

pitched sharply. Incidentally, she should be fine in the horn, neck, legs and tail, and be broad across the loin and pin bones. To get her buy or breed. The latter is recommended. Breed the best native cows to pure-bred males of one of the milking breeds and of a good milking family. The helper calves should be kept in good thrifty condition and be bred to drop their first calves at from two and a half to three years of age. They should drop the second calf at from a year to sixteen months later. This will develop the milking habit in the helper which is likely to remain fixed in the cow.

The discussion was continued by Messrs. P. Ohlsholm and J. L. Wilson. Mr. Wilson also gave a practical address on ensilage.

In the evening Prof. Dean dealt with "Dairying in Europe." The homes of the leading dairy breeds of Canada are found in Europe. The Ayrshire is a native of Scotland, the Holstein of North Holland, the Jersey of the Island of Jersey, and the Guernsey of the Channel Island of the same name. The first-named breed has been bred and fed especially for the production of milk suited to the manufacture of Cheddar cheese. The second for the giving of a large quantity of milk and the two latter breeds for butter-making. In selecting a breed for Canadian dairy practice these natural tendencies of the breed should be considered.

FODDER-CHEESE.

Not made last year—Proper time to make cheese—To make butter all winter—To look to quality.

By to night's issue of the Daily Witness, I see there are several factories starting to make hay or "fodder" cheese on account of the high price of the real article at present. This is a great mistake. By concerted action, last winter and spring, on the part of most factories in Ontario and Quebec, there where few fodder cheeses made, so that our market was not long in getting into a healthy shape, and it has remained so until now; but it will not take a great many poor cheeses to derange (as it were) the stomach of the market.

The proper time to make cheese is in warm weather, or moderately warm, at all events. Make butter in winter in all factories wherever there is milk enough, even though you may not make just as much money at first; study what will injure the market later and strive to obviate it if possible, and it is quite possible to do so. Last year, the season opened later on account of the recommendation of the Cheese and Butter Association of Montreal and other parties advising as well not to make any purchase. Still, the shipments during the season of navigation were the largest on record, and our butter exports were nearly up to our old time shipments. Many hold the opinion that those in authority, such as our dairy associations, the cheese and butter association, have no right to interfere or dictate what should or should not be made. Certainly, those who make it a special study and have an idea what is best for all concerned are in a better position to know than individual factorymen or farmers. The Cheese and Butter Association of Montreal, is certainly in the best position of any to recommend what line to follow, although many say it is from selfish motives they

do so; but my opinion is quite the reverse, as when cheese is low, so low, in fact, that it does not pay the farmers, the buyers are not making any profit either; but, when prices are high they have some chance of making money. During the first three months of last season, say up to the end of July, I doubt very much if there were any exporters who had made any money in cheese; at least, put them all together, and feel sure they had not made a dollar. But the moment cheese began to move upwards, they started to make a little profit, and the season on the whole was a fairly good one at the close.

I would urge all the makers of this province not to make "fodder cheese" at all or as little as possible. If they want a fair price for their cheese. Later on, you may possibly get a fair price for a few fadders, but, as surely as night follows day, will prices fall if there is any quantity made; and just in proportion to the number made, will the low prices last. If each one would work for the public good, instead of for self, the results would be far different.

Let those that are in a position to make butter do so, and let those that are not delay making cheese as long as possible. I feel satisfied that, if this advice is followed, cheese will be all right. We are making enough cheese now; and we have plenty of chance to augment our butter exports; let us continue to improve in quality, and there is no doubt we shall overcome all the objections and prejudices of the Englishmen, or perhaps I should use the word Britishers, as I see my countrymen are getting up petitions to use only Britain instead of England. Be that as it may, I shall here repeat it over again, "let us continue to improve in quality", and there is no danger but what our exports will be all on the right side. Delay making cheese as long as possible, even should you not get half value for your milk, and if you do, you will get a better value later on.

Chateauguay, Feb. 10th 1897.

PETER McFARLANE.

MILK FEVER.

February 12th, 1897.

Mr. EDITOR;

Dear Sir:

Seeing a recipe from A and G Rice, in your February number, for milk fever, for it I am very much obliged for the good of the back-woods farmer like myself. I will give my experience; I have had four cases of milk fever in my herd; the first cow I went for a veterinary surgeon; I had to go six miles to get one. I did all he ordered for cow, but she died in spite of us. The next one was taken on a very stormy night and I did not get a vet. on that account, but doctored her myself. I took one pint linseed oil, made it very warm, so it would be thin to mix, put in two large spoonfuls of turpentine, one large spoonful of Cayenne pepper, two spoons of ground ginger, and mixed them in a bottle. Shook them well and gave it to the cow. Then I covered cow up with two buffalo robes, put horse blankets over it, waited one hour, repeated the dose in fifteen minutes after, put my hand under the robes and found the cow beginning to sweat: a sure sign she was coming out all right. I have had two cases since; never gave but one dose in these cases and cows

came out all right. I have tried the turpentine in case of stoppage in cow after nothing passed her for several days; in six hours cow was all right. I gave five spoonfuls in a pint of new milk. I give this recipe because it is more simple and almost all farmers have it on hand. If you wish to put it in the Journal, all right; if not, it will do for waste paper.

