Doc White’s Quick & Dirty Guide

to Financial Ratios

for Dairy Farms

Agricultural lenders and management consultants use a collection of ratios to analysis the financial condition of the farm. The actual ratios and the associated benchmarks for each ratio will vary significantly throughout North America. The following financial ratios are the ones that are most widely used in the mid-Atlantic region of the US.

The formulas for the ratios in this handout follow the recommendations of the Farm Financial Standards Council (with a few minor changes for cash accounting systems and lack of complete financial information). The benchmarks are geared towards general dairy farms (generally less than 2,000 cows) in the mid-Atlantic region.

Please note that these benchmarks may be significantly different in other regions.

I have used a Green-Yellow-Red light rating system.

* A Green rating indicates a strong ratio with little associated risk.
* A Yellow rating is like the yellow/orange warning lights on your car’s dashboard (“Have this serviced soon”) – it indicates that the farm faces potential risk in that area, but it is not a major concern that has to be fixed immediately.
* A Red rating is like the red warning lights on your car’s dashboard (“Pull Over Immediately!”) – this indicates significant risk for the farm and should be an area that has high priority for the farm manager.

Dr. Alex White

Dairy Science

Virginia Tech

[DocWhite@vt.edu](mailto:DocWhite@vt.edu)

**Liquidity Analysis**

Liquidity is the ability to cover your short-term obligations as they come due,

**without** disrupting the normal operations of the business (ex. selling land or cows).

**Ratio:** Current Ratio

**What it Tells You:** How many dollars of current assets you have that are available to meet all payments/obligations which are due within the next 12 months.

**Example:** Current Ratio = 2.5

Indicates that you have $2.50 in current assets for every $1.00 of current liabilities (payments due within the next 12 months)

**How to Calculate:**

**Procedure**  **Source**

1. Total Current Assets Balance Sheet

2. Total Current Liabilities Balance Sheet

3. Current Ratio

(Line 1 / Line 2)

**What’s Good?:** Generally, the higher the better (safer). But it can be too high! A current ratio that is very high indicates that you have a lot of current assets just sitting around when they could be invested elsewhere more profitably.

Green Light: Greater than 1.5

Many lenders use 1.0 as the minimum ratio. I use 0.8 because dairy farms have steady income throughout the year.

Yellow Light: 0.8 - 1.5

Red Light: Less than 0.8

**How to improve a poor Current Ratio:**

1. Increase Farm Revenues - increase production, better marketing for higher prices

2. Decrease Farm Expenses - look to reduce your top 5 expenses

3. Increase Non-farm Income - second job, spouse gets job

4. Decrease Family Living Withdrawals - Hard to Do!!!

5. Restructure Debt - lengthen payback periods, refinance at lower interest rate

6. Pay down existing debt

7. Sell unneeded intermediate or long-term assets - use the proceeds to pay down existing debt.

8. No new borrowing, either loans, credit cards, or accounts payable!

**Liquidity Analysis**

**Ratio:** Working Capital / Total Expenses

**What it Tells You:** How many dollars of working capital you can access as a percentage of your total expenses. This ratio is a better indicator of liquidity than the Current Ratio because it relates your liquidity to the size of your business.

**Example:** Working Capital / Total Expenses = 25%

Indicates that you have $0.25 in working capital for every $1.00 of total expenses for the year.

**How to Calculate:**

**Procedure**  **Source**

1. Total Current Assets Balance Sheet

2. Total Current Liabilities Balance Sheet

3. Working Capital

(Line 1 - Line 2)

4. Total Expenses Income Statement

5. Working Capital / Total Expenses

(Line 3 / Line 4)

**What’s Good?:** Generally, the higher the better (safer). But it can be too high. A ratio that is very high indicates that you have a lot of current assets just sitting around when they could be invested elsewhere more profitably. A ratio that is low indicates that you might have cash flow problems in the future.

