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How to Produce Better Milk and Cream

The University of Nebraska Agricultural College Extension Service
and United State Department of Agriculture Cooperating
W. H. Brokaw, Director, Lincoln

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How to Produce Better Milk and Cream

By E. L. REICHART

Would you refuse a $20.00 bill when offered you as a present without any strings attached?

Would you not like to have it said that your creamery produces the best butter in Nebraska?

Would you not be glad to have people refer to your county as the best dairy county in Nebraska?

Of course you would because it would bring more cattle buyers into your community and you would get better prices for your bull and heifer calves.

You can accomplish all these things by producing higher grade milk and cream. Perhaps the suggestions on the next few pages will help you produce better milk and cream.

Expensive Equipment Not Necessary

Quite frequently producers of milk or cream are under the impression that in order to have a good quality of product it is

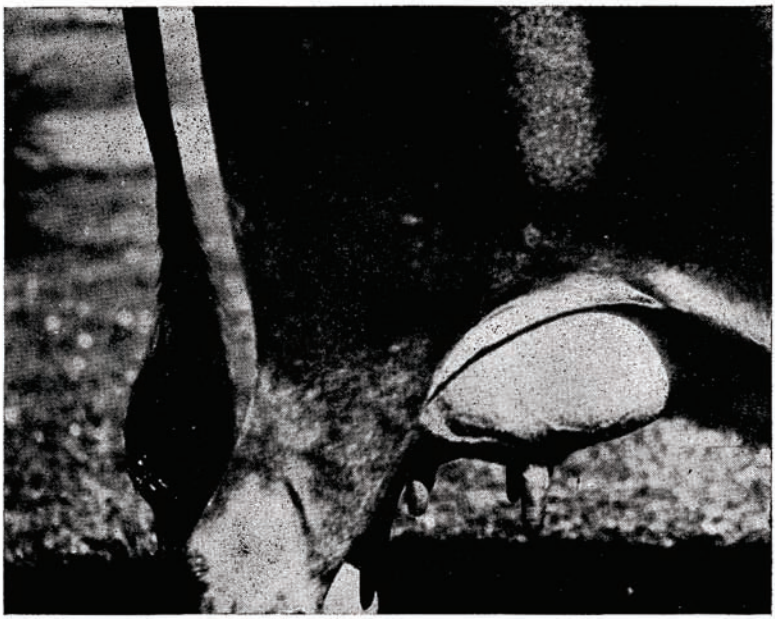

Fig. 1.—Clipping the udder, flanks, and rear quarters of the cow will make it easier to keep her clean.

necessary to have expensive equipment, large barns, and elaborate milk houses. Excellent quality milk and cream can be produced with very meager equipment. As a matter of fact, the only necessities are: Clean and healthy cows; clean hands for the milker; clean and sterilized milk utensils that are free from rust; covered milk pails; cold water; a thermometer; and a small cooler capable of cooling milk or cream to 50° F. or lower. All this equipment can be purchased for not more than $25.00.

Causes of Poor Quality Milk and Cream

Poor quality in milk and cream results, usually, from one or more causes: 1. Spoilage from bacterial action and age. 2. Dirt from cows udders, milkers hands, and unclean utensils. 3. Off flavors due to weeds and abnormal feeds. 4. Flavors absorbed from surroundings.

Why Do These Factors Cause Milk or Cream to be of Poor Quality?

Bacteria that cause deterioration are always present in milk or cream, and they will grow and multiply very rapidly if milk and cream are not kept below 40° F. The higher the temperature above 40° F. up to blood heat, 98° F., the faster the bacteria wlil multiply and the quicker the spoilage of the milk and cream will occur.

Spoilage from bacteria is caused by the change of the milk sugar to acids, and destructive changes in the milk proteins and fats, resulting in unpleasant flavors. The bacteria present in milk produced in a clean manner are usually the type that cause milk to sour normally with clean acid flavor.

Bacteria causing other changes in milk and cream usually gain entrance from unwashed cows udders and milkers hands; poorly washed unsterilized pails, separators, milk cans, and strainer cloths. Any dirt that gains entrance to the milk or cream will bring in injurious bacteria, yeasts, and molds. All these organisms multiply rapidly and in multiplying they change the flavor and condition of the milk and cream, causing such objectionable defects as a rancid flavor, yeastiness and foamy cream. Dirt means bacteria, keep it out of the milk.

Bacteria Multiply Rapidly

Under ideal conditions, each bacterium (a minute plant cell) divides and forms two every thirty minutes. Each succeeding bacterium divides each half hour so that from one bacterium at the end of twelve hours there will be 33,554,432

Fig. 2.—This unclipped cow looks comparatively clean, but more dirt will drop from her udder and body into the milk than if she were kept clipped.

bacteria. Since there may be 10,000 to 100,000 bacteria to start with, the effect of bacterial action is rapid. A temperature of 145° F. for thirty minutes (pasteurization) will kill most bacteria, but cold will stop their growth. Below 40° F. is best, below 50° F. is fair, and will hinder their growth. Even without the action of bacteria, milk and cream suffer from certain destructive changes as they get old. Milk and cream are best when fresh and should be delivered as frequently as possible.

