

dry. The producer may get profitable returns under this system if he uses good judgment in making his purchases. The milk producer with a large range of land can carry over his dry cows to good advantage, and can also raise a few heifer calves each year to supplement the herd as the older matrons are drafted out, and also to supply his fellow-producer on the small farm who is not in a position to rear his young heifers, although I maintain that even the small producer can rear several calves each year to good advantage. Again, the milk producer is up against the problem of rearing the calf without milk, or short milk rations, but this can and is being done by many successful dairymen, but requires more care and skill on the part of the feeder, as other rations may be substituted for the skim milk. While we know a number of very successful milk producers who keep pure-bred herds, yet I believe the grade cow will supply the larger quantity of milk for city trade for some time yet, leaving the production of cream to the breeders of pure-bred stock, as they, wishing to rear all the young stock possible, want the skim milk left for that purpose.

The success or failure of the milk producer rests in his own hands, in managing the herd, breeding his cows to freshen at different seasons, and especially to freshen when milk is in greatest demand and selling for the highest price, which is during the winter season; a larger percent. of his cows should freshen during the months of September, October, November and December. These, when liberally fed and properly housed and cared for, will give a good flow of milk all winter, and to within two months of freshening the following season, and will be dry when the pastures are short during the late summer and fall months. Cows handled in this way will give a larger milk flow, at a minimum cost, over spring-calving cows.

One factor that must be observed is the cost of production, which must be kept as low as possible. This may be done by providing corn ensilage for winter feeding; mangels and sugar beets for fall and early winter will be found of great value, but the corn ensilage is indispensable. Well-saved oat straw and inferior quality hay may be run through the cutting box and mixed with the ensilage, and fed with good results. A liberal feed of this mixture twice each day, with one feed of clover or mixed hay, together with a mixture of oats 3 pounds, barley 1 pound, gluten meal 2 pounds, and bran 4 pounds, as a concentrated feed, should give good returns when fed to fresh cows. For summer feeding, the wise dairyman will not depend altogether on pasturage; this may become very short during a dry season, as was experienced last year, but will provide a soiling crop, either in the form of corn ensilage carried over the winter, or a green crop of oats and peas, or oats and vetches, sown at different times, at least 8 days apart, an acre for every 8 or 10 cows. Such a crop will supplement the pasture feed during the months of July and August. By September the early corn will be ready for feeding, and may be fed liberally if required. All this green feed should be cut the day previous to being fed and allowed to wilt, as it becomes more palatable, a proportion of the starch being turned to sugar. When such a course of feeding is followed, its effect on the milk flow will be apparent to the intelligent dairyman. On no account should the cows get, at any time, unwholesome or musty food or impure water, as this has a decided effect on the quality of the milk, and milk for city consumption must be without taint, odor, or undue taste.

Then comes the housing of the stock. This is an important feature in the business to-day. The day was when any old shack was good enough in which to house cows that produced milk for city trade, but that day is past, and we find regulations adopted and carried out by every city board (that has the health of its citizens in mind), that govern these matters of importance. The call is for sanitary stables. By this we mean well-lighted, well-ventilated, warm, clean stables, having not less than 500 cubic feet of space to every full-grown animal. The water supply should be installed in the stable, so that the cow may get an unlimited supply of fresh water at all times. The cow in full milk requires a large quantity of water for the proper assimilation of food for the production of milk, as we are told that milk contains from 75 to 90 per cent. water, therefore we see the necessity of having an extra amount of water for the feeding, comfortable housing, a good supply of clean water, and kindly treatment, is the secret of the success of the true dairyman.

