

MU Guide

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How to Compute Your Cost of Producing Milk

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The U.S. dairy industry has become much more competitive in recent years. As a result, profit margins are smaller. One key to remaining competitive and prospering in the years ahead is improving production per cow and milk quality and lowering the cost of producing milk. This report provides a tool to help estimate your production cost. More specifically, it provides a simple worksheet to help you estimate your monthly costs and returns per 100 pounds (cwt) of milk shipped. This worksheet also can be used to assess new management changes or inputs such as a TMR, megalac or POSILAC. (Information about ordering worksheets are on page 4 of this guide.) Once costs are known, you can take steps to improve your management, lower your costs and improve profits.

You can find much of the information you need to complete this worksheet on your milk check and in your checkbook. A monthly time frame is used to help you monitor these critical costs frequently. If your feed costs, for example, are too high, it's better to find out now rather than later.

The process begins by answering a series of questions and transferring the appropriate information to the worksheets.

Questions

First, pick a month for your analysis. Enter this information on the top of the worksheet. Then, answer the following questions:

1. How many hundredweights of milk did you market this month? Find this information on your milk check and transfer to the worksheet on page 2.

2. Locate your gross milk price (dollars per cwt) on your milk check. Look for the price that includes all premiums (not just for 3.5 percent butterfat), but before any deductions are made. Enter on the worksheet.

3. Calculate your milk sales for the month by multiplying sales by the milk price.

4. Enter the dollar sales for the month for cull cows, purebred dairy cows, dairy youngstock and dairy calves.

5. List any other income derived from the dairy enterprise such as capital revolvment. Reflect only the cash portion of the capital revolvment for now.

6. Now, add lines 3, 4 and 5 on the worksheet to compute total gross receipts from the dairy enterprise. You now have your income for the dairy enterprise. That wasn't so bad.

Next, let's calculate your variable cash expenses.

7. Calculate the value of feedstuffs actually used on the dairy enterprise for the month in question. Go to the worksheet for guidance here. However, note the following three tips: First, we are interested only in what was actually consumed for the month. If you purchased more feed this month than you actually used, only show what was consumed by the cows. Second, you should reflect the market value of any home-raised feedstuffs that were consumed during the month. Third, only reflect feedstuffs that were consumed by milking and dry cows; do not include feed consumed by heifers and other livestock. Estimate this with care because it represents your largest production expense.

8. Next, estimate the value of pasture consumed. Estimate this by multiplying the average number of head on pasture by a monthly pasture charge. The monthly pasture charge should reflect the degree to which your pasture is improved. I'd suggest using a range from \$5 to \$15.

9. Now sum up lines 7a through 7e and line 8c on the worksheet to compute the total monthly value of feedstuff consumed by the dairy enterprise.

Now, let's move on to the rest of your variable expenses.

10. Estimate the value of labor used on the dairy enterprise. Note the following two tips: First, don't forget to reflect the value of any unpaid family labor used on the farm and of your operator labor (the time you spend working your operation). A general rule to follow is that the value of both your unpaid family

Monthly Worksheet

Name of farm: _____ Name of operator: _____ Month: _____

Gross income	Your farm	Example farm
1. (a) Pounds of milk sold for the month (from your milk check)		181,903
(b) Divide (a) by 100 to get milk sales in cwt		1,819
2. Gross milk price (\$/cwt)		\$12.50
3. Compute gross milk sales by multiplying 1(b) by step 2		22,738
4. Livestock sales related to dairy		3,000
5. Capital revolvments and other dairy income		0
6. Add lines 3, 4 and 5 for total gross receipts		25,738
Variable expenses		
7. (a) Market value of purchased concentrates, alternative feeds, vitamins and minerals		6,250
(b) Market value of purchased forages consumed		2,873
(c) Market value of home-raised grains consumed		667
(d) Market value of home-raised haylage and silage consumed		0
(e) Market value of home-raised hay consumed		0
8. Estimate the monthly value of pasture consumed		
(a) Average number of head on pasture for the month		20
(b) Monthly pasture charge		\$5
(c) Multiply (a) by (b)		100
9. Total 7(a) through 7(e) and 8(c) to compute the total value of feedstuffs consumed		9,890
10. Estimate the true cost of labor for the dairy enterprise		
(a) Amount spent for hired labor for the month (including benefits)		2,000
(b) Hours of unpaid family labor		330
(c) Value of family labor		\$5
(d) Multiply (b) and (c)		1,650
(e) Value of your operator labor		200 hrs. x 8 = 1,600
(f) Portion of time the labor force was used on the dairy enterprise		75 %
(g) Add lines (a), (d) and (e) and multiply by (f)		5,250 x .75 = 3,938
11. Milk check deductions		1,764
12. Expenses for DHIA fees		200
13. Expenses for artificial insemination		283
14. Expenses for veterinary fees and medicine		500
15. Expenses for dairy supplies; the portion of the following costs related to the dairy only		667
16. Expenses for fuel and oil		.3 x 299 = 90
17. Utility bills		.5 x 558 = 279
18. Building repairs		208
19. Machinery repairs		.33 x 1,050 = 347
20. Farm taxes		0
21. Farm insurance		.5 x 300 = 150
22. Any legal and professional fees		.5 x 42 = 21
23. Car and truck expenses		.5 x 333 = 167
24. Other expenses		100
25. (a) Interest payments		1,567
(b) Portion of the interest payment that went for the dairy enterprise		75 %
(c) Multiply (a) by (b)		1,175
26. Get estimate for annual depreciation expenses of dairy enterprise. Divide this by figure 12		642
27. Estimate total operating expenses by adding steps 9, 10(g), 11 through 24, 25(c) and 26		20,419
28. Estimate income over operating expenses by subtracting step 27 from step 6		5,318

labor and operator labor should equal your “family draw” from the operation. Do this by adding up the total number of unpaid family hours used on the farm during the month and multiply by, say, \$5 to \$6 per hour. Then add in the value of your operator labor. Second, try to sort out what percent of all labor is spent on the dairy and what percent is spent doing other things such as cropping. If you are like most dairy farms with cropping enterprises, the dairy enterprise will use up about 70 to 90 percent of the labor force.

