



Dairy Update

Characteristics of High Profit Minnesota Dairies

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The cost of producing milk on Minnesota dairy farms varies widely. 1992 dairy farm business records from more than 800 dairy farms showed a range in the cost of producing milk from \$13.22/cwt for the 20% high profit farms to \$18.00/cwt for the low 20% profit farms. These costs covered all costs (cows and replacements) including overhead costs like family living, taxes, depreciation and a 5% charge on investment. Sale prices of milk and cull cows and calves must be included for comparing price to costs. Net cash flow generated on high profit farms was \$4.76 per cwt of milk compared to \$.50 per cwt above cash costs for low profit farms. High profit farms produced milk for less, received higher prices and marketed more milk per cow. Profit was measured by return to the operator's labor and management for the whole farm analysis, and returns over feed cost for the dairy enterprise analysis.

Why so much difference in profitability of dairy farms? How were the high profit group different from the low profit group? Looking more closely at the high and low 20% profit farms revealed many differences. The differences can be divided into three broad categories: 1) Variable cost control; 2) Capital efficiency; and 3) Production efficiency. The primary differences between high and low profit dairy farms were:

High profit farms

- 1) Variable cost control
 - Lower feed cost per cow
 - Lower labor and machine cost per acre
 - Lower expense per cwt of milk for health/veterinary, breeding, utilities, repairs and hired labor
 - Lower rearing costs of herd replacements
- 2) Capital efficiency
 - Slightly higher investment per cow (whole farm)
 - Lower debt per cow

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3) Production efficiency

- Produced more milk per cow
- Produced more milk per worker
- Have more cows per worker
- Used a higher percent of barn capacity
- Received a higher milk price
- Have lower calf losses
- Feed higher levels of grain and concentrates

This list identifies some critical profit control points to manage and monitor. They are consistent with recently reported comparisons of high and low profit New York dairy farms. This Cornell report also showed high profit farms harvested more hay and corn silage per acre.

Assessing Your Profit Performance

These Minnesota farm business records were used to develop the performance assessment on page 5. The high and low 20% profit herds provided the guides for establishing the ranges for high and low risk. Your farm's profit performance is considered healthy if your values correspond to the 20% high profit herds. Values close to the unhealthy (low profit zone) suggest need for corrective action.

First there are some important economic indicators that are used to measure the economic performance of a business. These are standard measures that need to be applied to the whole farm business. They are measures of the profitability, liquidity and solvency of the business. These measures can be calculated from the farm's annual balance sheet or net worth statement, the profit loss or operating statement, and the cash flow statement.

Profitability

Profitability measures the excess of returns over expenses relative to the amount of capital invested.

$$\begin{array}{l} \text{Gross Farm Revenue} = \\ \text{+ Cash farm income} \\ \text{+ Change in inventory} \\ \text{+ Non-cash income} \end{array}$$

$$\begin{array}{l} \text{Gross Farm Expense} = \\ \text{Cash farm expense (includes interest)} \\ \text{- Change in prepaid expenses} \\ \text{+ Change in accounts payable} \\ \text{+ Depreciation} \end{array}$$

$$\begin{array}{l} \text{Net Farm Income from} \\ \text{Operations (NFIFO)} = \\ \text{Gross farm revenue} \\ \text{- Gross farm expense} \end{array}$$

$$\begin{aligned} \text{Rate of Return on Farm Assets} &= \frac{\text{NFIFO} + \text{Farm interest paid} - \text{Value of unpaid family and operator labor/management}}{\text{Average total farm assets}} \end{aligned}$$

$$\text{Rate of Return on Farm Equity} = \frac{\text{NFIFO} - \text{Value of unpaid labor/management}}{\text{Average farm equity}}$$

$$\text{Operating Profit Margin Ratio} = \frac{\text{NFIFO} + \text{Farm interest paid} + \text{Value of unpaid labor/management}}{\text{Gross revenue}}$$

