

could start in that way. However, my wife had worried over it ever since it had been so hot. A year ago I threshed my corn (ten acres) with a grain separator. I salted the stalks very heavily, and they kept nicely; never had such good satisfaction with feeding cornstalks. This year I took the advice of the party from whom we bought the shredder. He said for me not to salt it (the shredded stalks) or mix straw with it. It might heat some, but it would make all the better feed. I took his advice, contrary to my better judgment, and now I suffer the consequences. There have been a good many enquiries about the fire."

S. A. FREEMAN.

DAIRY.

The Value of the Babcock Test.

The discovery of the method of determining the amount of fat contained in milk, known as the Babcock test, was one of the most valuable ever made in connection with the dairy industry, and as an aid to profitable dairying ranks with that of centrifugal cream separation.

The Babcock test has done more to place the product of the cow in an intelligent light before the public mind than any other factor of the present day, and it has also shown the milk-producer the relative value of the milk given by the different cows of his herd, either for butter or for cheese making, thus enabling him to determine accurately which of his cows are profitable and which are unprofitable.

Before the advent of this test it was assumed that all milk was of equal value for cheesemaking, and the distribution of the proceeds of a factory was made upon the "pooling system," or the weight of the milk furnished by each patron, regardless of its fat content. So firmly did the pooling system become established in connection with cheesemaking that it was with the greatest difficulty that even a small proportion of those engaged in the industry could be made to realize the fact that there was a fixed relation existing between the amount of fat in the milk and the amount of cheese produced, and many do not want to see it yet. The pooling system tempted many to be lavish with good clean water for rinsing the milk pails, which often found its way into the milk cans, so that none of the milk should be wasted, while others thought it no harm to take a little off from the top of the night's milk, providing they didn't dip too deep.

Before the discovery of the Babcock test it was a difficult matter to detect these fraudulent practices, and those who wished to be honest were completely at the mercy of the dishonest patrons, and there was not the slightest incentive for any patron to improve the quality or richness of his milk. As our scientific men began to show by their investigations that the system was radically wrong, a demand for a change sprang up in some quarters, and the method of paying by the fat content alone was adopted by some factories.

While this was a more just and equitable method than the pooling system, still it went somewhat too far in the other direction, and gave a patron credit for more cheese than his milk actually produced if the milk contained a high percentage of fat. Another method, slightly different from the last quoted, is that known as Prof. Dean's method of distributing the factory proceeds, and which has been adopted by a number of factories in Ontario and a few in Quebec, and wherever adopted seems to be giving general satisfaction.

"The principle of this system is that milk is valuable for cheesemaking in proportion to the fat and casein contained in it, and it further assumes that the percentage of fat + 2 represents the available fat and curdy compounds in milk for cheesemaking.

"The application of this system is very simple. To illustrate: The tests for fat of patron's milk are 3.0, 3.5, 3.8, and 4.0. The percentage of fat and casein are $3 + 2 = 5.0$; $3.5 + 2 = 5.5$; $3.8 + 2 = 5.8$, and $4 + 2 = 6.0$. The pounds of fat and casein are calculated by multiplying the pounds of milk delivered by the percentage of fat and casein.

"Thus, if the first patron had 1,500 lbs. of milk, he would be credited with $1,500 \times 5 = 7,500$ lbs. of fat and casein. If the second delivered 2,000 lbs. of milk he would be credited $2,000 \times 5.5 = 11,000$ lbs. of fat and casein, and so on with all the others. The value of one pound of fat and casein is ascertained by dividing the net proceeds of the sale of cheese by the total pounds of fat and casein delivered.

"The following table gives a summary of the results obtained during five years' experiments, in which 250 experiments were made with nearly 200,000 lbs. of milk, which contained percentages of fat varying from 2.7 to 5.5."

