

THE DAIRY.

Milking the Cows.

It has been frequently said that good milkers are born and not made. How true this is can readily be seen if one spends a short time watching milkers at their work and noting the behavior and milk flow of the cows. The ordinary milker who milks a cow as part of the chores and is anxious to get the job done, seldom takes sufficient account of the animal and her likes and dislikes. Nor does such a one realize how closely the secretion of milk is bound up with the nervous system of the cow. The cow is first of all a mother and must go through the trying and difficult period of gestation before milk is secreted. The birth of the calf acts, as it were, as a release to the milk manufacturing organs of the dam and enables them to perform their natural functions. Cows naturally give milk to nourish their offspring, and this great fact of maternity should always be kept in mind by the dairyman. By judicious feeding an intelligent feeding man has been able to greatly increase the amount of milk secreted and to take advantage of that nervous condition which is largely at the back of the cow's ability to produce. It remains for the milker to see that in the process of securing the milk secreted by the cow, the efforts of the feeder and breeder are not wasted.

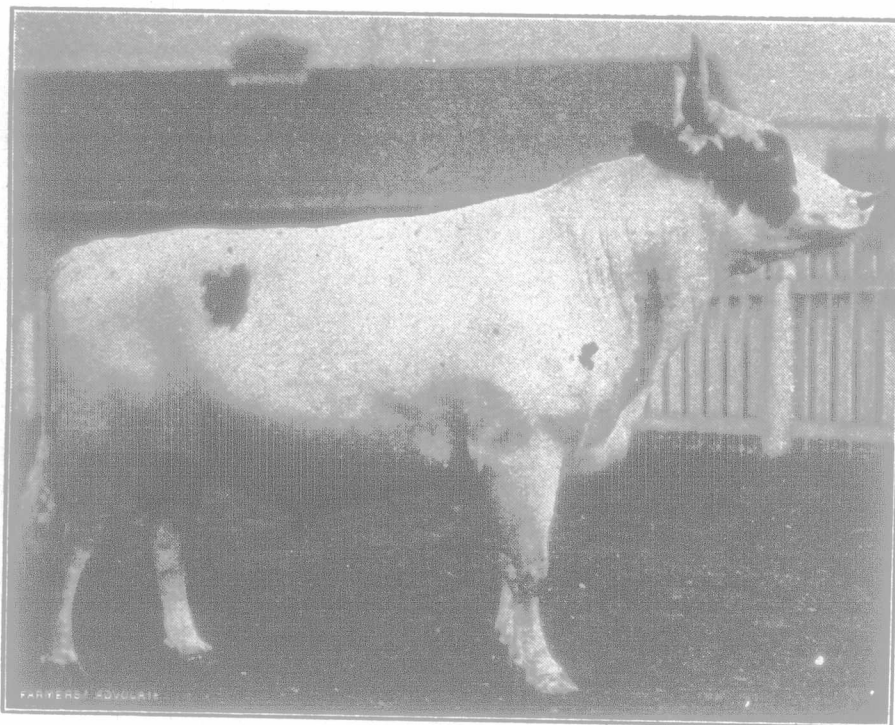
It is, for example, unwise to suppose that the cow's udder holds at one time all the milk that is secreted at one milking. There are and have been a fairly large number of cows that have given a hundred pounds or more milk per day. This is equivalent to ten gallons. Cows giving up to 60 pounds per day are not usually milked more than twice, and it hardly seems reasonable to expect the cow's udder to hold 3 gallons of milk already manufactured, in addition to the tissues, frame work, veins, and other parts of the udder. This is the more readily appreciated when we stop long enough to realize that it is not always the cow with a large udder that gives the most milk. Those who have studied the process of milk formation and secretion tell us that as a rule the milk cisterns at the base of the teats do not hold more than about a pint when milking time comes. This being so, it is evident that the final secretion of milk must take place largely at the time of milking. Everyone has noticed the way a calf bunts the dam when suckling. This should not be necessary if the udder were full of milk ready to pass out when the sphincter muscles are forced open. Obviously the calf knows enough to help along the actual secretion by causing an irritation. This "bunting" has been explained as a stimulation to the nerves of the udder which respond possibly in such a way as to allow of a freer passage of the milk-forming materials. The lesson to be learned from the calf is that the nervous system of the cow must be considered and the milking done as the cow best like it, as nearly as possible.

