

stock-owner will best secure his interests by following the principles I have imperfectly set forth. Nor do these principles apply only to the cattle stable, but also to the horse stable as well.

The maintenance of health commends itself from a humanitarian as well as from an economic standpoint, for the enjoyment of health is the right of all creatures, and we should provide, therefore, as far as possible for our dumb friends, to whom we are indebted in so many ways for profit and pleasure, and with whom we are involved in the consequences of a common environment.

DAIRY.

Revision of Rules and Regulations of the Dairy Department of the Provincial Winter Show.

The committee appointed to revise the Rules and Regulations of the Dairy Department of the Provincial Winter Show met at the Royal Hotel, Guelph, on Saturday, June 4th. Members of the committee present were Prof. H. H. Dean, G. W. Clemons, G. E. Day, and W. E. Butler. The clauses in which a change was made now read as follows: (a) The following entrance fees will be charged and must accompany each application for entry, for which accommodation will be provided; for each entry, with the exception of those designated "Special," \$2.00. (b) The age of dairy cattle will be computed to the 1st of August. (c) Cows must all be giving milk, and the awards shall be made by the following scale: 10 points for constitution and conformation, 20 points for each pound of fat, 4 points for each pound of solids (not fat), 1 point for each 10 days in milk after the first 30 days (limit, 90 points). (d) An affidavit will be required from each exhibitor in the Dairy Department stating the number of days his exhibits have been in milk, also stating that each exhibit is shown in her proper class, and that she is the animal named on the registration certificate produced. (e) Prizes in the Dairy Department will not be paid for one week after the show is held. This rule is made necessary on account of the large amount of work in figuring out the result of the test. As the show this year will be held on Wednesday, Thursday, and Friday, the test will take place on Wednesday and Thursday instead of Tuesday and Wednesday.

Ensilage Feeding and Good Butter.

To the Editor FARMER'S ADVOCATE:

SIR,—Apropos the question of the silo and ensilage and the adaptability of silage for feed, on enquiry at Avonbank factory regarding results for last winter, Mr. Jos. Lang, buttermaker, handed me letters received from Messrs. Park & Blackwell, of Toronto, and Peebles, of Hamilton, on the closing of the year's business. Appended are extracts:

Toronto, May 25th, 1898.

Avonbank Cheese and Butter Mfg. Co., Avonbank: We are pleased to say in closing the season's account that the quality of the Avonbank butter during the past season has been quite satisfactory, and the trade here are now well acquainted with the Avonbank brand, and will look forward to receiving same next season, when your company resume buttermaking operations.

Yours truly, PARK, BLACKWELL & CO.

Hamilton, May 26, 1898.

Avonbank Creamery Co., Avonbank, Ont.: DEAR SIR,—Enclosed you will find check in full of last statement amounting to \$81.00, and I take this opportunity of saying that your butter has given us the very best satisfaction during the past season. Not even once during the season was it the least bit off, which is saying a great deal. It is very pleasing for us to be able to speak in this way, for as a general rule when we have to write about butter it is to make complaint, as we are considered cranks on the butter question. Therefore you may consider it quite a compliment for us to have nothing but words of praise for the even and first-class quality of your butter, and from the satisfaction given we expect to double the sale next year. Hoping to handle your butter as usual next winter, I beg to remain, etc.,

C. H. PEEBLES, Grocer, Hamilton.

Messrs. Park, Blackwell & Co., of Toronto, and Peebles, of Hamilton, have handled the output of Avonbank since first operated. As stated in your last issue in regard to the silos in this vicinity, fully 50% of the butter was made from cows fed on ensilage, and proves conclusively that good creamery butter can be produced from ensilage.

Perth Co., Ont.

JOS. MOUNTAIN.

A Big Day's Make of Butter.