A vital question, and one in which producers to-day are concerned, is that of the farm laborer. We have to admit that no dairy farm can be operated successfully without involving considerable labor, which cannot always be had at a reasonable price. The farm laborer of to-day is rather a "being-here-to-day and away-to-morrow," and "of passage," as it were. Are we not to blame for this state of affairs? I believe we have to answer "guilty!" to the charge, as we have encouraged the short term of service rather than

the yearly term, which has given the farm-labor side an unstable condition. Again, the long hours on the dairy farm has led men to shun these places. As dairying increases, more help will be required. Where is this to come from? A certain portion will be had from among our home men and women, and the balance of help required will have to be brought in, as this help must be had. The experienced farm hand from the British Isles, Sweden, Denmark and Holland will supply us with a number of good dairymen, and women, too, if proper arrangements can be made to bring them to this country. If we can induce them to leave their native country and come to our Eastern Provinces, this labor question is in a measure solved for our dairy farmers. Along with this, the day's labor must be shorter, and the term of service longer, if this production of milk for city trade, and, in fact, the great dairy industry of our country, is going to develop in keeping with the possibilities of soil production of Eastern Canada. W. F. S. Huntingdon Co., Que.

CITY-MILK PRODUCTION IN NEW BRUNSWICK.

Editor "The Farmer's Advocate":

In the matter of choice as to breed of cows best fitted for a continuous supply of milk throughout the year, it would be impossible to name any one breed as the best, there is such a difference of opinion; but, for supplying dealers in a city, where quantity is the main consideration, and cattle are fed as liberally as milkmen generally feed, the Holstein should fill the bill to a high degree of satisfaction, and, I believe, does. For myself, a cow about one-quarter or one-half Holstein, with some Ayrshire or Durham in her (no Jersey, please), seem about right. They are not quite so large and rough, rather more tidy and compact, but large enough, good feeders and good milkers, and look rather better under ordinary conditions than the pure-bred Holstein. As to the time of breeding, they will have to freshen with a certain degree of regularity all through the year, as dealers require an average supply the whole time. The first of July and along through August one should have as much as possible. To keep up the herd, I would most certainly raise the best heifer calves from the best cows—three or four or more every year. It can be done quite easily. Have a good box stall handy, with a large, shallow feed box in it. Put in your calf or calves as they come along, up to three or four, and feed good milk for about three weeks. In two weeks you will see it eating feed, and hay, too. You can then soon make its drink half warm water, and in a week all warm water (always warm). Right here let me say I have no use for slop feed of any kind for a calf; just good dry middlings or ground oats, with, perhaps, a little corn meal added. It will grow right along, and you will soon have a calf that will drink with the cows, and, if well fed, will come in at two and a half years old, and will be better in her first year than the majority of cows. If she is not good, at least, in her second year, dispose of her; otherwise, keep her quite a number of years. You can't milk her out under twelve years of age, if she is given a reasonable resting time each year.

As to the size of a herd, one will have to be governed by the size and capacity of his farm; it will not pay to buy much rough feed. If the farmer has help of his own, he may keep as many as possible. If he has to hire largely, he will have to work like a nigger early and late, Sunday and Monday, and live more carefully, in order to give satisfaction or have it.

As to milking and care of milk for St. John trade, no very special precautions are taken as to cleanliness either in the milking or care of it, only as persons are so inclined. Some of the most reliable patrons, that give the best satisfaction, are the ones that exercise the greatest care in properly cleaning cans and milk vessels, and keep their cows in the best possible shape. I know nothing about bottling system, only that it is much the nicest and cleanest way, and should commend itself so as to command the higher price required to pay for the extra expense. Sanitary milk cannot be furnished in the cans at present in use. A farmer can provide milk, and live at present prices of feed, for three cents per quart in summer, and thirty cents per eight-quart can in winter, but his profits will be easily taken care of. He should have at least four cents in winter, and, with feed at \$30, and wages high, a slight advance in that price should be received. In summer, when pastures are short, green food should be provided to keep up the flow; it is better to keep it up than to get the cows in good condition again, if once they are allowed to shrink very much. For winter feeding here, in New Brunswick, many thousands of bushels of turnips are grown and stored for use, silos not being so much in favor at present. Of course, many complaints are heard as to taste when feeding turnips, but if fed right along, one needs to have a good appetite, well filled and used liberally, as turnips are a treat. Some of the disadvan-

tages of supplying milk for retail trade over producing it for a co-operative factory are that no pigs can be kept and less manure is made. All other work must be made subservient to this trade, as it must be looked after sharply all the time, especially if one is a distance from a shipping point. Its advantages are ready money at all times, and you know just how you are going all the time; milk disposed of at once; no pig-feeding or pigs to care for; no lugging of skim milk, and tidier surroundings.