It does not follow, if the calf rams his muzzle into the udder of his mother to get enough milk for a meal, that milk is secreted in proportion to the pounding or kicking the milker is able to give the cow at each milking. Far from it; although some milkers have yet to appreciate this fact. If this were the case it would be a simple matter to rig up a device that would be a constant reminder to the cow that her nervous system and milk plant was expected to keep on working as long as the milker cared to keep on pulling teats. But this is not the case as is evidenced by the fact that cows frequently "hold up" their milk when excited or ill treated. Kicking and expostulation only add to the delay and mere argument is vain. Long experience has shown careful milkers that kindness, quietness and a willingness to humor the cow are the best remedies that can be applied. Some cows never milk satisfactorily for the reason that they have never been properly accustomed to the change from the calf to the human being, and if it happens that the calf has been taken away, from the time of the first freshening, the unsatisfactory behavior of the cow may be due to too much haste or fuss when first milking her as a heifer. There should be little difficulty in teaching a heifer to be milked. She should be made accustomed, before calving, to the stable and the attention of her feeder and milker. Care should be taken not to startle or scare her and when first milked she should not fear manipulation of her udder or teats. There is an enormous difference in milkers, and some persons leave a considerable quantity of both fat and milk in the udder. Investigations have been conducted which show that some milkers leave as much as 20 cents' worth of fat in the udder at each milking.

ing. In another herd it was found that 16.9 per cent. of the fat was lost by failure to milk out thoroughly. Some milkers may be able to get 20 per cent. more milk than others, who may dry the cow up within a few months. A change of milkers or a change of surroundings may easily affect the milk flow, and even the presence of strangers or a dog about the stable at milking time has been known to excite the animals enough to cause them to hold up their milk.

As noted above, care should be taken to get all the strippings. The first drawn milk is very poor in fat, often containing as little as one per cent. of fat, while the last drawn may show as much as 10 per cent. or more. The whole hand should be used in milking, closing first the part of the hand next to the udder, then the milk is forced past the sphincter muscle by closing the remainder of the hand. The teat should be pressed well against the cushion of the thumb rather than against the hollow of the hand. If a cow has very short teats it may be necessary to use only the thumb and the first two fingers until there is room for more, and in stripping one should press well up into the udder in order to draw all the milk out of the milk cistern. Too much pressure or pulling may injure the udder, and this can easily shorten the cow's period of usefulness. The teats should be dry during milking; wetting them with the first-drawn milk is an abomination to the cause of clean milk. This first-drawn milk may not be as pure as that in the udder proper because of bacteria which may work into the teats from dirt gathered while the cow is lying down, but it causes the teats to become sore in cold weather and is much better given to the calf. A little vaseline rubbed on the hands is sanitary and good for the teats as well.

Cows should, preferably, be milked before feeding. Milk passing through the atmosphere picks up readily any dirt or dust that may be present, and if feeding has just been completed or if the stable has just been cleaned,



Humeshaugh Invincible Peter.

First prize two-year-old and senior champion Ayrshire bull at Canadian National Exhibition, Toronto, 1918. Owned by A. S. Turner & Son, Ryckman's Corner, Ont.

conditions are at their very worst. For the same reason the cows should be kept as clean as possible, even to grooming a little if they get very dirty. Before milking the udder should be wiped off to remove any loose dirt or chaff, and if necessary sponged with warm water. The latter will not be necessary except at long intervals when the udder becomes very dirty. To assist in keeping the milk in its naturally clean state small topped milk pails are very valuable, and if kept clean, as can easily be done, will prevent much dirt from falling into the milk.

Milking should be done at regular intervals, and the cows are better milked in the same order. If cows are milked twice a day, say at six in the morning and six at night, there will not be much difference in quantity or quality, but if the milking is done at unequal intervals, the longer period will give milk in greater quantity but lower in fat. Milking twice a day is often enough except for very high producers, in which case milking three or even four times per day will increase the quantity and, to a certain extent, the quality as well. The milker should note carefully the condition of the udder, and warts, chapped teats, or bloody milk should be attended to at once. Some cows have teats that leak milk, due to the sphincter muscle being weak. There is no good remedy for this, although the teat opening may be closed after each milking with collodion. Some cows are very hard milkers, usually because the sphincter muscles are unduly strong. In extreme cases a teat plug, or, if this fails, a bistoury can be used. The latter cuts the muscle and weakens it. Where this is done care must be taken not to cut too severely, and all instruments used should be sterilized and placed into a disinfectant such as a 5 per cent. solution of carbolic acid or a one to one thousand solution of corrosive sublimate, before using.

