

year. We have tested our cows once through the cow-testing association which has been formed here this fall, and the per cent. of fat ranged from 3.4 to 4.7. The cow testing 4.7 per cent. is nearly dry, so, of course, this is not an average test for her, as her richest milk was tested.

Regarding the value of skim milk, I may say that we fed twelve hogs through the summer, and, after deducting the cost of the grain they consumed, they yielded at least \$100 from the milk we fed them. Besides this, I have not taken into account the value of the fertilizing constituents of the skim milk, nor for the small amount of buttermilk fed during the winter.

Some patrons contrive to obtain more satisfactory net returns than others, even at 80 cents per cwt. for milk, because, first, some have better cows than others, and it costs very little more to feed a good cow than a poor one, and it takes no longer to feed and care for her, so that the extra milk received, and the extra butter-fat, also, if the patron is paid according to the amount of butter-fat in the milk, is nearly all gain; secondly, the cow that is given proper attention and made comfortable will yield more milk than one that is neglected and abused. Then, again, a cow will yield more milk from the same outlay for feed, if fed on a balanced ration, than if fed otherwise. To feed in this manner, one must study the composition of the different foods, and then make the best use possible of the materials at hand. To get the highest net returns, one must also be guided by the prices of the different food-stuffs.

One dollar and fifty cents a month may seem a low estimate for the value of pasture, but we find that cows fed on silage eat little pasture during the early part of the day, when fed in the morning, as ours are.

H. S. AUSTIN.

Norfolk Co., Ont.

THIRD-PRIZE ESSAY.

Editor "The Farmer's Advocate":

In judging the profit and loss of the dairy business, we should take an ideal case and work from that; perhaps not ideal from the producer's standpoint, but a case free from many things that tend to complicate the problem.

First, I think that the rank and file engaged in the dairy business send their milk to a cheese factory for about six months in the year, and for the balance of the time make butter for home or local consumption.

Second, take a young married man, with a fairly good farm, started out with a herd of very fair grade cows, and who must depend for help on his own hands and whatever help he wishes to hire.

As this states my own case, I will now take my own herd of eleven cows, and compare their returns and their cost from the 1st of March to the 1st of October, 1910:

No. 1—Grade Shorthorn, 6 years old, in milk 186 days; milk, 5,792 lbs.
No. 2—Grade Holstein, 6 years old, in milk 179 days; milk, 6,196 lbs.
No. 3—Grade Shorthorn, 6 years old, in milk 173 days; milk, 6,262 lbs.
No. 4—Grade Shorthorn, 2 years old, in milk 198 days; milk, 4,242 lbs.
No. 5—Grade Holstein, 2 years old, in milk 179 days; milk, 3,772 lbs.
No. 6—Grade Shorthorn, 2 years old, in milk 132 days; milk, 3,156 lbs.
No. 7—Grade cow, 3 years old, in milk 205 days; milk, 5,876 lbs.
No. 8—Grade cow, 11 years old, in milk 188 days; milk, 7,023 lbs.
No. 9—Grade Shorthorn, 3 years old, in milk 138 days; milk, 4,186 lbs.
No. 10—Grade Shorthorn, 3 years old, in milk 503 days, farrow; milk from March 1st, 3,497 lbs.
No. 11—Grade Holstein, 8 years old, in milk 139 days; milk, 4,733 lbs.
Total milk, 54,735 lbs.; less wastage, 1,000 lbs., would equal 53,735 lbs.; valued at 80c. per 100, would equal \$429.88; add value of whey, at 10c. per 100 lbs., say about \$50, and we have for our total income \$479.88.

Now for the other side: This herd consumed 8 tons of hay, worth \$10 per ton, in barn=\$80, and straw, ad libitum. We fed, on basis of 1 lb. of grain to 4 lbs. milk for aged cows, and about 1 lb. of grain to 3 lbs. milk for heifers, up to the middle of May, 5,100 lbs. mixed grain, at \$1.40 per 100 lbs., \$71.40. From 1st of June to 1st of September, 1,500 lbs. of bran, at \$20 per ton=\$15.00. From 1st of September to 1st of October, 1,500 lbs. mixed grain, at \$1.40 per 100 lbs., \$21.00. Total grain fed=\$107.40. Pasture for 4½ months, at \$2 per head for month \$99. Total food cost, \$286.40.

