

being promptly and certainly covered. The nurse crop should always be sown somewhat thinly. The alfalfa seed, if sown after the grain, should be covered with about one-half inch of soil, which may be done by harrowing. If so desired, however, the alfalfa may be sown by itself. A good method of doing this is to sow the seed with a grass-seeder, then harrow the surface lightly and roll.

After the crop has reached a height of several inches, the mower should be run over the ground, cutting all weeds, etc., and leaving a stubble of three or four inches. This will destroy the weeds, if there are any, and also tends to make the young plant branch out and above ground, as well as to send its roots deeper into the soil.

In this country, as a rule, no crop is secure the first season, nor is it advisable to pasture during this period. The second year, two crops may be cut, and, if it is a good season, three cuttings may be secured. After this, when it has become well established, three cuttings may be taken annually. It is well not to cut or pasture too late in the fall, as the crop should have a good covering to protect it through the winter.

Wentworth Co., Ont.

C. A. WHETHAM.

THE DAIRY.

Babcock Test for Milk-fat.

Editor "The Farmer's Advocate":

At your request, we take pleasure in answering the questions of two subscribers in Simcoe County, regarding the testing of milk. We can best do this by covering briefly the main points in testing milk for fat with the Babcock test, which is the most satisfactory short test yet devised, and the one used in and recommended by the Ontario Agricultural College, as well as by nearly all authorities in America. The Gerber test, which is used largely in Europe, is operated on principles similar to the Babcock test.

The apparatus complete, including scales, sample bottles, box for holding samples, dipper, etc., may be had from any dealer in dairy supplies who advertises in "The Farmer's Advocate" (if they do not advertise, they ought to). Two-ounce, screw-top bottles (cost 3 to 5 cents each) for stable sampling, are satisfactory. Box to hold these can be made by anyone handy with tools. For ordinary farm testing, a four-bottle machine, costing five dollars complete, is quite satisfactory. Manufacturers furnish full directions with the machine. Any intelligent person can make test for milk-fat by following the directions, but, when possible, we should advise a few lessons from a competent person, preferably at one of the dairy schools, where special teachers are employed for that purpose. The Agricultural Representative of the Ontario Department of Agriculture will be glad to show any farmer in his county how to test the milk with the Babcock test. Briefly, the method is as follows:

1. Thoroughly mix the sample of milk, or cream, by pouring, or stirring, in order to obtain a representative sample.
2. Measure 17.6 c.c. (cubic centimeters) of milk with a pipette, and transfer to the Babcock bottle. (In the case of cream, measure 18 c.c., or better, weigh 18 grams into the bottle.)
3. Add 17 c.c. of commercial sulphuric acid (oil of vitriol) to the milk sample in the bottle, by pouring the acid along the inside of the neck and bowl of the bottle, being careful not to pour it directly on the milk, as this tends to char or burn the fat.

4. Mix the milk and acid with a rotary motion. The mixing should continue until all the curd dissolves and the mixture becomes a uniform brown color. As a result of the chemical action, much heat is produced. This is necessary in order to keep the fat in a liquid condition. The sample should not be allowed to cool.
5. Next place the sample or samples in the pockets of the centrifuge, commonly called a "tester". Be sure that the machine is "balanced"—that is, has an even number of samples in the pockets, and that they are placed opposite each other. An odd number may be "balanced" with a sample bottle containing water.

6. Start the machine slowly, and revolve at full speed, as indicated by the manufacturer, for four to five minutes.
7. Stop the machine, and add hot water, at a temperature of 140 to 160 degrees F., to each bottle, filling to between the 8 and 10 per cent. mark. This may be done with a pipette or with a special filler. The operator must be careful not to fill the bottles so as to run the fat over the top, which above the ten-per-cent. mark, in which case the sample is spoiled, or made impossible to read, without compass or calipers.

8. Turn the samples again for one to two minutes at full speed, then stop the machine.
9. Remove the samples from the pockets and place in a hot-water bath, or dish containing water at 140 degrees F., having sufficient depth to reach the top of the fat column in the bottle.

