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S. J. Galloway, fruit inspector, says: Hillsboro, Or., Jan. 2, 1911. Editor Argus, As I have many inquiries for a good Lime and Sulphur solution, will say that by severe tests I have found the "Aetna Brand" stands the test O. K. S. J. Galloway, County Fruit Inspector.

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Farm Dairying



Ayrshire Bull

VIII.—Milk and Milking

By LAURA ROSE,

Demonstrator and Lecturer in Dairying at the Ontario Agricultural College, Guelph, Canada.

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VERAGE percentages of constituents of milk are:

	Per cent.
Fat	3.6
Casein	2.5
Albumen	0.7
Sugar	5.0
Ash or mineral matter	0.7
Water	87.5
Total	100.00

The most variable constituent of milk is the fat. It is in the form of minute globules averaging the ten-thousandth part of an inch in diameter.

The fresher the cows in milk the softer and larger the fat globules are. The longer in milk the smaller and more tallowy the globules, resulting in "strippers," making very stubborn churning and crumbly, tasteless butter.

The food of the cow has a marked influence on the composition of the milk fat. White milk does not always indicate poor milk; neither is yellow milk necessarily very rich. Grass, bright clover hay, carrots, pumpkins and yellow cornmeal tend to deepen the color of milk.

Rich foods may stimulate the production of fat for a short time, but the cow will return to her normal percentage and perhaps—due to forcing—fall below it for a while. At the same time the percentage of fat in milk is by no means constant. In every 100 pounds of milk there are 87 pounds of water.

The Colostrum.

The fluid the cow yields directly after calving is known as colostrum, which differs essentially in composition from normal milk and is usually considered unfit for human food.

The milk gradually loses its colostrum character and in from five to ten days after the cow has freshened is generally normal.

Children or weak handed persons should never milk good cows.

Did you ever think why a calf or a lamb bunts its mother when getting its supper? Instinct taught it that by giving a bunt or two the milk came quicker—the nerves were thereby excited. Some milkers might take a lesson from the calf and instead of trying to get the udder as well as the milk into the pail, let them press upward instead of pulling downward so hard. The udder is less likely to become injured or unshapely.

Much might be said in favor of women as milkers. The withdrawal of women from the dairy industry, but milking comes at such inconvenient hours for the housewife, and her duties are already so manifold she should not be asked to go to the stable to milk.

Better to have a dirty floor than a dirty atmosphere in a stable at milking time. The milk does not touch the floor, but it passes directly through the atmosphere. If you want pure milk the air must be pure in which it is milked. Some of the best dairies have separate milking sheds.

To secure clean milk the cows should be brushed down. The stables should be cleaned and ventilated and a little sand plaster or other absorbent sprinkled in the gutters. Just before milking begins the udder should be wiped with a damp cloth and, if soiled, washed with warm water.

The milker should have on a suit of washable material, which should be washed when dirty. The milker's hands should be clean and free of disease. Do not milk with wet hands. Some milkers have the bad habit of moistening the hands with the first streams of milk. The milk in the udder proper is practically free from germ life, but as the cow lies down on the never too clean floor, bacteria of the worst form find their way through the opening at the end of the teat, and in the milk in the teat canal they gloriously thrive and multiply. This is the milk that should go into a small tin for the barn kitty. While bad for the milk supply, I have never known it to kill a cat. Do not milk it on the barn floor or in a few days you will have a most offensive smell arising. A good practice is to rub the hands with a little vaseline or lard.

If either the fore or back portion of the udder is poorly developed, milk that part first in the hope of stimulating the nerves and overcoming to some extent the deficiency.

Always milk the cows in the same order. Milk as nearly as you can at the same hour, having equal periods of time between the milkings. Cows giving a very heavy flow of milk are often milked three or four times during the twenty-four hours.

Milk in the same place, and there is no better place, summer or winter, than a clean stable.

If one has a night pasture near the barn the cows, after being milked in the evening, may be turned into it and are handy to bring in in the morning.

Cows get accustomed to a milker, and it is better for the same person to milk the same cows.

A person before entering the stall or touching the cow should speak to her in a gentle tone, calling her by name. The milker should sit close to the cow's right side and first rub the udder with the hands to stimulate the nerves. Many milkers milk the right back teat and the left front teat first, then the left back teat and the right front teat. Milking opposite quarters in this manner there is no full quarter in the way. Close the fingers gradually over the teat, beginning at the top, and press the teat more against the cushion of the thumb than into the hollow of the hand. If the teats are short the milking has to be done at first with the thumb and two fingers until there is room for the whole hand. When stripping press well up into the udder with the thumb, so as to bring the last milk out of the milk cistern at the top of the teat. Do not pull or press too hard on the teats, but be sure to get all the milk there is if you wish to keep up the milk flow. Thorough milking develops the udder.

If there be any jumps or soreness in the teats or bloody, unnatural colored milk, the milk from those quarters should not be mixed with the rest.

Cause of Udder Trouble.

Much udder trouble is caused by bad milkers bruising the teats or udder, thus causing inflammation and more danger of losing a teat than from garget.

Never use a wooden milk pail, as the milk gets into the pores of the wood and the pail soon becomes foul. Use hooded pails.

To keep the cow from switching her tail during milking nothing is so convenient as a hoop made from five to



CLIP FOR FASTENING COW'S TAIL.

six feet of heavy rope. This thrown over the rump does away with the annoyance of having the tail strike you in the face. A piece of cord with a small weight at the end tied to the rope and twisted around the tail makes the hoop more effective.

There is no more effective way of drying up a cow than leaving a little milk in her udder. Besides, it pays to get it all, for the last drawn milk contains as high as from 10 to 12 per cent of fat, while the first has only about 2 per cent.

Do not return to the cows to strip them again. It does them no good, but rather an injury. Just here, lest I forget, do not save the strippings by themselves to add to the cream can. They lower the percentage of fat in the cream and, if added warm, injure the quality of cream and butter.

Quiet Stable Needed.

No rough noise should be allowed in the dairy stable. Cows like to be kindly talked to, and singing has a charm for them.

Harsh treatment, chilly winds, cold rains, worrying flies—in fact, anything that excites, irritates or brings discomfort to the cow—decreases very materially her profitableness. If a cow gets frightened, nervous or fretful the nerves in the udder become tense and refuse to act on the cell structure, and the milk cannot come, for it is not being made. In such a case try to quiet the cow by diverting her attention. Rub her behind the ears. Talk to her. Get her mind back to her business by being kind to her.

Sometimes from no apparent cause a cow holds up her milk persistently. A heavy weight, such as a bag with sand in it, placed over the loins may relieve the tension.

It is not well to form the habit in the cows of eating while being milked. Exposure on cold days or nights results in a decreased milk flow, a general lack of thrift and a poorly nourished calf. Cows must be kept comfortable at all times.

Kicking cows are usually made so by the persons who handle them. Impatience with the timid helper often results in a kicker. The best device perhaps for a kicker is to put a ring in the ceiling overhead and with a halter on the cow draw her head up pretty taut when milking her. Other methods are to tie the hind legs together or to draw the right hind leg slightly back with a rope attached to the wall or a post.

When the fly time is past it is well to cut off the switch just below the tail bone; also to shear the hind quarters with a pair of horse clippers and trim the long hairs from the udder.

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