

factory this would be worth \$27 at least, and therefore the farmer would receive that sum for the cream, at the same time having the sweet skim milk on hand. The food cost to produce these dairy products is given in chapter 19 herewith.

Value of 450 lbs. cream for factory.....\$27 00
Value of 400 gallons of skim milk..... 12 00

Less cost of food..... \$39 00
15 00

Net value of dairy products per cow during winter.....\$24 00

Some interesting calculations are given under the heading, "The Food Cost of Producing Dairy Products."

MILK IN WINTER.—The food of the cow from November to April inclusive, in Canada, is purely all preserved, and her management is entirely in the house. For the best results there should be but one item of difference practically between her all-over-care, and that of a good steer—less grain only, and hence we do not introduce as a point in these notes the starvation system of cow management in winter. I ask that she receive 12 lbs. hay, 30 lbs. turnips or mangolds, 3 lbs. bran, and 2 lbs. crushed oats per day. The market value of these is 15 cents, but this is selling at a distinct profit, and as the producer of the milk is the grower of the food, it is not regular, in order to ascertain actual cost of production, to charge the cow with more than the cost of producing her food; on an average, therefore, the difference is fully one-half, and 8 cents is thus the daily cost of the cow's keep. Granting the same class of cows in winter as in summer, the yield of milk is not so large, but, in our experience, is not so different as is usually understood. During the past winter several of our cows gave 30 lbs. per head per day, from December to May, and as we are treating of the results obtained from the common Ontario cow, and the Shorthorn Grade, their daily winter milking is safely set down at 25 lbs. We can then produce milk in winter at an actual food cost of $\frac{1}{2}$ cent per lb., or $4\frac{1}{2}$ cents per gallon.

CREAM IN WINTER.—We have had extensive experience in this. Winter, with its quiet, its system, and liberal feeding, has always given a large proportion of cream—rarely under 10, and as much as 15 lbs. from the 100 of milk, averaging 13 lbs. Two things require valuation here: the cream and the skim milk. As we have already seen, the 100 lbs. of sweet milk cost 50 cents; from this we have taken 13 lbs. cream, and as sweet skim milk is well worth one-half the cost of the full sweet milk, we obtain 22 cents for the 87 lbs. of skim, which leaves 28 cents for the cost of the cream, or say, 7 cents per lb. for cream, or 18 cents per gallon.

BUTTER IN WINTER.—The milk and the cream thus handled, under the conditions and from the sources named, will give $3\frac{1}{2}$ lbs. of butter from the milk, and $27\frac{1}{2}$ from the 100 lbs. of cream. The cream having cost \$2, and buttermilk being worth 3 cents per gallon, the two gallons of buttermilk, or 6 cents, have to

be deducted. The result is $7\frac{1}{2}$ cents as the actual food cost of producing one pound of butter in winter.

CHEESE IN WINTER.—There is winter cheese, and, though not yet on a large scale, will eventually become an important product. Taking, again, the milk formerly obtained at a cost of 50 cents, and deducting the value of the whey at 8 cents for every 11 lbs. of cheese, the actual food cost of producing every pound of cheese amounts to nearly 4 cents.

CREAM IN SUMMER.—The summer average of cream being 16 per cent., and the milk in greater quantity than winter, it follows that the food cost of producing it is considerably less; on an average it is $1\frac{1}{2}$ cent per lb., or $12\frac{1}{2}$ cents per gallon, $5\frac{1}{2}$ less than winter.

BUTTER IN SUMMER.—Proportionately to the quantities in winter, as already explained, the food cost of producing one pound of butter in summer will range about 5 cents per lb. from ordinary pasture, and will come to 2 cents when we have the best of permanent pasture.

CHEESE IN SUMMER.—The greater proportion of cheese curd in summer as against winter, the greater quantity of milk produced per acre, and the nature of the maintenance, brings the food cost of producing cheese down to 2 cents per pound.