10. Read from the highest to the lowest limits of the fat column in milk bottles. Each space between the figures on the graduated neck of the milk bottle represents one per cent., and each of the smaller spaces two-tenths of one per cent. It is possible to read samples to one-tenth of one per cent.

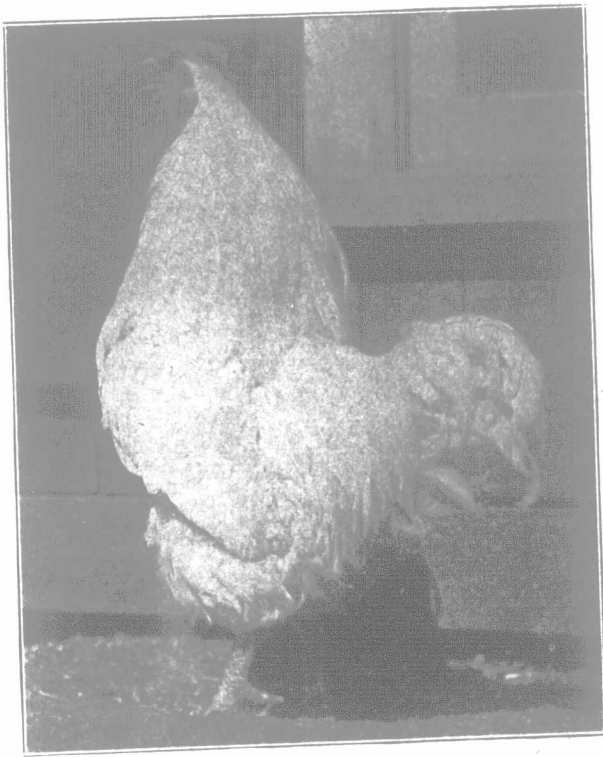
11. After reading, empty the bottles into an earthen crock or other vessel which will not be attacked by the acid. Wash once with hot water, then add a little soda and more hot water; rinse, empty, and wash again with clean hot water, when the bottles are ready to use.

12. Special bottles are used for testing cream, skim milk and whey. These require special directions for reading, but the ordinary farmer does not need to use any of these, except the cream bottle, for testing cream. These bottles are usually graduated to one-half of one per cent., though a person can read a little finer than this, if necessary.

Burnt readings, cloudy or curdy readings, too low or too high readings, and fat solid or congealed in the neck of the bottle, are common troubles. Burnt readings are caused by having milk or acid, or both, at too high a temperature (should not be over 60 to 65 degrees F.); acid too strong, too much acid used, or acid poured on top of the milk. Cloudy or curdy readings are caused by the opposite of causes for burnt readings—milk or acid, or both, too cold; acid too weak, acid and milk not properly or completely mixed. Too low readings may be caused by not measuring the proper quantity of milk, spilling some of the sample, not using sufficient centrifugal force, owing to too low speed in the machine, and inaccurate reading. Too high readings may result from inaccurate measuring of the milk, having the water too hot, reading from a steam-turbine tester without cooling, inaccurate reading. Fat congealed in the neck of bottle is caused by fat being too cold, and it is impossible to read such a sample; set in hot water, at 140 degrees F., to melt the fat before reading.

Fuller directions are contained in text-books on the subject, and also in various bulletins.

H. H. DEAN.



"Good Morning."

Co-operative Milk-testing.

Editor "The Farmer's Advocate":

Would you think it advisable for a Farmers' Club of, say, 20 members to buy a milk tester for the use of the members, in order that each member may find out which of his cows are profitable and which are not, or do you think that would allow each member the use of the tester for such a short period that it would not be of very much use? Would you think it a better plan for two or three neighbors to combine and get a tester? About what price is a tester, and where can they be got? Do instructions go with each one as to how to use them?

