

THE MANITOBA DAIRY SPECIAL.

There have been corn specials and seed-grain specials that have given good results. Why not a dairy special, through those parts of Manitoba especially suited to the dairy industry? The question was asked by the President and staff of the Manitoba Agricultural College, and answered with the assistance of the Canadian Northern Railway. The train pulled out from Winnipeg on Monday, June 24th, and between that time and June 27th, lectures of two hours' duration were given at the towns of Elie, Gladstone, Plumas, Glencairn, Neepawa, Makinak, Swan River, Dauphin, Sifton, Woodlands, Lake Francis, St. Laurent, and Oak Point. Attendance was very encouraging, the car being filled at nearly every point with men and women who had come to learn. Those taking part in the work of demonstration and instruction were: J. J. Golden, Deputy Minister of Agriculture; President Black, of the M. A. C.; Prof. Carson, of the Dairy Department of the College; A. R. Greig; L. A. Gibson, Provincial Inspector of Creameries, and N. J. Kuneman, Inspector of Cheese Factories.

THE CARE OF THE COW.

The actual giving of instruction as to dairy methods fell to the lot of Prof. Carson, who, in clear, forcible style, set the main points before the audiences. He said that never before had dairy prospects in Manitoba been brighter. But there was large room for growth, for this industry, up to the present, had failed to keep pace with the expansion of the Province in other directions. There is not enough butter made to supply the home demand, and practically none is exported. The average cow in Manitoba produces only 2,500 pounds of milk in a year, whereas the proper cow, given the proper care, will produce from 5,000 to 6,000 pounds, or even more. The only way to judge a cow is by what she produces, and the only way to estimate her exact production is by keeping a record of her work during the year. In this record-keeping the College was anxious to assist, and was prepared to test the milk and keep the records for a year for any farmer who would weigh the milk from the cow to be tested night and morning three times a month, send a sample of this milk in special bottles to the College, along with a statement of the breed, name, age and weight of the cow, and with the time when she came in. Then, if the owner has kept track of what it has cost to feed her during the year, he will know whether she is a profit or loss to him, and will then act accordingly.

Prof. Carson said that the best feed for the dairy cow was corn ensilage, hay and roots, with bran. He believed that corn for feed, and clover, could be satisfactorily grown in this Province.

CARE IN MILKING.

In speaking of the disposal of the milk, the lecturer said that in the udder of a healthy animal the milk contained no harmful germs, but the instant it left the udder germs were ready to attack it, and the capacity for receiving such was in the proportion of twelve million germs to every sixteen drops of milk. Such germs, in thousands, were found in dirty stables, unscalded milk pails, on the clothes and hands of the milker, on the sides of the cow. He recommended, as a remedy for the last named, the wiping of the cow's sides and udder with a damp cloth, which would prevent germs from dropping into the pail. The separator, and all utensils connected with the disposal of the milk, he said, should be thoroughly scalded every time that they were used. Many had the impression that washing each time, and an occasional scalding, was sufficient. But this was an error, the practice of which spoiled the flavor of the cream and butter.

SEPARATING THE MILK.

The milk should be separated as soon as possible as it comes from the cow, as its temperature then is high enough to be germ-resisting, being about 98 degrees. A higher degree of heat than this is better, but not convenient to obtain. If the milk is allowed to stand, it should be heated again to at least 98 degrees before being put through the separator. If the pan of the separator were filled to the top the milk would go through faster, giving more in quantity in the cream can, but thinner in quality. The faster the separator was turned the greater the centrifugal force, and consequently the more skim milk thrown off and the less cream in the can, but this cream would be richer in quality.

BUTTERMAKING AND SELLING.

