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when he fed a few peas. He didn't know why, but if he could have consulted Henry, he would have learned that peas contain 16.8 per cent. of digestible protein, as compared with about 8 per cent. in corn, 8.7 in barley, and 9.2 in oats. Oil-cake meal carries 29.3 per cent. of digestible protein, and cottonseed meal 37.2 per cent., while wheat bran (a much less concentrated feed) possesses an average of about 12.2 per cent.

As the average ration of farm-grown roughage is more or less deficient in protein, it is usually profitable to purchase feeds containing a high percentage of it, or, better still, to supply it by growing clover and alfalfa, the former containing 6.8 per cent. of protein, and the latter 11. per cent., or about nine-tenths as much as wheat bran. Allowing for the greater percentage of crude fibre, and for the fact that it is not always possible to cure the alfalfa into first-class hay, we are still safe in calling it worth probably three-quarters as much per ton as bran for feeding along with corn silage. Indeed, many dairymen obtain excellent results from corn silage, alfalfa hay, and very little of anything else.

Just by way of convincing skeptical readers that we are not talking or writing "hot air" when advising the use of balanced rations, we append a note received the other day from a Lambton County Subscriber. Early in the year he had written us, propounding this query:

"Having on hand abundance of corn, barley and oat straw to feed milch cows, will it pay me to sell the barley and buy bran, in order to have a more balanced ration?" In reply, we advised him to sell the barley and buy bran and oil-cake meal, and suggested a ration devised according to his probable needs. Writing a month or so later, when his cows might naturally be expected to have shrunk in their milk flow, he says:

"I have followed your advice, and, as a consequence, my cows are now giving about ten pounds more milk per day on cheaper feed than they formerly had."

Instructive Account of a New Brunswick Herd.

TIE FOR SECOND PRIZE IN ESSAY COMPETITION.

In response to your invitation of a short time ago, I enclose you individual records, expense account, service and calving tables, and monthly account of butter churned from our herd of seven cows during 1909.

In complying with your request for an account of care and feeding, I must, in a large measure, repeat my former letter, forwarded with our herd record in the early summer. We aim to fill our cows comfortably every day in the year, and do our best to make that filling as succulent and palatable as possible.

For winter feed, the only crop we have been at all successful with is Swede turnips. We have never yet been able to raise as many as we would like to have. For that reason, perhaps, the feeding of them has never been objected to in the slightest degree by any of our customers. I weighed the evening mess as it sat in the baskets, and found we were feeding just 25 pounds per cow per day. In the year under review, we fed that from the first of the year until the middle of April, when the supply ran out. We began on the new crop about the first of October, first feeding tops and all, an early variety, known here as the "lazy-man's turnips," following with the tops of the Swedes, and then the Swedes themselves. In making up the account, I counted the days from first October to April 15th, counting the tops as though all were turnips. For summer feed, we sowed 168 square rods of peas and oats, in four sowings, the first May 13th, the last about the end of June. In addition, we planted one-quarter acre Longfellow corn May 31st. By the time we began to feed the last sowing of peas and oats, the corn was also ready, and we fed one in the morning, and the other at night, until peas and oats were gone. About the middle of September I cut what corn was still standing, and put it up in large stooks, and it lasted until the end of the month, when we began at the turnips, as noted before.

Ontario farmers glorify corn, but we get little satisfaction from it. When we get a good stand, we have a lot of feed per acre, and it is at its best when other feeds are failing; but when our cows are offered it in lieu of the peas and oats they have been getting, they are simply "mad" clear through, and show it as plainly as though they were humans; some of them will hold their milk up, and all shrink in their flow, in spite of extra grain. A lot of the stalks are refused utterly, and have to be thrown in the yard, where the pigs chew them, and, I suppose, get some little good from them.

