

Financial Measures for South Dakota Farms

Jack B. Davis | SDSU Extension Crops Business Management Field Specialist

Farm and ranch businesses have a sizeable investment in equipment, buildings, land, and livestock. These investments require their owners and managers to remain knowledgeable about the financial condition of their business. The information to calculate measures of financial performance can be found in their farm record books or accounting system.

The Farm Financial Standards Council (www.ffsc.org) provides guidelines to help farmers and ranchers evaluate their profitability, debt capacity, and financial risk of their business. The measures offered in this publication are based on those guidelines. Benchmarks used are from the South Dakota Center for Farm and Ranch Management at Mitchell Technical Institute. The areas of financial guidelines commonly measured are liquidity, solvency, repayment capacity, profitability, and financial efficiency.

Liquidity ratios

Liquidity ratios measure the capacity of the business to meet its short-term liabilities, either by using cash or by converting current assets into cash. The current ratioⁱ is current assets divided by current liabilities and has long been a primary test for creditworthiness. A larger current ratio indicates greater protection for short-term creditors. A declining trend can signal problems in liquidity.

Solvency ratios

Solvency ratios measure the extent to which a business is financed by debt. Lenders of long-term funds and equity investors have an interest in solvency ratios. The debt to asset ratio is a way of evaluating the degree of asset financing creditors provide. A higher ratio indicates greater financial risk and lower borrowing capacityⁱⁱ. A ratio of less than 30% is

considered strong.

Repayment Capacity

Coverage ratios predictability to meet recurring obligations. The term debt coverage ratio suggests how solidly the business can cover its contractual fixed debt obligations. If this ratio has declined for multiple years, it is a signal of financial problems. Wide swings in farm income or net margins from year to year should also serve as warning signs that problems may exist. If the farm is expanding or making major capital adjustments it would be prudent to maintain this ratio at 150% or greater.

Profitability ratios

Profitability ratios measure the ability of the business to generate a satisfactory profit. **Return on assets (ROA), return on equity (ROE), operating profit margin (OPM), and net income (NI) are the most commonly used profitability measures.** These ratios are typically a good indicator of management's overall effectiveness. The annual rates of return on total assets and equity capital can be compared to interest rates for loans or rates of return on other investments. The return on assets (ROA) ratio measures the profit-generating capacity of total assets of the business.

It measures the farm's effectiveness in using the available total capital—both debt and equity. The ratio keys in on operations—the effectiveness of resources used in generating a profit. The focus is on how well the assets are being used.

Efficiency ratios

The four efficiency ratios show what percentage of gross revenue went to operating expense, depreciation expense, interest expense, and what percentage

ⁱThe current ratio indicates is a measure of whether a farmer or rancher can pay off their short term liabilities with its current assets. The current ratio is an important liquidity and efficiency ratio because it is a measure of a farmer or ranchers ability to repay their short term debts or liabilities (due within the year).

ⁱⁱThe debt to asset ratio indicates what percentage of the asset is actually owned by the farmer or rancher.

was left for net farm income. These four ratios add to 100%. The asset turnover ratio measures how much gross revenue was generated for each dollar invested in the farm's assets. Low efficiency can be a result of low prices, high operating expenses, production problems, or a combination of the three. The best major enterprises have consistently high efficiency over time.

Using Financial Measures

It is important to calculate financial measures for several years to detect trends and to stay away from making decisions based on an extraordinary year. Historical values for most of the measures are in Tables 1 and 2. The benchmarks are based on data obtained from the **South Dakota Center for Farm and Ranch Management (SDCFRM) at Mitchell Technical Institute**.

The current ratio 7-year average for the high-profit group is 1.97. A strong liquidity position is especially important to help weather the uncertainty of production agriculture. In 2019 the current ratio increased from 1.32 to 1.61 for the average of all farms. This is an improvement and also a trend that needs to be monitored closely and corrective action taken if warranted for individual farms.

Working capital (current assets–current liabilities) is dependent on the size of the business. A good measure of working capital is to compare it to the amount of the farm's annual gross revenue. The 7 year average working capital is 28.3% of gross revenue, down from 31.1% in 2018. The ratio has a range of 16.9% for low return farms and a high of 35.4% for high return farms.

Having a strong liquidity position provides farm and ranch businesses the opportunity to take advantage of unique situations as they arise or to make it through downturns in profitability. Owners and managers will want to take action to ensure they keep a good liquidity position.

Total debt to asset ratio is one of the measures for solvency and has a 7-year average range of 32.0% to 40.7% for farms and ranches enrolled in the SDCFRM Program. A higher ratio indicates greater financial risk and lower borrowing capacity. A ratio of less than 30% is considered strong. It requires high efficiency to service higher debt loads.

