7 per cent. of water. In the evening the cows milked a little poorer—90.7 per cent. of water, and only a little over 1½ per cent. of pure butter fat. Mr. Coleman thought the scant herbage accounted for this poverty of the milk, and also for the scanty supply which the cows furnished. He therefore put the cows in the stable in the evening, and gave them hay, mangolds and rape cake (rape cake is very good food if you can get it free from mustard), and the result was that immediately the quality of the milk improved. Then he gave them the palm-nut meal, with the same result, and so rapid was the improvement that, by giving the cows concentrated food in the evening, the milk of the following morning was immediately very much richer than that of the evening before, so that in something like six hours the food told upon the quality of the milk.

It is surprising how rapidly oily matters introduced into the food will find their way into the milk. I mention this to throw a little light on the question whether morning or evening milk is the better. It is entirely a question of feeding. If you feed the cows well in the day the evening milk is rich, and if you leave off the feed at night, the morning milk is poor. As a rule, therefore, the evening milk is somewhat richer than the morning, but it does not follow that it is invariably the case. I find, for instance, during the twelve months to which I have referred, that out of thirty-two samples of morning and evening milk, in eight cases the morning milk was poorer than the evening; on four days the morning milk was the richer, while on the remaining four days there was no appreciable difference between the quality of the morning and evening milk.

From a table before me, I see I have found as much as four per cent. of pure butter fat,

and I have found as little as 1½ per cent. I have found similar difference in experiments which for the last four years I have carried on under my own personal supervision, seeing the cows milked and so forth, at the shows of the British Dairy Farming Association at Islington. In 1879 we had in the showyard an Ayrshire cow whose milk produced 5½ per cent. of pure butter fat, while that of a Dutch cow gave as little as 8½ per cent. In the succeeding years we had similar variations, but I cannot help giving you the results of the last year's milk trials which have just passed through my hands, relating to the show held on the 24th October last, and I confine my quotations to prize winners. The first prize animal, a large Dutch cow, a very profitable animal to the milk dealers, gave in the morning 31 lbs. 4 oz., or about three gallons, and in the evening 29 lbs.—total, 60 lbs. 4 oz., roughly speaking, six gallons of milk in the day. But when we examined the milk I found that the produce of the Dutch cow gave only 2.86 of pure butter fat, total solids 12.12, leaving 88 per cent. of water—evidently not a rich milk. The second prize cow, a very taking little Devon, gave in the morning 15½ lbs.; in the evening 11 lbs.—total 26½ lbs. of milk in the day, or about 2½ gallons less than half the quantity of the Dutch cow. But the milk of the Devon cow gave 5½ per cent. of pure butter fat, and would, therefore, make 1½ lbs. of saleable butter per day, while the six gallons of milk of the Dutch cow would only make 1½ lbs. of butter.

Beef Breeds for the Dairy.

A war is raging in the agricultural press, led chiefly by numerous correspondents on both sides of the Atlantic, with regard to the class of cows which would be most profitable in dairying districts.

In our last issue we exposed the folly of using anything but dairy cows for dairy purposes; and we are pleased to find that Mr. W. D. Hoard, President of the N. W. Dairymen's Association, Wisconsin, supports our views. In his paper read before the Wisconsin Dairymen's Association, he says:—

"Get this idea of beef out of your heads as soon as possible. Breed only from the best strains of dairy blood. If butter is your object, then turn the forces of your herd towards the Jersey or the Guernsey. Get a pure bred bull to start with, and you will wake up to an enlarged idea of the value of his calves for cows, not for the slaughter house. If cheese is your object, breed from a Holstein or an Ayrshire. These four families are the solid cow of the world. If you are a dairyman let the Durham, Hereford, Polled Angus and the Galloway alone. The sooner you take a sensible view of this question of breed, as do the horsemen, the sooner you will have calves that it will pay to keep. You cannot make a cent fighting the laws of nature. Get into the channel of her manifest teachings and act in obedience thereto, and she will further your purpose."

This view was supported by Mr. Hazen, the pioneer dairyman of Wisconsin, and ex-president of the State Dairymen's Association.

In the State of New York the average value of cows is \$33.50 per head, and the average value of their products is exactly the same amount for each cow per year. Three acres of land are required for her annual maintenance,