Now for care of stock. Suppose I devote my own time to it; that is, do the milking, feeding, cleaning, going after cows, etc.; I think I can safely put it at five hours per day, which

at 15c. per hour, would be 75c. per day; from first of March to first of October, 214 days, at 75c. per day, would equal \$160.50. Total cost for food and care, \$446.90.

I think we can safely set off the value of the calves against the service fees, depreciation in value of herd through age, loss through sickness, etc.

Now, this herd would be valued at \$500, and buildings to house them, \$500 more. This, at 5%, means an interest outlay of \$50 per year, which we may set off against the value of the manure. To make good measure, we will throw in fire and lightning insurance, interest on investment in co-operative cheese factory and in cream separator, dairy utensils, etc. Therefore, for my profit from the first of March to first of October, I have the handsome sum of \$33.00.

Of course I milk each cow for 300 days, but as I begin my year on the first of March, I may give you later my account for the whole year, though I think you will agree with me, that I have taken the seven most profitable months of the year.

Now, Mr. Editor, in the editorial columns of the issue in which this contest is announced, appears the following: "We seldom pen an article without first consulting various authorities and the recorded experience of other practical men." Therefore, if your readers will turn with me to the Report of Animal Husbandry for the year 1909, for the O.A.C., I think that they will find that my conclusions are justified, when the conditions there are made to suit conditions under which I am dairying:

Report of O.A.C. Dairy Herd—"amended":—Total milk, 179,341 lbs., at 80c. per 100 lbs., = \$1,434.72. Value of whey, at 10c. per 100 lbs., = \$180. Total returns, \$1,614.72. Cost of feed, at O.A.C. prices, \$952.23.

We will let those prices stand, though good pasture at \$1 per cow per month is, to put it low, just half of what it should be. However, let it go at that. Now, add to the cost of feed the wages of one man for a year, at \$1.50 per day, say \$500, to make it even; then the value of that herd we will put at \$4,000. Interest on this at 5% will equal \$200.

I will let your readers pursue the question farther if they will, but I think that I have gone far enough to show that my conclusions are borne out by the experts at the O.A.C.

But I may be allowed to point out that the report of the veterinarian mentions the fact that two cows and a heifer were lost during the year, which would not bring up the profit side of the account any.

You may ask why I place the cost of pasturing a cow at \$2 per month. Well, to tell the truth, I would be inclined to put it higher, but I arrive at it this way: A cow giving a reasonable flow of milk must at the very least consume pasture equal to 20 lbs. of dry matter per day; that is, equal to 20 lbs. of cured hay. This would equal in one month 600 lbs., which at the low price of \$7 per ton would equal, practically, \$2.00.

Also, in valuing whey at 10c. per hundred pounds, I am aware that I place it very much higher than it is usually valued, but all through this article I have tried to err if possible toward the profit side of the account.

As to valuing milk at 80c. per 100 lbs., I may say that we have scarcely averaged that so far this season in our section of the country, and I doubt if we average \$25 per standard for the whole season.

But, sir, notwithstanding all this, dairying still has its compensations; we must not put all the profit on a dollar-and-cents basis. Who, other than the dairyman, has such an opportunity of watching "heaven's wide arch with the glorious sun's returning march," or of contemplating the firmament, as he goes to see how "Bossie" is for the night?

Then, sir, we pray daily to be delivered from evil. I think that with milk at 80c. per 100 lbs. we are not liable to be troubled with a surplus of the root of all evil.

Of course we may sometimes be forced to neglect our Sabbath duties, when the hired man is away to see his girl, but the successful dairyman has learned some lessons from his four-footed charge, perhaps better than he would from his reverence in the pulpit.

Let us then be up and doing,
With a heart for any fate;
Still achieving, still pursuing,
Learn to labor and to wait.