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I would advise a Farmers' Club to organize a cow-testing association, and thus get in line with what others are doing for the improvement of their cows. J. A. Ruddick, Dairy Commissioner, Ottawa, will be glad to furnish details for organizing such an association, and will assume the cost of testing the samples for fat, where farmers weigh the milk from each cow and take samples according to directions. This lessens the cost to individual cow-owners, and insures accurate testing of the samples, which might not be the case where every farmer tests his own cows' milk, and

more particularly where inexperienced persons do the testing. However, if the Club prefers not to join, or form a cow-testing association, the next best plan would be for the members to purchase a ten-bottle machine, and have it at some central point where milk samples could be sent for testing. The office of the Agricultural Representative for the county, where there is one, would be a very good place to locate the tester (if there is not a tester there already), and he, the representative, would no doubt be pleased to test samples for the Club at a small cost, or free of charge.

The next best plan would be for each member to purchase a four-bottle machine, at a cost of five dollars. I do not think the plan of moving the tester about from one farm to another would be altogether satisfactory, although, if each one would be willing to test on a different day during the month, and each be responsible for breakages occurring at his farm or during transit, the plan of one tester for twenty members might work out all right, by making composite samples and testing once a month.

H. H. D.

The report of the annual meeting of the Eden Bank Creamery Company, Limited, of Sardis, B. C., makes a very satisfactory showing of the product of the creamery for 1910, the payments for butter-fat being an increase of \$3,000 over that of 1909, which was due to a proportion of the output having been sold as milk and sweet cream, the patrons receiving a larger return per cow than when the company were dependent upon the manufacture of butter. The butter-fat sold in 1910 was 207,652 pounds, which sold for \$66,804.17, averaging 32 cents per pound.

POULTRY.

Poultry-raising for Women.

Editor "The Farmer's Advocate":

March is passing on, with its wind and bluster, and along comes the strong rays of the sun, bringing milder weather, making us all eager to be up and doing. The time is here again when young life prevails all over the farm. Perhaps not the least of this fresh life is the product of the incubator.

To any woman fond of outdoor life, there is to our mind nothing more interesting than the rearing of poultry, from the time the incubator is set, to the marketing of the matured bird, though, to have real success, one must have a real liking for the work. There is nothing slavish about it, though to some it may appear too manish. Nevertheless, it often overcomes the difficulty of securing a little ready money that so many of our sisters feel deprived of; and would just like to say to anyone beginning that success lies largely in following carefully any instructions given with your particular machine, and the many helpful letters in "The Farmer's Advocate" from time to time, rather than any remarkable skill. You will not know it all with the first hatch, nor yet with the first season's work, but keep at it; your ideas will develop with the work. A few simple hints may not be amiss.

1. Try to get the eggs from a flock of two-year-old birds (any kind you may fancy, but should be pure-bred). Pullets' eggs do not hatch so well, nor are the chicks as vigorous.

2. Have your incubator in a corner (out of drafts) where you can look at the thermometer often while going about your housework; 101½ to 102 degrees is just as good for the first ten days, and, as the hatch develops, the natural heat in the egg will raise the temperature to 103 degrees, without much adjusting of the lamp. See, however, that your regulator is properly set before commencing.

3. Start the turning of the eggs as you expect to be able to continue throughout the hatch. If at 7 a. m., do so again at 7 p. m., or any other hour that suits best; never, on any consideration, turn at, say, 9 or 10 a. m., and then at 5 or 6 p. m. There should be the twelve hours between turnings. Regularity means much in anything, and particularly in this.

4. Set a few hens the same day as the machine, and divide all the chicks among these; thirty or thirty-five are not too many for one hen to look after. If the weather is cold, take some away at night for a while till they are quite strong. This is considerably less work than the brooder, and, as they run about, the hen protects them. Then, don't be afraid, if a spare moment comes, to get an old knife or other implement, and hie away to where the hens are trying to scratch for them, and start in to dig a bit. Hen and chicks will soon learn your object, and run to meet you to get the first worm you may dig up.

5. If at any time the eggs get too warm, say 106 degrees, or thereabouts, remove the tray with eggs gently from the machine, and wring a woolen shawl out of warm (not hot) water, and draw over the eggs; leave till cool enough to turn, then return to the machine and watch the thermometer for a time. Overheating weakens the chick in the