On "the possibility of making yearling beef fit for exportation" Professor Brown says:—

"As was expected, we are having opponents to the early maturing management of live stock. Their criticism is doing much good—is simply making more prominent the advantages of the system. It is sound, nationally, because it means greater progress, more enterprise, more rapid circulation of money and a general well-doing; and it is sound in farm practice, because it implies a better system, more scientific knowledge, greater returns, and the investment of more capital in the business. Unquestionably it has some objectionable features, but they are of immeasurably minor importance; some people think only of present prominent contrasts with the old style, and overlook the widening field of a world's new work.

"I wish to draw attention to the possibility of making yearling beef in Ontario fit for exportation, and submit a sample. The sample is a first cross with Hereford bull and Shorthorn grade cow, that was calved on 28th November, 1883. The calf weighed 103 lbs. at birth, suckled its mother for six months, got hay, bran, oats, and a smell of oil cake—all in moderate quantity, from three months old until now, was grazed last year, and is again on pasture. To-day (1st June) it weighs 1,280 lbs. As it will not be two years old until next November, and its progress depending on the season, we may safely estimate that it will scale 1,430 lbs. for late shipping on September 1st, when one year and nine months old. First of all, this is no extraordinary case and no unusual feeding; no doubt the breeding has a good deal to do with the stamp of the animal, which is what we call strong-built, and will never make a show steer as regards form. The weight at shipping time will be over the average now being exported, and all that is required for the best results, I believe. Such being the case, the reasonable question may be asked—why are we not making far more of this kind of work? It is also obvious from a consideration of the subjects treated of in chapters 15 and 18, that yearling beef would be more seasonably

and economically handled. We are coming to it."

Professor Brown concludes what we must pronounce, though disagreeing with some of its features, a really excellent report with the following valuable and practical suggestion:—

"I am of opinion that no time should be lost by this station as regards the elucidation of any facts not yet developed with reference to the dairy interest of Ontario. It would be a proud day for the Province were it to lead in the production of butter, as now in cheese; there seems to be no reason why this should not result within a few years. With the Dairymen's Associations, a special Professor of the Art, now established at the Ontario Experimental Farm, with all the possible appliances in live stock, pastures, machinery, and opportunities for lecturing throughout the country, the industry should be so developed during the next ten years as to place us at least on a par with the best anywhere. Dairying requires more detail education than the growing of crops, as is abundantly evidenced by its condition in Britain and in the United States, where, even after years of experience, very many are still enquiring for the 'reason' of this and that. At the present moment the small state of Denmark is expending annually \$30,000 on experimental dairying, so that if our Legislature is awake to the importance of this branch of agriculture it should at least double the \$5,000 now appropriated. It needs but a glance at the subjects treated of in this report to show how much is yet dark. The presidents of each of the Dairymen's associations should be members of an advisory committee, with the authorities of the College, for the purpose of furthering the interest they represent; and special prominent dairy exhibits at all our leading agricultural exhibitions should be encouraged."

Though we do not think Prof. Brown's pet theory regarding Shorthorn grading for the dairy at all borne out by his own experiments, we thoroughly agree with him in what he has to say in the paragraph above quoted, and we could wish our Provincial Agricultural College no better luck than the possession of a whole staff of instructors as competent and as honestly in earnest in their work as he has long shown himself to be.

LITTLE LEAKS.

The farmer who makes no effort to stop the little leaks in his farm management can no more hope for continued and ultimate success than could the business man who was similarly careless. As a rule sloverliness and wastefulness are not common vices with the average Ontario farmer. Indeed, on the other hand, he is more apt to be accused of being rather close-fisted in his farm management and his business affairs generally.

And yet, in spite of a carefulness as to expenditure which amounts very often to absolute penuriousness, the establishments of many of our farmers are absolutely full of leaks—leaks about which they never appear to care or even think.

The man who sells hay, straw, and coarse grain off his farm may accumulate money while times are easy, and while his farm has so much of the richness of the virgin soil left that