MARYLAND COOPERATIVE EXTENSION
UNIVERSITY OF MARYLAND
COLLEGE PARK•EASTERN SHORE

Fact Sheet

Fact Sheet 790

Milk Production Costs,How Much Does It Cost You to Produce ""100"" lbs./Milk

Why "cost per cwt."?

What price are you getting for 100 pounds of milk? If you are like most dairy farmers, you know the price or you can get it very quickly by reviewing milk check receipts. Do you know how much it costs you to produce 100 pounds of milk? If you are like many dairy farmers, you may not know. Dairy farming is complex, and determining your costs of production is sometimes difficult. Yet, your costs directly affect your profit, and it is important to understand them.

Why is it useful to think in terms of price and costs per cwt. rather than income and costs per farm or per cow? Because you are paid on a per cwt. basis and using costs per cwt. allows you to easily determine your profit per cwt. of milk. If profit per cwt. is too low or negative, using costs per cwt. allows you to compare your farm to other farms to determine your strengths and weaknesses. Comparing total income and total costs of different farms is not very useful because farms are different sizes. Likewise, income and costs per cow are not very useful comparisons because dairy herds have different rates of production per cow or use different production systems. By using costs per cwt., you can compare farms of different sizes and types as well as dairy herds of different production levels.

As you try to increase profits to reach your long-term goals, it is useful to think about the profit formula

PROFIT FORMULA
profit = (price/cwt. milk - costs/cwt. milk) x volume sold +/- other farm income and expenses

To illustrate this formula let's suppose you had a goal of making $40,000 per year profit on two million pounds of milk sold (i.e., 20,000 cwt.) per year. Let's assume you cannot increase volume because you are using your facilities at capacity, and your cows are relatively productive. Let's also assume that you have no other farm income or expenses other than those related to the dairy. Because you have little ability to influence price per cwt. of milk, you only have control over the cost per cwt. of milk. If the price of milk is $14.00 per cwt., then you can see from the formula below that you must reduce your costs to $12.00 per cwt. to achieve the goal of $40,000 profit per year.

$40,000 profit = ($14.00 price/cwt. milk - $12.00 cost/cwt. milk) x 20,000 cwt. milk sold

Calculating your costs per cwt.

Use Worksheet 1 to calculate your income and expenses per cwt. on a yearly basis and to plan for the

future. An example of a completed worksheet is also displayed. You will need a few production records and your IRS Schedule F or other income statement you have developed. You may also need IRS Form 4797, which lists your gains and losses on sales of farm assets.

Worksheet 1. Calculating your profit per cwt from Schedule F

Average number of cows per year		
Total cwt milk sold for the year		
Schedule F line number and description	Farm total	Per cwt
Farm income		
1. Sales of livestock bought for resale		
2. Cost or other basis of line 1		
3. Subtract line 2 from line 1		
4. Sales of farm products		
a. Milk sales		
b. Crop sales		
c. Cattle sales		
Total of lines 5b + 6b + 7 + 8 + 9 + 10		
11. Gross Income (lines 3 to 10)		
Farm expenses		
12. Car and truck expenses		
13. Chemicals		
14. Conservation expenses		
15. Custom hire		
16. Depreciation		
17. Employee benefits		
18. Feed purchased		
19. Fertilizer and lime		
20. Freight and trucking		
21. Gasoline, fuel, and oil		
22. Insurance (other than health)		
23a + 23b. Interest		
24. Labor hired		
25. Pension and profit-sharing		
26a + 26b. Rent or lease		
27. Repairs and maintenance		
28. Seeds and plants purchased		
29. Storage and warehousing		
30. Supplies purchased		
31. Taxes		
33. Veterinary, breeding, and medicine		
34. Other expenses		
35. Total (lines 12 to 34)		
36. Net farm profit		

Worksheet 2. Example

Average number of cows per year		100
Total cwt milk sold for the year		20,000
Schedule F line number and description	Farm total	Per cwt
Farm income		
1. Sales of livestock bought for resale		
2. Cost or other basis of line 1		
3. Subtract line 2 from line 1		
4. Sales of farm products		
a. Milk sales	290,000	14.50
b. Crop sales	5,000	0.25
c. Cattle sales	11,000	0.55
Total of lines 5b + 6b + 7 + 8 + 9 + 10	14,000	0.70
11. Gross Income (lines 3 to 10)	32,000	16.00
Farm expenses		
12. Car and truck expenses	1,000	0.05
13. Chemicals	8,000	0.40
14. Conservation expenses	0	0.00
15. Custom hire	7,000	0.35
16. Depreciation	28,000	1.40
17. Employee benefits	1,000	0.05
18. Feed purchased	90,000	4.50
19. Fertilizer and lime	10,000	0.05
20. Freight and trucking	10,000	0.05
21. Gasoline, fuel, and oil	5,000	0.25
22. Insurance (other than health)	3,000	0.15
23a + 23b. Interest	10,000	0.50
24. Labor hired	18,000.	0.90
25. Pension and profit-sharing	0	0.00
26a + 26b. Rent or lease	12,000	0.60
27. Repairs and maintenance	20,000	1.00
28. Seeds and plants purchased	7,000	0.35
29. Storage and warehousing	0	0.00
30. Supplies purchased	14,000	0.70
31. Taxes	2,000	0.10
32. Utilities	70,000	0.35
33. Veterinary, breeding, and medicine	14,000	0.70
34. Other expenses	13,000	0.65
35. Total (lines 12 to 34)	280,000	14.00
36. Net farm profit	40,000	2.00