Yours,

T. W. PAIGE, Bolton (Glen,
P. Q.

THE INFLUENCE OF THE COMPOSITION OF MILK ON THE CHEESE YIELD

Lloyd on cheese—Pasture—Experiments on milk Curd and fat.

Recent interviews with well-known Cheddar cheese-makers have shown a great diversity of opinion to exist upon this important point. Some makers believe that the higher the percentage of fat present in the milk the greater will be the yield of cheese from a given quantity of the milk. Others contend that there is a limit to this, and that the percentage of fat must properly balance that of casein, in order to obtain the greatest yield. No doubt much depends on the composition of milk in cheese-making, and it stands to reason that all the different proportions cannot be alike calculated to produce the best article, or the most of it.

In looking over the records of some of the more recent investigations on cheese-making, we find that the experiments conducted last year at the *Cheese School of the Bath and West of England Society* by Professor Lloyd, and recorded in detail in the recent issue of the *Journal of that Society*, throw considerable light on the subject. As a rule, from beginning to end of the cheese-making season cows are out on the pastures and receive nothing in the way of artificial feeding. Now, in that case the milk naturally becomes more and more rich, not only in fat, but also in casein and other solids, as the season advances, at the same time a corresponding and proportional increase in the yield of curd taking place. In such a case it is impossible to determine the individual effects of the increasing percentages of fat and of casein upon the curd yield. But, by special feeding during part of the season the composition of the milk at the Bath and West School was, as we shall see, affected in such a manner as to make the result there obtained peculiarly adapted to illustrate the points in question.

At the beginning of the season the cows which supplied the milk used in the experiments were out on the pastures, and each animal received, in addition, 4 lb. of decorticated cotton cake, and 2 lb. of a mixture of bran, ground cottonseed (containing 23 per cent oil), and barley meal. The use of this artificial food was continued for a period of six weeks, after which the cows received nothing but their regular summer pasturage, but towards the end of the season artificial food was again supplied. During the whole period a complete record of observations and analyses was kept, and the following extracts are taken therefrom. The figures are averages for each month:—

It will be seen that the effect of the high feeding with artificial foods was to produce milk exceedingly rich in fat, containing in April no less than 3.70 per cent. With the cessation of the

	Fat in milk Per cent.	Casein in milk Per cent.	Lb. of fat to 1 lb. casein in milk	Lb. curd from 1 gallon milk.	Fat in curd per cent.
April.....	1.70	2.43	1.52	1.06	32.27
May.....	1.39	2.60	1.30	1.10	29.78
June.....	3.51	2.58	1.36	1.01	29.70
July.....	1.60	2.67	1.34	1.10	31.10
August.....	3.80	2.68	1.41	1.12	31.17
September.....	1.94	2.91	1.33	1.25	29.91
October.....	1.55	2.92	1.55	1.24	31.05

supply of concentrated food in May, the quality of the milk fell, so that the average percentage of fat was only 3.39. As the season advanced the composition of the milk gradually improved, as it invariably does, until in October the percentage of fat was 4.55. Now, it is a popular belief, and one which has been supported by the results of certain experiments in America, that the quantity of casein in milk bears a uniform relationship to the quantity of fat. But, if we compare the percentages of these two constituents given in the above table, we shall see that in this case at least no such relationship exists, for while in the month of April the percentage of fat was 3.70, and that of casein 2.43, in May the casein had risen to 2.60 with a simultaneous fall in the fat percentage to 3.39. And towards the end of the season, when artificial food was again given, it will be noticed that fat production again received a stimulus, the casein suffering little or no change. These figures clearly prove that rich feeding, while increasing the percentage of fat, has little, if any, effect upon the casein of the milk.

Now let us see to what extent the actual yield of curd per gallon of milk is influenced by the fluctuating percentage of these two constituents of the milk.

The fat and casein respectively. Beginning with April, we find 3.70 of fat in the milk opposite a curd yield of 1.06 lb. to the gallon. In May we find a reduced percentage of fat, viz., 3.39, to give an increased yield of curd—1.1 lb., whilst in June much less curd is obtained, although the milk has become richer in fat. Again, the curd yields for September and October are identical, although the milk in the former month showed 3.94 of fat as compared with 4.55 in the latter. Evidently, then, the yield of curd bears no relation to the percentage of fat which the milk contains.

But, if we compare the percentage of casein in the milk with the yield of curd, a pretty uniform relationship between the two will be found to obtain. Thus, in May an increase in weight of curd takes place, corresponding with an increased percentage of casein, while in June less curd corresponds with less casein. Again, in July and August the percentage of casein in the milk is practically the same, and so also is the weight of curd, and in September and October 2.91 and 2.92 respectively of fat give an identical yield of curd.

As regards the quality of the curd (i. e., the amount of butter fat which it contains) it would seem that the richest curd is produced when the milk contains a relatively high proportion of fat to casein.

It would appear, therefore, from the results of these experiments, that feeding with concentrated artificial foods produces milk rich in butter-fat; that the proportion of casein in the milk is but very slightly, if at all, affected by such feeding; that the percentage of casein in the milk bears no fixed rela-