The Professor spent much time on the subject of buttermaking. He laid particular stress on the fact that buttermakers must suit the tastes of their customers. They were foolish to persist in making butter for market that suited themselves, when their customers demanded something else. Many customers liked butter that had a good deal of water left in it, say from 12 per cent. to 16 per cent., on account of the sweet flavor when freshly made. This was a demand the dairyman should endeavor, for his own sake, to meet, provided the butter was to be used at once. Such

butter would not keep long without losing flavor. Other customers liked butter made from sweet cream, rather than sour, but this was open to the same objection as the moist butter—it would not keep long and retain its sweet flavor.

It was not wise to send one's butter to the general storekeeper. He generally gave one price for all, good, bad or indifferent, packed it all together in a box, and shipped it away. The good buttermaker thus got no credit and no profit from a superior article. The best method was to find regular customers, and then cater to their wants, whatever they might be. With such customers, the clean and appetizing appearance of the butter counted for much. It should be carefully churned until the granules were about the size of wheat, then washed as little as possible, but until the buttermilk ran clear; put up in neat prints, and carefully wrapped in butter-paper. The result more than paid for the extra work.

QUESTIONS AND ANSWERS.

There was much intelligent questioning at every place. Here are a few examples of the questions propounded:

What makes cream hard to churn?

It may be too thin. Cows may have been milking for some time. Feed may not be of proper quality, and more bran should be given.

What makes butter mottled and streaked?

Churning too long will often have this effect. The butter is in large lumps, and cannot be properly worked or salted. Stop churning when the butter is like grains of wheat.

Does it hurt to mix sweet and sour cream together before churning?

Yes, the sweet cream is practically wasted, and will be seen rising on the top of the buttermilk, because sweet cream takes longer to churn. It is a safe rule to add no cream to the supply for at least twelve hours before churning begins.

RELATION BETWEEN PERCENTAGE OF FAT AND QUANTITY OF CREAM.

The following table, taken from the bulletin, "Gathered Cream for Buttermaking," will show the pounds of cream produced for 100 pounds of milk testing from 3.3 to 4 per cent. of fat, the cream testing from 20 to 40 per cent.:

40% Cream.	Lbs.	35% Cream.	Lbs.	30% Cream.	Lbs.	25% Cream.	Lbs.	20% Cream.	Lbs.	Fat in Milk.	%	Milk.	Lbs.
8.25	8.25	9.48	9.48	11	11	13.2	13.2	16.5	16.5	3.3	3.3	100	100
8.5	8.5	9.71	9.71	11.33	11.33	13.6	13.6	17	17	3.4	3.4	100	100
8.75	8.75	10	10	11.66	11.66	14	14	17.5	17.5	3.5	3.5	100	100
9	9	10.28	10.28	12	12	14.4	14.4	18	18	3.6	3.6	100	100
9.25	9.25	10.57	10.57	12.33	12.33	14.8	14.8	18.5	18.5	3.7	3.7	100	100
9.5	9.5	10.85	10.85	12.63	12.63	15.2	15.2	19	19	3.8	3.8	100	100
9.75	9.75	11.14	11.14	13	13	15.6	15.6	19.5	19.5	3.9	3.9	100	100
10	10	11.43	11.43	13.33	13.33	16	16	20	20	4	4	100	100

This table may assist patrons to adjust their separators to skim nearly the kind of cream they wish by weighing the milk and cream. For instance, if the milk tests 3.6 per cent. fat, and a 30-per-cent. cream is desired, there should be 12 pounds of cream from 100 pounds of milk.

BRITISH COMMENDATION OF THE DAIRY COMMISSIONER'S STAND.

Anent the still live subject of shipping green cheese, the following excerpt from an editorial in the *Grocers' Review*, Manchester, Eng., is appropriate:

Mr. J. A. Ruddick, the Dairy and Cold-storage Commissioner, of Canada, has not directed attention too early to one or two special phases of the cheese trade. Since public reference was made to the alleged conditions in the large packing-houses in the States, an impetus has been given to other industries, one of them being the cheese section.

