

## The Dairy.

### Milking.

Milking is an art that requires to be learned as much as any trade. An expert will, at sight, detect an unskilful hand as readily as a farmer would distinguish a want of acquaintance with the use of an axe or a scythe by seeing one attempt to use either of these articles. Any one who determines to do so, can milk a cow, or use an axe, or a scythe, after a fashion, but to do either to the best advantage, requires skill and experience.

There are three distinct points to be regarded in milking. The first relates to the treatment of the cow; the second to cleanliness; and the third to the manner of extracting the milk.

The cow is naturally sluggish in her movements, and should not be hurried out of her natural gait. She should never be driven to the place of milking faster than a walk, and if she has far to go, the walk should be a slow one. Hurrying a cow when she is full, and the weather warm, hastens the circulation of her blood, and heats both her blood and her milk. A very little heating of the blood perceptibly affects the milk. It increases its odor as well, raises its temperature, and modifies the butter or cheese made from it. On this account driving cows with a dog is not to be recommended. We have seen the milk of a dairy numbering over 30 cows, perceptibly affected by the milk of a single cow driven in haste by a dog. She happened to be out at night and was accidentally left in the lot a hundred and fifty rods distant, when the herd was driven to the barn. Against our protest, a dog was sent after her and she came running to the barn, panting and frightened. In 10 or 15 minutes afterwards she gave about six quarts of milk instead of 10, hot and odoriferous. It was mixed with the rest of the milk, and as was then customary, left through the night without any other cooling than it got by stirring. The extra odor of the feverish milk, acting as a ferment in the slowly cooling mass, made its impress upon the milk and curd of the next day. The milk of this cow was not regular till after several milkings. This was an extreme case. Less heating and worrying produces less effect, but never fails to do injury.

Unless the number of cows is very small, and they are all very quiet and peaceable, they had better be fastened in a milking barn or shaded stalls, rather than to be milked in an open yard. A large herd requires a yard so large as to give too much chance for dodging, running, hooking and disturbing each other. It soon becomes trod up and filthy, especially in moist weather. The practice of milking in open yards is rapidly going out of use, especially in large dairies.

All harsh and violent treatment should be entirely avoided. Pain and fear, worrying and solicitude, are clearly detrimental to milk secretion, and never fail to make the cow hold back a part of her mess, if they occur at the time of milking. Kind and gentle treatment and quietude promotes secretion, and are absolutely essential to drawing all the milk.

#### Cleanliness.

So much has been said and written in regard to cleanliness in milking, and it is so obvious that milk which is to be used for, or to be manufactured into, human food should be perfectly clean, that it seems almost superfluous to call attention to the subject. But in spite of all that has been said, filthy practices creep into use. One of these is milking in the rain or when the cow is so wet that the water will run down her sides and drip into the milk pail. The hair and skin of the cow are covered with accumulations of perspiration, and to soak these up and rinse them down her sides into the milk, is as injurious as it is filthy.

Another defect sometimes occurs from not thoroughly cleansing the teats and udder before

beginning to milk. A thorough brushing is always necessary to get off the loose hairs and dirt, and if the teats have become otherwise filthy, they should be washed, but not milked till they are dry. A pail of water and a cloth should always be at hand for this purpose. When milking is done in a stable, there is sometimes a neglect to provide absorbents to soak up liquid excrement, and to prevent spattering. This is both a violation of cleanliness and wasteful. It can easily be guarded against by the use of straw, sawdust, dried muck, or something of the kind. Still another filthy practice is that of drawing a little milk into the hand and waiting the teats with it before beginning to milk. Some milkers insist that this is not uncleanly; to which it is only necessary to reply that any person whose sense of neatness is so obtuse as not to discover, without argument, that the practice is a filthy one, is unfit either to milk or work about a dairy.

Besides objections on the score of filth, the first milk drawn contains so little cream and so much saline matter, that it makes the surface of the teats, dry and harsh and inclines them to chaps. If, after the milking is done, the pail is set aside and the teats wet with some of the very last strippings, that are little else than cream, there would be less objection to the practice.

To mention in detail all the points that offend against cleanliness would be tedious. They must, for the most part, be left to the milker's sense of neatness, which certainly ought to be of an appreciative character. Uncleanly milking is quite too common. If all the milk of which butter and cheese are made could be taken to the dairy-house as undefiled as it exists in the udder, the price of these luxuries would be at once materially advanced.