N. B.

CONDENSED MILK.

The establishment of condensed-milk factories in different parts of the Province of Ontario is becoming a more or less disturbing factor in the development of co-operative dairying. Some consider that their effect will be adverse to the dairy industry. It will probably mean more or less hardship for the creameries and cheeseries in the immediate vicinity, but if there is a demand for more milk at paying prices, it is up to the farmers to produce the milk. More condensers means less milk for cheese and butter making, unless production be increased correspondingly; but the product from the condensers does not come into competition with the products from creameries and cheeseries. It means an added market for dairy produce; hence, in the long run, condensers are likely to benefit the dairy industry as a whole, though they may cause more or less disturbance at first, and be a cause of harm and loss to individual factories and factory owners.

The Inland Revenue Department, Ottawa, has issued a bulletin (No. 144), which deals with "Condensed Milk," more particularly with reference to its composition. The author says: "Condensed milk is generally understood to be 'whole' milk, from which a more or less considerable portion of the water has been removed by evaporation. No legal definition or standard for this article has been established in Canada." He points out that, in the United States, there are four standards or classes legally authorized, viz.:

1. Condensed or evaporated milk, which must contain not less than 28 per cent. of milk solids, and 27½ per cent. of these solids must be milk-fat.
2. Sweetened condensed milk, to which sugar has been added, and must contain solids and fat similar to Class 1.
3. Condensed skim milk, made from skim milk by evaporating a considerable portion of the water.
4. Evaporated or clotted cream, which is cream from which a considerable portion of water has been evaporated.

In round numbers, it takes about 2½ pounds of ordinary whole milk to make one pound of non-sweetened, condensed milk. The bulletin states that many of the non-sugared milks are sold as cream, and points out that such a label on condensed-milk packages should be made illegal, as it is misleading to the purchaser. He holds, further, that it is injurious to the manufacturer who may wish to put a true cream on the market. The results of the investigations, with reference to 47 samples of unsweetened and 95 samples of sweetened condensed milk, collected practically in all the provinces of Canada, from Nova Scotia to British Columbia, are summarized as follows:

1. Condensed milk should mean the reduction of the volume of normal milk, by evaporation of a greater or less portion of its water.
2. When sugar is added, this fact should be stated on the label, and, preferably, if not necessarily, in the name of the article, as "sugared" or "sweetened" condensed milk.
3. The word "cream" is largely used to designate condensed milk. This is incorrect, and should be made illegal. As a matter of fact, these so-called "creams" are not any richer in milk-fat than the sugared condensed milks, and many of them are distinctly poorer.
4. Among the samples examined, only one is entitled to be called a cream.
5. The average milk value of most of these samples shows them to be about 2.3 to 2.5 times the value of normal whole milk. Hence, a dilution to about two and one-half times their volume results in converting them, for practical purposes, into milk.

The instructions for dilution printed upon the labels are quite misleading in many cases. For making a rich cream, add from one to two parts pure water. The result would be a liquid containing about 3 to 4 per cent. milk-fat, and would be in no sense a "rich cream."

Several brands advise the addition of three parts water to make "a pure, rich, economical milk." Such a dilution would give a resultant containing about two per cent. of fat. The sugared milks bear larger dilution, without evident reduction of "body," but the fat content being practically identical with that of the non-sugared kinds, the product of dilution cannot be regarded as other than a very poor milk thickened with sugar. One brand advises the addition of four