Farm Tests of Cows.

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At the present time there is not much necessity of urging creameries to use the Babcock test. Within the past five years it has become almost universally adopted as a just and satisfactory means of determining the value of all milk delivered to both creameries and cheese factories in the advanced American dairy States. Creamery patrons can no longer sell milk to the factory by weight only, neither can the factory buy it in this way. It is generally agreed that milk ought not to be bought simply by the pound any more than a cow or a horse. We would all think it absurd to see or hear the statement that horses were quoted in the market at a certain price per pound, but such a statement is not much further behind the times than the practice of buying and selling milk by weight without testing it.

Since the practice of testing all milk at butter and cheese factories has become so well established, the justness of the plan has led many farmers to apply the same test to their cows. This, it seems to me, is the direction in which the use of the test should be pushed at the present time. Every farm that supports cows for the purpose of selling their milk ought to be provided with a pair of scales and a Babcock test. By weighing and testing the milk of each cow a sufficient number of times, the owner can keep himself informed of the actual performance of each cow. Records of this kind show the relative value of the cows as milk producers and aid in determining the actual profit or loss which should be charged to each cow annually. The farmer who wishes to keep cows that will support him, and does not intend to work for the purpose of supporting his cows, needs to understand that:

First—If 150 pounds of butter only pays for the yearly feed and care of a cow, then one producing only this amount or less is not paying a profit.

Second—One cow is often worth twice as much as another, or more than two cows, although there may not be a very marked difference between the total annual production of two cows. This may be illustrated by comparing the record of a cow that produces 152 pounds of butter with one producing 151 pounds. The former yields twice as much profit as the latter, provided 150 pounds represents the amount necessary to pay for feed and care, and a 250-pound cow makes twice as much above expenses as one with an annual production of 200 pounds of butter.

This is a side to the dairy cow question that a good business man will consider carefully. There are some dairymen who have been convinced that the time and money spent in weighing and testing the milk of each one of their cows is a profitable investment for them, and they could not be persuaded to abandon the practice of keeping records of the quality and quantity of each cow's milk. There are others, however, that have not yet reached this stage of development, and it was with the hope of reaching them that the writer undertook the testing of forty cows on six different farms. The owners of these cows had been sending milk to the Wisconsin Dairy School creamery for several years. None of them had a Babcock tester, and some did not have a suitable pair of scales for weighing the milk of each cow at milking time. By paying each one of these farmers one dollar per cow tested, I was able to induce them to weigh and sample the milk of each cow they owned for one day per week during an entire year.

METHOD OF MAKING THE FARM TEST.

The tests made on the different farms were all conducted on the same general plan. The milk of each cow was weighed and sampled at the morning and night milking one day each week. This testing day was selected by the patron. Each dairy was supplied with a pair of scales for weighing the milk of each cow at milking time, a box of bottles for milk samples, a small 1-ounce tin sampling dipper, and a record book. Each cow was given a number, which was also placed on the label of a 2-ounce sample bottle, the cow being known by this number throughout the test. About one-half gram of potassium bichromate was added to each sample bottle to keep the milk sweet until tested. The box of samples and the record book containing the weights of both the morning and night milk of each cow were sent every week to the University creamery, where the samples were tested; the tests were recorded on the patron's book as well as the permanent record at the creamery, after which the book and box of sample bottles were returned to the farm. This weekly sampling, testing and weighing continued throughout the year. The records thus furnished obtained data for determining the value of the milk produced by the different cows.

ACCURACY OF THE RECORDS.

The accuracy of such records as these is necessarily influenced by conditions common to nearly all farms. Milking is usually done with more or less haste, especially at the planting, haying or harvesting seasons. The milkers, as a rule, are not accustomed to the use of scales, and often consider the weight within one pound of the true figures to be "near enough." They do not understand the necessity of promptness in sampling the milk after it has been poured from one pail into another before the cream has begun to separate. In spite of these and other disturbing factors, our results show that tests of dairy cows can be made by the farmers themselves with sufficient accuracy to give a satisfactory knowledge of the performance of each cow.

PRODUCT FOR THE YEAR.

