

Some of the clever breeders beat the game and "put it over" the unsuspecting judge. They perpetuated and developed milk production in poor breeders and thus qualified. The second step was a requirement that all females in this class must show in calf. This was not absolutely satisfactory because certain cows fed heavily on roughage would develop large barrels, and for other reasons there was no definite, exact test. Finally, they adopted the regulations now in force that each cow must appear with calf by side, and the class is judged according to the combined merits of the calf and cow. In this system the class is judged from a true breeding standpoint. The calves may also appear in the calf classes and be judged on their merits, thus little or no inconvenience is caused. The graded herd class is altered to meet the new conditions by requiring that it be comprised of the herd bull, two-year heifer, yearling and heifer calf, thus eliminating the aged cow.

Mr. Smith remarked, "We in the Minnesota aged-female class would never get a line-up such as I placed at Brandon last summer with a mixture of females, some breeding and others showing no indications of it." The institution of such a system in our show rings would seem reasonable for consideration and prove constructive in beef cattle breeding. "Why do not show cows more often prove out producers of show calves?" "Well, there are several reasons," he stated. "Often show cows are shy breeders and we have to use inferior sires to get them in calf, hence the progeny are not likely to be so good. Show cows as a rule are not given a chance to develop the best calves even when bred to good bulls, because of the condition which they must necessarily be in. Moreover, some of the best cows are too valuable as breeders to ever put into the show-ring." He cited, however, two cows that were show females and produced winners. They were Ruberta and Welcome of Meadow Lawn 4th, first and second prize as senior yearlings at the Chicago International in 1900, which gave birth to Ruberta's Goods and Welcome of Meadow Lawn 7th, both of exceptional merit. In the show-ring he believed the female classes should be placed more in keeping with female type and not from the fat-steer standard. "They should be cleaner cut at the head, cleaner," he interrupted, "at the shoulder, wider at the hips, well laid down at the flank and of the real matronly character."

Mr. Smith is breeding beef Shorthorns and is working for correct beef type and early maturity. "When we lose sight of the early-maturing qualities," he continued, "either in breeding or in the judging ring we lose sight of the commercial end."

#### The Beef and Dairy Cross.

The proprietor of the Meadow Lawn establishment does not wax enthusiastic over dual-purpose Shorthorns, he believes that the beef and dairy cross as practiced by many farmers in the United States is preferable. The system these farmers prefer to follow is to sell milk or cream from their dairy cows and cross them each time with a beef bull. They prefer the Aberdeen-Angus for such mating because the calves are usually black and polled, or, in other words, Angus in appearance, which, when finished, go to market and command fair beef prices. In this way the farmers secure the milk from their cows and also the beef steer. With this system they do not use the cross-bred for breeding purposes, but go out and purchase dairy cows of the dairy breeds when individuals in the herd are replaced. In contrast to many dual-purpose Shorthorn authorities he believes it impossible to hold any definite dual-purpose type. In beef Shorthorns the proprietor stated that heavy milkers are sports and not by any means the rule.

#### Legislation for Tuberculosis.

Sanitary legislation for tuberculosis is puzzling the best authorities in Canada, in consequence an effort was made to discover the progress in the United States regarding legislation pertaining to this disease. They recognize that tuberculosis is spread by the sale of infected breeding stock from pure-bred establishments more often than in any other single way, and have adopted federal legislation to meet this situation. This legislation prevents the interstate sale of breeding stock. It does not, however, prevent the sale of infected animals within the state. However, the trade of most breeders is not confined to one state but to many; in consequence it is to their interest to have a tubercular free herd that they may meet the requirements of this federal legislation. Certain states, of which Minnesota is one, have co-operated with the Federal Government by inaugurating a system of certifying herds. The breeder may make application to have his herd certified, tests are made twice a year and the reactors eliminated. It is thus credited as certified or tubercular free. The breeder can then ship breeding stock to buyers in any state. If the purchaser desires a certificate the breeder writes the State Sanitary Department for the last test of the individual animal, and the same is forwarded to the buyer with the pedigree. If the herd is not certified, to meet Federal requirements it becomes necessary that the individual animal pass the tuberculin test within 30 days previous to shipment. For a number of years Mr. Smith has been testing individuals in the herd, and two years ago it became one of the state certified establishments. The state takes over all reactors, refunds 75 per cent. of the value of the animals, but not to exceed \$150. If the stock be very valuable the cows may be quarantined on the farm to produce breeding stock, and later on the reactors turned over to the state. After being tested there are only two alternatives, the one to keep a quarantined herd and eventually turn it over to the state for slaughter,