In addition to the feeds I have noted, and what hay they will eat up clean, we give them grain sufficient to keep them in good condition. Our average at present is six pounds per day for a cow in full flow in the winter and early spring. Some outstanders require a little more. We have never exceeded eight pounds; only touched it for a few days on two or three occasions. As spring

advances and grass starts, we gradually slacken off, and the greater part of June they get only a taste, because they look for it, and it seems to pay to humor a cow. Towards the end of June we have to increase again, until, about the middle of July, they will be getting about four pounds; then peas and oats come on, and we can almost dispense with grain again for a time. After two or three weeks, however, we must again increase the grain, and from the tenth or middle of August on they will get about four pounds, until, on turnips, they begin to put on flesh, and we cut down to two pounds, which is our regular stripper's ration.

We feed hay three times per day, other feeds twice. We water once a day, in the middle of the day, turning the cows out to go a few rods to a brook, and "stand on their heads" to drink "ice-water" out of a hole, as your Quebec correspondent put it. However, the boy cuts the hole open before he turns them out. We don't have to chase them around for exercise; they attend to that themselves; even the staid old matrons of the herd scamper and frisk, showing plainly their appreciation of the outdoor air. Certainly, there are a few days when they are not so playful, but sneak back to their stalls in a hurry; and for those few days it would be very nice to have the water-bowls which our Quebec friend admires.

Our stable furnishes no June conditions, as the manure freezes slightly on the coldest nights, but we do not milk with mittens on, and I have yet to see a cow showing any sign of discomfort because of the cold.

In the summer, we have the world for a pasture, free of charge, except that for a time, from about the first of June to the middle of August, we must "hunt" the cows. After that, the taste of peas and oats comes to their mind along in the afternoon, and they drift toward home. At night we keep them enclosed on a bit of rough land, which we could probably rent for colt pasture at the price I have put upon it in the ac-

store, but it goes to a line of special customers, and brings us about two cents above common local prices.

Along with its pleasure and profit, the year has brought its share of petty drawbacks to hinder the best that might be done. In March, one of the best of the herd slipped on the ice, and springing to regain her feet, cut a piece off the end of one teat. This was followed in a few days by mammitis, and the consequent loss of the quarter for that season at least. In the latter part of July the three-year-old Jersey went "off her feed," and went down from thirty pounds per day to less than ten. In June she led the herd, her milk record and test indicating 57 pounds butter. Since that she has only been second-rate, and at present is not doing as well as last year. Later, another one was out of condition for a short time. We dry our cows up six weeks before they are due to calve, counting them as "due" in nine calendar months after service. For about a fortnight at this time we give no grain at all. One cow, No. 1, was giving 12 pounds milk per day, testing nearly 7 per cent., when we began drying her. Is it really best to force a cow dry under those circumstances?

Another cow, No. 3, when nearly dry, took inflammation of one quarter of her udder. According to past experience, that means the loss of the quarter for the next season. Can anything be done to prevent this? Could anything have been done to prevent the trouble occurring? In drying-off, is it best to milk partially each time, or to milk dry each time, gradually increasing time between milkings?

BUTTER CHURNED.

January, 71½ pounds; February, 134 pounds; March, 232½ pounds; April, 234½ pounds; May, 293½ pounds; June, 314 pounds; July, 294 pounds; August, 254½ pounds; September, 219½ pounds; October, 194 pounds; November, 157½ pounds; December, 98 pounds; total, 2,497½ pounds. Average per cow, 356.8 pounds.