Begin by entering the average number of cows in the dairy herd for the year and the total cwt. of milk that you sold. Enter your income and expenses line by line from your Schedule F (or other income statement) into the farm total column. Line 4 from schedule F should be broken down into milk sales, crop sales, and cattle sales. You may have to review your financial records to get these numbers. Lines 5b, 6b, 7, 8, 9, and 10 from Schedule F are added together and entered as one figure on this worksheet. All the other lines can be transferred directly from your Schedule F. For many dairy farmers, cull cow sales and other asset gains and losses are found on IRS Form 4797. These gains or losses can be added to (subtracted from) the farm income section. For example, if there was a gain from cull cow sales, it could be added to the total of line 4c. Cattle sales.

The Per cwt. column is used to calculate your income and expenses per cwt. Use a calculator to divide each number in the farm total column by the cwt. of milk sold at the top of the page. Enter each number in the Per cwt. column next to its corresponding number in the Farm total column.

Notice that line 11 shows the gross income. The gross income per cwt. of milk includes all sales and income. Line 4a shows the per cwt. price of just the milk. It is important to remember this when analyzing the farm and comparing it to other farms. The total expenses are found on line 35. It is useful to compare this to both the milk price on line 4a and the total income on line 11. The figure on line 36 shows the total farm profit or (loss) and the profit per cwt. of milk sold. To get this figure, subtract the total expenses (line 35) from the total income (line 11). This profit is a return to the owner's management, labor, and equity because a cost for these inputs has not yet been taken out for most farms.

Schedule F includes both milk and crop income and costs. The costs of producing crops on a dairy farm are a significant part of the cost of producing milk. Crops sales on dairy farms are generally low since most crops are marketed through the milk. If, on a given year, crops run short, more feed will need to be purchased. Likewise, if more crops are produced in other years, crop sales will increase and will be included in the farm income section of this analysis.

This worksheet is a simple and useful analysis. However, it can produce possible inaccuracies. In using an IRS Schedule F (cash accounting method), we do not account for changes in inventories. This may lead to an inaccurate calculation of profit. For example, you may purchase all your fertilizer for the crops in March. Then in December you may get a good price on fertilizer and purchase your fertilizer for the next year's crop. In a cash basis accounting system, both of these fertilizer purchases would be counted for this year, which would overstate the fertilizer expense and understate the profit. If you do not buy fertilizer next year, then next year's profit may be overstated. To get an accurate picture of profit, you need to adjust for inventories. However, on many dairy farms the beginning and ending inventories are similar enough so that an adjustment may not be needed.

Doing this analysis several years and averaging the years will also mitigate inaccuracies from changing inventories. Doing the analysis for several years is also useful for looking at trends in the business. Worksheet 3 can be used to do a five-year trend analysis and to determine the five-year average.

Compare your farm to other farms

Putting your income and expenses on a per cwt. basis gives you a different perspective on your profit. By doing this, you can better analyze your efficiency. Comparing your total farm income and expenses with other farms tells you very little about efficiency because of differences in farm sizes, herd sizes, and yield levels. But you can make a direct comparison on a per cwt. basis. Each year Maryland Cooperative Extension con- ducts the Maryland Dairy Farm Business Summary. In this process Extension Educators work individually with dairy farmers to calculate their income and expenses per cwt. Data from all participating farms are then summarized to determine the average income, expense,

and profit per cwt. The most profitable 20 percent (profit per cwt.) are also averaged. Individual farmers can tehn compare their farms to these averages to determine their strengths and weaknesses. To obtain a copy of the most recent Maryland Dairy Farm Business Summary, contact your country Extension Educator or Dale Johnson at the Western Maryalnd Research and Education Center. Other land grant university and private organizations also conduct similar summaries with which you can compare your farm.

Worksheet 3. Five year trend analysis

Year						**5-year avg**
Average nubmer of cows						
Total cwt milk sold						
Schedule F line						
Farm income						
1. Sales of livestock bought						
2. Cost or other basis of line 1						
3. Subtract line 2 from line 1						
4. Sales of farm products						
a. Milk sales						
b. Crop sales						
c. Cattle sales						
5b+6b+7+8+9+10						
11. Gross Income (lines 3 to 10)						
Farm expenses						
12. Car and truck expenses						
13. Chemicals						
14. Conservation expenses						
15. Custom hire						
16. Depreciation						
17. Employee benefits						
18. Feed purchased						
19. Fertilizer and lime						
20. Freight and trucking						
21. Gasoline, fuel, and oil						
22. Insurance (other than health)						
23a+23b. Interest						
24. Labor hired						

25. Pension and profit-sharing						
26a+26b. Rent or lease						
27. Repairs and maintenance						
28. Seeds and plants purchased						
29. Storage and warehousing						
30. Supplies purchased						
31. Taxes						
32. Utilities						
33. Vet., breed., and med.						
34.Vet.,breed,and med						
35. Total (lines 12 to 34)						
36. Net farm profit						

Milk Production Costs,How Much Does It Cost You to Produce ""100"" lbs./Milk

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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, University of Maryland, College Park, and local governments, Thomas A. Fretz, Director of Maryland Cooperative Extension, University of Maryland.

2002