ONTARIO AGRICULTURAL COLLEGE DAIRY SCHOOL BULLETIN, 1901.

| Average per cent. of fat in milk. | Pounds cheese made per 100 lbs. milk. | Pounds cheese made per 1 lb. fat in milk. | Pounds cheese made per lb. fat and casein or per cent. fat + 2. | Lbs. loss of fat and casein in whey. | | Per cent. lost in curdling in four weeks. | Average score. | |
|-----------------------------------|---------------------------------------|---|---|--------------------------------------|-------------------------------|---|------------------|------------------|
| | | | | Per 1,000 lbs. milk. | Per 100 lbs. of cured cheese. | | Flavor, Max. 35. | Total, Max. 100. |
| 2.87 | 8.75 | 3.04 | 1.79 | 2.71 | 3.09 | 4.26 | 30.4 | 89.9 |
| 3.22 | 9.03 | 2.80 | 1.72 | 2.75 | 3.15 | 4.43 | 30.2 | 89.4 |
| 3.83 | 10.02 | 2.61 | 1.71 | 3.34 | 3.21 | 4.10 | 30.8 | 90.3 |
| 4.23 | 10.67 | 2.53 | 1.71 | 3.21 | 3.02 | 4.05 | 31.0 | 90.4 |
| 4.74 | 11.44 | 2.41 | 1.69 | 3.64 | 3.18 | 3.97 | 31.0 | 89.8 |
| 5.21 | 12.13 | 2.32 | 1.68 | 3.40 | 2.80 | 3.53 | 31.5 | 91.6 |

* Fat only.

Casein not considered.

Amounts of money (cheese, Sc. per lb.) credited by the three systems, and also value of cheese:

| Average per cent. fat in milk. | By weight of milk, 1,000 lbs. milk. | By weight of fat in milk, 1,000 lbs. milk. | By weight of fat and casein in milk, or fat + 2. | Value of cheese made from 1,000 lbs. milk. |
|--------------------------------|-------------------------------------|--|--|--|
| 2.87 | \$8.27 | \$ 5.91 | \$6.69 | \$7.00 |
| 3.22 | 8.27 | 6.63 | 7.18 | 7.22 |
| 3.83 | 8.27 | 7.89 | 8.02 | 8.02 |
| 4.23 | 8.27 | 8.71 | 8.56 | 8.54 |
| 4.74 | 8.27 | 9.76 | 9.27 | 9.15 |
| 5.21 | 8.27 | 10.73 | 9.91 | 9.70 |

"Our five years' experiments prove that this system comes nearest to the actual value of the cheese produced, though it still places a slight premium on the milk fat. It encourages the production of rich milk, while at the same time does not discourage the majority of patrons who have average cows and who are apt to envy those whose cows give a small amount of rich milk and who draw a large share of the proceeds of cheese sales when the money is divided on the basis of fat only."—O. A. C. Report, 1898, p. 52.

If the fat alone were the correct basis, then the milk containing 5.21 per cent. of fat should have made 15.8 lbs. of cheese per 100 lbs. of milk, whereas, from the large number of experiments made, the average from the rich milk was only 12.13 lbs., showing fairly conclusively that the fat in the milk and the cheese produced do not increase in the same proportion.

Besides providing a more equitable and just basis for dividing the proceeds of cheese sales, the use of the Babcock test places the business on a higher plane and creates a better feeling among the patrons if they have the assurance that the test is properly made. There is nothing for a patron to gain by dishonest practices, and the temptation to skim or water the milk is at once removed, or if indulged in, no other patron suffers loss by the act. The patron who desires to improve the quality of his milk by increasing the fat content is assured that he will get full value for his milk, and the patron who sends milk low in fat also receives his just dues, and he should ask no more. This is the man, however, who is usually dissatisfied with the system of paying by test in any form, and it sometimes happens that there are enough of such patrons in a factory to rule the "test system" out of the business after a year's trial, simply because it does not allow them to rob their neighbors who are supplying a more valuable grade of milk.

That there are often good reasons for complaints against the results obtained by the Babcock test none will deny who are conversant with the careless methods often adopted in making the tests, but the system is not to be blamed for such results. No man should be allowed to make tests for a factory who has not made a study of the subject and who does not realize the importance of careful, accurate work.

The care of the milk, however, often has a good deal to do with the erratic results often obtained from one month to another, and the man who makes the test is blamed for what is purely the patron's own fault.

Milk that has been well cared for and arrives at the factory in first-class condition invariably gives a more satisfactory test than milk which has been neglected and carelessly handled.

To get the best results, care should be taken to prevent the cream from rising as much as possible, and to this end the milk must be cooled and agitated more or less, and if the agitation is carried on at intervals until the milk is down to 60 or 65 degrees, the test will usually come out satisfactory, because the milk will be in good condition when it goes into the composite sample bottle, and will be in better condition when test day comes than will milk which was more or less sour when put into the composite sample bottle.

