COW TESTING

The keen competition and small margins of recent years have made it quite necessary for farmers to study their business carefully. This is especially true of the man with cows. He must know the quantity of milk his cows produce and what it costs to keep them, in order to determine the amount of profit and loss.

Economy in the cost of producing milk and butter-fat is the first step toward successful dairying. To that end one needs first to pay particular attention to the units that go to make up the dairy herd. It is quite essential to know the capacity of individual members, feed them liberally, weed out the poor ones and breed the rest to sires of good dairy strain.

The only way to detect the boarders in the herd is to weigh, test and record the milk from each cow and the feed consumed throughout each period of lactation.

VALUE OF COW TESTS.

One advantage in cow testing is that it determines the value for dairy purposes of each cow. A standard of production for the herd—for instance, an average of 6,000 pounds of milk and 200 to 250 pounds of butter-fat per cow per year—makes a mark to work towards. This is not a high standard and can be easily attained by weeding out the poor cows.

It enables one to find the best cows for a foundation for breeding. The most practical way to build up the herd is to breed only the cows that earn a profit.

Testing also enables the farmer to feed intelligently, for every cow has a limit to her capacity to consume, digest and assimilate food. The aim should be to approach but not to pass this limit. The milk and butter-fat records are reliable indicators and will aid the farmer to study each cow in a systematic way and thus develop his skill as a feeder.
PLAN OF THE WORK.

The Dairy Department of the Montana State College will loan or sell at cost an outfit for weighing and sampling milk, and for keeping dairy herd records, to farmers who will keep records of their cows and who will agree to co-operate for a period of several months.

This proviso is made to secure continuance. A short time test is in many instances very misleading. For instance, some cows that milk well at first are not persistent, while others that do not produce quite so much daily will maintain their flow for a long time. Cows also differ greatly in the richness of their milk and in the butter-fat test at different stages of lactation.

THE OUTFIT.

1. A spring balance weighing up to 30 pounds.
2. A sampling dipper.
3. Sample bottles, with preserving tablets.
5. A set of instructions for weighing and sampling milk.

WHAT THE FARMER DOES.

Any farmer who desires to test his cows may apply to the Dairy Department of the Montana State College, Bozeman, Montana, for the cow testing outfit, on the enclosed card.

The work of the farmer consists in weighing, sampling, and recording the milk from each cow on test, morning and evening, three days each month, ten days apart—say on the 5th, 15th, and 25th.

Each month, the samples and records should be brought or sent prepaid to a place agreed upon, for test.

WHAT THE TESTER DOES.

The Dairy Department will test the samples each month. From the milk weights reported by the farmer and the test made from the composite sample, the total pounds of milk and butter-fat will be computed for the month and credited to each cow. The reports will be made in duplicate, one copy retained, and the other sent to the farmer. This will enable him to know what each cow produces every month during her entire lactation period and will tell him which cows are being kept at a profit and which at a loss.

We will be pleased to confer with farmers at all times as to the feeding of milk-producing rations, selection of good sires, raising the calves, and in any other way to improve the business of dairying.
INSTRUCTIONS FOR KEEPING DAILY RECORDS

THE MILK SHEET.

1. Place the name or number of the cow at the top and record beneath the weight of her milk morning and evening, three days each month.
2. Place the record sheet in a convenient rack close to the milk scale and protect with a movable cover to keep it clean.
3. The best plan is to weigh the milk from each cow at every milking and keep a complete record of the product.
4. A complete record serves as a basis of economy in the feeding of individual cows. It requires comparatively little time and is a complete index to the herd, to the feeder and to the milker.

WEIGHING THE MILK.

1. The milk scale has two indicators. One rests at zero when there is nothing on the scale. The other is to be set at zero when the empty pail is on the scale. This one records the weight of the milk directly.
2. Let the pail hang on the scale while recording the weight of the milk.
3. If there is not time to weigh the milk every day, weigh it for three days in the month, such as the 5th, 15th and 25th. Multiply the weight by 10, which will give approximately the total production for the month.

TAKING THE SAMPLE.

1. Take the sample immediately after weighing the milk.
2. Always mix the milk well before taking the sample to thoroughly distribute the cream.
4. Take two ounces (¼ cup) of milk from each milking for a composite sample.
5. A poisonous preservative tablet is placed in the sample bottle to keep the milk from souring.

FIGURING RETURNS.

The net profit from the dairy herd is the difference between the income and the cost of maintenance. The income includes the value of the butter-fat, the skim milk, the calf and the manure.

"The annual cost of maintaining a cow comprises such items as, cash sundries, cash feeds, farm feeds, labor (man and horse), general expenses, shelter, depreciation, machinery and equipment, herd bulls and interest on
investment. Cash sundries comprise those items for which cash was paid—ropes, halters, veterinary services and medicine. Cash feeds are those purchased for cash, farm feeds those produced on the farm. Labor includes both man and horse labor at the current rate of wages for the month and year, comprising all items of labor performed for and affecting the dairy. General expense comprises those items which are a charge to the entire farm, and is made up of cash and labor expenditures. The total for the farm is then apportioned to the productive enterprises of which the dairy is one.

Shelter is a fixed charge for the use of the building based on its cost, depreciation, repairs and the number of animals sheltered. Depreciation is based upon the productive life, death rate, original value of the cow for consumption.

Machinery and equipment charges are due to the use, depreciation, repairs and interest on the cost of the machinery and equipment of the dairy.

The charge for herd bulls is the cost of maintenance.

Interest on investment is interest at the rate of 5 or 6 per cent on the value of the cow at the beginning of the year. All items represent actual expenditures on the farms, excepting the charges of shelter and depreciation, which are based on averages of all the farms for the entire period.”—From Bulletin No. 124, Minnesota Experiment Station.

**A FEW RULES FOR FEEDING.**

**Grain Mixture.**

1. Feed one pound of grain mixture for each six or eight pounds of milk produced daily, or—

2. Feed one-half as many pounds of the grain mixture daily as the cow produces butter-fat per week, or—

3. Feed all the grain mixture the cow will eat without gaining in weight.

**Roughage.**

1. Feed the average cow all the hay, fodder and straw she will consume without wasting it. If corn silage or roots are available, feed from 20 to 40 pounds daily in place of some of the roughage.

2. Alfalfa hay has a feeding value about equal to bran or oats. When it is fed, the quantity of grain mixture can be cut down.—G. L. Martin, Professor of Dairying.