

COVERED MILK PAILS.

Clean milk for the home and for the factory is the slogan of the hour for dairymen. The author of Bulletin No. 48, Storrs Station, attributes the "demand for a good, wholesome grade of milk produced under sanitary conditions," to the fact that consumers desire pure and wholesome food products of all kinds, and also to the fact that investigations show a great lack of care in the production and handling of milk. He says: "The ordinary market milk which reaches the larger cities normally contains high numbers of bacteria." These are the result either of more or less dirty conditions in the production of the milk, or of too warm temperature after the milk has been produced, or a combination of these two conditions. Consumers, in general, are not willing to pay the increased price charged for certified grades of milk. It is not to be expected that producers will sell their products for less than the cost of manufacture or production, plus a small margin of net profit, and with the present high prices for feeds and farm labor, the cost of production cannot be materially increased without increasing the price of the product." With all of which we heartily agree.

The writer further says: "Most of the detrimental changes which occur in milk are caused by bacteria. The chief source of these organisms is the dust and dirt which fall into the milk, principally while the milk is being drawn from the cow, and before it leaves the stable." One of the most practical devices used at the present time for the purpose of excluding dirt and bacteria from the milk during the process of production is some form of covered milk pail.

The Bulletin is freely illustrated with cuts of various forms of covered milk pails, with and without strainers. Helpful diagrams also enable the reader to see at a glance the relative numbers of bacteria from the milk got by using covered and uncovered milk pails. From two cows milked in a clean stable the average number of bacteria from eight milkings in the open pail was 42,400, while from the same cows milked the same number of times in a covered pail, the average number of bacteria was 6,430.

In a stable where both cows and stable were dirty, the relative numbers of bacteria from covered and uncovered pails was 103,600 and 3,439,200—or more than three times the number by using the open pail.

The author makes some rather startling statements about straining milk. As a result of the belief that straining milk is necessary, all of the early covered pails were equipped with some sort of a strainer—usually either cloth or absorbent cotton, and in some cases both. Certain experiments made by the writer have shown that it is not always desirable to strain milk, and, in fact, it may be detrimental to the quality of the milk to pass it through a strainer. This is true of the milk produced under highly sanitary conditions, where but little external contamination gets into the milk. Straining milk of this sort through a cloth strainer normally lessens its keeping quality. In this way the value of milk may be actually injured by the straining process. This being the case, it is evidently undesirable to pass milk through a strainer if it has been produced under such good conditions that there is no insoluble dirt which can be strained out.

The results of one series of experiments with and without straining were: 1,210 bacteria with strainer on the pail, and 890 without the strainer on the covered pail.

He accounts for the difference in favor of not straining by saying: "The larger germ content normally found in the milk drawn through the strainer is no doubt due to the fact that whatever dirt falls into the strainer is broken up and driven through into the milk by the succeeding streams of milk beating upon it as it rests on the strainer, so that more bacteria actually become disseminated through the milk when the strainer is used than when the strainer is not used under the same stable conditions. It was also found that the milk drawn without the use of the strainer kept longer than that drawn through the strainer." All of which agrees with our own practical experience, and also that of dairymen generally, who have found that the "strainer pail" is a "delusion and a snare."

The covered pail having a layer of absorbent cotton placed between two thicknesses of cheese cloth gave better results than did the pail without the strainer. The author explains this by saying: "It is always difficult for bacteria to pass through a layer of absorbent cotton."

There are no doubt advantages in using the covered pail, but there is one point which to my mind is a weakness with these pails, and with nearly all the devices we have seen for keeping dirt out of milk while milking, viz.: the increased difficulty in washing such pails and devices. In one of the pails illustrated, we note seven different parts, besides the pail proper. This makes the pail impracticable for the ordinary dairyman. Even the simplest have two or three extra parts, and an additional number of seams, crevices, etc., where milk and dirt may lodge. Simplicity and ease of cleaning are essential factors in all apparatus used in dairy work. If it lack these points, the others are as nothing. Personally, we have yet to be convinced of the value of covered pails for practical dairy work. Given a reasonably clean cow, in a clean stable, and handled by a clean person, we should prefer the ordinary open pail, which can be easily cleaned. It is true more loose dirt may fall into such a pail, but the dirt ought not to be where it can fall in. Then, the ease of washing more than counterbalances its weak points.

CONCLUSIONS.

