

closest study and good judgment; and it is not wise nor profitable to indulge in too much hard manual labor, to the neglect of mental vigor. . . . Less physical and more mental labor is what is now required. . . . Let us dwell briefly on contentment. Always conduct your business so that you have the satisfaction of knowing that you did your best, and be content with those results."—MR. J. Z. FRASER, Burford.

"Without strict honesty, we cannot be successful. If our dealings in daily life need constant watching by others, failure in business, failure in life will be the result. Two men are marketing grain. One farmer's produce is not looked into after he delivers his first sample load, as the dealer well knows he will be told of any difference there may be in the deliveries. Every load, yes, every bag sent in by the other is closely watched. Two neighbors sell cattle for future delivery. One is cheerfully paid for the well-finished animals delivered, and the dealer makes a note of it in a corner of his memory. His neighbor's cattle are found not up to expectations, and the dealer pigeon-holes the fact that he wants no more cattle from this man who is so smart. A feed of meal saved one day, neglect of watering the next day, and laying aside the curry-comb, made all the difference: and that farmer's name is passed around among dealers. Did such a reputation ever pave the way to success? A man or woman, boy or girl, whose every word and action can be taken at full face value, has one of the very best means of securing permanent success."—JOHN CAMPBELL, Woodville.

"But some wiseacre will say: 'Oh, you are going to educate the boy off the farm.' I think there is no danger of that. Some are leaving now without education; others are leaving to get it: and, again, others have left the farm, and by so doing, have been of great benefit to the State. We have heard a great deal of trash about 'Keeping the boy on the farm,' and 'How to keep the boy on the farm.' I confess to be of Mark Twain's opinion on this: 'If he really must be kept there, you had better tie him up.' The right way to keep the boy on the farm is to educate him to stay on it."—J. ARMSTRONG, Danforth.

"Making ten cows pay. The first requisite is that these ten cows shall be owned and cared for by a *dairyman* or *dairywoman*. The following are some of the *points* of a good dairyman: He should be neat, clean, a good farmer, a good judge of cattle, a good feeder, *kind*, thoughtful, and should have business ability to try and sell to advantage. All dairymen who have all these qualifications hold up your hands! . . . To get these cows, the surest way is to breed them. Buy them if you can; they are cheap at from \$10 to \$50 per head. . . . The money lies between the cost of production and the price obtained. . . . Give variety, and all that the cows will eat up clean. . . . The dairy cow and the hog make a combination that it is difficult to surpass. Not only do they pay well, but they are a 'combine' that does not take anything unjustly from anyone else. Give us more cow-hog combines, and we will not hear of so many farmer-farm separations."—PROF. H. H. DEAN, Guelph.

DAIRY.

Handling Skim-Milk at Winter Creameries.

BY J. A. RUDDICK.

A majority of the patrons of the winter creameries are desirous of having the skim-milk returned to them sweet for feeding calves, and they value it to some extent according to its fitness for this purpose.

It is possible to meet the wishes of the patrons in this respect, providing they do their part right by bringing the whole milk to the creamery in a condition which will admit of its being heated to the proper temperature for separating without turning sour, or nearly so, and providing also that the buttermaker is careful to have the skim-milk tank and other receptacles around the creamery perfectly sweet and clean to prevent contamination while passing through his hands.

The first requirement which I have named implies that the patrons themselves have a good deal to do with the matter, and it is a fact that the value of the skim-milk for calf-feeding will depend very largely upon the care and attention which is given to the whole milk before it is brought to the factory.

There ought not to be any difficulty about delivering milk three times, or even only twice a week in cold weather, and having it sweet enough to be returned in first-rate condition. It often has been done.

To secure the best results, the milk must be kept in some place where the air is pure and free from objectionable odors. It is very important also that the air should be dry, for the drier the air is, everything else being equal, the longer will milk keep sweet, and the less likely it will be to contract bad flavors. It is necessary also that it should be prevented from freezing,—not but that good butter can be made from frozen milk, with the aid of a "starter," but it cannot be handled in a frozen condition, and besides, if it should be frozen and melted more than once, the quality would be injured. The milk, then, must be kept in a clean, dry place, where it will not freeze.