On one Monday recently, says the *Argus* newspaper, "the St. Mary's Creamery Co. separated over 150,000 pounds of milk, and on May 31 churned 6,272 pounds of butter. This is the largest day's make yet in the creamery, and without doubt the largest quantity of butter ever made in one day, creamery in the Dominion of Canada in one day. Why, if the promoters of this concern had made any such statements that within six months of starting over three tons of butter would have been made in one day their audiences would have thought them ready for an asylum. But there it is. For May the output will be over 95,000 pounds of butter. In April 17.43 cents was received for butter; with 3¢ cents deducted for making, the net returns were 14.13 cents."

A Great Dairy Cow.

To the Editor FARMER'S ADVOCATE:

SIR,—Enclosed find photo of our celebrated grade cow, Scotch Lassie, from pure-bred Shorthorn cow and sired by registered Holstein bull, Prince Seward. This cow last year in a little over ten months gave 17,731 lbs. of milk, totalling 765 lbs. butter, a record which, in my opinion, shows what careful breeding, scientific feeding, and care and study of the individual animal will do. The above total is included in year's record of Mr. Tillson's 55 cows, given in your valuable issue of the 16th ult., showing an average per cow of 10,242 lbs. of milk, and 418 lbs. butter, for 11 months and 42 days. We are raising a heifer calf from this cow which it would be difficult to buy at any price, and last year's bull calf we propose using on a few good cows by way of experiment, although Mr. Tillson is adverse, on principle, to using anything on his herd but a first-class thoroughbred bull.

Please note that by no means do I advocate the exclusive using of grades. The herd here is constituted of very excellent pure-bred Holstein cows, giving from 60 to 65 lbs. of milk per day on date of writing, and for which Mr. Tillson paid a handsome price; but I do claim that by careful selection, use of weigh-scales and Babcock test, and study of the individual animal, very much can be attained to bring the stock to a point of perfection. Most dairymen must now know that the making of a good milker begins before birth, by the proper breeding, feeding and handling of the mother.

JOHN D. MACLEAY, Farm Manager.

Norfolk Co., Ont.

Influence of Food on the Quantity and Quality of Milk.

The quantity and quality of milk as influenced by constituents and conditions of rations of cows has been the subject of much discussion during the last few years, and the end is not yet. Mr. F. J. Lloyd, F. C. S., Consulting Chemist to the British Dairy Farmers' Association, in a paper read at a recent conference of the above Association, goes into the subject very fully and arrives at some important conclusions which agree with both science and practice. The author of the paper points out



"SCOTCH LASSIE"—SHORTHORN-HOLSTEIN CROSS—MILK RECORD, 17,731 LBS.; BUTTER RECORD, 765 LBS. IN TEN MONTHS.

that after careful study of the results of very many experiments he is firmly convinced that the food of a cow may materially influence both the quantity and the quality of her milk. The reason that the results of so many experiments have been so conflicting is that experimenters have neglected to take into account the inevitable limitations and conditions with which nature has hemmed in this subject.

In every milking cow two tendencies are at work. The one is to convert the nourishment which is supplied by the food to the blood into the milk; the second is to store up that nourishment in the body. The relative strength of these two tendencies varies greatly in different breeds of cattle. This peculiarity is even more marked among individuals than it is in the various breeds. Hence, in every milking animal there is a constant struggle between the two tendencies. Sometimes a comparatively slight or simple cause may upset the balance. Take as example the effect of cold. An exceptionally cold night will cause a marked decline in the milk yield of a large herd. The materials have been utilized for maintenance, the demand for animal heat for the time being having exercised a more powerful influence than that of milk production.

In a similar manner the character of the food supplied to an animal may affect either tendency. Thus, if the food provide an excess of some particular constituent, this will ultimately strengthen the tendency for which this constituent is most adapted. For example, a cow fed with an excess of starchy food, having used all that it requires for milk production, will still be left with a surplus of nutriment in the blood. This will be utilized by the tendency of the cow to fatten. In a similar manner an excess of nitrogenous food—which, however, is far more rare—will produce a tendency to make flesh. The invariable result of an excess of nutriment is to increase the live weight of the animal. It may be well to here follow out this effect on a milk cow to its final result. The udder, like every other tissue of the animal, is capable of

fattening, but in doing this its secretory power is diminished. Hence the ultimate result of a food excessively rich in nutriment is not to increase the milk yield, but to diminish it.

