Ratios: Formulas and Descriptions

Document #:	3182	Product:	CenterPoint®

The Ratio module allows owners and managers the ability to track the overall financial condition of their operations over a period of time. In this topic we have included a list of all the Ratios included in the module. The list also includes a description of each and details the formula used to prepare the ratio. Please refer to the *Using Ratios* document for step-by-step instructions on how to prepare a ratio for your business.

Farm Financial Standards Council

The Farm Financial Standards Council represents a forum for identification, discussion and resolution of issues regarding both financial reporting and the measurement of financial position and financial performance. The Farm Financial Standard Council (FFSC) financial ratios are a comparison using two elements of financial data.

The FFSC ratios can be calculated using:

- Cash or Accrual transaction activity on the income, expenses, and cost of goods accounts (Transaction Data).
- Book or Market Values on assets,inventories, liabilities, and owner's equity (Balance Sheet Data).

The components of each ratio can be displayed by clicking the plus sign to the left of the ratio group, ratio measurement, and ratio. If you click the plus sign to the left of a component or double-click on the component, a list of the account categories in the component displays. You can view the information for each component or account category in the same format you selected to view the ratio. To view multiple account categories at the same time, select the first account category and then hold the CTRL key while you select the other account categories you wish to view.

Each ratio and index calculated has an accompanying explanation to help you interpret the information. The explanation can be viewed by clicking the **Formula/Description** button at the bottom of the Ratio screen.

Recommended Financial Ratios

- **Liquidity -** measures the ability to meet financial obligations as they come due in the ordinary course of business, without disrupting the normal operations of the business.
  - **Current Ratio:** This ratio (usually expressed as XX:1) indicates the extent to which current farm assets, if liquidated, would cover current farm liabilities. The higher the ratio, the greater the liquidity. ***Total Current Farm Assets divided by Total Current Farm Liabilities***.
  - **Working Capital as % of Gross Revenue Ratio:** Working Capital measures the adequacy of the business to meet current obligations due with orderly liquidation of current assets. Working Capital is computed as Current Assets - Current Liabilities. Working Capital divided by Gross Revenues gives a relationship of Working Capital to the size of the farm business. This ratio can be used to illustrate the impact of the significant shifts in Gross Revenue and how a shortfall can impact working capital adequacy. The higher the ratio the greater the liquidity. ***Working Capital divided by Gross Revenues***.
- **Solvency -** measures the amount of borrowed capital (or debt), leasing commitments and other unpaid expense obligations used by a producer in relation to the amount of owner equity invested in the business. Debt capital is interest-bearing and/or has a date which debt must be paid. Therefore, solvency measures provide (a) an indication of the producer's ability to repay all financial obligations if all assets were sold (for the prices indicated), and (b) an indication of the ability to continue operations as a viable business upon experiencing various financial adversities (e.g., drought, market collapse, expense overrun) which typically results in increased debt or reduced equity.

This documentation is for informational purposes only. For specific accounting guidance, please contact your accountant.

- **Liabilities to Assets Ratio:** This ratio is a measure of financial resiliency. The Liabilities / Assets Ratio (aka debt / asset ratio) compares total farm liabilities owed against the value of total farm assets. This ratio expresses what proportion of the total farm assets is owed to creditors. In other words, it is the creditor's claims against the assets of a business. The ratio is one way to express the financial leverage of the farm business. It can be calculated using either the cost or market value approach to value farm assets. If the market value approach is used to value farm capital/noncurrent assets, then the Estimated Income Taxes with respect to the market value of these assets should be included as liabilities. The higher the ratio, the greater the financial leverage of the farm business. **Market Basis: Total Business Liabilities and Estimated Income Tax / Total Business Assets.** Cost Basis (Accrual): Total Business Liabilities / Total Business Assets