Green Light: Greater than 25%

Yellow Light: 15-25%

Red Light: Less than 15%

**How to improve a poor Working Capital / Total Expenses Ratio:**

1. Increase Farm Revenues - increase production, better marketing for higher prices

2. Decrease Farm Expenses - look to reduce your top 5 expenses

3. Increase Non-farm Income - second job, spouse gets job – and increase your savings

4. Decrease Family Living Withdrawals - Hard to Do!!!

5. Restructure Debt - lengthen payback periods, refinance at lower interest rate

6. Pay down existing debt

7. Sell unneeded intermediate or long-term assets - use the proceeds to pay down existing debt, focusing on operating debt.

8. No new borrowing, either loans, credit cards, or accounts payable

**Solvency Analysis**

Solvency is the ability to cover all your obligations with your farm assets.

If the value of your assets is greater than your total liabilities you are “solvent”.

**Ratio:** Equity/Asset Ratio

**What it Tells You:** How much you have paid (invested) for every dollar of assets you have in your operation.

**Example:** Equity/Asset Ratio = 0.35 or 35 percent

Indicates that you have paid for $0.35 for every $1 of assets you have in your operation. That means you have borrowed $0.65 for every $1 of assets, or your creditors “own” 65 percent of your assets.

**How to Calculate:**

**Procedure**  **Source**

1. Total Net Worth (aka Owner’s Equity) Balance Sheet

2. Total Farm Assets Balance Sheet

3. Equity/Asset Ratio

(Line 1 / Line 2)

**What’s Good?:** Generally, the higher the better (safer).

Green Light: Greater than 70 percent

Yellow Light: 30 - 70 percent

Red Light: Less than 30 percent

**How to improve a poor Debt/Asset Ratio:**

1. Increase Farm Revenues - increase production, better marketing for higher prices

2. Decrease Farm Expenses - look to reduce your top 5 expenses

3. Increase Non-farm Income - second job, spouse gets job

4. Decrease Family Living Withdrawals - Hard to Do!!!

5. Restructure Debt - lengthen payback periods, refinance at lower interest rate

6. Pay down existing debt

7. Sell unneeded intermediate or long term assets - use the proceeds to pay down existing debt.

8. No new borrowing, either loans, credit cards, or accounts payable!

NOTE: Some lenders use the Debt/Asset Ratio or the Leverage Ratio (Debt/Equity) in place of the Equity/Asset Ratio. They provide basically the same information about solvency as the Equity/Asset Ratio – just need to adjust the benchmarks.

**Repayment Analysis**

**Ratio:** Debt Coverage Ratio (aka Term Debt & Lease Coverage Ratio)

**What it Tells You:** The amount of cash generated this year which is available to pay your annual principal and interest payments

**Example:** Debt Coverage Ratio = 1.70 or 170 percent

Indicates that you have generated $1.70 of available cash this year for every $1 of principal and interest payments you will make this year

**How to Calculate:**

**Procedure**  **Source**

1. Net Farm Income Income Statement

2. Plus: Gross Non-Farm Earnings Cash Flow Statement, W-2

3. = Subtotal

4. Plus: Depreciation & Interest Expense Income Statement

5. = Earnings available for Family Living,

Income Taxes, Principal & Interest

Payments, & New Investments

6. Minus: Family Living Withdrawals & Income Taxes Cash Flow Statement

7. = Capacity Available for Principal & Interest

Payments & New Investments

8. Current Principal & Interest Payments, Operating Cash Flow Statement

Interest, and Capital Lease Payments

9. Term Debt & Lease Coverage Ratio

(Line 7 / Line 8)

10. Capital Replacement & Term Debt Repayment Margin

(Line 7 - Line 8)

11. Debt Payment/Income Ratio

(Line 8 / Line 5)

**What’s Good?:** Generally, the higher the better!

Green Light: Greater than 150 percent

Yellow Light: 110 - 150 percent

Red Light: Less than 110 percent

**How to improve a poor Debt Coverage Ratio:**

1. Increase Farm Revenues - increase production, better marketing for higher prices

2. Decrease Farm Expenses - look to reduce your top 5 expenses

3. Increase Non-farm Income - second job, spouse gets job

4. Decrease Income Tax Liability - proper tax management

5. Decrease Family Living Withdrawals - Hard to Do!!!

6. Restructure Debt - lengthen payback periods, refinance at lower interest rate

**Profitability Analysis**

**Ratio:** Rate of Return on Assets (Return on Assets, or ROA)

**What it Tells You:** How many dollars of profit (before interest and taxes) you are earning for every $1 of total assets you have in the operation.

