

Tremendous Differences Exist in Economic  
Efficiency of Dairy Farms

by  
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Surplus dairy product purchases appear to be down by at least forty percent for the months of March and April. This is great news. Even so, the dairy industry has quite a way to go before the surplus problem is solved. As the economic crunch continues, only one thing is certain -- the future belongs to the efficient.

A survey of seventy-six Southern California dairy farms reveals significant differences in farm performance. When corrected for herd size differences, average monthly profits ranged from \$6,050 among the top 25% of farms down to -\$9,528 among the bottom 25% of farms. Bankers and others can take notice. All dairy farms are not alike.

The statistics analyzed herein come from the California Bureau of Milk Stabilization's Feedback Information. This cost information is used as an input to setting the price of Class 1 Milk in California.

These statistics pertain only to the months of December 1983 or January 1984. As such the cost for herd replacements has been set at the average for all dairies so as to prevent distortions. Also, this cost has been reduced by twenty percent to account for a return to owner raised animals.

Another adjustment which must be made concerns interest expense. The Bureau figures interest expense based on the assumption that the entire farm is financed. To allow for fifty percent owner equity, we will cut this expense in half. Even so, keep in mind that this study cannot account for the true out-of-pocket interest expenses of dairy farmers.

The final adjustment to the Bureau's data will be the elimination of the depreciation expense. This is certainly a real cost of doing business. However, in the short run it is not a cash cost.

#### Income per Hundredweight

Table 1 provides a comparison of income per hundredweight (cwt.) of milk produced. The statistics are presented in three columns. The first column is an average for the most profitable nineteen farms. The second column is an average for all seventy-six farms. Finally, the last column is an average for the least profitable nineteen farms.

The performance differences are startling. As shown on the bottom line, the most profitable farms average an income of \$0.82/cwt. In contrast, the least profitable farms lose \$1.21/cwt. Overall, the average farm made only \$0.03/cwt. Certainly times are tough. Even so, some farms are making good money. How are they doing it?

As shown in table 1, price is not the answer. In fact, the most profitable farms had a lower milk price than the average or least profitable farms.

Feed costs and labor costs account for the major differences in farm performance. Feed costs per cwt. of milk are \$0.50 lower than average in the most profitable group and \$0.59 higher than average in the least profitable group. The case is similar with labor costs. Labor costs per cwt. are \$0.25 lower than average in the most profitable group and \$0.39 higher in the least profitable group.

### Key Differences

Why is performance so different between these farms? In the area of feeding it would seem likely that careful buying of feed ingredients, computerized ration formulation and careful feeding are the keys. Differences in feed costs as a percentage of receipts are shown on line 1 of table 2.

In the area of labor, line 2 table 2 shows that milkers actually make more per hour on the most profitable farms. Wage rates range from \$10.80 per hour on the most profitable farms down to \$9.20 per hour on the least profitable farms. The average wage was \$10.30 per hour. Note that this wage includes all the employer's cash and non-cash expenses.

When comparing milk production, real differences appear. Line 3 of table 2 shows that milk production per cow per year ranges from 17,568 lbs. in the most profitable group down to 14,880 lbs. in the least profitable group. The average milk production per cow per year was 16,200 lbs. As would be expected, culling rates are higher on the most profitable farms. Such rates range from 33.5% on the most profitable farms down to 27.3% on the least profitable farms. The average cull rate was 31.0%.

### Herd Sizes

Finally a comment is necessary regarding herd size. The most profitable farms had an average herd size (milking and dry) of 647 cows. This compares to 441 cows on the least profitable farms and 568 on the average for all farms. Does this mean all farmers should strive for growth? No. The most profitable farms also have the highest cull rates.

As the dairy industry continues to progress genetically, the most important factor determining the success of any farm will be efficiency and not size. For drylot dairy farms, it is probably a safe statement that physical economies of size are fully realized by the time the herd reaches 400 cows.

As a final comment, it should be noted that economic efficiency has two dimensions. These two dimensions are the physical and the financial. Due to data limitations, this paper has focused only on physical efficiency. Regarding the financial side, I can only say that I have never seen a dairy farmer go broke by culling too much. As times get tougher, standards for cows, labor, and borrowing money must all increase.

Table 1. Performance Comparison of 76 Southern California Dairy Farms for the Month of December 1983 or January 1984\*

	Average Top 19 Farms (\$/cwt)	Average All 76 Farms (\$/cwt)	Average Low 19 Farms (\$/cwt)
Farm milk price	12.18	12.46	12.60
Feed cost	7.31	7.81	8.40
Labor cost	1.22	1.47	1.86
Operating cost**	1.33	1.50	1.72
All other costs***	1.50	1.65	1.84
Total costs	11.36	12.43	13.81
Net income****	0.82	0.03	-1.21

\* Source: California Bureau of Milk Stabilization with modifications as described in text.

\*\* Operating costs include veterinarian, supplies, utilities, repairs, maintenance, fuel, DHIA, truck and tractor use, etc.

\*\*\* All other costs include interest, herd replacement, taxes and insurance.

\*\*\*\*The following expenses must be paid out of net income: depreciation, return on owner equity, and return to raising replacements.

Table 2. Key Statistical Comparisons

	Average Top 19 Farms	Average All 76 Farms	Average Low 19 Farms
Feed cost as a % of income	60.0%	62.7%	66.6%
Milker wage per hour	\$10.80	\$10.30	\$9.20
Production per cow per year**	17,568 lbs.	16,200 lbs.	14,880 lbs.
Culling rate	33.5%	31.0%	27.3%

\* Source: California Bureau of Milk Stabilization with modifications as described in text.

\*\*Milk marketed divided by all cows.