- **Profitability -** measures the extent to which a producer generates a profit from the use of land, labor, management and capital.
  - **Rate of Return on Assets:** This ratio measures the rate of return on business assets and is often used as an overall index of profitability. The higher the value, the more profitable the farming operation. The numerator begins with Income from Operations, which is a subtotal on the Income Statement before Interest Expense is deducted because ROA measures the return to all capital (both debt and equity). ***(Income from Operations - Owner Withdrawals for Unpaid Labor and Management) divided by Average Total BusinessAssets***.
  - **Rate of Return on Equity**: This ratio measures the rate of return on equity capital employed in the farm business. The higher the value of the ratio, the more profitable the farming operation. **(Income from Operations - Total Interest Expense - Owner Withdrawals for Unpaid Labor and Management) / Average Total Business Net Worth)**.
  - **Operating Profit Margin Ratio:** This ratio measures profitability in terms of return per dollar of gross revenue. A farm business has two ways to increase profits - either by increasing the profit per unit produced or by increasing the volume of production (if the business is profitable). A relationship exists between the rate of return on farm assets, the asset turnover ratio, and the operating profit margin ratio. If the asset turnover ratio is multiplied by the operating profit margin ratio, the result is the rate of return on assets. This relationship holds only (i) when gross revenue is used to calculate both operating profit margin and asset turnover or (ii) when the value of farm production is used to calculate both measures. ***(Income from Operations - Owner Withdrawals for Unpaid Labor and Management) divided by Gross Revenues***.
  - **Asset Turnover Ratio:** The asset turnover ratio is a measure of how efficiently farm assets are being used to generate revenue. A farm business has two ways to increase profits - either by increasing the profit per unit produced or by increasing the volume of production (if the business is profitable). A relationship exists between the rate of return on farm assets, the asset turnover ratio, and the operating profit margin ratio. If the asset turnover ratio is multiplied by the operating profit margin ratio, the result is the rate of return on farm assets. Consequently, the same asset valuation approach should be used to calculate the asset turnover ratio as is used to calculate the rate of return on farm assets. The higher the ratio, the more efficiently assets are being used to generate revenue. The relationship holds only (i) when gross revenue is used to calculate both operating profit margin and asset turnover or (ii) when the value of the farm production is used to calculate both measures.***Gross Revenues divided by Average Total Farm Assets***.
- **Repayment and Replacement Capacity** - measures the ability of a borrower to repay term debt and interest, as well as replace capital from farm and non-farm income. Principal payments on term or non-current debt come from net income (with depreciation added back) after owner withdrawals, income taxes, and Social Security taxes.
  - **Debt Coverage Ratio:** The ratio provides a measure of the ability of the borrower to cover all current interest expenses and scheduled term debt and finance lease payments before the acquisition of unfunded capital replacement assets. The greater the ratio, over 1:1, the greater the margin to cover the payments. **(Income from Operations +/- Total Miscellaneous Revenues/Expense + Total Non-Farm Income +**

Depreciation/Amortization Expense - Total Income Tax Expense - Owner Withdrawals (total)) / (Prior Year Current Portion of Long-Term Debt (CPLTD) + Prior Year Current Portion of Finance Leases +Interest Expense on Term Debt + Interest Expense On Finance Leases + Interest Expense on Current Debt + Payment on Unpaid Operating Debt from Prior Period (loss carryover) = Total Annual Payments on Personal Liabilities (if not in withdrawals)).

- **Replacement Coverage Ratio (See Term Debt and Finance Lease Coverage Ratio)** - The ratio provides a measure of the ability of the borrower to cover all current interest expenses and scheduled term debt and finance lease payments and recurring unfunded capital replacement assets. The greater the ratio, over 1:1, the greater the margin to cover the payments. **(Income from Operations =/- Total Miscellaneous Revenues/Expense + Total Non-Farm Income + Depreciation/Amortization Expense - Total Income Tax Expense - Owner Withdrawals (total)) / (Prior Year Current Portion of Long-Term Debt (CPLTD) + Prior Year Current Portion of Finance Leases +Interest Expense on Term Debt + Interest Expense On Finance Leases + Interest Expense on Current Debt + Payment on Unpaid Operating Debt from Prior Period (loss carryover) = Total Annual Payments on Personal Liabilities (if not withdrawals))**.