J. STONEHOUSE.

I am well pleased with results obtained from advertising in your most excellent journal. I believe that I have been a subscriber to the "Advocate" nearly continuously for thirty years, and I can not do without it yet. Long may the "Advocate" live as the farmers' friend and for the dissemination of agricultural knowledge.

Bruce Co., Ont.

A. E. SHERRINGTON.

Ailments of Dairy Cows.

To the Editor "Farmer's Advocate":

I notice that readers of your valuable journal when complimenting you on the excellence of the "Advocate," nearly all state it is the first paper to be read on coming in from the post office. I must say this is my experience also. When calling for the mail myself, I must know the contents before reaching home, for the family are all after it, and I know the chances are I may not be able to get it first after reaching home. Now, why this interest in the paper? I presume it is because there is always in it something of interest and benefit to all, both old and young. I confess we have learned many good lessons on many lines of farming, especially in dairy and butter-making. I must also compliment you on your desire to publish articles of this character, that farmers may aid one another by their experience. Having benefited by others' experience, I am therefore willing, if I can in any way, to aid others.

Dairying has become a very important branch of farming, and none too much so, since grain growing for sale has of late been so unremunerative. Other parts of the world and parts of our own country being able to produce cereals in such great abundance, and with such ease of culture, it is next to impossible for us to grow grain, especially wheat, at a profit, so that it is actually necessary for us in the older parts of Canada to turn our attention to the various classes of live stock or to mixed farming, keeping a few of each kind of stock, changing if one kind fails, some, or all, of the others may succeed. I have taken up dairying for the production of cream and butter, and to this end have hung my faith on the Jersey cow, and having had many years' experience with some of the other breeds, I am satisfied I am on the right road, and have made choice of the best breed of cattle for that purpose. It is true we have our drawbacks. "It is not all gold that glitters." With heavy feeding year in and year out, treating our cows as machines, feeding them for nearly all they are good for, calculating it costs as much for labor to manage a poorly-fed herd as a well-fed one, the one producing a profit, while the other barely pays costs, we may find them liable to some ailments, such as contagious abortion (the worst of all diseases), milk fever, garget, retention of afterbirth, etc. These are all traceable to cause, and, I believe, are curable as well as preventable, if proper precautions are taken in time. Contagious abortion is no doubt a bacterial disease, which can be prevented and in time eradicated by the liberal use of strong disinfectants and the strictest care and precautions with the cow after she aborts, taking care to bury or burn the calf and afterbirth, separating the cow from the rest of the herd for at least two or three weeks. Milk fever, garget and retention of afterbirth, in my opinion, after many years of experience with cattle, come of colds or chills, from exposure of some kind. Perhaps the cow may not be in the best of health from some cause at the time of calving, hence she is more liable to trouble of this kind. All animal life runs something on the same lines. If man, for instance, is in poor health, he is much more liable to contract colds or contagious diseases. So it is with the brute creation: so it is with the cow. She may be allowed to stand out at watering time longer than she should, through the carelessness of an attendant, or moved to a box stall or other part of the stable much colder than her accustomed stall, or placed near a door in the draft, thus getting a chill which may result in milk fever, garget, or retention, according to the severity of the exposure. Our practice to prevent such trouble at time of calving, is to not allow our cows out of doors for several days before and after calving in winter or during any severe weather. By these precautions we have never had a case of milk fever, and but light cases of garget, etc. Our treatment for garget is to rub the part affected with hartshorn and goose grease—nothing is better and it is simple. But what we do suffer from is bad milkers: men folk bruising the udder while milking by taking hold too high on the teat, thus causing inflammation and more danger of losing a teat than from garget.

I have read with great pleasure the articles on this subject in the Feb. 15th issue, especially Mr. G. Rice's, although I cannot accept the idea of partial milking to prevent milk fever. Neither do I believe in drenching a cow with salts at such a time. Keep her warm, water with warm water, and feed her carefully with succulent food, nothing better than ensilage, roots and bran, with a little hay.

One word re "Profit from Jerseys," published in your Feb. 15th issue. I am sorry I did not go further with my comparison. It did dawn on my mind, but I did not want to take up too much of your valuable space with further comments. However, I sold cream enough from my herd of 16 cows, three years ago, to average nine pounds of butter per head per week for eleven months, and I could get 25 cows out of my herd of 35 cows leaving out ten old cows, heifers, and those that have lost parts