Hastings Co.

A. F. HUFFMAN.

Three factors enter into the profitable production of milk and its various products. These are the man, the cow, and the feed. A poor cow will never pay with even the best of feed, and a good cow may often appear far otherwise when not fed, but when a capable man takes charge of the right kind of cows, wisely selecting their rations, the milk makes a noise like gold coin as it flows into the pails.

Producing Cows for Market.

The high prices which prevail for first-class dairy cows ought to induce more farmers to keep registered bulls, and to make a more thorough study of the business of successful calf and heifer raising. It is surprising how few farmers there are who are really good calf-raisers. The final value of a good cow depends in a great measure upon how well she has been raised from calthood to maternity.

We have noticed, says Hoard's Dairyman, that four things contribute very greatly to success in this particular: (1) Good dairy blood in the sire. (2) Clean, dry quarters, frequently disinfected. (3) Plenty of sweet skim milk fed in pails kept well scalded. (4) Good, well-cured alfalfa hay after the calf is three to four months old, and from that time on. A heifer given alfalfa hay will make a decidedly better growth and size on that account.

Such raising, feed and care seem to have a stimulating effect on the maternal organs, and the heifer makes a better cow because of it. Of course, the dairy breeding is the foundation. It is of no use to try to make a good cow out of a heifer that has no such tendency in her. But it is true, and often lamentably true, that the best-bred heifer in the world can be utterly spoiled by stupid, unskillful handling and feeding in the first two years of her life.

The business of producing well-bred, first-class dairy cows is a profitable one. After two years of age, the cow has a double line of profit in the milk she yields, and in her progeny. All that is needed on the part of the farmer is an intelligent understanding of what it means to produce a good cow.

Composition of Butter-fat and Butter.

There has recently come from the Indiana Experiment Station a rather technical bulletin on "A Study of the Chemical Composition of Butter-fat," which brings out a number of points of information valuable to the buttermaker and the home-dairy producer. Without attempting to fully summarize the bulletin, we give here some practical extracts:

The composition of butter-fat varies with the season of the year. The melting point is lowest in midsummer, and highest in midwinter.

Experimental data produced in this country and abroad show unmistakably that the feed which the cows receive influences the per cent. of olein in butter. Such feeds as cottonseed meal, bran, corn, overripe hay, dry fodders, etc., when fed in excess, tend to decrease the per cent. of olein, while linseed meal, gluten feeds, succulent pasture grasses, etc., are conducive to raising the per cent. of olein.

The volatile fatty acids do not seem to be appreciably affected by the feed the cows receive. They are influenced, however, by the period of lactation, being highest at the beginning of the period of lactation, and decreasing as the period advances.

The soft fats, such as olein, and others with low-melting points, are capable of taking up a great deal more moisture than the hard fats. Since the soft fats are produced in greater proportion in spring and summer than the hard fats, this fact explains the material increase in moisture content of butter made in early summer. The moisture-retaining property of the fats is largely dependent on their melting point. The lower the melting point, the greater is their power to mix with and retain water.

[Olein is one of the principal fats found in butter, and is also a constituent of lard and other animal fats. It has a low melting point.—Editor.]

Commandments for Dairymen.

The following ten commandments were submitted by President F. H. Scribner at the 38th annual convention of the Wisconsin Dairymen's Association:

1. Thou shalt call each cow by name in a gentle and loving manner, for the boss will not hold him guiltless that taketh her name in vain.
2. Remember the Sabbath day, and do only such work as seemeth necessary.
3. Six days shalt thou labor and do all thy chores, but the seventh day is Sunday, and all unnecessary work should be dropped, so that thy son and thy daughter, thy man servant and thy maid servant may attend church.
4. Honor and respect the kingly sire, that thy days may be long upon the land which the Lord thy God giveth thee.
5. Thou shalt not swear.
6. Thou shalt not scold.
7. Thou shalt not curry thy cattle with the milking stool.
8. Thou shalt look well to the comforts of thy cattle.
9. Thou shalt not bear false witness against