Liquidity

Liquidity measures the ability of the business to meet financial obligations as they come due without disrupting normal operations of the business.

$$\text{Current Ratio} = \frac{\text{Total current farm assets}}{\text{Total current farm liabilities}}$$

$$\text{Working Capital} = \frac{\text{Total current farm assets}}{\text{Total liabilities}}$$

Solvency

Solvency measures the amount of financial commitments and other obligations of a business relative to the amount of owner's equity invested in the business.

$$\text{Debt to Asset Ratio} = \frac{\text{Total farm liabilities}}{\text{Total farm assets}}$$

$$\text{Debt/equity ratio} = \frac{\text{Total farm liabilities}}{\text{Total farm equity}}$$

Lessons to be Learned

There appears to be several important lessons to be gained from this study relative to managing for profit.

Buy wisely, don't get ripped off. Be sure the inputs you invest in bring a positive return, that they generate more income than they cost. Feed is particularly subject to wide differences in costs and accounts for 40 to 60% of the cost of production. Low profit herds spent as much per cow on feed but produced less milk. Feed costs for the milking herd and replacements are \$1.75 to \$2.00 per 100 lb of milk less on high profit farms. Many herds are apparently overspending on feed for their level of production. High profit farms had higher veterinary/health, utility, breeding and supply costs per cow but these were lower per 100 lb of milk because their production was higher. Don't be afraid to get competitive bids and buy only what you need.

Manage for efficiency. High profit herds had a major advantage in spreading costs over more milk per cow. They also were using at a higher portion of their barn capacity, had lower calf losses, and had more cows per worker. The more profitable herds also received \$.30 to \$.50 higher quality premium for their milk.

Make smart investments carefully. Dairying is capital intensive, with typical investment levels ranging from \$6,000 to \$8,500 per cow for the whole farm (includes land, field machinery, buildings, cows, etc.). Debt levels on high profit farms were smaller. High profit farms enjoyed return on their investments of about 15% compared to a negative return for low profit farms. Smart investments can pay excellent returns dairying.

Dairy Farm Business Performance Assessment

< = less than; > = more than	Low profit Unhealthy ↓	High profit Healthy ↓	Your herd
<u>Whole Farm Profitability</u>			
Operating profit margin	<5%	>18%	_____
Return on total farm assets	<5%	>12%	_____
<u>Whole Farm Liquidity</u>			
Cash flow coverage	<107%	>120%	_____
% gross expenses	>90%	<65%	_____
<u>Whole Farm Solvency</u>			
Percent equity	<40%	>65%	_____
<u>Dairy Cost Control (includes all cows & replacements)</u>			
Cash cost per cwt	>\$12.00	<\$9.50	_____
Feed cost per cwt (all cows & replacements)	>\$6.75	<\$5.75	_____
Feed cost per cwt (milking herd excluding replacements)	>\$5.95	<\$4.60	_____
Dairy supplies/cow/year	>\$90.00	<\$60.00	_____
Electric utilities/cow/year	>\$80.00	<\$60.00	_____
Repair costs/cow/year	>\$90.00	<\$60.00	_____
Value of farm assets/cow (includes land)	>\$7,000.00	<\$5,000.00	_____
Debt/cow	>\$3,000.00	<\$2,000.00	_____
<u>Dairy Production Performance</u>			
Milk/cow/year	<17,000	>19,000	_____
Milk/worker	<500,000	>800,000	_____
Somatic cell count	>400,000	<200,000	_____
Age at 1st calving	>27	<25	_____
Calf death loss	>12%	<5%	_____
Average days open	>125 days	<115 days	_____
Average PTA \$ service sires	<\$200.00	>\$275.00	_____
% barn capacity used	<90%	>100%	_____
<u>Crop Performance Measures</u>			
Cash income/acre/year	<175	>225	_____
Machinery investment/acre	>450	<300	_____
Repair cost/acre	>40	<25	_____

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