Milk May Absorb Flavors and Odors

Frequently when cows have been changed from dry feed to spring pasture or in late summer when weeds are more abundant than grass, off flavors appear in milk and cream. Pasturing wheat and rye usually causes flavors peculiar to those crops to appear in the milk. Bringing the cows in from pasture two or three hours before milking time may help prevent this trouble. Milk and cream have unusual ability to absorb odors to which they are exposed. Kerosene, barny, musty, cowy, and silage flavors are due to milk and cream

absorbing these odors from exposure to air contaminated with them.

Seven Steps in Producing Clean, Wholesome Milk

Few people realize how easy it is to produce good milk and cream. The equipment cost need not exceed $25.00 but more important even than equipment are the methods used. A little care in working out the routine of caring for cows, milking, separating, cooling and cleaning utensils will make the whole matter easy. The following steps will lead the way:

1. The udders and flanks of the cows should be washed off before each milking with a wet cloth or sponge and then wiped with a clean dry cloth. Clipping the cows udders and flanks makes this work easier.

2. The hands of the milker should be washed with soap and water and dried before milking is started.

3. Milk utensils, pails, cans, separator parts, and cooler should be smooth on the inside and free from rust. The milk pail should have a small opening so that dirt will not easily enter.

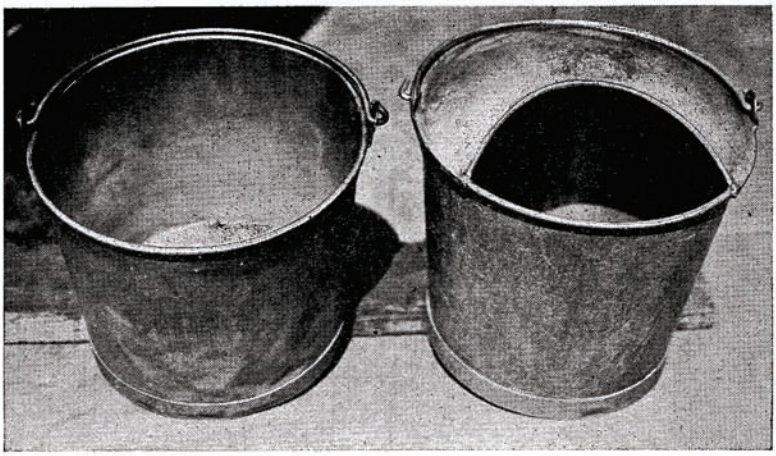

Fig. 3.—Covered pails like the one at the right are to be preferred to the open topped kind.

4. All milk utensils should be cleaned as follows: rinse with luke warm water; then scrub with a brush in hot water using plenty of an alkali washing powder in the water; next rinse with boiling water and if possible expose each utensil

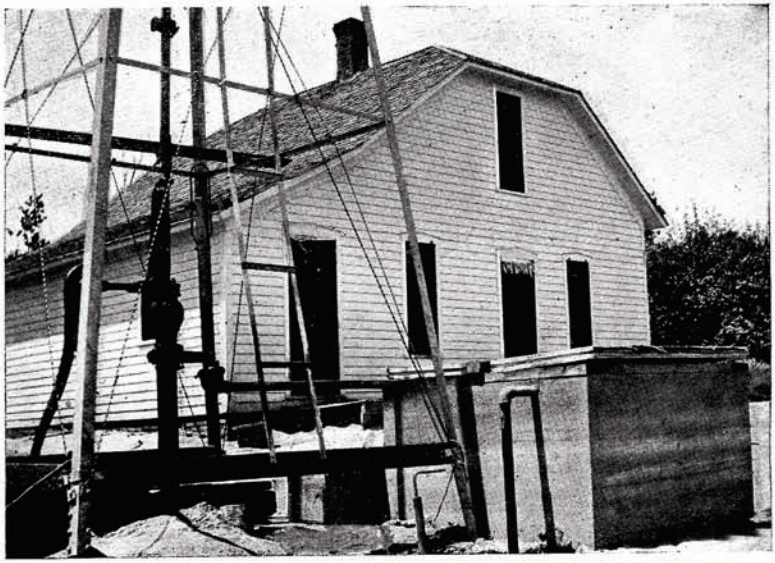

Fig. 4.—A practical milk and cream cooling tank in use on a Nebraska farm. Well water at a temperature of less than 60° F. runs thru the tank almost all the time.

to live steam for at least 3 minutes, or rinse with a chemical disinfectant; keep utensils free from dust until used.

5. Milk or cream should be cooled at once to as low a temperature as possible. This can be done quickest by running them over a surface cooler through which cold well water is circulating. When efficiently operated, such a system will cool milk to within 4 degrees F. of the temperature of the water. If no cooler is available, a can of milk or cream set in a large tank of cold water through which the water is circulating at the rate of 3 gallons per minute will cool to within 5 degrees of the water in 1½ hours. If the milk or cream is agitated, it will cool more rapidly. Water that is warmer than 60° F. is of little use for cooling.

6. Keep milk and cream cool until delivered. Do not add warm milk or cream to cooled milk or cream.

7. Deliver milk and cream as often as possible, at least once daily for milk, and twice weekly for cream. In hot weather, cans should be protected against heat by wrapping with wet blankets or sacks.