The **rate of return** on assets for the program has averaged 2.3% over the past 7 years. The average for all farms has a range of -0.7% to 5.9% over those years. High profit farms average 7.8% (down from 8.6%) while low profit farms have an average of -4.8% (down from -3.5%).

The average rate of return on equity measures how much net income was earned as a percentage of net worth. The return on equity helps measure how efficient the farm is at generating profits for the owner's investment.

A drawback to return on equity is that it does not tell whether or not the business has an excessive amount of debt. A high debt level may result in a higher return on equity

To offer a clearer picture of management's effectiveness it is best to look at ROA and ROE together. If the farm has a strong ROA trend and is carrying a reasonable amount of debt, a strong ROE is an indication that management is doing a good job at creating returns from net worth. When ROA is low and the farm is overloaded with debt, a high ROE can mislead owners into thinking things are better than they actually are.

A useful way to use ROA is to break it into separate components of profit margin and asset turnover. The Du Pont Company used this method to evaluate its divisions in the early 1900s. The Du Pont analysis breaks ROA into profit margin multiplied by asset turnover.

$$\text{ROA} = (\text{Net Income} + \text{Interest Expense} / \text{Sales}) * (\text{Sales} / \text{Total Assets})$$

Where:

$$\begin{aligned} \text{Profit margin} &= \\ &= ((\text{Net Income} + \text{Interest Expense}) / \text{Sales}) \\ \text{Asset Turnover} &= \text{Sales} / \text{Assets} \end{aligned}$$

The operating profit margin is a measure of the operating efficiency of the business. It measures how effective the business is controlling expenses relative to its value of output. A high profit margin indicates good cost control. South Dakota farms taking part in the SDCFRM program seven year average is 7.8% for all farms. High profit farms average is 24.4%, while low profit farms are negative.

The 2019 operating profit margin compared to 2018 is down. Average of all farms is down to 4.5% from 8.0% in 2018, and high return farms are up to 24.7% from 23.5%. Low return farms remain negative at minus 33.3% for 2019 down from minus 25.0% in 2018. With low margins this continues to be critical and will need to be closely monitored.

The profit margin is an income statement ratio and the asset turnover ratio uses information from the balance sheet and income statement.

A high asset turnover ratio demonstrates efficient use of the assets on the balance sheet. Asset turnover ratio has ranged in the 16% to 35% level, with high and low profit farms averaging 32.5% and 20.3%, respectively.

It is important to examine the productivity of assets. Improving efficiency and/or asset turnover increases return on assets.

Consider selling low return assets or improve their productivity.

Different industries have distinctive operating and financial structures. In the heavy capital goods industry the emphasis is on a high profit margin with a low asset turnover. In food processing however, the profit margin is low and the key to satisfactory returns on total assets is a rapid turnover of assets. In production agriculture, a grain or rangeland livestock operation tends to have low asset turnover, especially if the land is owned and valued at current market value. On the other hand, livestock feedlots or dairies may have considerably higher asset turnover and lower profit margin on sales.

Net farm income varies from year to year and is strongly tied to efficiency and size of the business. The net farm income dollar amount is best used as an internal comparison over time.

EBITDA. Earnings before interest, taxes, depreciation and amortization (EBITDA) is calculated as: Net farm income from operations + Interest expense + Depreciation expense + Amortization expense.

EBITDA considers earnings prior to interest, income taxes depreciation and amortization. Analysts often begin with EBITDA as the source of repayment capacity and then compare this to total interest payments or principal and total interest payments in

arriving at a debt coverage ratio. Recurring withdrawals and/or income taxes are often subtracted from EBITDA to arrive at the repayment capacity for commercial analysts.

EBITDA is limited because:

1. There are differences in the computation of EBITDA. An analyst that looks solely to the income statement would miss the removal of Owner withdrawals (net) or proxy for labor and management.
2. This measure is sometimes thought of as cash flow of the business, but it is not.

Operating expense ratios (which exclude interest and depreciation expense) have been in the 70 to 100% range. High profit farms have averaged 70.7% the past seven years while low profit farms have averaged 100.5%. Rented farms tend to have higher ratios than farms with more owned assets as rent and lease payments are included in operating expenses. To improve the operating expense ratio, increase prices through more effective marketing and/or better control of expenses. It is important to closely monitor major expenses, concentrating on the top four or five.

The depreciation expense ratio has been in the 4.8% to 8.9% range since 2013. The interest expense ratio has been in the 3.0% to 7.1% range since 2013. The average net farm income ratio has been in the range of 1.6% (low in 2016) to 13.0% for all farms. The high profit farms have averaged over 19.0 % while low profit farms have been less than -10.0%.

When working with ratios, these rules are important:

- a. Ratio trends must be calculated consistently over time to provide the best information.
- b. The definition of ratio components may differ from analyst to analyst, thus yielding inconsistent results.
- c. Differing accounting policies, overall business size, and maturity of the business impact ratios.
- d. Ratios supplement but do not replace sound business judgment. Individual business ratios are more meaningful when compared to industry statistics and trends. Trade associations are good sources of comparative financial data for specific industry groups.

