

The Dairy.

Does Winter Dairying Pay?

There are some new enterprises of doubtful success, in which farmers should be cautious before risking capital in them. This, however, does not apply to winter dairying; for every farmer can make calculations sufficiently close to establish its advantages and disadvantages over summer dairying. For the present we shall confine our observations to the conditions of the average farmer in sections where there are no creameries.

Summer dairying took its origin under conditions very different from those of to-day. Under straw-stack accommodation and management dairying was perfect in its day, when superior facilities were inaccessible.

The average farmer has now good stable accommodation—for his cows, at least: and the question is, Does he take the best advantage of it? He has also moved so far out of the old rut as to be convinced that a winter ration for a cow not yielding milk should not contain less nutriment, or be of less value, than hay of average quality—that is, a cost of about 12 cents a day. We do not defend this, however, for experience has proved that the best and cheapest way to produce a good calf, and a large yield of milk in summer, is to feed liberally in winter. Now, a high feeding ration for a cow in milk would be composed of foods costing 20 cents a day in winter, or 8 cents more than the maintenance ration. Taking the basis that the cow is stalled for 200 days and pastured the remaining 165 days of the year, what do these figures show? $200 \times 12 = \$24$, being the cost of winter maintenance under the present system; and $200 \times 20 = \$40$, the cost under winter dairying, showing an apparent loss balance of \$16. But there is a small offset against this amount. Taking the average rent in the cleared districts of this Province to be \$3 an acre, and the average pasturage per cow to be three acres, we get $3 \times 3 = \$9$ as the cost of summer keep under the summer dairying arrangement; but the farmer who believes in low feeding in winter because the cow is not giving milk, surely would take steps toward economizing pasture in summer for the same reason. In this particular we merely wish him to change his mode, not his ideas, so we take him strictly to account. In practice he attempts to save 40 per cent. on his winter ration on account of the cow being dry; now, for the same reason, let him save the same per cent. of pasture, which will reduce the \$9 pasture bill to \$5.40, leaving an apparent loss of \$12.40 on the whole year's feeding. This is all the loss which could be incurred under a change to winter dairying; if there is any difference in labor and management it will favor the winter system.

In presenting the credit side of the account, let us first endeavor to select such items as will cancel the debit of \$12.40. With regard to the winter yield of milk, compared with that of summer, so much depends upon circumstances that no accurate conclusion can be arrived at. Grass and other succulent foods are adapted for quantity, and solid foods, such as grains, for quality, and as succulent as well as solid foods can be fed in winter, the ration can be regulated for either quantity or quality of

milk. Even with very good winter quarters and the best attention, especially if the cow gets ice-cold water, she will fall off in milk during the prevalence of cold snaps; but the probabilities are that this loss will not be near so great as during the sweltering days of summer, and then the cold spells never last so long as the hot, droughty days. The temperature and food, and hence the flow of milk, can be more easily controlled in winter. However, let us suppose that the daily average under both systems is the same in quantity; as to the duration of the season we shall speak hereafter.

In reference to the quality of milk the case is different. The gain in this respect resolves itself into two factors, viz., (1) the greater percentage of butter fats in the milk, and (2) the greater quantity that can be extracted from the milk in winter than in summer—except when ice is used. Taking as a basis the likely supposition that the same percentage of cream can be raised in winter as in summer with the use of ice, we have accurately conducted experiments to guide us. The percentage of butter from the milk in winter will be about 3.6 per cent., against 3.2 in summer, and this will make a difference of about 15 lbs. of butter per cow in favor of a winter dairying season. Add to this the extra quantity of butter fats obtained owing to the use of concentrated foods, and nobody will deny that the sum will cancel the \$12.40 of supposed deficit; indeed, we might justly be accused of being much under the mark by arriving at this conclusion.

Whatever additional advantages we can now prove will be a clear gain. The duration of the milking season is greatly prolonged under winter dairying. The cow dries off rapidly in the fall when the cold season is coming on, being subjected to sudden variations of temperatures and changes from succulent to dry foods; whereas under winter dairying the close of the season is in June, and possibly part of July, when grass is abundant and the temperature agreeable. At this time she can best support her young and produce a good flow of milk. An average of 4,500 lbs. of milk per season is a fair estimate under summer dairying, and the average price of butter 15 cents. Therefore $4,500 \times 15 \times 3.2 = \21.60 , being the price received for the season's butter, a fair average for the quantity of milk under the winter system would be about 4,800 lbs., and the price of butter at least 13 cents higher, so that $4,800 \times 28 \times 3.2 = \37.40 , or a cash balance of $37.40 - 21.60 = \$15.80$ per cow in favor of winter dairying. But this is not yet all. The farmer can now indulge his low feeding theory for dry cows to his heart's content; for this happens just in the season when the grass is scanty, and when there is escape from the danger of producing bad milk and bad butter by means of filthy water drunk by the cow. In winter the water is in its greatest purity; hence the chief cause of better butter. The saving of labor during the very busiest months and when hired help in so expensive, is immense. The average farmer usually engages a man for the spring and summer months only, and this sometimes costs about as much as an engagement by the year, so that the winter labor would be virtually thrown in, especially when it is considered that more reliable help can be obtained

by giving constant employment than by monthly engagements. If good calves are to be raised, the work can be more conveniently and cheaply done in fall and winter than in summer. Get the calves well tided over the first winter, and afterwards they will be able to take care of themselves. Another important advantage of liberal feeding in winter is the increased value of the manure, which will repay all the labor spent in saving it, whereby an impoverished soil may soon be restored to fertility.

We are convinced that if the farmer once changed his system he would also soon change ideas and feed liberally and regularly all the year round. From the present system (if it is worthy of being called that name) there are three changes that should be discussed by the farmer, viz., (1) winter dairying, (2) summer dairying with soiling and the use of ice, and (3) winter and summer dairying, being a modification of both the other systems. With the present difference of prices in winter and summer, there can be no question as to the superior advantages of winter dairying; and there will be no use in discussing the merits of the other systems until these prices become equalized.

Poison in Milk and Cheese.

Statements having been made public to the effect that numerous cases of poisoning from cheese have happened in Michigan, have led to a thorough ventilation of the question by Prof. Arnold in the *New York Tribune*. Several samples have been sent to him for examination. Experts have found such cheese to be characterized by intense acidity. In all the cases that came to the notice of Prof. Arnold, he found that the cheese had been made from sour whey, or was of the acid make, which universally prevailed before the introduction of the sweet curd system, of which he bears the honor and credit of originating. From these and other facts it is highly probable, if not conclusive, that the poison is due to some ferment in the food or drink of the cows. This poisonous ferment, he further observes, develops with the process of curing, until the cheese is from one to three months old, according as the curing is fast or slow, and then gradually diminishes until it becomes perfectly harmless. On cutting the cheese and exposing it to the air, a peculiar odor is emitted, and the poison thus escapes. When the curd is allowed to remain in the sour whey, the strong acid favors this poisonous ferment, and weakens the effect of the rennet.

In answer to an objection as to the possibility of poison getting into the milk, Prof. Arnold writes to the same journal as follows:

'The statement published last month, that two little children in Connecticut nearly died through drinking the milk of a cow that had been poisoned with Paris green, has been questioned as a supposed impossibility. The objector cannot see how the poison could get into the milk, nor how a cow could give milk after being poisoned. These supposed impossibilities are facts of frequent occurrence in all dairy sections. Any substance, poison, medicinal, or otherwise, that can be taken into the blood, will at once begin to appear in the milk and become more and more intense as long as there is a supply in the blood from which to derive