The total annual production of a cow was found by multiplying the average of the four or five daily weights of milk and of butter-fat taken each month by the number of days in the month, and adding the products together. The money value of the milk of each cow was found by multiplying the monthly weight of butter-fat by a certain figure which was one-half cent less than the average Elgin market price of butter for that month and adding the products together.

The extreme variation in the value of the butter of the cows on the different farms is shown in the following table:

RANGE IN VALUE OF ANNUAL PRODUCTS.

Received for milk of	Farm A	Farm B	Farm C	Farm D
Best Cow	$53.35	$56.30	$60.72	$56.49
Poorest Cow	28.72	44.83	37.96	39.60
Average Cow	36.30	50.00	48.83	44.12
Number of cows in herd	12	5	12	4

Since each farmer fed all his cows in the same way, there is no evidence to show that it cost farmer A any more to feed the cow that paid $53.35 than the one that paid $28.72. But these figures do not mean that cow No. 1 is worth $53 and No. 9, $28, because if the feed of a cow for a year costs $30, the profit or loss from each cow is shown by comparing the value of her annual product with this figure. If the cow produced $53 worth of butter from $30 worth of feed, she made $23 profit; but another cow producing only $28 worth of butter on this same amount of feed was a loss of $2 to the farmer.

An inspection of the receipts from the twelve cows on each of the two farms, A and C, shows that at farm A there were three cows which did not produce milk enough to pay for their feed. The entire herd only paid a profit of $75, and three of the twelve cows paid $50 of this amount, while the combined profit of the other nine cows was only $25. In this case three cows earned 100 per cent. more money in a year than was earned by nine other cows on the same farm.

On farm C the twelve cows earned a total profit of $228, instead of $75, as on farm A; but even at farm C there is a considerable difference in the cows. One earned only about $8 profit, while another earned nearly $31—a difference of about 400 per cent. in the annual butter value of these two cows to their owner. The record further shows that six of these cows paid 60 per cent. of the total profit for the year, and the other six paid only 40 per cent. of it.

LENGTH OF MILKING PERIOD.

A few of the cows tested were such persistent milkers that their owners had some difficulty in drying them off. These cows were among the greatest producers. The cows that were dry the longest time were generally the smallest producers. This is shown by the records at farm A, where several of the cows were dry for three or four months in the year.

Feeding for Milk.

Almost every dairy farmer has his own combination of foods for the production of milk. An extensive English breeder pins his faith to the following mixture: 2 lbs. each of decorticated cotton cake, bran, malt combs, and Indian meal, 20 lbs. mangels, pulped, and about a stone and a half per day of good sweet hay. It is high feeding, but where the milk can be disposed of at a fair price it should pay and pay well. No one need expect his cows to distinguish themselves at the pail unless they are liberally and judiciously fed.

GARDEN AND ORCHARD.

Tree Planting Associations.

The local horticultural societies which are being organized in some places in the Province of Ontario might render valuable service to the cities or towns in which they are located at this season of the year by encouraging public as well as private tree-planting, and the intelligent care and pruning of trees, and their protection from insect pests. These organizations can bring pressure to bear upon the municipal authorities so that proper provision will be made for the protection of street and park trees. Enthusiastic and well informed on the subject of tree culture, the officers and members of these worthy organizations can, by co-operating with aldermen or councillors, do much to awaken and sustain an intelligent public interest in this subject, preventing many losses through misdirected efforts, and aiding materially in permanently beautifying both public and private places. Municipal councils, and such officials as engineers, street and park commissioners, would doubtless gladly take advantage of this aid. An example of what can be accomplished in this way occurred in Kansas City, where a Tree Planters' Society was formed a short time ago. Since then 7,000 trees have been planted, 5,000 more provided for, and besides this the park commissioners having let contracts for 6,000 additional trees. The interest of the public school children was enlisted in the work, and they are credited with a considerable share of the honor in these results, which were accomplished in one year's time.

