

# Analyzing the Profitability of Your Operation by Todd A. Doehring

## Abstract

Understanding the profitability of any business is vital for management decision-making and monitoring. Standardization facilitates the ability to compute useful and meaningful measures that are comparable to similar businesses. This article explores the suggested measures of profitability for a farm or ranch as recommended by the Farm Financial Standards Council and provides sample computations and interpretations of these certain financial measures.

Key Words: financial analysis, financial statements, accounting, profit, income, financial ratios, FFSC, ROA, ROE

## Introduction

Standardized financial statements make analyzing your business easier and more accurate. It also facilitates comparison across various years and against other similar operations. In 1990, a group of industry experts organized for the purpose of promoting uniformity in financial reporting and analysis for agricultural producers. This group, now called the Farm Financial Standards Council (FFSC), issues periodic updates to its “Financial Guidelines for Agricultural Producers.” In addition to addressing most of the detailed accounting issues often faced by agricultural producers, this report endorsed 16 financial ratios for use in analyzing an agricultural operation. The 16 financial ratios are divided into five general categories: Liquidity, Solvency, Profitability, Repayment Capacity, and Financial Efficiency.

## Profitability Measures

This article will focus on the four measures of profitability suggested by the FFSC.

- Net farm income (NFI)
- Rate of return on farm assets (ROA)
- Rate of return on farm equity (ROE)
- Operating profit margin ratio

The table to the right shows some key financial data for a farming operation. *Only financial information necessary to compute profitability measures is shown.*

Balance Sheet Data		
	Beginning	Ending
Assets (Market value)	1,083,000	1,119,000
Equity (Market value)	795,000	884,000

Income Statement Data (Accrual Adjusted)	
Gross Revenues	309,000
–Operating Expenses	206,000
–Interest Expense	23,000
=Net Farm Income from Operations	80,000
+Gain on Sale of Capital Asset	10,000
=Net Farm Income	90,000

Other Information	
Withdrawals for Family Living	33,000

Also, some definitions that will be used throughout this article are listed below.

- Net Farm Income from Operations (NFIFO)
- Net Farm Income (NFI)
- Withdrawals for Family Living (Withdrawals)

There is an important distinction between NFIFO and NFI. NFIFO measures normally recurring income generated from the farming operation, while NFI includes events that do not occur as often such as the sale of machinery or a tract of land. While both are a measure of returns to the operation, NFIFO is used in most of the following calculations because it more accurately represents true, normally recurring farm earnings. Finally, because taxes can vary significantly from one farm to another both of these measures ignore the impact of taxes in an operation.

*For the sample farm, NFIFO is \$80,000 but during the year a tractor was sold for a gain of \$10,000. Therefore, NFI is \$90,000 (\$80,000 + \$10,000). The sale of a tractor is not generally an annual event for most farms, but even if it is an annual event, the farm is not in the business of selling tractors, therefore, NFIFO provides a clearer measure of farm income from operating activities.*

### **Net farm income**

The first measure of profitability recommended by the FFSC is Net Farm Income (NFI), and is computed as part of the income statement. Net farm income is a good measure for analysis of a farm operation because it includes operating activity before the impact of income taxes. There is no benchmark or rule-of-thumb for this measure as it varies widely from year-to-year as well as from farm-to-farm. Because this measure of profitability is not standardized (it's unique to each farm), we rely on additional measures of profitability to inter-farm comparison. However it is still a good idea to monitor the trends in net farm income for your operation over a number of years.

### **Rate of return on farm assets**

ROA measures a business' pre-tax returns to the entire business, and is calculated as:

$$\frac{\text{NFIFO} + \text{Interest} - \text{Withdrawals}}{\text{Average Farm Assets}}$$
$$\frac{80,000 + 23,000 - 33,000}{(1,083,000 + 1,119,000) \div 2} = \frac{70,000}{1,101,000} = 6.4\%$$

ROA compares a business' normally recurring income to the asset base of the business. The components of true earnings from the farm are first reflected in NFIFO. Then interest expense is added to this number because it is a cost of borrowing money and is actually a return to the borrowed portion of capital. Finally, withdrawals are used as a proxy for salary expense, so they are subtracted from farm earnings.

The higher the ROA the more profitable the farming operation. Taken as an industry, agriculture has a low ROA—the average ROA for farms in the US is between 3-6%. ROA in agriculture is limited by high capital requirements (land and machinery) and market values that usually exceed the original cost.

Note that operations owning a large portion of their land need higher earnings per acre than operations renting a large portion of their land in order to have identical returns on assets. This is because those businesses with a large asset base have a larger dominator in the above equation is larger for those farms

### Rate of return on farm equity

ROE measures a business' pre-tax returns to the operator and is calculated as:

$$\frac{\text{NFIFO} - \text{Withdrawals}}{\text{Average Farm Equity}} = \frac{80,000 - 33,000}{(795,000 + 884,000) \div 2} = \frac{47,000}{839,500} = 5.6\%$$

ROE compares an operations normally recurring income to its equity base. ROA and ROE are very similar measures. The primary difference is that ROA is measuring the return to the total asset base of the operation and ROE is measuring the return only to the equity of the operation. Therefore, interest is not added back when computing ROE. As an operator, ROE represents your return from the farm business.

A couple of notes on ROA and ROE:

- The relationship between ROA and ROE is a crucial one to monitor. To the extent that ROA exceeds ROE, you must be prudent when adding more debt your business because acquiring assets that don't provide a return greater than the cost of borrowing will put pressure on the existing operation. While an in-depth discussion of the relationship between ROA and ROE is beyond the scope of this article, the key point to keep in mind is that for your business, you want ROE to exceed ROA. When this relationship holds true (ROE exceeds ROA), you are effectively using borrowed funds to increase the profitability of your operation.
- Both can be computed on either a market-basis or cost-basis. Generally, market values exceed cost values, so measuring ROA and ROE on a market-basis understates the earnings relative to the actual cost of the assets. Also, using market values fails to include the impact of unrealized gains due to an asset's appreciation.

### Operating profit margin ratio

Operating Profit Margin Ratio measures a business' pre-tax returns relative to its level of sales, and is calculated as:

$$\frac{\text{NFIFO} + \text{Interest} - \text{WD}}{\text{Gross Revenues}} = \frac{80,000 + 23,000 - 33,000}{309,000} = \frac{70,000}{309,000} = 22.6\%$$

Obviously the higher this ratio, the more profit the farm is generating. While there are no standard benchmarks by enterprise for this ratio, a rule of thumb is between 20-30%. This measure can vary widely from across farms and is dependent on ROA and the efficiency in which the assets are used. A ratio of 22.6% implies that this operation is recognizing almost \$0.23 in income for every dollar of goods sold.

## Summary

Once you have accurately measured the profitability of your operation, it is a fairly quick and simple exercise to begin applying some standard financial ratios for your operation. The financial measures discussed in this article will provide you with a good way to analyze your operation and track its progress from year to year.

If you would like to learn more about your business' financial performance and key accounting concepts, you can obtain a copy of the latest Farm Financial Standards Council's report, "Financial Guidelines for Agricultural Producers." The cost of the report is \$25.00 and may be ordered by phone, fax or e-mail:

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