

An Introduction to Basic Farm Financial Statements: Income Statement



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Introduction

The purpose of this publication is to provide an introduction to farm **income statements** and demonstrate how income statements can be used by producers to assist decision making. Regardless of farm size, **enterprises**, and farm goals, this publication can be used to help develop a cash or accrual income statement.

Additionally, this publication will demonstrate how to utilize basic financial ratios to analyze (and potentially improve) a farm's profitability. Accurate recordkeeping and organized financial statements allow producers to measure key financial components of their business, such as profitability, that are vital for the long term viability of the farm.

What is an Income Statement?

The income statement is a report summarizing the **revenues** and **expenses** of a business and computes the resulting net return (profit) over an **accounting period**, which is typically - one calendar year (January 1st to December 31st). Income statements can be generated to estimate income for other time intervals, for example monthly or quarterly. Typically, farm revenue occurs from the sale of livestock, produce, grains, or other commodities. Other sources of revenue include: payments from agricultural programs, cooperative distributions, crop insurance proceeds, and custom hire income. Common farm expenses are diverse and depend on the enterprises included in the farm operation, but are generally categorized into production expenses, conservation expenses, general and overhead expenses, and living expenses. Producers report farm income and expenses to the Internal Revenue Service (IRS) on a **Schedule F 1040** tax form using either the **accrual** or **cash accounting** methods for the accounting period (fiscal year).

Cash and Accrual Accounting

The accrual accounting method is recommended when analyzing farm profitability. However, most producers use the cash accounting method to file income taxes. With cash accounting, the producer records revenue when it is received and expenses when they are paid. For example, if a producer sells their soybean crop to a grain elevator, the producer may not receive payment until a later date. Using the cash accounting method, the producer would not record the sale of the soybeans as revenue until the cash is received from the sale. Accrual accounting recognizes income when it is earned and expenses when they are incurred. In contrast with the previous example, under the accrual accounting system the producer would record the sale of the soybean crop as revenue when the soybeans were delivered to the elevator not when payment was received.

While accrual accounting is slightly more complicated to calculate, it provides a

more accurate measurement of farm profitability during an accounting period and allows the producer to make more informed decisions. Producers can adjust their cash accounting system to an accrual accounting system following the steps discussed in this publication.

Building an Income Statement

To build an income statement, cash revenue received from operations and cash expenses paid for business operations during the fiscal year (typically January 1 to December 31) must be recorded. **Gross cash revenue** is the total cash received from the sale of crops, livestock, and other farm-related income, while **gross cash expenses** are the cash costs incurred in the process of producing revenue. **Net cash farm profit or loss** is gross cash revenue minus gross cash expenses. Figure 1 is an example of a completed cash income statement for an operation growing soybeans and raising cattle.

Farm Income Statement - Cash Method			
Farm Name	Smith Family Farms	Year	2019
Farm Revenue - Cash			
Sale of Crops			\$379,000.00
Sale of Livestock			\$72,000.00
Other Farm Income			\$5,000.00
Gross Cash Revenue			\$456,000.00
Farm Expenses - Cash			
Chemicals			\$33,000.00
Crop Scout			\$0.00
Custom Work			\$0.00
Drying (Fuel/Electric)			\$0.00
Fertilizer & Lime			\$48,000.00
Fixed Machinery Costs			\$0.00
Fuel, Oil & Filter			\$14,000.00
Hired Labor			\$45,000.00
Insurance Expense			\$8,000.00
Interest Expense			\$17,000.00
Land Rent			\$50,000.00
Machinery Rental			\$0.00
Marketing Expense			\$2,883.00
Miscellaneous Overhead			\$1,176.00
Plants			\$0.00
Property Taxes			\$5,000.00
Repairs and Maintenance			\$26,000.00
Reproduction (A.I.)			\$155.00
Salt & Mineral			\$4,788.00
Seed			\$37,000.00
Supplemental Feed			\$18,000.00
Trucking/Freight			\$0.00
Utilities			\$6,000.00
Vet & Med			\$3,000.00
Other Expenses			\$0.00
Total Cash Expenses			\$319,002.00
Net Cash Farm Profit or Loss			\$136,998.00

Figure 1. Farm Income Statement – Cash Method

Making Accrual Adjustments?

To make accrual adjustments, the producer should begin with their cash income statement and make adjustments using the farm's opening and closing **balance sheet** (Campbell, et al, 2019). Examples of these adjustments include accounting for the differences in (Kay, R., W. Edwards, P. Duffy):

- beginning and ending **inventories**
- beginning and ending **accounts receivable**
- beginning and ending **accounts payable**
- beginning and ending **prepaid expenses**
- beginning and ending **accrued expenses**
- beginning and ending unused supplies
- beginning and ending investment in growing crops
- beginning and ending **depreciation**

For example, beginning accounts receivable would be the dollar amount invoiced but not received on January 1 of the accounting year and ending accounts receivable would be the dollar amount invoiced but not received on December 31 of that same year. If accounts receivable contained \$1,000 on January 1, but contained \$1,500 on December 31, this would increase accrual adjusted income by \$500 (\$1,500-\$1,000).