- **Financial Efficiency** - measures the intensity with which a producer uses the assets to generate gross revenues and the effectiveness of productions, purchasing, pricing, financing and market decisions.
  - **Operating Expense Ratio:** This ratio reflects the relationship of all operating expenses to gross revenue***. (Total Operating Expenses - Depreciation Expense - Amortization Expense) / Gross Revenues***.
  - **Depreciation/Amortization Expense Ratio:** This ratio reflects the relationship of depreciation and amortization expense to gross revenues. **(Depreciation Expense + Amortization Expense) / Gross Revenues.**
  - **Interest Expense Ratio:** This ratio reflects the relationship of interest expense to gross revenues. **Total Farm Interest Expense / Gross Revenues**.
  - **Income From Operations Ratio:** This ratio reflects the relationship of income from operations to gross revenues. ***(Income from Operations - Total Interest Expense) divided by Gross Revenues***.

Alternative Financial Ratios

- **Liquidity** -measures the ability to meet financial obligations as they come due in the ordinary course of business, without disrupting the normal operations of the business.
  - **Working Capital as % of Operating Expense:** Working Capital / Operating Expenses gives a relationship of the Working Capital to the amount of Operating Expenses for the business. The higher the ratio the greater the liquidity**.** Because Working Capital is generally used to fund farm operating expenses this alternative approach to the calculation of liquidity may be helpful in some circumstances. However, comparison of the two approaches has show Working Capital / Gross Revenues to be a more conservative liquidity metric. This is an acceptable alternative for the Working Capital as % of Gross Revenue Ratio. **Working Capital / (Total Operating Expenses - Depreciation Expense - Amortization Expense).**

- **Solvency** -measures the amount of borrowed capital (or debt), leasing commitments and other unpaid expense obligations used by a producer in relation to the amount of owner equity invested in the business. Debt capital is interest-bearing and/or has a date which debt must be paid. Therefore, solvency measures provide (a) an indication of the producer's ability to repay all financial obligations if all assets were sold (for the prices indicated), and (b) an indication of the ability to continue operations as a viable business upon experiencing various financial adversities (e.g., drought, market collapse, expense overrun) which typically results in increased debt or reduced equity.
  - **Equity/Asset Ratio:**This ratio is a measure of financial position. Specifically, it measures the proportion of total farm assets financed by the owner's equity capital. In other words, it is the owner's claims against the assets of a business. This ratio can be calculated using either the cost or market value approach to value farm assets. If the market value approach is used to value farm assets, then the deferred taxes with respect to the assets should be included as liabilities. The higher the value of the ratio, the more total capital has been supplied by the owner(s) and less by the creditors. **Market Value: Total Business Net Worth / Total Business Assets. Cost Value: Total Business Owner Equity / Total Business Assets.**

- **Liabilities to Equity Ratio:**This ratio is a measure of financial position and reflects the extent to which farm liabilities are being combined with farm equity capital. It can be calculated using either the cost or market value approach to value farm assets. If the market value approach is used to value farm assets, then the deferred taxes with respect to the assets should be included as liabilities. The higher the value of the ratio, the more total capital has been supplied by the creditors and less by the owner(s). **Market Value: Total Business Liabilities and Estimated Income Tax / Farm Business Equity. Cost Value: Total Business Liabilities / Farm Business Equity.**

- **Repayment and Replacement Capacity** - measures the ability of a borrower to repay term debt and interest, as well as replace capital from farm and non-farm income. Principal payments on term or non-current debt come from net income (with depreciation added back) after owner withdrawals, income taxes, and Social Security taxes..

  - **Term Debt and Finance Lease Coverage Ratio:** The ratio provides a measure of the ability of the borrower to cover all term debt and finance lease payments. The greater the ratio over 1:1, the greater the margin to cover the payments. This is an acceptable alternative to the Debt and Finance Lease Coverage Ratio. **(Income +or - Total miscellaneous revenues/expenses + Total non-farm income + Depreciation/amortization expense + Interest on term debt + Interest on capital leases - Total income tax expense - Owner withdrawals(Total)) / Total principal and interest on term debt.**

Other Performance Measures.