	MILK RECORD AND TEST.						
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7
	5 yrs.	7 yrs.	9 y s.	3 yrs.	7 yrs.	4 yrs.	8 yrs.
January	211.6	218.9	20.5	16.5	491.9		408.5
February		640.8			858.1	544.8	361.8
		6.			4.2	4.3	6.6
March	414.3	533.6	1,042.	886.5	863.9	933.6	27.4
		6.	3.8	4.	4.8	4.4	
April	831.2	413.3	977.7	808.8	783.6	801.3	
May	865.2	472.	1,039.	806.6	858.3	832.2	651.2
	6.	6.	3.8	4.3	4.7	4.9	5.8
June	841.6	503.7	1,118.4	842.8	939.	828.3	919.3
	5.4	5.4	3.7	4.2	4.6	4.7	5.3
July	799.7	496.	1,033.7	801.1	876.7	747.2	806.5
	5.2	5.3	3.3	5.	4.	4.9	4.7
August	694.3	464.1	902.7	650.8	783.9	596.8	623.5
	6.	5.8	3.7	4.5	4.	5.6	5.1
September	678.4	451.2	768.4	569.3	679.4	436.8	618.8
October	524.1	379.3	557.2	471.4	458.6	353.8	499.5
November	429.7	325.7	417.2	347.6	287.1	264.6	447.7
	6.4	6.9	4.6	5.8	5.	5.9	5.6
December	255.7	181.1	135.6	394.2		91.1	417.6
Total milk	6,545.8	5,079.7	8,013.2	6,655.6	7,878.5	6,430.5	5,776.3
Average test	5.8	6.3	3.8	4.6	4.4	4.9	5.5
Butter-fat	379.66	320.02	304.5	309.15	346.65	315.09	317.70

count. Some objection may be raised that I have put the price of attendance too low, but I find I can spend nine hours in the field and two with the cows at least as easy as ten in the field. Also, a hired hand will not object to an eleven-hour day that is two or more hours of this lighter work, and it does not seem to me that it should be charged with a full man's wages for the time that is spent at it. The churning I do myself, and it is a real rest for me, all except the short time that the churn is going. It may also be objected that I have valued the manure too highly, but I am confident, from the crops I raise with it, and what I know from experience they would be without it, that I am within the mark. I hope to do a little experimenting on this point next season, and will give "The Farmer's Advocate" the benefit of what I learn. So our paper sets us thinking.

Our cows are Jerseys and Jersey grades, with one exception, No. 3, which is a high-grade Ayrshire. Now, I know you will have articles from dairymen with big Holsteins, who will be able to show a larger make per cow. Also, your Ontario men have the advantage of cheaper feed, and many of them near access to gilt-edge markets in city or town, and can show much larger profits. But how many, even of those who can favor their cows with "June conditions" all winter, can show more butter for food consumed?

I have given you exact facts, as far as I know the facts, and, where compelled to estimate, have done my best to do so fairly. Our butter sold as follows: January, 26c.; February, 25c.; March, 24c.; April to September, 22c.; October to December, 25c. Being thirty miles from any large market, we must sell largely through the local

SERVICE AND CALVING TABLE.

Service, 1908.—No. 1, June 2nd; No. 2, April 6th; No. 3, May 13th; No. 4, May 16th; No. 5, March 28th; No. 6, April 30th; No. 7, July 27th.

Freshened, 1909.—No. 1, March 14th; No. 2, January 18th; No. 3, February 25th; No. 4, February 27th; No. 5, January 11th; No. 6, February 8th; No. 7, May 7th.

Service, 1909.—No. 1, April 29th; No. 2, April 28th; No. 3, April 21st; No. 4, August 17th; No. 5, April 5th; No. 6, April 22nd; No. 7, July 8th.

ACCOUNT WITH COWS, 1909.

Expenditures.

15 tons of hay, at \$6 per ton	\$ 90.00
2 tons bran, at \$29 per ton	58.00
1½ tons bran, at \$27 per ton	40.50
800 lbs. buckwheat bran, at \$1.65 cwt.	13.20
600 lbs. corn meal, at \$1.20 per cwt.	11.40
400 lbs. middlings, at \$1.50 per cwt.	6.00
500 lbs. oil cake, at \$1.95 per cwt.	9.75
16 tons turnips	50.00
1 1-20 acres peas and oats	22.00
¼ acre Longfellow corn	9.00
Night pasture	15.00
Winter attendance, ¼ hour per day	15.00
Milking, 2 hours per day	73.00
Hunting in summer, 1 hour per day	10.00
Churning 89 times, 2 hours each	18.00
Interest, \$350, at 6 per cent.	21.50
Total amount	\$462.35