Accrual adjustments can be made by simply adding or subtracting either the beginning or ending balance of each category from the **net cash farm profit or loss**. This will result in **net farm income from operations (NFIFO)**. Because farmers may not sell their entire crop in the same accounting period, this may deflate (or enhance) actual cash net farm income. By making adjustments to the income to account for a portion of the crop being stored as inventory (for sale outside of the accounting period when production expenses were incurred), we are given a more realistic picture of profitability. The same goes for categories of income and expenses, which indicate benefits or costs associated with items such as outstanding loans, supplies bought in the previous accounting period to be used in the current one. This is further demonstrated by the accrual adjustments made to the previous cash income statement in Figure 2.

Net Farm Income Accrual Adjustments

Farm Name	<i>Smith Family Farms</i>	Year	2019
Accrual Adjustments to Gross Cash Revenue			
Gross Cash Revenue			\$456,000.00
Less: Beginning inventories			-\$50,000.00
Add: Ending inventories			\$60,000.00
Less: Beginning accounts receivable			-\$22,000.00
Add: Ending accounts receivable			\$17,000.00
Gross Revenue with Accrual Adjustments			\$461,000.00
Accrual Adjustments to Total Cash Expenses			
Total Cash Expenses			\$319,002.00
Less: Beginning accounts payable			-\$32,000.00
Add: Ending accounts payable			\$35,000.00
Less: Beginning accrued expenses			-\$2,000.00
Add: Ending accrued expenses			\$3,000.00
Add: Beginning prepaid expenses			\$6,000.00
Less: Ending prepaid expenses			-\$4,000.00
Add: Beginning unused supplies			\$2,000.00
Less: Ending unused supplies			-\$1,000.00
Add: Beginning investment in growing crops			\$25,000.00
Less: Ending investment in growing crops			-\$25,000.00
Add: Beginning machinery depreciation			\$66,000.00
Less: Ending machinery depreciation			-\$72,000.00
Add: Beginning building depreciation			\$14,000.00
Less: Ending building depreciation			-\$11,000.00
Total Expenses with Accrual Adjustments			\$323,002.00
Net Farm Income From Operations			\$137,998.00
Add: Sale of capital assets			\$12,000.00
Less: Purchase of capital assets			-\$17,000.00
Capital Gain (Loss)			-\$5,000.00
Net Farm Income			\$132,998.00

Figure 2. Net Farm Income Accrual Adjustments

Evaluating Your Farm's Performance Using Financial Records

After making accrual adjustments, the producer can analyze key financial ratios using information from the income statement and the balance sheet to analyze the farm's **profitability** and financial efficiency. These financial ratios are discussed below and the formulas for each ratio are located in Appendix B. The ratio formulas and descriptions are as defined by *Fundamentals of Agribusiness Finance* by Ralph W. Battles and Robert C. Thompson, Jr. unless otherwise cited.

Profitability:

The *rate of return on farm assets ratio* is used to measure profitability relative to farm assets. This ratio uses net farm income from operations, which is used to exclude any items on the income statement that would be considered outside of normal, day-to-day operations, such as a gain or loss on capital assets. The farm interest expense is added back in this formula so that the rate of return can be measured on assets regardless of how they were financed. Average total farm assets is calculated from the balance sheet by adding the assets of the previous and current year and then dividing by two.

In contrast, the *rate of return on farm equity ratio* is used to measure profitability relative to farm equity, which is the farm owner's investment. Average total farm equity is calculated from the balance sheet by adding the equity of the previous and current year and then dividing by two.

Finally, the *operating profit margin ratio* shows what percent of gross revenue is earned in the form of pre-interest operating profit. This ratio reflects the farm's ability to generate revenues and control costs.

Financial Efficiency:

The *asset-turnover ratio* measures financial efficiency by showing the farmer how many times per year their assets regenerate their dollar value in the form of sales. A higher *asset-turnover ratio* means that assets are working more efficiently.

The *operating-expense, depreciation-expense, interest-expense* and *net-farm-income-from-operations ratios* measure financial efficiency by comparing the named expense or income category to gross revenue in the form of a percentage. A farmer should expect the *operating-expense, depreciation-expense, and interest-expense ratios* to be relatively low, indicating that the expense categories are a small percentage of gross revenue, while the *net-farm-income-from-operations ratio* should be high. When added together, these four ratios should equal 100% because net farm income from operations plus operating expenses plus depreciation expenses plus interest expenses will be equal to gross revenue.

Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) is a formula

often used by financial analysts to determine the farmer's ability to repay loans.

For Peer Review

However, it can overstate cash available because it ignores capital expenditures, which can be large in some operations.

Figure 3 illustrates strong or vulnerable ratios that a producer can compare to his or her own farm financial ratios. The farm financial ratio standards for Figure 3 are as defined by the *Farm Finance Scorecard* written by K. Becker, D. Kauppila, G. Rogers, R. Parsons, D. Nordquist, and R. Craven.

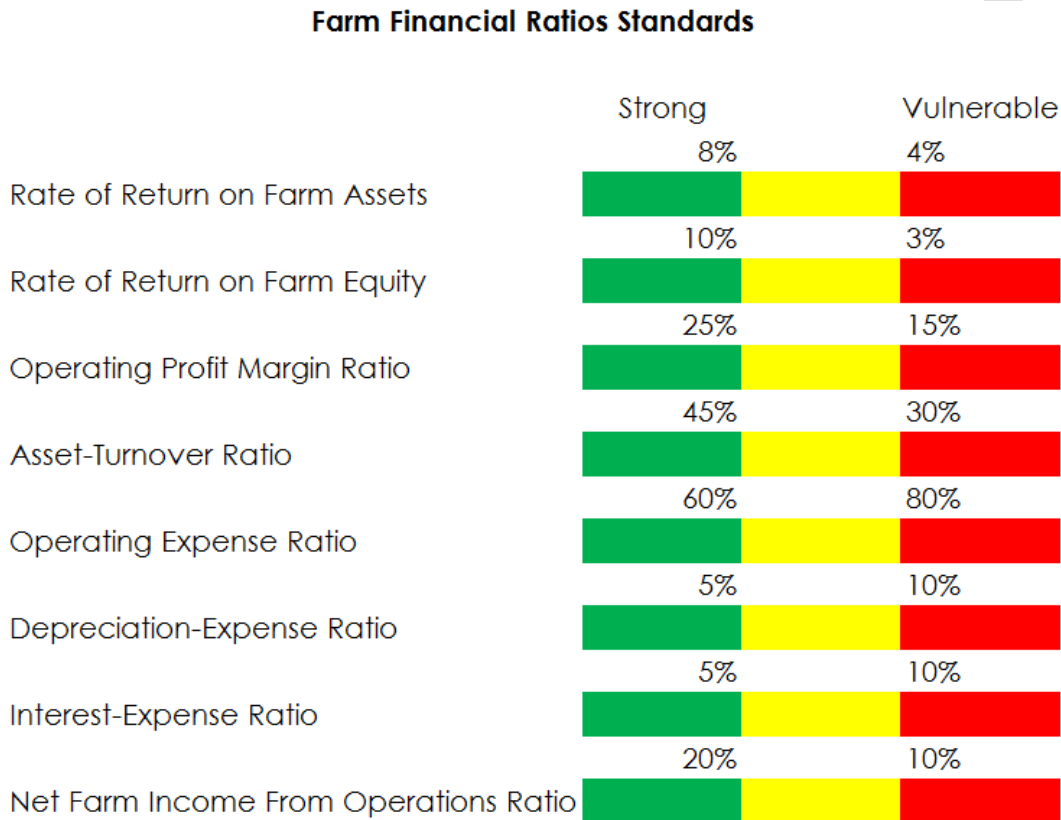


Figure 3. Farm Financial Ratio Standards

Summary and Conclusions

Learning how to keep accurate farm financial records can benefit the producer in a number of ways. Forming an accurate income statement using the accrual method allows the producer to evaluate his or her farm's financial standing, which is information that can be beneficial when seeking out loans or expanding the business. Overall, the farm financial analysis can aid the producer in making management decisions that improve long-term profitability and stability of the farm.

Appendix A:

Terms listed and in-text as defined by *Farm Management, 7th Edition* by Ronald D. Kay, William M. Edwards and Patricia A. Duffy unless otherwise cited.

Account payable – An expense that has been incurred but not yet paid.

Account receivable – Income that has been earned but for which no cash payment has been received.

Accounting period – The period over which accounting transactions are summarized.

Accrual accounting – An accounting system that recognizes income when it is earned and expenses when they are incurred.

Accrued expense – An expense that has been incurred, sometimes accumulating over time, but has not been paid.

Accrued liability – A liability that has been incurred but not yet paid, such as accrued interest.

Balance sheet – A financial report summarizing the assets, liabilities, and equity of a business at a point in time.

Book value – The original cost of an asset minus the total accumulated depreciation expense taken to date.