In considering the effect of a food deficient in nutriment it might be pointed out that the tendency to produce milk, following out the general law of nature whereby the maintenance of offspring is a more powerful influence than self-preservation, is, as a rule, stronger than the tendency to preserve the food stored up in the body. Hence, the effect on the milk of a deficiency of nutriment in the food is for some time very slight, but it will tell on the body of the animal and there will be a gradual loss of weight. For some time only the scales would show the effect of this insufficient food, and not the milk. Hence no experiments on the effect of food on milk supply are conclusive which do not take into consideration the effect on live weight, for the two are inseparable.

There is for every individual cow a maximum quantity of milk which she can yield at any one milking. This depends upon the capacity of her udder. The late Mr. C. E. Tisdall, who had devoted years of study to the milking capacity of cows, accumulated a number of measurements of the udder, and claimed that by a careful measurement of the udder it was possible to form a very approximate estimate of the quantity of milk a cow can yield, provided the feeding was so regulated as to prevent any fattening of tissues of the udder. Now, it is perfectly evident that if a cow is receiving an ample supply of food containing the necessary constituents for the production of milk she will make the maximum quantity her udder will hold. Some experimenters, starting with cows in such a condition, and finding that an increase in the quantity of food, or variations in its nutritive value, produced, as was natural, no increase in the quantity yielded, have jumped to the conclusion that food has no effect. This is one of the most striking sources of error which experimenters have been led into.

The quality of milk is dependent on certain factors quite irrespective of feeding. Primarily any influence which diminishes the quantity tends to increase the quality, hence the richness of the milk of small breeds. Heifers too, whose udders are not fully developed, yield richer milk than they will produce subsequently as cows, but the quantity of this milk is small. Again, as cows decrease in volume of milk as the period of lactation advances they give milk of increasing richness.

Viewing the entire situation, Mr. Lloyd is led by his experience to believe that we can only get at the truth by, instead of considering quantity and quality separately, combining the two. We can thus determine the actual amount of solid matter, whether fat or non-fatty solids, which the animal has produced as milk, together with any gain or loss in live weight which has taken place simultaneously. "Out of nothing comes nothing" indubitably holds good in feeding. Hence, the quality of milk must ever depend upon the stock of nutriment in the blood, whether that nutriment be supplied by the food or from the animal's body.

"In my opinion," concludes the writer of the paper, "the present state of our knowledge as regards the effect of food on milk production may be briefly summarized as follows:

"When properly fed a dairy cow will neither gain nor lose in live weight, and under such conditions will produce the maximum quantity of milk which her physical conformation permits, and that milk will have its maximum quality; i. e., there will be a maximum epithelial growth."

"The food which produces such results is an ideal milk ration, and the nearest approach to it which man possesses is a good pasture. The moment artificial feeding commences the conditions are altered. If an excess of nutriment is given the tendency to fatten will gradually outstrip the tendency for milk production. If a deficiency of nutriment be given the body will suffer first, subsequently the quality of the milk, and lastly the quantity. These results will be most marked when there is simultaneously an abundant supply of water. If now the food be changed there will be a corresponding change in the quantity and quality of the milk, but it will not be immediate. Experiments have been made for me under the latter conditions. The result was that the animals first utilized the food to replenish their emaciated bodies. The milk remained practically unaffected for from four to six weeks. Then the food told. This fact emphasizes one source of error in feeding experiments—they are not conducted for a sufficiently long period."

"Some years ago I carried out a feeding experiment by placing a herd of milch cows on various pastures of different character. The milk varied, both in quantity and quality, according to the pasture the animals were on. This, I think, will be the universal experience of every observant farmer here present. And I, though a scientific man, agree with practice, and have yet to find evidence which can shake my conviction that food has a marked effect on both the quantity and quality of milk."

Ask your neighbor if he reads the FARMER'S ADVOCATE. If he does not get him to subscribe for it.