Of course it must be kept cool, or it will become sour if held over for two or three days. Warm milk should not be mixed with the cold milk; the better way being to allow each milking to cool somewhat each time before adding it to the can.

It must be left to the patron to decide where will be the best place to keep it, because all have not similar conveniences, and it would not be possible to lay down any rule which would be applicable to all alike.

So much for the patrons' share of the responsibility in connection with this matter. Now, just a few words as to what may be done in the creamery by a little care and attention.

It is desirable that the skim-milk should be carried to an elevated tank in order that it may flow directly into the cans on the wagon or sleigh.

The best tank is one made of wood and lined with tin. It should have a tight-fitting cover of wood or cloth, which will protect the milk in a measure from the bacteria so numerous in the air in cheese factories or creameries, and which find so favorable an element in the warm milk in which to grow and develop.

In the Government Dairy Stations we have tried two plans for raising the skim-milk to the tanks, viz.: by means of a centrifugal pump, and by using an ejector or steam jet pump, the same as is used for elevating whey. For the latter plan it was said that the steam used would raise the temperature of the milk high enough to partially sterilize it and make it keep sweet longer. Our experience taught us that the temperature was seldom raised higher than 120° or 130° Fah. At this temperature the milk will turn sour quicker than if not heated at all. But, after all, the ejector is a very convenient thing, and rather cheaper than a pump, and if it is desired, the skim-milk can be heated to 150° or 160° by introducing another steam pipe direct from the boiler. The pipes should be so arranged that the milk from the ejector will be discharged into a pail or can placed above the tank so as to overflow directly into it. The other steam pipe also should be led into this pail, so that steam may be turned on while the ejector is working, and the milk heated to any desired temperature (about 160° will do). It is easier to heat the milk in this way than to attempt to heat a whole vat or tank full, because there is so much cooling surface in the latter case.

After heating the milk it is necessary to cool it again in order to receive full benefit, on account of the rapid development of acidity at temperatures of about 100° Fah. Of course when the skim-milk is delivered at once to the patrons there will not be any trouble about cooling in the winter time.

It will be found best to have a division in the skim-milk tank, and the pipes so arranged that the skim-milk can be delivered into either compartment at will. A quantity of milk may be kept over from the day before, and the first patrons to arrive will take this and go home, and thus avoid considerable waiting.

When the separator is started, the skim-milk may be run into the empty compartment (which should be perfectly clean), and after what was held over is gone, the supply there can be drawn upon. If the skim-milk has been properly divided, there will be as much over each day as there was to begin with. The best arrangement which I know of for dividing the skim-milk fairly is to have the delivery pipe placed so that each man will receive his share at the weighing stand immediately his cans have been emptied, and the man who weighs the milk should have control of the valve.

Without having two tanks, it is not possible to have them cleaned when any milk is held over. If no milk is held over it means that the teams have to wait considerable time while the milk is being separated.

Barley-Meal for Cows.

Barley-meal constitutes a perfectly wholesome food for milk cows, but is certainly not remarkable for its milk or butter-producing qualities, being better calculated to form flesh than milk. If the grain is on hand it may as well be used as an auxiliary food, but if it has to be purchased, it might be advisable to spend the money in bran, peas, oil-cake, wheat and oats, the two latter being the most superior milk-producing grains. As to the best food for butter production, we put little faith in rules for feeding, and believe that the health and appetite should be watched carefully, and the food varied in both quality and quantity, according to the evident needs of the individual. The following rations for butter production may serve as a guide, but the observant and intelligent feeder will try what can be done with the foods produced on the place and according to the requirements of individual animals:—

No. 1.—Clover hay, 10 lbs.; oat or wheat straw, 10 lbs.; linseed cake, 2 lbs.; bran, 3 lbs.; pea or wheat meal, 2 lbs.; ground oats, 4 lbs.

No. 2.—Meadow hay, 16 lbs.; bran, 8 lbs.; linseed meal, 3 lbs.; wheat or pea meal, 4 lbs.

No. 3.—Ensilage, 35 lbs.; bran, 4 lbs.; corn or pea meal, 4 lbs.; oat chop, 3 lbs.; straw, as much as will be eaten.