**Example:** ROA = 0.045 or 4.5 percent

Indicates that you are earning profits of $0.045 before interest and taxes for every $1 of total assets in your operation, or each $1 of total assets is generating profits of $0.045 (before interest and taxes).

**How to Calculate:**

**Procedure**  **Source**

1. Net Farm Income Income Statement

2. Plus: Interest Expense Income Statement

3. = Subtotal

4. Minus: Management Fee Cash Flow Statement or

Family Living Expense

5. = Return to Assets

6. Total Farm Assets Balance Sheet

7. Rate of Return on Assets (ROA)

(Line 5 / Line 6)

**What’s Good?:** Generally, the higher the better.

Green Light: Greater than 8 percent

Yellow Light: 3 - 8 percent

Red Light: Less than 3 percent (long-term rate of inflation)

You want ROA to be greater than your weighted average cost of capital (WACC). Roughly speaking, you want ROA to be greater than your average interest rates (APR) on loans.

**How to improve a poor Rate of Return on Assets:**

1. Increase Farm Revenues - increase production, better marketing for higher prices

2. Decrease Farm Expenses - look to reduce your top 5 expenses

3. Sell unneeded intermediate or long-term assets - consider leasing, borrowing, or co- owning certain pieces of equipment

Note: Some lenders use Average Farm Assets in place of Total Farm Assets. Average Farm Assets is the average of Total Farm Assets from the beginning of the year and Total Farm Assets from the end of the year.

**Financial Efficiency Analysis**

**Ratio:** Operating Expense / Receipt Ratio (Operating Expense Ratio)

**What it Tells You:** How much cash you are spending in operating expenses to generate $1 of revenue.

**Example:** Operating Expense Ratio = 0.75 or 75 percent

Indicates that you are spending $0.75 in operating expenses to generate $1 of revenue.

**How to Calculate:**

**Procedure**  **Source**

1. Total Farm Expenses Income Statement

2. Minus: Interest Expense Income Statement

3. Minus: Depreciation Expense Income Statement

4. = Total Cash Operating Expenses

5. Gross Farm Revenues Income Statement

6. Operating Expense/Receipt Ratio

(Line 4 / Line 5)

**What’s Good?:** Generally, the lower the better.

Green Light: Less than 70 percent Some use 65% for the cut-off

Yellow Light: 70 - 80 percent Some use 85% for the cut-off

Red Light: Greater than 80 percent

**How to improve a poor Operating Expense/Receipt Ratio:**

1. Increase Farm Revenues - increase production, better marketing for higher prices

2. Decrease Farm Expenses - look to reduce your top 5 expenses

3. Improve Cost Control - examine your record keeping system

**Financial Efficiency Analysis**

**Ratio:** Total Revenues / Total Assets Ratio (Capital Turnover Ratio)

**What it Tells You:** How much sales revenues you are generating from your assets.

**Example:** Total Revenues / Total Assets Ratio = 0.75 or 75 percent

Indicates that you are generating $0.75 in sales revenues for every $1 of assets in your business.

**How to Calculate:**

**Procedure**  **Source**

1. Total Farm Revenues Income Statement

2. Total Farm Assets Balance Sheet

3. Total Revenues / Total Assets Ratio

(Line 1 / Line 2)

**What’s Good?:** Generally, the higher the better.

Green Light: Greater than 40 percent

Yellow Light: 20-40 percent Some use 15% as the cut-off

Red Light: Less than 20 percent

**How to improve a poor Total Revenues/Total Assets Ratio:**

1. Increase Farm Revenues - increase production, better marketing for higher prices

2. Decrease Farm Assets – get rid of under-used or unused assets

- Doc White’s “Bird Poop Principle” – if a piece of equipment has too much bird poop on it, it isn’t being used enough - get rid of it

3. Lease seldom-used assets as possible

4. Co-own, share, or borrow equipment from neighbors, family, etc.