

we have to use much judgment, for it is with known cows give a good deal more milk some years than other years. For simplicity and effectiveness, I believe the plan here outlined is good. If many patrons can be started to think and figure, the end will soon be attained, the poor-producing cows will be culled out, the others better cared for, new blood will be introduced. The example of those who are improving will be caught by others, and it is by example rather than by precept that progress can be secured. A remedy, to be effective, must be applied to the right spot.

GEO. RICE.

### Reasons and Remedies for Difficulties in Churning.

By Miss Laura Rose, O. A. C.

While instructing a class the other day in butter-making, I told the girls to place their cans of cream in hot water, and, using a thermometer and stirrer, bring the cream to the desired temperature, adding that cream should not be placed near the stove to heat. I happened to see the peculiar smile which passed from one of the girl students to another when I said this. That smile plainly said: "Another of our old customs condemned." I smiled back and said: "You must not do it any more, for it isn't a good practice."

I fancy I hear a chorus of voices saying, "Why?" For various reasons. The cream may already be ripe enough. Placing it beside the stove to heat requires considerable time, and while the cream is slowly heating it may become too sour. The crock or can may not be turned often enough, or the cream not frequently stirred. The result is that, while the fat in the cream next to the stove may be melted by overheating, the cream on the other side may still be cold, and the result will be an uneven churning and an extra loss of butter in the buttermilk.

It is most detrimental to the quality of the butter to have the cream become so warm or overripe that the skim milk divides into curds and whey. Butter made from such cream cannot have that delicate, sweet flavor, and has not such good keeping qualities. When the curd becomes hard, as it will do when it separates and forms whey, it sticks to the particles of butter, and no amount of washing can get rid of this curd. It may be in such minute particles that the eye cannot detect it, but curd quickly decomposes in butter, hence the reason some butter so rapidly goes off flavor.

The market is more and more demanding a mild-flavored butter, consequently we do not need a high acid in the cream; or, in other words, it is not necessary to have the cream very sour.

Our object in heating the cream is to have it churn within a reasonable time, say from twenty to thirty minutes. By heating it just before churning we are sure to have the temperature exact, and the butter will not be so liable to be soft, as when held for some time at the churning temperature.

Some who have or are experiencing difficulties may ask, "What would you do in case you couldn't get cream to churn at all?" I'd try to find out the cause and strive to overcome it, then in the future avoid a re-occurrence, if possible. I have known people to lose six churnings one after another, not getting a pound of butter from the cream.

During my demonstrations I have had brought to me some very hard cream to churn. In fact, this past fall, I really thought one day I was going to be beaten, but, after resorting to many ways and means, I did get firm, granular butter, but not an exhaustive churning. In such cases, after I have churned for half an hour with no sign of butter coming, I investigate. By looking in the churn, I make sure there is not too much cream in it. Keep it well below half full for cream difficult to churn. Next, I see if the temperature has gone down; sometimes it does if the room be cold. If I find the cream too cold, I do not add hot water to raise the temperature. Such a practice cannot be too strongly condemned. The hot water striking the cream, melts the fat and curdles the milk, and results in a pale, weak-bodied butter. When the temperature is too low (and this is the most frequent cause for long churning), I pour the cream from the top of the churn into a tin, and by setting it in hot water raise the temperature of the cream six or eight degrees, stirring the meanwhile, then pour the cream back into the churn. A handful or so of salt sometimes assists in separating the fat. If I had a churning which completely baffled me, and I knew the cream to be sufficiently sour to be well coagulated, I would pour it from the churn into a tin, and setting it in a tin of hot water on the stove, and, constantly stirring, raise the temperature to 160, then cool down quickly to about 50. Hold at that temperature for an hour or

longer. When again ready to churn, heat to from 60 to 64 degrees. Very stubborn cream has likely come from cows long in milk, and probably not getting much succulent food. Such cream has in it a sticky, viscous substance which prevents the massing together of the fat globules. The heating of the cream coagulates this albuminous matter and renders the cream churnable. This is the reason pasteurized cream churns more readily and at a lower temperature than raw cream.