The use of the covered milk pail is of great advantage in any stable in excluding dirt and bacteria from the milk.

The special form of cover does not seem to be important, provided it is a device practical for use, and the area through which dirt can gain access to the milk is reduced as much as possible.

Whether or not a strainer on the covered pail is desirable depends upon the style of the straining device.

The use of absorbent cotton as a strainer is a decided advantage in preventing the entrance of bacteria into the milk.

We should like to add, for ordinary dairy work, absorbent cotton is too expensive, and too much trouble to use. We should advise milk producers in Canada to strain milk through some simple strainer not attached to a milk pail, as soon as possible after milking. It is very important that this strainer shall be kept clean, as it is possible to do more harm than good by straining milk through a cloth or wire strainer which is not clean.

Some cheese-factory and creamery men are not so careful about keeping the strainer clean as they might and ought to be. Passing clean milk through a dirty strainer is very objectionable. The dirt on the strainer is being continually dissolved by the milk as it runs from the weigh can. This dissolved dirt cannot be removed from the milk. Many of the bad-flavored bacteria are also carried into the can of milk by this dissolving process. It is very important that the strainer shall be cleaned as often as it becomes dirty, instead of waiting until all the milk has been received before washing the strainer. Factorymen thus become an example to their patrons.

H. H. D.

THE HIRED MAN'S COW RECORDS.

We were rather surprised to receive your application for cow records, as we have only one cow, as my husband is a hired man, and is allowed to keep one cow of his own; but I will send such record as we have kept. I may say our cow calved on March 8th, 1906, but as there was some delay in getting the scale from Ottawa, we did not begin to weigh the milk till the middle of May; thus, we lost the first flush of the milk. As our cow dropped a heifer calf, we were anxious to know if the cow's record was good enough to warrant keeping the calf, as we wanted something more than a "boarder." This cow was fed bran about three days after calving, then a few oats night and morning till the grass got plentiful, beside some good mixed hay. She got pasture only from about the end of May till October, being outdoors all the time—for milking, also. After October she had hay and what grass she could get when turned out. During winter she is turned out for watering every day; goes straight in again after watering, if stormy; if not stormy, was out around stacks from three to five hours in middle of the day. From the middle of May to January, 1907 (8½ months), she gave 4,457 lbs. of milk. I find that, beside using milk for the house, I made, during the year, 167 pounds of butter.

IMMIGRANT.

A FIVE-CENT SCRIBBLER.

Editor "The Farmer's Advocate":

We have a herd of nineteen cows, thirteen of which are grade Holsteins. I have been keeping individual milk records for two years, and find that, after the first few months, they have given me very little trouble; in fact, the trouble is as nothing, compared with the satisfaction of knowing just what the cows are doing. By this means, we can tell readily at each milking whether a cow is gaining or losing, and, naturally, want to know the reason why. It takes very little time to weigh and take account of the milk, as the scale hangs near the milk-shelf, and the milk record is tacked on a board kept on the shelf. For drawing this record, I use a five-cent scribbler, which lasts me two years; open it in the middle, and, using both pages, draw a monthly account, divided into four weekly sections for convenience in adding. This account is added every month and put on the yearly account. I will enclose sectional diagrams of these accounts.

DAIRYMAN.

King's Co., N. B.

FIGURES OF COW-TESTING.

Editor "The Farmer's Advocate":

We have kept individual milk records for over a year, and find them satisfactory, especially as we use a Babcock tester. We have found which cow is the most profitable, etc. It was at a Farmers' Institute meeting that my husband heard of the use of keeping cow records. Our cows' records are as follows:

No. 1, milking for 333 days, gave 5,637 lbs.; aver. 5%	
" 2, " 342 " " 5,909 " " 5.2%	
" 3, " 338 " " 5,698 " " 4.6%	
" 4, " 135 " " 2,345 " " 4.9%	

The last cow is a heifer with first calf
Vancouver, B.C.

MRS. R. F. HICKEY.

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STOCK FOODS AND BUTTER COLORS.

STOCK FOODS.

Bulletins 151 and 152, from the Wisconsin Experiment Station, deal with these apparently widely remote topics; yet they are closely associated, in that they deal with matters which are non-essential, but which are costing dairymen and others thousands of dollars annually. This money is largely wasted. The author of Bulletin 151 says the farmers of Wisconsin are paying out annually an estimated sum of \$300,000 for stock foods—or more than three times what it costs to run the State Agricultural College and Experiment Station.