The demand for this article rapidly extended, and, no doubt, with the desire to make hay while the sun shone, the makers in Canada—and elsewhere, for the matter of that—got their cheese onto the market as soon as it was at all possible. Temporarily, this was all right, perhaps, from the farmer's point of view, though, as most experts know, a reaction would almost inevitably follow. This has been the case, and the trade and the public generally are showing their undoubted resentment at the cheesemakers sending into the market their commodity in a green condition.

The Review then goes on to quote a portion of Mr. Ruddick's circular of May 7th, and throws out an interrogative suggestion in the words, "Will English and other cheesemakers take the hint?"

AIR TREATMENT FOR CAKED UDDER.

Dr. Peters, of the Nebraska Experiment Station, treats caked udder in cows in this way. He says:

"I have here an ordinary milk tube, with a little bibb at the end of it. I use a rubber tube something like an ordinary hand bicycle pump. Now I insert this tube carefully into the quarter that is affected and fill it up with air. I do not probe in there with darning needles and other kinds of instruments, but I fill up this spongy organ with air, and it is like filling a sponge with water. If the udder is caked, you put in as much air as you can. Then you massage or work with your hand, and work that air all through the quarter, and you will hear the bursting of these little vesicles—these little tubes. You can burst all of them in two or three applications of that kind, and you will generally restore the udder. I have treated several hundred very bad cases, and I know it works all right, and any one of you can easily do it.

"Now, where the entire udder soon after calving has become caked, we use what is known as the compress. We take a piece of heavy cloth and put it on so that it lifts up the entire udder, and tie it on top. We usually use straw with it, so that we do not chafe the back of the animal. That is to relieve the pressure. You will notice that the udder is very heavy, and that the pressure must be relieved before anything else is done. If you want to assist, take several small, five or ten pound bags and fill them with bran, keep them hot, and apply them to the udder. That is the treatment we use where there is a very great amount of congestion. Now, these are about the simplest methods of treating disease of the udder that I can explain—the massage for the diseased quarter, and the compress for the whole udder."

DAIRY RESEARCH.

SWEET-CREAM BUTTERMAKING.

Bulletins Nos. 13, 14 and 15, from the Dairy and Cold-storage Commissioner's Branch of the Department of Agriculture, Ottawa, deal with "Sweet-cream Butter," "Apparatus for the Determination of Water and Fat in Butter," and "Gathered Cream for Buttermaking."

The conclusions from the investigations made by Prof. Shutt, of the Experimental Farm, Ottawa, regarding sweet-cream butter, are: (1) By the sweet-cream process there is no greater loss of butter-fat than in the ordinary method with ripened cream. (2) The keeping qualities of the butter by the sweet-cream butter are distinctly superior to those of the ripened-cream butter.

These results agree with those obtained at the Dairy Department of the O. A. C., except that we should qualify conclusion 1 by saying, "If the conditions are just right, there is no greater loss of fat by churning sweet cream," but the tendency, as indicated by the experiments detailed in the bulletin, is for a greater loss of fat when churning the sweet cream, as compared with ripened cream, unless the buttermaker be very careful in his work.

TESTING BUTTER FOR FAT AND MOISTURE.

The tests of apparatus for fat and water determination in butter were also made by Prof. Shutt. The apparatus consisted of the Wagner butter-test bottle, and the Wagner butter hygrometer. Speaking of the test bottle, the author says: "The reliability of the results from this test bottle depends largely upon the temperature of the contents of the bottle when the fat column is read." The bottle gave results consonant with those obtained by gravimetric analysis, by using 1 c. c. acid (sulphuric), and reading the fat column after placing the bottle (direct from the machine) for ten minutes in water that had a temperature of 122 degrees F. Of the butter hygrometer, the writer speaks as follows: "After considerable experience, we cannot speak in unqualified terms as to its general satisfactoriness." In other words, he does not recommend it for practical purposes in determining the moisture in butter.

In this connection, it is interesting to note the following recent warning from Prof. G. L. McKay: "Trying to approach the 16-per-cent. limit is a very dangerous practice, and should not be