People having any difficulty with long churnings I would strongly advise to take a fairly rich cream (25 to 28 per cent. butter-fat), pasteurize it while still sweet, by setting it in hot water and heating it to 160 to 180 degrees. Cool quickly, and when at 65 degrees add some good-flavored sour skim milk as a culture to start the cream souring.

If the milk be set in shallow pans, after they have stood 24 hours, place them over a pot of hot water until the cream begins to wrinkle, then let stand 24 hours longer before churning. Such cream makes a very sweet butter, and is easy to churn. If the cream breaks and the butter will not gather, add several quarts of water at churning temperature, revolve the churn a few times, let stand a few minutes, then draw off half the liquid. The water floats the butter better on the buttermilk, and, by lessening the liquid and churning slowly, the butter may be formed into granules the size of wheat, then it is ready for the rest of the buttermilk to be drawn off.

By studying the conditions, the cause for long churning can usually be accounted for and a remedy applied.

### Remedy for Slow Churning.

To the Editor "The Farmer's Advocate":

I have noticed in reading "The Farmer's Advocate" quite a number of farmers' wives are having trouble with their cream, not being able to get butter, only by long churning, and sometimes not at all.

Now, I can fully sympathize with these people, as I have been having the same trouble. I always got butter, but sometimes only after three or four hours' churning. Now, I think we have accidentally discovered a remedy. We raised quite a lot of yellow carrots for our cows, but had no pulper, and did not like to feed them whole, as we were feeding the sugar beets. The carrots seemed more difficult for the cows to bite, therefore we did not feed carrots until we got a pulper. Now we are pulping beets and carrots together, and feeding; otherwise, everything is carried on the same, yet now we get butter in less than an hour. I can think of no other cause but the carrots.

I want to say, also, we are feeding cotton-seed meal. I put my cream to seventy degrees to churn. Now, don't condemn that; it is all right, for I get good firm butter in the approved granular form. All ye who feed cottonseed meal go and do likewise. I am writing this, hoping it may help some sorely-tried woman or man, as the case may be.

Hants Co., N. S.

[From this letter, and that of Miss Laura Rose in this issue, the witch that prevents the butter coming should be brought to light and exposed.—Ed.]

### An O. A. C. Dairy Cow.

One afternoon during the O. A. C. Dairy School term, the class critically examined in the room for live-stock one of the grade cows from the stable whose record is very creditable. During the seven years she has been milking, this cow, now nine years old, has given 61,283 pounds of milk, which made 2,553 pounds of butter—the latter calculated by adding one-sixth to the milk fat. This makes an average of 8,755 pounds of milk and 365 pounds of butter yearly, since she dropped her first calf, in November, 1898. During 1905 her feed cost \$36. The profit on her milk and butter over the cost of feed was, respectively, \$112 and \$38. The profit on milk is based on sales at 4 cents per quart, and the butter at 18 to 25 cents per lb. fat, which are the prices paid farmers who delivered milk at the dairy of the College during 1905.

Some may ask, will this grade cow transmit her milking quality to her progeny? We answer, yes, if the male be of proper milking stock. Unfortunately, we have only one heifer from this cow. During 1905, as a two-year-old, this heifer gave 7,383 pounds milk, testing 3.6 per cent. fat, which is equal to over 300 pounds of butter. We expect this heifer to give close to 9,600 lbs. milk during 1906, if all goes well. We have in these two cows examples of what may be expected from good grade cows, which have given of milk over six times their live weight during each year they have been milking.