Preparing Bordeaux Mixture for Spraying

To the Editor FARMER'S ADVOCATE:

SIR,—I was interested in the excellent article on "Spraying," contributed to the issue of the FARMER'S ADVOCATE for April 2nd by Mr. G. C. Caston. It certainly contained many very useful suggestions on this important operation; and I was particularly pleased with his explanations of the various steps, for I believe that it is almost as important for growers to know *why* as *how*. But Mr. Caston made one mistake in his directions for preparing Bordeaux mixture, which might lead the beginner into trouble if the directions were followed "to the letter." He suggests using the *cyanide* of potassium as a test to determine when sufficient lime has been added, while it is really the ferrocyanide which is used. The two are entirely different substances. The cyanide is a hard, white, rock-like material with the chemical composition represented by the formula KCN, and is used in generating the poisonous hydrocyanic acid gas with which nursery stock is fumigated; while the ferrocyanide is a yellow substance with the chemical composition represented by the formlua $K_4Fe(CN)_6$, which dissolves readily in water, forming a yellow liquid. And it is, I am told, not poisonous in the least.

The use of this test depends on the fact that if any of the copper sulphate is present in the mixture you will get a red color on adding this test solution; that is, as long as the Bordeaux is dangerous to your apple trees this test will give you the red danger signal. The advantage of this method over the more common one of weighing out your materials is that with this you are absolutely sure when you have added sufficient lime, while with the other everything depends on the strength of the lime which is used, and any mason will tell you that lime varies greatly in its strength. There is also another advantage to be gained by the use of this test. It has been discovered by the experiments of two French scientists that what is called neutral Bordeaux mixture—that is, Bordeaux to which only enough lime has been added to change over all of the copper sulphate—that such Bordeaux is much less likely to be washed off the trees by rains than when either an excess of lime is added or not enough. The practical importance of this will be readily seen in any country where rains are frequent during the spraying season. It was further found in the experiments above referred to that freshly-prepared Bordeaux would adhere much longer than that which had been prepared for some time. This will mean that our common practice of leaving half a barrel or so of Bordeaux mixture when we finish our spraying and allowing it to stand for a week or so until we are ready to spray again is not a good practice, but we should as far as possible prepare only what we can use in a very short time after it has been mixed.

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Caustic Potash for Fruit Trees.

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A regular phenomenon of the domestic world is the annual spring housecleaning, when the whole establishment is overhauled from top to bottom, and all dust which may have escaped destruction during the year is ruthlessly hunted down and annihilated. To a less extent this is also the custom with the orchardist, yet it has always seemed to me that the latter might, with profit, copy still more from the good housewife in the zeal and thoroughness with which this annual rite is performed, and I know of nothing which will more materially assist the fruit-grower in his work of renovation than some form of caustic potash. It is the soap of the orchardist, and an exceedingly good brand it is, too. Either the rock potash (which can be bought for about 8c. per pound) may be used or the leachings from wood ashes, and one who has never tried them will be astonished at the improvement in the appearance of the trees. All old bark, lichens, moss and the like will be removed, and above and beyond all, it will rid the trees of the oyster-shell bark-lice which in many parts of Canada are one of the most troublesome insects with which the orchardist has to deal, and they are all the more to be dreaded because of their innocent appearance. At this season of the year these scales, as every fruit-grower knows, are merely the old shells with a quantity of eggs underneath, and the action of the caustic potash is simply to loosen the scales and allow them to be washed from the trees by the early spring rains. Of course, by the falling away of the old bark, lichens, etc., the tree is cleaned incidentally of myriads of fungus spores and insect eggs, and lastly, when the material used in spraying finally reaches the ground, as it eventually will do, it is exceedingly useful as a fertilizer for the trees.

If the rock potash is used it should be dissolved in the proportion of one pound to from three to five gallons of water, though the proportions may be varied still more and yet give good results. If the leachings from ashes are used, the amount secured from a barrel of ashes should make from one to two casks of most excellent spraying material, depending on the quality of the ashes. In applying this the tree should be made thoroughly wet throughout. There are two precautions to be observed in the application of this potash: 1st, it must be done at a time when the trees are dormant, since if applied to the leaves it will destroy them; 2nd, great care must be exercised that none of it gets on the hands nor any other part of the person,