#### Drawing the Milk.

The manipulations in milking are best learned by practice. But there is philosophy in milking as well as in everything else, and a right and a wrong way of doing it, and because the right way is the best it should be pointed out and followed. However plain and simple the art of milking a cow may be considered, the particular manner in which it is done may have much to do in modifying the profits of the dairy.

A description of the internal structure of the udder will explain the reason for certain directions insisted on as essential, which might otherwise appear unimportant. The udder is divided into four parts, entirely distinct from each other, except as they are held together by membranous ligaments.

The milk in each is held in confluent tubes, which, like the roots of a tree, are all contracted into one, just above the teat; the milk entering that funnel-shaped organ by a single channel. Just at the upper end of the teat the walls of this channel are contracted and the contraction is surrounded by a band of muscular fibres. The will of the cow can operate on this band, contracting or expanding it at pleasure, making it operate like a valve. At the junction of each smaller tube with a larger one, is a similar contraction and band, also under the control of the will. Ordinarily, these bands are contracted (as in the neck of the bladder) so that the milk has to crowd its way through them to get from the smaller into the larger tube.

This is an admirable arrangement for sustaining the weight of the milk equally in all parts of the udder, and preventing it from pressing heavily upon the teats.

When the udder is full, if the milk is drawn out of the teats, relieving the pressure in them, it requires a vigorous effort of the will of the cow, to prevent the pressure above from crowding the milk down to fill the vacancy. If the udder is only partly filled, she can hold the milk back more easily; and the less there is in it, the more easily can she maintain the tension of the muscular bands necessary to prevent entirely the milk from flowing through them. When the

milker first takes hold of the teats and begins to milk, the excitement causes the cow to contract the bands so firmly as to hold back the milk perfectly for a time. But presently this vigorous contraction will begin to slacken, and the milk will begin to pour through, and if all is quiet, she will relax the bands fully, when the milk settles down upon the teats, and if quickly drawn, it can be all milked out to the very last drop.

But this perfect relaxation will only last for a short time. If the milk is not soon extracted, she will begin to tighten up the muscular bands again, and the last part of her mess will be held back and permanently retained, when the milker probably thinks he has got it all, because it stops coming. A cow should, therefore, be milked quickly as well as quietly. It is natural for her to part with her milk in a few minutes. A calf will draw a large mess of milk in three minutes, and a milker should come as near that time as possible. If the time of milking is much prolonged she will become impatient and be sure not to "give down" perfectly. The quickest milker gets the most and the best milk, because he gets all the "strippings," which are the richest part.

The more quiet and peaceable the cows can be kept while being milked, the more perfect will be the relaxation of their udders and the longer will it last. If anything occurs to disturb or excite or attract their attention, the relaxation will cease in a moment, and if it occurs near the close of the milking, some of the best milk will be held back till the next milking, when it will have become the poor, blue milk that is first drawn. A double loss ensues from every such occurrence, because leaving milk in a cow's bag always tends to diminish secretion.

The method of milking and of treating the cows should be in accordance with the foregoing facts. They should be kept as quiet and comfortable and free from excitement as possible. To accomplish this regularity is of the first importance. The cows should come slowly and peaceably into the barn or yard, but promptly at a certain hour. Five in the morning and five at night are good hours. Some milk at five in the morning and seven at night, but it is not well to divide the time so unequally. Observations have shown that milkings 12 hours apart will give 30 lbs. of cheese to the cow, in a season, more than when they are 10 and 14 hours apart; and a greater inequality will make more difference still.

An hour is long enough to keep the herd confined, and milkers enough should be employed to complete the work in that time. This will require one hand to about 10 cows, and that number is about as many as one can safely milk at a time without danger of injury to the hands of the milker or to the cows. The number had better be less than more. Each milker should have certain cows to milk, and he should milk the same ones every time, and in the same order, so as to divide the time equally. Changing milkers attracts the attention of the cow and excites a little feeling of cautiousness, and she does not "give down" as perfectly as when always milked by the same person.

Each milker should have a good stool of his own, and when he sits down to milk should sit snug up to the cow. Getting off at arms' length not only makes awkward and hard work for the milker, but it exposes his every motion to the gaze of the cow, and keeps her attention aroused, and gives her the advantage of position if she should feel disposed to use it.

Pail room enough to hold the whole mess should always be within reach of the milker, for, toward the last end of the milking, he cannot get up and sit down again, and get all the milk. When once begun, a cow should not be left till she is finished. The pail being placed safely against catching dirt and spilling, let the work go on silently and as rapidly and quietly as possible, always using both hands. Milk the left hind teat with the right forward one, and the right

with the left