and the other for the state to take possession of them immediately for killing purposes.

When treating at Meadow Lawn the veterinarian usually arrives in the morning, takes the first temperature 10 a.m., after which time the cattle are not watered or fed till after the final test. The temperatures are taken three times in the afternoon and between 6 and 7 p.m. the tuberculin is injected. On the next morning at 4 a.m. a temperature is taken and several others till 2 p.m. The cattle are given from 20 to 22 hours to react. To the question concerning the reliability of the test he stated: "With cows well advanced in the disease and old it takes the tuberculin longer to work on the system, but invariably it will get them if readings are taken up to 20 hours after injection. Once I bought several head of breeding stock, all of them tested and non-reactors. A little later one old cow began to decline, she was eventually slaughtered and was lousy with tuberculosis. This had been an advanced case but not detected by the test; however, such instances are very few."

The writer was later favored with an interview by Professor Hastings, who is on the Wisconsin State Sanitary Board, to whom the same question was put. He stated that the tuberculin test was 85 per cent. reliable. Four to five per cent. would react and not have tubercular lesions, while the other 10 per cent. might not react but still be tubercular. This latter was due to the fact that a test could not allow for the individuality of all animals, and the spread in temperature in-

dicating reaction varied. The breeders in the various states, however, seem enthusiastic over the test, and as Mr. Smith stated, they had little trouble in keeping their herds clean.

The natural place to start legislation with regard to tuberculosis is with the pure-bred herds, which can be the greatest means of distributing it. Thus it would seem that some Dominion-wide system would be advisable. The United States at the present time will not accept our breeding stock unless found free from the disease. The time is coming when the farming public will not purchase a bull without similar assurance. As soon as we endeavor to get clean, pure-bred herds another restriction follows in the wake, and that is tubercular free cattle shown at our exhibitions. The North Dakota State Fair requires all cattle to be free from the disease, and in Minnesota they expect to enforce similar regulations.

In the foregoing is a wide range of information concerning the Meadow Lawn Shorthorn establishment, of which Leslie Smith, the artisan in breeding and feeding, is proprietor. It is the history and methods in one of the foremost clean Shorthorn herds on this side of the water, and there emerges from this career a remarkable record which every farmer to some degree can emulate. He is a beef Shorthorn breeder in the battleground of the beef breeds; we may prefer to step back on to our historical dual-purpose pastures—that is a matter of opinion.

## Modern Methods in Calf Rearing.

The fact that many live-stock trading places throughout Canada are supplied with a fairly liberal quantity of calves, while at the same time the demands for beef are constantly increasing on all the great meat marts of the world, suggests that stock farmers should "stop, look and listen." It cannot be said that the markets are over supplied with good veal, for they are not. The quality and size of the cuts of prime veal commend it to an ever increasing proportion of the consuming populace, but that should not influence the breeder if his feed lot is to be kept empty or his breeding stock depreciated both in numbers and quality by sacrificing to the public taste the best or the entire increase of his herd. During 1915 about 50,000 calves found their way to the Toronto Stock Yards, and 10,266 went to Buffalo from that part of Ontario which feeds these two markets. We cannot conceive of any conditions now existing that would render these figures consistent with good, live-stock husbandry. Nevertheless, many dairymen are so situated and are conducting such a business that any attempt to raise young stock would prejudice their profits. They would be excused in the minds of every one familiar with the different phases of dairying for disposing of the calves in any way which best suited their particular operations. Some even find it advisable to sell their farrow cows and buy fresh ones in order to keep up the supply of milk. However, there are producers of milk and dairy products who keep any kind of a bull that will get calves and cause their cows to freshen, but this practice, bad as it is from the viewpoint of the cattle industry, is not the acme of folly, provided the wornout cows are replaced by good ones purchased from herds free from disease. The saddest thing of all is to see a dairyman in this year of grace, nineteen hundred and sixteen, cross some thin-blooded scrub sire, having no pride of ancestry and entitled to no hope of posterity, with the herd, and then, in defiance of all the laws of live-stock breeding and common sense, instate during 1919 the female young of some of his 3,000 or 4,000-pound cows into the producing ranks, and dedicate them with all due formality to the service of the dairy industry.