11. Look on your milk check and locate all deductions for hauling, state and federal promotion, federal assessments (Gramm/Rudman), cooperative capital retains and marketing fees. Enter in the worksheet.

12. Enter expenses for DHIA fees.

13. Enter expenses for artificial insemination. Only enter the actual value of semen used, not just for the amount of the check.

14. Enter expenses for veterinary fees and medicine.

15. Enter expenses for dairy supplies.

Now comes the hard part. You must enter the rest of your variable cash expenses. However, we only want you to reflect the portion of these expenses that were used on the dairy enterprise. For example, what portion of your monthly fuel bill did you use for cropping, and what was for the dairy enterprise? There are no rules here. For guidance, look to the example in the worksheet.

16. Enter your expenses for fuel and oil.

17. Enter your utility bills.

18. Enter your building repairs.

19. Enter your machinery repairs.

How to Compute Your Cost of Producing Milk — Annual Worksheet											
Lines below refer to monthly worksheet	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	
1.(a) Cwts of milk sold	1,819.00										
Income from operations											
3. Milk sales	12.50										
4. Livestock sales	1.65										
5. Other farm income	0.00										
6. Total gross receipts	14.15										
Operating expenses											
9. Dairy feed costs	5.44										
10.(g) Dairy labor (include benefits)	2.16										
11. Marketing fees	.97										
12. DHIA fees	.11										
13. Artificial insemination	.16										
14. Veterinary fees and medicine	.27										
15. Dairy supplies	.37										
16. Fuel and oil	.05										
17. Utilities	.15										
18. Building repairs	.11										
19. Machinery repairs	.19										
20. Farm taxes	0.00										
21. Farm insurance	.08										
22. Legal and professional fees	.01										
23. Car and truck expenses	.09										
24. Other dairy expenses	.05										
25.(c) Interest payments	.65										
26. Depreciation	.35										
27. Total operating expenses	11.23										
28. Income over operating expenses	2.92										

20. Enter your farm taxes (real estate and personal property taxes).

21. Enter your farm insurance.

22. Enter your legal, accounting, consulting or other professional fees.

23. Enter your car and truck expenses.

24. Enter any other variable cash expenses related to the dairy enterprise only.

25. Estimate your interest expenses for the month that are directly related to the dairy enterprise. Do this simply by calling your banker and asking what portion of your monthly loan payments were for interest only. Then estimate which portion of this should be allocated to the dairy enterprise. Again, look to the example in the worksheet for guidance.

26. Finally, contact your accountant and estimate your annual depreciation expenses for the year for the dairy enterprise only (buildings, machinery, equipment and cows). Take that figure, divide by 12, and enter in the worksheet. If this seems like too much trouble, you can ignore it because depreciation expenses will be the same each month.

Now calculate 27 and 28 in the worksheet to complete your estimation of your production income and expenses. Great job! You now must compute your costs and returns on a per cwt of milk basis by dividing monthly cash receipts and operating expenses by the cwts of milk computed in line 1b) in the worksheet on page 2. Do this, and transfer the results to the annual worksheet (see sample worksheet on page 3 of this guide). Look at the example to see how easily you can perform these calculations. The annual worksheet allows you to compare your results each month to track improvements in your operation.

Assessing the results

Now that you have worked through the exercise, it's time to interpret the results.

The annual worksheet provides an estimate of your per cwt income, operating expenses and income over operating expenses. Income over operating expenses represents cash that is available to meet principal payments, capital replacement and family living expenses. Anything left after that represents a return to management.

Your objective is to maximize income over operating expenses. That represents your profits. You should maximize profits by improving gross receipts and controlling operating expenses.

One way to improve profits is to improve your management skills, raise milk production levels and get higher milk premiums. Consult your veterinarian, feed consultant and other professionals for help there.

Another way to improve profits is to lower your operating expenses per cwt of milk shipped. Two major expenses on a modern dairy farm are feed and labor. How do your feed and labor costs per cwt of milk shipped look? Can you lower your feed costs without reducing your net income over variable expenses? Consult your nutritionist or feed company for this answer.

If your feed costs are much below \$4.50 per cwt, you probably did not reflect all of your true costs. Likewise, what are your labor costs per cwt of milk shipped? If they are much higher than \$1.50 per cwt, you may not be competitive. Go back to your operation and assess why these costs are so high. Perhaps your operation is too labor intensive. On the other hand, your labor costs may be much lower if you are primarily using unpaid family labor and did not adequately account for this.

Look over all of your other expenses and ask yourself how you can lower these costs without sacrificing profits. In many cases, you may find you can effectively lower some expenses. An example may be machinery or truck expenses. An older truck may do for the next year or so. On the other hand, don't cut necessary expenses if it will lower your profits. For example, you may decide to cut your veterinary expenses. However, production may suffer to the point where you lower overall profits. Remember, any decision to cut expenses should be made only with an eye toward improving profits.

This worksheet should help you focus on improving your bottom line and making decisions that will lead to greater profitability.

Ordering the worksheets

To order a packet containing one annual worksheet and 12 monthly worksheets, please request MU publication MP 691 from Extension Publications, University of Missouri, 2800 Maguire Blvd., Columbia, MO 65211; 1-800-292-0969. The packet price is \$1.25, plus \$1 handling per order and 6.975 percent Missouri sales tax. To order by telephone, please have your credit card ready.



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