Mangles, turnips and carrots are all good for milking cows. Three pecks per day may be fed along with any of the above rations, except No. 3, in which ensilage is present, forming the succulent portion of the ration. The turnips should be fed after milking, or else there is a danger of tainting the milk.

When Should Cows Come Into Milk?

F. J. S.

We say in the fall, as regards the majority of the herd, preferably the months of September and October. Of course it is recognized on all hands that to make the finest butter it is advisable to have a fresh cow in occasionally throughout the year. However, this does not affect the general statement materially.

This article is called forth mainly on account of the growing idea that to suit the cheese factory season it is necessary to have cows come in milk in the spring or late winter, and others follow this old system because everybody does so, or because of the mistaken idea that cows will give more milk if fresh in milk when they come to grass. I propose to give ten sound reasons in support of my opening statement:

1. *The herd, if properly handled, will give more milk and make more butter during the year.* Experience proves this. If cows come in in the fall the milk flow can easily be kept up during the first few months, and when the season advances and spring approaches, the early pasture, fall rye, etc., is in view, and will give an added impetus to the milk flow. On the other hand, the spring cow will receive an impetus of an opposite character as winter approaches.

2. *The cow will milk a longer season.* Eight and nine months' cows no longer fill the needs of the dairy. Much of the profit of any herd depends upon the length of the milking season, and if, when the cow has been in milk about six or seven months, she be put upon grass or other succulent spring fodder, the tendency is to prolong the milking period, which should not be less than ten and a-half or eleven months; in fact, I am not sure that it is a necessity to have cows dry at all. One thing is certain, the short period of milking now in practice in many herds, is a large leak, not being for the present only, but for the future, as our next point will show.

3. *The cow trained to long and deep milking will perpetuate these qualities in her offspring, and they will be best and most lastingly cultivated in the fall cow.* Many seem to think that to look to the calves is a slow way of making money by dairying, but the intelligent man knows that this is the most intensely practical point in the whole range of the management of a dairy herd. Teach the cow to milk long; look well to the calf when it is the heifer, in milk, and the first principles of success are established—the calf is the mother of the cow.

4. *The fall calf is the stay of the dairy.* I take it as a principle not to be gainsaid, that the man who would own a high-class dairy herd, must raise his own stock. More time to attend to the calf; more suitable weather; no flies; no sour milk; good grass when most it needs it, viz., when the milk ceases,—all these ensure a better calf than the spring one.

5. *The product is worth more from the fall cow.* It will be remembered that butter was worth 8 to 17 cents in the best markets of this Province this summer, due to two causes,—great quantity and poor quality. Our fall cow will give us most butter when we have most time to see after it, and when it is worth most, while her summer product may be sent to the cheese-factory if desired. If you do not wish to make up the butter, send it to the winter-creamery—one of the most valuable institutions of this country.

6. *Less labor in busy season.* Hot weather, busy times, aching backs, switching tails, empty pails and parched pastures go much together. Cows dry in July and August will immensely minimize these troubles.

7. *Cows dry during July and August.* Grass has failed at this season, and is little better than straw. If the cow is dry at all, this is, we believe, the best time. We find, generally speaking, that cows are better looked after in winter than at this period. On scores of farms which we have visited this summer, no preparation whatever was made for the feeding of the cows at this season, and the result has been dried-up cows, closed factories, discharged hands, discontented farmers and profits nil.

8. *To those who raise cream by deep can setting,* this will mean a great saving of ice.

9. *Cheap and effective winter feed, in the form of ensilage,* enables us to feed milch cows cheaply at that season without attendant summer difficulties. Lack of cheap winter food was considered a drawback in past times.

10. *First-class Easter veals* may be made from the steer calves, which always find ready sale at good prices—yes, at prices which the owner of the same steers a year later would often be glad to get. Christmas veals may also come from a like source. Early marketing is the order of to-day.

But I hear it said that this plan would not suit the cheese factory. Would it suit your pocket? Except for a short time, when the rows are dry, one may patronize the factory as usual and avoid the difficulties of making butter from the milk of cows that have been a long while milking, as with spring cows, after the factory closes. In short, this system is at the basis of the establishment of our butter on first-class markets. Of course, the practice recommended means good stables and suitable milk-houses, but these are not unavailable. If the system commend itself, it will be necessary to mate the cows accordingly.