The man who intends to sell his calves and replenish his milking herd with purchased animals, might well consider the use of a bull chosen from one of the beef breeds. For the calves would then be serviceable for beef production, and worth more for veal or feeders than those of straight dairy breeding. This phase will, however, be discussed later. There are so many angles from which the calf question may be viewed that a solution of the calf problem must have regard for the various features of the cattle industry. A dairyman may wish to sell the calves as soon as possible, and another may desire to raise them to increase or renew the herd. Some farmers

combine the beef and dairy business by rearing and fattening the young stock as baby beef. Other breeders again depend on the calves almost altogether as the source of revenue from the herd. If one could rear calves successfully without milk, the cattle-breeding industry would receive an impetus that would render it pleasant and profitable indeed. Labor is also a factor at the present time which must be considered. There is certainly a calf problem, and in the following paragraphs the writer will endeavor to set forth a few suggestions that may assist farmers in whatever phase of the industry they may be engaged.

#### Nature's Way of Rearing Calves.

Naturally a calf is reared on certified milk. This does not mean pasteurizing, clarifying or being subjected to any of the mechanical treatments so much discussed by the city boards of health. The calf has the advantage. It goes to the source of supply and gets its milk at the right temperature, in the proper quantities, neither skimmed nor watered, practically free from bacteria or germ life, and altogether uncontaminated by coming in contact with utensils or being exposed to a dust-laden atmosphere. Is it any wonder, then, that the suckling calf is usually sleek, well-fleshed, strong and contented? The pail-fed calf is at a disadvantage compared with the fortunate young bovine that gets its food supply from the udder of its dam or foster mother. This disadvantage may be overcome to a very large extent by practicing up-to-date methods, but these will be discussed when mention is made of pail-feeding.

#### The Amount of Milk Required.

A calf allowed to run with its dam or with a foster mother requires little attention over and above adequate shelter or stabling. Some cows will not give sufficient milk to raise a calf properly, but it is rather difficult to state what the required amount is. In "Feeds and Feeding" the following advice is given: "Guernsey and Jersey calves do not require over 8 to 10 lbs. daily for the first three or four weeks, while 10 to 12 lbs. is all a calf of the larger breeds should have." At this rate of consumption the herdsman should be careful that the young calf does not indulge too freely at first. While indigestion and scours frequently result from overloading the stomach, the average calf will stop sucking when sufficient milk has been taken to supply the needs of its young system.

To show the relation between the amount of milk required by a calf during the first month and the quantity given by cows of different capacity, some information was gathered from the actual milk records of a beef herd. The accompanying table shows the total production for each of six cows during the lactation period, and the average daily yield divided into monthly periods for the first 10 months. They illustrate the daily yield of cows varying from over 3,000 lbs. up to 10,000 lbs. and over, for one lactation period.

Average Daily Production.

Cow	Record	Months.									
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
No. 1	3,981	21	25	17	15	18	13	11	9	8	7
No. 2	4,342	25	18	14	14	13	11	8	7	5	—
No. 3	5,669	23	22	23	19	17	17	14	5	—	—
No. 4	7,665	31	34	32	33	28	25	24	21	9	—
No. 5	8,698	41	47	37	36	30	31	25	21	19	19
No. 6	10,380	40	52	45	41	40	33	26	19	18	14