From BIF:

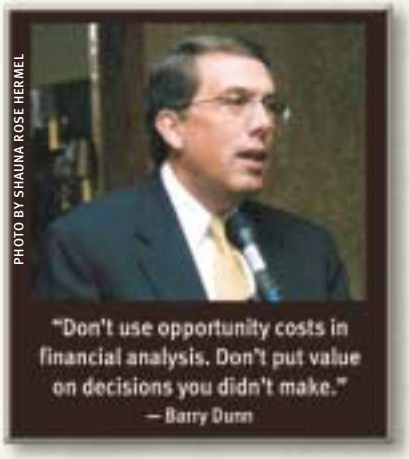
Return on Assets

Net income alone is not a complete measure of cow-calf profitability and financial efficiency.

by ***Troy Smith***

Suppose a cow-calf operator generates $35,000 of net income (NI) from an investment of $1 million, while his neighbor nets $35,000 after investing $2 million. Both were profitable, but which operation was more efficient?

Barry Dunn, range livestock production specialist at South Dakota State University (SDSU), says the most widely used definition of profit, or NI, is the amount by which revenue exceeds expenditures. It's the money left over after all the bills are paid. But NI, by itself, is not a complete measure of efficiency. According to Dunn, a better measure of profitability and economic efficiency addresses the relationship between input and output.



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"Don't use opportunity costs in financial analysis. Don't put value on decisions you didn't make."
— Barry Dunn

"Net income really is a measure of gross output," Dunn explains. "To properly evaluate the economic efficiency of a business activity, you need a profit measurement that includes both net income and the assets necessary to create net income. The ratio of net income, for a given fiscal period, to the amount of capital invested, is known as return on assets (ROA)."

While the average ROA for all U.S. businesses is 10%, Dunn says the average return for American cow-calf producers is an unhealthy 2%-3%. But Dunn's study of cow-calf outfits in the Northern Plains states during the 1990s revealed a surprisingly wide range of return. Among the most profitable operations, the average ROA was 18%.

"In the face of the same problems, environments, markets and public policies, some producers in the very same business are able to make substantially more money than others," Dunn states.

The operations did not exhibit significant differences in pounds of calf weaned per cow. Large operations were not necessarily more profitable. In fact, Dunn's study showed that it was possible to service debt and generate $35,000 for family living with a herd of 200 cows. Among the operations Dunn studied, high levels of profit, as measured by ROA, were a function of below-average levels of investment, low annual costs, at least average levels of production and excellent marketing.

To determine ROA and evaluate the efficiency of their operations, Dunn advises producers to follow Standardized Performance Analysis (SPA) guidelines. Several steps are critical for accuracy:

1) Calculate NI with accrual adjustments to income and expenses.
2) Due to policy changes outside the control of managers, NI should be calculated pre-tax.
3) Record your assets on a financial or cost basis.
4) Don't forget to subtract family living from NI when calculating ROA.

Dunn says ROA is usually figured for the fiscal year (FY), but it can be calculated for any period. It should be calculated before interest expense since interest represents a return to creditors, not the manager. Assets are included at cost, with depreciation included. ROA is an evaluation of how past management decisions have affected the present earning capacity of a production system. Since it is a reflection of the impact of past decisions on current performance, it is not appropriate to include opportunity costs.

NI is calculated with SPA by using the following equation:

$$\mathbf{NI = [(total\ lb. \times \$/lb.) \pm \$inventory\ adjustment] - (\$total\ cost \pm \$inventory\ adjustment)}$$

ROA is calculated with SPA using this equation:

$$\mathbf{ROA = \frac{\$NI + \$Interest - Family\ Living}{total\ \$\ invested\ in\ land,\ cattle,\ buildings,\ improvements\ and\ equipment} \times 100}$$

Valuation of assets: financial vs. economic

According to Dunn, determining the value of assets on the balance sheet and income statement can be one of the most confusing aspects of analyzing the profitability of a beef-cattle enterprise. SPA provides two methodologies, which value assets differently, for different purposes. Financial analysis values assets at their cost or depreciated value (book value), while economic analysis uses market value.

"Financial analysis is an evaluation of all management decisions, over time, and it measures financial efficiency," Dunn adds. "Economic analysis records the market value of accumulated assets at a certain point in time. It can be used to determine whether to get in or get out of the business, but it is not a good measure of whether a manager made good decisions."

An example of mistakenly using market values when evaluating profitability occurs when substituting opportunity cost for the actual cost of hay. Suppose the cost of raising the hay needed to maintain a cow for one year is $75, but the market value of that hay has increased to $300 due to a change in supply or demand. However, the hay is worth $300 only if the manager sells it, which must mean he plans to sell the cows and exit the business, too.

"Don't use opportunity costs in financial analysis," Dunn warns. "Don't put value on decisions you didn't make."

Use the right denominator

Efficiency measurements may be expressed in a variety of ways. Total investment per cow is widely used when pricing ranch property. Stocking rate is expressed on a per acre basis, and determining productivity in terms of total pounds weaned per acre may be useful. However, Dunn recommends that producers express efficiency measurements on a basis of per hundredweight (cwt.) of weaned calf.

"That's how cattle are marketed," he explains. "It's an inclusive measure of reproduction, growth, nutrition and herd health. It's not the way many of us are used to thinking, but 'per hundredweight' is a much more sensitive unit for measuring differences in managerial efficiency."

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