- **Income Before Income Taxes (Net Farm Income, Accrual):** Income before Income Tax (Net Farm Income), is calculated by matching revenues with expenses incurred to create those revenues, plus the gain or loss on the sale of business assets, but before taxes. This subtotal is commonly referred to as NFI. NFI is the return to the farmer for unpaid labor, management, and owner equity.
- **Income Before Income Tax (Net Farm Income)** Income before Income Tax (net Farm Income), is calculated by matching revenues with expenses incurred to create those revenues, plus the gain or loss on the sale of business assets, but before taxes. This subtotal is commonly referred to as NFI. NFI is the return to the farmer for unpaid labor, management, and owner equity.
- **EBITDA:** Earnings before interest, taxes, depreciation and amortization (EBITDA). EBITDA considers earnings prior to interest. income taxes, depreciation and amortization. EBITDA considers earnings prior to interest. income taxes, depreciation and amortization. Commercial analysts often begin with EBITDA as the source of repayment capacity and then compare this to total interest payments or principal and interest payments in arriving at a debt coverage ratio. Recurring withdrawls and/or income taxes are often subtracted from EBITDA to arrive at the repayment capacity for commercial analysts. ***Income from Operations + Depreciation Expense + Amortization expense***.
- **Working Capital At Book Value:** Working capital is a theoretical measure of the amount of funds available to purchase inputs and inventory items after the sale of current farm assets and payment of all current farm liabilities. The amount of working capital considered adequate must be related to the size of the farm business. **Total Current Farm Assets minus Total Current Farm Liabilities .**

Ferguson System Indicators

The Ferguson ratios and indexes were developed and refined by Mr. Roy Ferguson, President and founder of the Ferguson Group (Tulsa), LTD. The ratios and indexes have been tested on virtually every type of agricultural production.

The components of each ratio can be displayed by clicking the plus sign to the left of the ratio or by double-clicking on the ratio. If you click the plus sign to the left of component or double-click on the component, a list of the account categories in the component displays. You can view the information for each component or account category in the same format you selected to view the ratio. To view multiple account categories at the same time, select the first account category and then hold the CTRL key while you select the other account categories you wish to view.

Each ratio and index calculated has an accompanying explanation to help you interpret the information. The explanation can be viewed by clicking the **Formula/Description** button at the bottom of the Ratio screen.

- **Gross Profit on Cash Revenue Index:** The percentage index measures the fundamental cash profitability of a business. Long term inability to exceed a 20% index indicates serious questions regarding the business existing structure except for enterprises that maintain extremely stable price, cost, and income histories and thus can usually survive with 10% GPOCR margins. Soundly managed beef feedlots, dairies, caged layers, and broiler-growing operations would represent examples of these types of enterprises. ***Total Cash Revenue (not including off farm income, and gains or losses on capital sales) - Total Cash Expense (not including depreciation/depletion, and income taxes) / Total Cash Revenue***.
- **Return on Investment at Book Value Index:** This percentage index measures the return on actual cash invested in a business less depreciation but without any consideration of inflation or "going business" value. Sustained percentages below a total of the prevailing twelve-month interest rate for certificates of deposit plus current inflation rate indicate that percentages are not attractive on a long-term basis. ***After-Tax Cash Profit divided by The Dollar Sum of Total Assets at Book Value***.
- **Return on Investment at Fair Market Value Index:** Sustained percentages below the prevailing twelve-month interest rate for certificates of deposit suggest that conversion into cash should be considered unless probable inflation rate exceeds the interest return from bank certificates of deposit or Treasury Bills. ***After-Tax Profit / The Dollar Sum of Total Assets at Fair Market Value***.
- **Unleveraged Return On Investment Index:** Unleveraged Return On Investment constitutes a true test of a business' earning power. Both income taxes and interest expense often reflect management strategies designed to eliminate taxable income and maximize leveraging through borrowed capital. Properly structured agricultural businesses should exhibit UROI index above 25%, with 20% an absolute minimum. Sustained indices below 15% also indicate that excessive interest rate has not been an important factor in the business' poor profitability. ***Pre-tax Profit + Interest Paid divided by The Dollar Sum of Total Assets at Book Value***.
- **Return on Equity At Book Value Index:** The percentage index measures the earning power of actual cash involved in the book value ownership above debt in a business. ***Pre-tax Profit divided by The Dollar Sum of Ownership Equity at Book Value***.
- **Return on Equity At Fair Market Value Index**: The percentage index measures the earning power of ownership's current market value above debt in a business. ***Pre-tax Profit divided by The Dollar Sum of Net Worth at Fair Market Value***.
- **Sales to Fixed Assets At Book Value Index:** Sales To Fixed Assets At Book Value ranks as one of the most basic and strategically important financial performance indicators in the Ferguson System. Maintaining appropriate index values is an inviolate requirement for financial equilibrium. ***Total Cash Sales divided by The Dollar Sum of Total Fixed Assets, not Including Breeding Stock, at Cost or Basis Less Cumulative Depreciation***.
- **Sales to Fixed Assets At Fair Market Value Index:** Sales To Fixed Assets At Fair Market Value should normally receive much less attention than the same index at book value. The reason is that book value measures relationships to actual capital invested and present in the business. Sales To Fixed Assets At Fair Market Value indices become more important when book values associated with land reflect acquisitions at extremely low prices that do not even remotely represent the most recent fifteen years' economic conditions. ***Total cash sales divided by The Dollar Sum of Total Fixed Assets, not Including Breeding Stock, at Fair Market Value***.
- **Sales Growth To Fixed Assets Growth At Book Value Ratio:** This ratio is critically important in expansion or acquisition situations, yet is often ignored by agricultural borrowers, lenders, and analysts. These guidelines presume 1) 100% ownership of all fixed assets and 2) 15-16% Interest Expense as a Percentage of Total Revenue index. Proportionate adjustments of each guideline must be calculated to reflect the percentage dollar share of fixed assets that are rented as well as interest expense above or below a 15% index. ***The ratio of the cumulative increase in total cash sales for a specific time***

