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# FARM AND DAIRY

## & RURAL HOME

The Recognized Exponent of Dairying in Canada



Trade increases the wealth and glory of a country; but its real strength and stamina are to be looked for among the cultivators of the land.—Lord Chatham

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## Two Factors That Influence Dairy Development

### Feeding of Heifers and Age of Breeding in Their Relationship to Growth and Dairy Quality

IT is a well-known fact that there is considerable difference in practice among cattlemen in regard to the feeding and handling of dairy heifers. We find radically different views on some points. Some hold that a cow should be fresh at a very early age to insure the best development of the milking functions. Others take a directly opposite view and prefer a cow to be quite well matured, and state that only in such animals are the milk producing functions the most highly developed. Some who raise dairy cattle feed their calves only bulky feed and in rather scanty quantities. Others feed largely with grain and grow them as rapidly as possible. Some hold that if a heifer of a dairy breed is allowed to get fat when young she develops a tendency to use her food for body fat all her life rather than to produce milk. Others hold that the dairy qualities of a cow are not influenced in any way by the method of feeding when young and that no harm comes from a heifer being fat. Some desire to develop the largest animals possible for the breed. Others prefer cows medium sized or small for the breed.

A few years ago Farm and Dairy attempted to gather together the views of Canadian dairy cattle breeders of note on these two points—the age at which a heifer should be bred, and her feeding from birth to her first lactation period. The breeders consulted were all men who have made names for themselves in the dairy world, specialists in three different breeds. There was a notable lack of unanimity in the opinions collected. Some believed that heifers should freshen at two years, and other fanciers of the same breed preferred to have theirs come in at thirty-three months, or even older. Some claimed that dairy bred heifers could not be fed too well; others that too liberal feeding would injure their value as milk producers in later years. The experimental stations, like the breeders themselves, had little more to offer on the subject than guesses and opinions. Prof. Echles, of Missouri, has now, however, some very definite suggestions to offer on those questions, and his information is based on work conducted with the station herd since 1906, and some

As Investigated by PROF. C. H. ECHLES, of Missouri of his results are fortified by herd data extending back to 1899.

#### An Outline of the Experiment.

The experiment proper was carried on with 40 heifers of three breeds—Jersey, Holstein and Ayrshire—divided into two groups. Group 1 were heavily fed from birth to their first lactation period, much more heavily than would be advisable in a commercial stable. Group 2 were lightly fed. These two groups were subdivided into two divisions of 10 heifers each, one division

between a scanty and an excessively heavy one. It was planned to give the animals in the Heavy Fed Group practically all they would consume from birth to first calving, and to use a ration of such character that the maximum growth and development of fat would be secured. The heifers in this group remained with their mothers for two or three days after birth. From this time on to weaning, at the age of six months, they received whole milk, fed from a bucket. The amount fed varied with the size and age of the animal, but averaged about 16 pounds daily. Grain feeding was begun as soon as the calves

would eat it freely. The grain given was a mixture of corn, two parts; oats, one part, by weight. Alfalfa hay was also given as soon as it would be consumed. The same grain mixture and alfalfa hay was fed up to the time of first calving. A part of this group was on pasture during the summer season, and received a heavy ration of grain in addition. The others were not allowed to go on pasture, but received the grain and hay ration continuously. After calving, both groups received the same ration, which was alfalfa hay and silage, and a grain mixture of corn, four parts, bran two parts, oilmeal one part, fed in proportion to the milk production of the animal.

The Light Fed Group received the mothers' milk for the first two weeks, and was then gradually changed to skim milk, fed warm and sweet immediately after separation. Alfalfa hay was given as soon as the animals would consume it, but no grain was fed until after the heifers came into milk. The feeding of skim milk was discontinued at the age of six months. A part of the group was on pasture during the summer, while the remainder received only hay and some green soiling crops up to the time of first coming in milk. After calving both groups received the same ration.

#### Animals Used.

The animals used were all pure bred and were calves from cows in the University of Missouri herd. The complete information at hand with reference to the breeding of the animals and the



The Homestead of a Prosperous Quebec Dairyman. There are many dairy farms in Quebec that are models of comfort and neatness. This is one of them. The view shows the home, barns and dairy herd of Mr. S. Armitage, Assot, Que.

breed early, to freshen around two years, and the other to freshen one year later. It was planned to arrange the experiment to give data especially on two points.

1. The influence of liberal as compared with light rations during the growing period.
2. The influence of the age at first calving.

The ration given the light fed group was really not an inferior one as compared to that used by some dairymen, although not equal to that used by most of the owners of well developed herds. As a matter of fact, after the experiment was well under way, it was decided that the ration fed the Light Fed Group was really a fairly good one, and the comparison is therefore between a medium and a very liberal ration, rather than