Profit Measures and Ratios

Profitability
The ability of management and capital to generate a profit to cover growth and service debt.

Net Cash Farm Income (NCFI)
This is operating receipts minus operating expenses, usually for a period of one year. It measures the cash profitability of the operation, showing money that is available for family living expenses, debt principal payments, or savings. This will typically range from $300 – 1,000 per cow.

<table>
<thead>
<tr>
<th>Operating Receipts</th>
<th>$261,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Expenses</td>
<td>-250,000</td>
</tr>
<tr>
<td>Net Cash Farm Income</td>
<td>11,000</td>
</tr>
</tbody>
</table>

Net Farm Income
The most commonly used measure of profit. It is often referred to as return to labor, management, and capital. NFI can indicate whether the operation is sacrificing assets to maintain a positive Net Cash Farm Income (farm income smaller than cash income) or increasing in value or productivity (farm income larger than cash income). The NFI will always be reflected in a change of Net Worth from the previous year. This will typically range from $0 – 800 (avg $400) per cow.
Goal: $75,000 per owner/operator.

<table>
<thead>
<tr>
<th>Net Cash Farm Income</th>
<th>$11,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory Change</td>
<td>6,500</td>
</tr>
<tr>
<td>Depreciation</td>
<td>-8,000</td>
</tr>
<tr>
<td>Capital Item Change</td>
<td>28,000</td>
</tr>
<tr>
<td>Net Farm Income</td>
<td>37,500</td>
</tr>
</tbody>
</table>

Inventory change can be either positive (ending with a larger inventory) or negative. If one pre-purchases feed, the expense is in the operating expense section, and the inventory increases by that value. If the feed is not fed, the net change in NFI is zero, illustrating accounting on an accrual basis (no cost until it is used).

Depreciation is negative, indicating a loss in value of capital assets, which are those lasting more than a year, used in the business to make a profit, and declining in value due to wear or obsolescence.

Changes in value of capital items include depreciation if depreciation is not showing separately. The difference between beginning value and ending value is depreciation if nothing has been bought or sold. Sales and purchases of capital
items do not show in the NCFI because these costs need to be spread over several years. Income from sales minus costs of purchases are part of capital changes. By accounting for them separately from capital changes, inaccuracies in perceived values are adjusted automatically (eg. an item is sold for less than its inventory value). If something is sold for its exact inventory value, sales go up while ending value goes down equally, hence no change in NFI (just traded item for cash). But if something is sold for less than its previously-assumed inventory value, the ending value goes down more than the sales amount goes up. The net change is then a loss in value of capital items.

Return on Assets (Investment) (ROA or ROI)
Measures rate of return on assets and is often used as an overall index of profitability. Return should be comparable to safe investments. Interest must be added back because the objective is to calculate how much the farm earned on all its assets.

Computation: \( \frac{(NFI + \text{Interest})}{\text{Assets}} \times 100 \)
Goal: 8 – 10%

Return on Equity (ROE)
Measures rate of return on invested capital or equity (Net Worth). If cost to borrow capital is more than ROA, then ROE must be less than ROA.

Computation: \( \frac{NFI}{\text{Equity}} \times 100 \)
Goal: \( \geq \) ROA

Operating Profit Margin Ratio
Measures profitability in terms of return per dollar of gross revenue. A business has two ways of increasing profits: increasing profit per unit produced or by increasing the volume of production (if the business is profitable). A relationship exists between return on assets, asset turnover ratio, and operating profit margin ratio. If asset turnover ratio is multiplied by operating profit margin ratio, the result is return on assets.

Computation: \( \frac{(NFI + \text{Interest})}{\text{Total Receipts}} \times 100 \)
Goal: \( \geq \) 35%

Liquidity
Ability to meet short term obligations without disrupting normal operations.

Current Ratio
Measure of liquidity, expressing how many liquid dollars would be available to cover each dollar owed in the next year.

Computation: \( \frac{\text{Total Current Farm Assets}}{\text{Total Current Farm Liabilities}} \)
Goal: \( \geq 1.3 \)

Working Capital
Theoretical measure of amount of funds available to purchase inputs after the sale of current assets and payment of current liabilities

Computation: \( \text{Current Assets} – \text{Current Liabilities} \)
Solvency
The ability to meet all liabilities in the event you quit the business, or who is the true owner of the business.

Debt/Asset Ratio
This ratio expresses what proportion of total farm assets is owed to creditors.

\[
\text{Computation: Total Liabilities / Total Assets} \times 100
\]

Goal: <=40%

Equity/Asset Ratio
Measures the percent of assets which are owned.

\[
\text{Computation: Net Worth (Equity) / Total Assets} \times 100
\]

Repayment Capacity
Ability to meet term debt payments on a timely basis.

Annual Debt Capacity
Amount of money available to service current and future debt.

\[
\text{Computation: NFI + Interest + Depreciation}
\]

Alternative Annual Debt Capacity
Amount of money available to service future debt.

\[
\text{Computation: Annual Debt Capacity – Loan Payments}
\]

Term Debt and Capital Lease Coverage Ratio
Indicates how debt capacity compares to the debt already committed.

\[
\text{Computation: Annual Debt Capacity / Loan Payments}
\]

Goal: >1.3

Financial Efficiency

Asset Turnover Ratio
Measures how well assets are used to generate revenue.

\[
\text{Computation: Total Receipts / Total Assets}
\]

Goal: >0.33

Capital Turnover Ratio
Number of years it would take to replace assets.

\[
\text{Computation: 1 / Asset Turnover Ratio}
\]

Goal: <3

Operating Expense Ratio
How much of each dollar of revenue is going to pay expenses.

\[
\text{Computation: Total Operating Expenses / Total Receipts} \times 100
\]

Goal: <65%
Depreciation Expense Ratio
If value is less than 5%, one may not be investing in the business to be competitive in the future.
Computation: Depreciation / Total Receipts x 100
Goal: <12%

Interest Expense Ratio
Operators with a high debt load need to be more efficient than those who have no debt.
Computation: Interest Expense / Total Receipts x 100
Goal: <12%

Net Farm Income from Operations Ratio
Measures how much of each dollar is available for growth and debt service.
Computation: NFI / Total Receipts x 100
Goal: >10%

Other Measures

Investment per Cow
Computation: Total Assets / Number of Cows
Avg: $3,000 – $6,000

Debt per Cow
Computation: Total Liabilities / Number of Cows
Avg: $1,500 – $2,500

Cash Operating Expense per Cwt Milk
Computation: Operating Expenses / Cwt of Milk
Goal: <Milk Price

Cost of Producing Cwt of Milk
Computation: (Operating Expenses – Inventory Adjustments – Depreciation Adjustments) / Cwt of Milk

Pounds of Milk Sold per Employee
Uses the sum of all employee hours and assumes that 2400 hours in a year is equivalent to one full-time employee.
Computation: Total lbs of Milk/FTE
Goal: 1,000,000

Number of Cows per Employee
Uses the sum of all employee hours and assumes that 2400 hours in a year is equivalent to one full-time employee.
Computation: Cows/FTE
Goal: >50