period to the cumulative increase in the dollar sum of total fixed assets, not including breeding stock, at book value for the same time period.

- **Sales To Inventory And Breeding Stock At Fair Market Value:** Ranks as one of the most basic and strategically crucial financial performance indicators. Maintaining effective index values is another inviolate requirement for sustained financial equilibrium. ***Total Cash Sales divided by The Dollar Sum of Total Inventory and Breeding Stock at Fair Market Value***.
- **Sales Growth To Inventory And Breeding Stock At Fair Market Value:** Ratio of the cumulative increase in total cash sales for a specific time period to the cumulative increase of the dollar sum of total inventory and breeding stock at fair market value for the same time period.
- **Sales Growth To Total Assets At Book Value Ratio:** Operations maintaining negligible inventory values should find a multi- year comparison of Sales Growth To Total Assets Growth to be extremely helpful in revealing how efficiently new capital is being deployed. ***The ratio of the cumulative increase in total cash sales during a specific period of time to the increase in the dollar sum of the total assets at book value for the same time period***.
- **Sales To Labor Index:** Labor utilization on diversified farms and ranches is generally considered to be within reasonable levels at indices of $11 to $14 and excellent above $16.50. A parallel guideline is 5-9% of total cash sales. ***Total Cash Sales divided by Total Dollars of Labor and Benefits Expense for the Same Period of Time***.
- **Sales To Management Index:** Management expense on diversified farms and ranches having total cash sales of $500,000 or more annually is generally considered to be within optimal levels at indices of $17-$25. A parallel guideline is 4-6% of total cash sales. ***Total Cash Sales divided by Total Dollars of Compensation and Benefits, including family living, paid to ownership and/or management for services of all types rendered to the business during the same period of time***.
- **Sales Growth To Expense Growth Ratio:** Ranks among the most crucial of all financial performance measurements. Sales growth should exceed expense growth by 10% to achieve a 10% Gross profit on Cash Revenue and by 20% to achieve a 20% GPOCR. ***Ratio of the cumulative increase in total cash sales throughout a specific period to the cumulative increase in total cash expense for the same time period***.
- **Sales Added Per Dollar Of New Debt Ratio:** The sales added index should also be at least 11% greater than the expense added index to earn 10% Gross Profit On Cash Revenue, as well as 25% greater than the expense added index to earn 20% Gross Profit On Cash Revenue. ***The Dollar Amount of Additional Cash Sales Created During a Period divided by The Dollar Sum of New Debt Assumed During the Same Period***.
- **Expense Added Per Dollar Of New Debt Ratio:** The Expense Added Per Dollar Of New Debt index must not exceed 90% of the corresponding Sales Added Per Dollar Of New Debt index in order to sustain realistic prospects for earning 10% Gross Profit On Cash Revenue. The expense index should also not exceed 80% of the parallel sales index for a 20% Gross Profit On Cash Revenue. ***The Dollar Amount of New Cash Expense Created During a Specific Time Period divided by The Dollar Sum of New Debt Incurred During the Same Time Period***.
- **Asset Turnover Index:** Asset Turnover Index reveals the relative efficiency by which actual capital invested in the business turns over each year via sales. ***Total Cash Revenue not Including Gains or Losses on Sales of Capital Items + Personal Withdrawals - Personal Contributions divided by Total Assets at Book Value***.
- **Percentage Equity At Book Value Index:** Percentage Equity At Book Value is not commonly reported by agricultural businesses. The index can be an important covenant in long term agreements, particularly with insurance companies and venture capital sources. Some lenders require a minimum of 25-40%. ***Owners' Dollar Sum of Equity at Book Value divided by The Net Depreciated Dollar Sum of Total Assets at Book Value***.
- **Percentage Equity At Fair Market Value Index:** Many long term lenders require a minimum of 25-40%. Local banks often insist on 40-60%. Percentage requirements normally increase during periods of national