The conclusions reached, after a careful study of experiments made at the Wisconsin Station, and after surveying the work done by other experimenters, are:

1. Stock foods are of no benefit to healthy animals for the production of meat, milk, wool, etc.
2. They are of no benefit as a cure-all for diseases of live stock.

3. Exorbitant prices are charged for these foods, the large sales of which are due to extensive advertising and liberal commissions to agents and dealers.

4. A liberal system of feeding and furnishing a variety of feeds will give good results without resorting to stock foods. If condiments are considered advisable, the necessary ingredients may be purchased at a drug store at a fraction of the cost charged in stock foods.

The following recipes for making stock foods are given:

1. Ground gentian, 1 lb.; ground ginger, ¼ lb.; powdered saltpetre, ¼ lb.; powdered iron sulphate, ¼ lb. Mix, and give one tablespoonful in feed once daily for ten days, omit for three days, and feed as above for ten days more. Cost, 20 cents per pound.

2. Fenugreek, 8 lbs.; ginger, 8 lbs.; powdered gentian, 8 lbs.; powdered sulphur, 8 lbs.; potassium nitrate, 8 lbs.; resin, 8 lbs.; Cayenne pepper, 4 lbs.; flaxseed meal, 44 lbs.; powdered charcoal, 20 lbs.; common salt, 20 lbs.; wheat bran, 100 lbs. This mixture is so near the average stock food that neither the farmer nor his stock could tell the difference. Cost, about \$4.50 per 100 lbs.

BUTTER COLORS.

We scarcely agree with the writer of Bulletin 152, when he says: "The addition of coloring matter is, therefore, not a deception, but is the result of a desire to cater to the popular demand for a uniform yellow color in butter at all seasons of the year." If the addition of butter coloring to butter, and cheese coloring to cheese, is not deception, it is so close to it that it would be difficult to distinguish the difference. Hear what John Oliver, an English authority, says on the subject of coloring dairy products: "Why is anatto used? Because the British cheese consumer is ignorant and gullible. He knows that the yellow milk of the Jersey is richer than the whiter milks of other breeds, and so gets the notion that the butter or cheese which is yellow or red must be richer than the paler products. He will eat a cheese made from partly creamed milk, and rejoice in its richness because it is colored! The trade then bows to his demand for a colored cheese, and when the demand is passed on, the dairymen bows to the trade, so the consumer is gulled to order. There can be no mistake about the folly of the whole proceeding. Not one particle of food value does it add to the cheese; it is troublesome at times, and always nasty. We sincerely hope that it will speedily disappear from the dairy." "Milk, Cheese and Butter," by Oliver, p. 112. We sympathize with our American friends on this color question, but cannot help thinking some other way than the color road ought to be found to control the manufacture of oleo. Why not prohibit it altogether, as in Canada? But this is aside from the question at issue, which is the relative values of vegetable and mineral butter colors for coloring butter. After discussing the causes of variation in the natural color of milk fat (which are chiefly feed, breed, individuality and period of lactation), and the demand for a uniform color in butter, the author compares the two common forms of butter color, viz., vegetable, made from anatto seed, dissolved in oil, and the aniline, or coal tar, sometimes called mineral colors. The weak points of vegetable colors are: It requires a larger quantity of the vegetable colors to produce the desired shade; the color is apt to fade, especially in sunlight, and they sometimes have a bad flavor, which may be imparted to the butter. The strong points are: It is claimed they are harmless, pure and lawful, giving butter a natural yellow rather than a reddish color. These colors are used exclusively in Danish butter.

Aniline color is a fast color, and will not fade even in direct sunlight. It is a strong coloring agent, and imparts no flavor to the butter. The chief objection is the uncertainty as to its harmlessness in food products.

The author claims that the butter color costs the buttermaker practically nothing, as he pays about 25 cents per pound for the color and sells it at about 25 cents per pound (in butter).

The conclusions based on experiments made extending over one year (March, 1906, to April, 1907) are:

1. Some brands of vegetable color require nearly twice as much coloring to produce the same shade as do the aniline colors.

2. Some buttermakers have made a mistake in coloring their goods too highly. The natural color of June butter is a sufficiently high color, and when only enough vegetable color is added to produce this shade there is no danger of using so much as to impart a butter-color flavor to the butter.

3. The vegetable colors now on the market impart a rather greenish-yellow shade to the butter. This is