H. H. DEAN.

## POULTRY.

### The Poultry Industry of Canada.

I submit the following review on the poultry industry of Canada for the benefit of the interested readers of this great farm journal. The following is an extract from Bulletin No. 8 of the Department of Agriculture, Ottawa, which shows the growing demand for poultry and eggs: "The demand for good fat poultry and fresh eggs is growing. The more we raise, the greater the demand and the higher the price. A shortage exists for more than half the year. G. F. Johnston, Dominion Statistician, has compiled the following figures and comparisons to show where we stand in regard to this industry. According to census of March 31st, 1901, there were 16,500,000 hens and chickens in Canada, and in 1891 there were 12,700,000, showing an increase in ten years of 3,800,000, or 380,000 a year. There would now be 17,500,000, if that rate of increase has been maintained. Of the 16,500,000 there were 288,612 pure-bred fowls. Of these the Plymouth Rocks numbered 80,102 (34.29 per cent.); the Leghorns numbered 29,088 (12.42 per cent.); the Brahmas 7,788 (3.33 per cent.); Games, 8,955; Cochins, 2,574; and other families, including Orpingtons, (144), 7,502. The pure breeds unspecified numbered 80,215. We had then 164 millions of the scrub or common birds. The industry of this great array of crows and chickens resulted in the production of 84,182,802 dozen eggs in the twelve months of the census year. The value of these millions of dozens was set down at \$10,268,159—12.28 cents per dozen. In addition, the poultry slaughtered had a value of \$1,869,259. The value of the living birds on March 31, 1901, is set down at \$3,500,000; a total value of products and of stock on hand of \$15,000,000.

How do we compare with our neighbors on the other side of the line. They had 283,598,035 hens and chickens in 1900. That sounds a large number, but when we test the figures, they are not so far ahead of us. We had 8.08 hens per head of our population, and they had 8.33 per head, which is only a quarter of a biddy more per head. If we assume that two-thirds of these were laying hens, the great Canadian hen laid 91 eggs in the year, and the great United States hen laid within a fraction of 100 eggs in the same period; but our hens' eggs had a value of 12½ cents per dozen, while United States hens' eggs averaged 11.17 cents per dozen. Our smaller average number had the same value as their larger number, and our hens were saved the exertion of laying those nine extra eggs. The Canadian hen-raiser must look better after his hens, in their food, their age, their shelter, their breeds and strains, and their general management. He should never be satisfied until he reaches double the present egg-laying record of his hens. It is well to aim high in egg production, as in other things. By breeding from the best, and the best only, each year, and selecting these by the use of trap-nests, where convenient, it will not take many years to double the average production of the Canadian hen. Indeed, if poultrymen and farmers would pay attention to this matter of selection, it would not be too much to expect that before another census year rolls along (1911), the average Canadian biddy would lay at least 150 good large eggs in twelve months.

Prince Edward Island has more hens and chickens per family than any other Province, and she has held this proud pre-eminence for years. She was away ahead of any other Province in 1891, when she had 26.1 fowls to each family, and she maintained her lead. In 1901 she had 27.5 of these barnyard pets, though hard pressed by Ontario, which had 18 per family in 1891, and increased to 21.16 in 1901; and still harder pressed by Manitoba, with 21.50 per family, in 1901, increased to that number from 16 per family in 1891. Nova Scotia has the least number of hens and chickens per family of the Provinces. She had fewer per family in 1901 than she had in 1891, in the latter year having 8.45, and the last census only 8.25.

Renfrew Co., Ont.

J. W. DORAN.

(To be continued.)

### This is How They Come.

I must say I am more than pleased with "The Farmer's Advocate." I have taken it for four years, ever since I started farming, and my father has taken it for over twenty years, and I think every farmer ought to take it, as it is the best farming paper published. I am going into pure-bred Shorthorn cattle. Have four females and one bull. I also have Clydesdale horses, Yorkshire pigs, and Plymouth Rock and White Leghorn hens. I thought I would try and do a little work for you, and send you the following list of eight names. Wishing you a very prosperous New Year.

Brant Co., Ont.

C. E. WILSON.