Capital asset – An asset expected to last through more than one production cycle that can be used to produce other saleable assets or services.

Capital recovery – The annualized equivalent value of the initial investment cost of a capital asset.

Cash accounting – An accounting system that recognizes income when it is actually received and expenses when they are actually paid.

Depreciation – An annual, noncash expense to recognize the amount by which an asset loses value due to use, age, and obsolescence. It also spreads the original cost over the asset's useful life.

Enterprise – An individual crop or type of livestock, such as wheat, dairy, or lettuce. A farm's production plan will often consist of several enterprises.

Enterprise Analysis – An analysis of one individual enterprise, in which a portion of the whole-farm income and expenses are allocated to each enterprise.

Expense – Cost incurred in the process of producing revenue. May be cash or noncash.

Feasibility analysis – An analysis of the cash inflows generated by an investment compared to the cash outflows required.

Gross cash expenses – The cash costs incurred in the process of producing revenue.

Gross cash revenues – The total cash received from the sale of crops, livestock and other farm-related income.

Gross revenue/income – The total income, cash and noncash, received from an enterprise or business, before any expenses are paid.

Income Statement – A report that summarizes the income and expenses and computes the resulting profit of a business over a period of time.

Inventory – The physical quantity and financial value of products produced for sale that have not yet been sold. Farm or ranch examples would be grain in storage, or livestock ready for sale or that could be sold at the time the inventory is taken.

Liquidity – The ability of a business to meet its cash financial obligations as they come due.

Modified Accelerated Cost Recovery System (MACRS) – A system for calculate tax depreciation, as specified by the income tax regulations.

Net cash farm profit or loss – Gross cash revenue minus gross cash expenses.

Net farm income – The difference between total revenue and total expenses, including gain or loss on the sale of all capital assets; also the return to owner equity, unpaid labor, and management.

Net farm income from operations (NFIFO) – The difference between total revenue and total expenses, not including gain or loss on the sale of certain capital assets.

Prepaid expense – A payment made for an input or service prior to the accounting period in which it will be used.

Profitability – The degree or extent to which the value of the income derived from a set of resources exceeds their cost.

Revenue/income – Economic gain resulting from the production of goods and services, including receipts from sale of commodities, other cash payments, increases in inventories, and accounts receivable.

Salvage value – The market value of a depreciable asset at the time it will be sold or removed from service.

Schedule F 1040 – The form used to report farm income and expenses to the IRS (*Schedule F (Form 1040)*).

Solvency – The degree to which the liabilities of a business are backed up by assets; the relationship between debt and equity capital.

Statement of cash flows – A summary of the actual cash inflows and cash outflows experienced by a business during an accounting period.

Straight-line depreciation – A depreciation method that results in an equal amount of depreciation for each year of an asset's useful life.

Useful life – The number of years used to fully depreciate a depreciable asset. May be different than the asset's productive life.

Appendix B:

Farm financial ratio formulas and descriptions are as defined by *Fundamentals of Agribusiness Finance* by Ralph W. Battles and Robert C. Thompson, Jr. unless otherwise cited.

Rate of Return on Farm Assets:

$$\frac{\text{Net Farm Income From Operations} + \text{Farm Interest Expense} - \text{Owner Withdrawals for Unpaid Labor and Management}}{\text{Average Total Farm Assets}}$$

Rate of Return on Farm Equity:

$$\frac{\text{Net Farm Income From Operations} - \text{Owner Withdrawals for Unpaid Labor and Management}}{\text{Average Total Farm Equity}}$$

Operating Profit Margin Ratio:

$$\frac{\text{Net Farm Income From Operations} + \text{Farm Interest Expense} - \text{Owner Withdrawals for Unpaid Labor and Management}}{\text{Gross Revenues}}$$

Asset-Turnover Ratio:

$$\frac{\text{Gross Revenue}}{\text{Average Total Assets}}$$

Operating-Expense Ratio:

$$\frac{\text{Total Operating Expenses} - \text{Owner Withdrawals for Unpaid Labor and Management}}{\text{Gross Revenue}}$$

Depreciation-Expense Ratio:

$$\frac{\text{Depreciation Expense}}{\text{Gross Revenue}}$$

Interest-Expense Ratio:

$$\frac{\text{Total Farm Interest Expense}}{\text{Gross Revenue}}$$

Net Farm Income From Operations Ratio:

$$\frac{\text{Net Farm Income From Operations}}{\text{Gross Revenue}}$$

Earnings Before Interest, Taxes, Depreciation, and Amortization (Kay, R., W. Edwards, P. Duffy):

$$\text{Net Farm Income From Operations} + \text{Interest Expense} + \text{Depreciation and Amortization Expense}$$

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This material is based upon work supported by USDA/NIFA under Award Number: 2015-49200-24228