Cost of Producing Milk.

It is of the greatest importance to be able to determine the cost of production by some method which has become more or less standardized. During the last three or four years there has been a great deal of dissatisfaction prevalent among both producers and consumers over the increased price of milk. The consumers have been faced with a steadily increasing cost of living and the producers have been faced with a steadily increasing cost of production, but they were not able to convince the consumer or the city milk distributor that they were entitled to an increase in price, without a great deal of dissatisfaction. It is, therefore, of interest to dairymen generally to know that the Dairy-men's League in the United States passed a resolution at a September meeting whereby the "Warren" formula for determining the cost of production of milk was finally adopted by the League. This method of determining cost is approved by the United States Food Administration. The principle of this formula is briefly explained in the "Holstein-Friesian World" as follows:—"On the average it takes the following factors to produce a hundred pounds of milk testing 3.8 per cent.: 33.79 lbs. of grain, 43.3 lbs. of hay, 10.8 lbs. of other dry forage, 102.5 lbs. of silage and other succulent feed, 3.02 hours of labor and 25 per cent. of the cost of the above factors for miscellaneous factors such as pasture, depreciation, etc.

If the market values of each of the above factors are obtained, the sum will be the average cost of production of 3.8 per cent. milk. But, of course, it costs more to produce milk in some months than it does in others. To care for this variation and to find the cost of production for any particular month, the average monthly price as obtained above must be multiplied by a percentage factor which has been worked out as correct to give the proper variation for each month. This factor will be more than a 100 per cent. in winter and less in summer. For instance, suppose the average monthly cost for producing milk is found to be \$2.80 per hundred (this figure, of course, is not correct, but is only given as an example). To find the price for November when milk is high, the average yearly price, \$2.80 would be multiplied by 119 per cent. which is the percentage variation factor for November; and to find the price for June, \$2.80 (the average price) would be multiplied by 70.6 per cent. which is the percentage variation factor for June.

The formula has been worked out by Professor G. F. Warren, of the College of Agriculture at Ithaca, from the great mass of evidence on the cost of milk production which has been collected in the last few years. The formula is a scientific method of determining the cost of producing milk, and is fair to everyone concerned because prices made from it represent the real costs of production. It will be especially acceptable to farmers because it insures them fair prices for their milk by giving them costs on all the factors that go into the production of milk.

Calf Club Organized in Peel County.

On Saturday, October 19, a new and rather novel event was held at Brampton when the officers of the Peel County Milk and Cream Producers' Association, who, in conjunction with the District Representative, J. W. Stark, distributed two carloads of dairy heifers to boys and girls, the members of a recently organized Calf Club. We believe this to be the first Calf Club organized in the Province and it is off to a good start and will no doubt have far-reaching results. The idea is to encourage the raising of good stock, keeping milk records, and of acquainting the boys and girls with the principles of banking. The Peel County Milk and Cream Producers' Association made the purchase of the cattle, and also went security. The boys and girls were required to give their notes, payable in twelve months. The following are some of the rules to which each member subscribed:

The name of the Club shall be the Peel County Calf Club 1918.

Before distribution all calves will be marked with price and number, and each boy and girl will draw a number from a box and the calf corresponding to that number will be his or hers subject to the conditions of the agreement.

The boy or girl member will give his or her note for 12 months and shall bear interest at 6 per cent. It shall be endorsed by parent or guardian, who will guarantee payment of sum when due.

It is to be clearly understood that the heifer and her progeny shall be the sole property of and shall be managed by the boy or girl without the advice of the parents. Provision will be made by a small assessment to cover loss of any member's heifer.

Prizes will be given to the members making the greatest profit from heifer and special prizes will be offered for animals distributed to members.

The following fall an auction sale will be held just before the notes become due, and all cows are to be brought in to Brampton by member and put up for sale. Member will take money received and pay the note with interest and keep the balance. If member prefers, he may bid in the cow and keep her and pay the note.

No calves will be handled except on the conditions given above and no member will be allowed to pay cash for the animal at the beginning.

Those wishing to become members were obliged to state on the application form whether they required grade or pure-bred, and also the price which they were willing to pay. With this information the purchasing committee went into the County of Oxford and purchased