Table 1. Financial Measures by Year

Financial Measures by Year	2013	2014	2015	2016	2017	2018	2019	2013 to 2019 Average
Liquidity Measures (Dec 31)								
Current Ratio	1.96	1.94	1.71	1.58	1.40	1.32	1.43	1.62
Working Capital	\$400,977	\$417,964	\$328,129	\$251,652	\$166,159	\$160,884	\$224,879	\$278,663
Working Capital per \$ of Gross Revenue	36.0%	36.9%	33.1%	30.3%	21.2%	16.4%	24.4%	28.3%
Solvency Measures (Dec 31)								
Total Debt to Asset Ratio	32.0%	29.0%	31.0%	33.0%	35.0%	42.0%	41.0%	34.7%
Farm Debt to Equity Ratio	47.0%	42.0%	45.0%	50.0%	54.0%	71.0%	69.0%	54.0%
Profitability Measures								
Rate of Return on Assets	5.1%	5.9%	0.7%	-0.7%	1.5%	2.3%	1.1%	2.3%
Rate of Return on Equity	5.7%	6.8%	-1.2%	-3.7%	-0.4%	0.6%	-1.9%	0.8%
Operating Profit Margin	16.9%	19.9%	2.4%	-2.8%	5.5%	8.0%	4.5%	7.8%
Net Farm Income	\$141,973	\$168,631	\$38,898	\$13,408	\$53,708	\$78,075	\$38,536	\$76,176
EBITDA	\$231,391	\$261,435	\$131,976	\$96,385	\$163,077	\$203,829	\$178,617	\$180,959
Efficiency Measures								
Operating Expense Ratio	78.8%	76.9%	86.7%	88.4%	79.2%	79.5%	80.6%	81.4%
Depreciation Expense Ratio	4.8%	5.3%	5.9%	6.4%	8.8%	7.2%	8.9%	6.8%
Interest Expense Ratio	3.4%	3.0%	3.5%	4.3%	5.1%	5.6%	7.1%	4.6%
Net Farm Income Ratio	13.0%	14.8%	3.9%	1.6%	6.9%	7.9%	3.4%	7.4%
Asset Turnover Ratio	100.0%	100.0%	100.0%	100.7%	100.0%	100.2%	100.0%	100.1%
Asset Turnover Ratio	30.0%	29.6%	27.2%	24.3%	27.1%	28.9%	24.2%	27.3%

Sources: South Dakota Center for Farm/Ranch Management Annual Report, Mitchell Technical Institute Farm Business Management Program, SDSU Extension

Table 2. Farm Financial Measures by Profitability (2013-2019 Average)

Farm Financial Measures	Average of All Farms	Profitability	
		High Profit 20%	Low Profit 20%
Liquidity Measures (Dec 31)			
Current Ratio	1.62	1.97	1.31
Working Capital	\$278,663	\$586,123	\$201,291
Working Capital per \$ of Gross Revenue	28.3%	35.4%	16.9%
Solvency Measures (Dec 31)			
Total Debt to Asset Ratio	34.7%	32.0%	40.7%
Profitability Measures			
Rate of Return on Assets	2.3%	7.8%	-4.8%
Rate of Return on Equity	0.8%	10.0%	-12.8%
Operating Profit Margin	7.8%	24.4%	-24.9%
Net Farm Income	\$76,176	\$339,441	\$(154,675)
EBITDA	\$180,959	\$487,485	\$(6,556)
Efficiency Measures			
Operating Expense Ratio	81.4%	70.7%	100.5%
Depreciation Expense Ratio	6.8%	5.7%	8.7%
Interest Expense Ratio	4.6%	3.7%	6.2%
Net Farm Income Ratio	7.4%	19.9%	-14.8%
	100.1%	100.0%	100.6%
Asset Turnover Ratio	27.3%	32.5%	20.3%

Sources: South Dakota Center for Farm/Ranch Management Annual Report, Mitchell Technical Institute Farm Business Management Program, SDSU Extension

The authors would like to acknowledge that data used in this study comes from the members of the South Dakota Center for Farm/Ranch Management Program across the State of South Dakota. Without their cooperation, information as comprehensive and accurate as this would not be available for educational purposes. SDCFRM is dedicated to assist agriculture producers in South Dakota to become better business managers and is available to all farm operators in the state. SDCFRM staff provides individual instruction in methods of farm accounting, farm enterprise recordkeeping, compliance, marketing, decision making, and goal setting. For more information, please contact the South Dakota Center for Farm/Ranch sdcfm@mitchelltech.edu or visit the SDCFRM website at: <https://www.mitchelltech.edu/programs/sdcfrm>.