economic deflation or weak industry profitability. ***Owners' Dollar Sum of Net Worth at Fair Market Value divided by The Dollar Sum of Total Assets at Fair Market Value***.

- **Assets To Liabilities At Book Value Ratio:** Assets To Liabilities At Book Value is not a widely used financial measurement in agriculture, although some lenders do require minimum ratios of 1.33:1.00 up to 1.66:1.00. ***The Ratio of the Dollar Sum of the Total Assets at Book Value divided by The Dollar Sum of Total Liabilities***.
- **Assets To Liabilities At Fair Market Value Ratio:** Many long term lenders require a minimum of 1.22:1.00 to 1.66:1.00. Banks often require 1.66:1.00 to 2.00:1.00. ***The Ratio of the Dollar Sum of the Total Assets at Fair Market Value divided by The Dollar Sum of Total Liabilities***.
- **Current Ratio:** Many long term agricultural lenders require a minimum ratio between 1.25:1.00 and 1.75:1.00. Banks traditionally have insisted on 1.50:1.00 to 2.00:1.00. Deteriorating Current Ratio values are correctly viewed by lenders as fundamental danger signals for any type of business. Borrowers should not permit values to drop below their lending institution's policy guidelines. In no circumstance, however, should grain and hay producers permit the Current Ratio to decline below 1.20:1.00 or livestock operations below 1.40:1.00 at any time of the year. ***The Dollar Sum of Total Current Assets at Fair Market Value divided by The Dollar Sum of the Total Current Liabilities***.
- **Liquidity Index:** Many long term agricultural lenders require a minimum ratios between 125% and 175%. Banks traditionally have insisted on 150% to 200%. A percentage below 100% indicates technical insolvency because insufficient current assets exist to repay the current liabilities. Irrespective of the policies of a lender, owners of crop farms should never permit liquidity to decline below a 120% index or livestock and poultry operations below 140%. ***The Percentage Relationship of the Dollar Sum of Total Current Assets at Fair Market Value divided by The Dollar Sum of Total Current Liabilities***.
- **Current Liabilities Percentage Of Total Revenue Index:** Current Liabilities Percentage Of Total Revenue Index is another critically important yet most often abused financial measurement in commercial agriculture. Few operations should exceed the index remaining after long-term debt payment requirements are subtracted from after-tax cash flow. ***The Percentage Relationship between the Dollar Sum of Current Liabilities / Dollar Sum of Total Revenue***.

- **Debt To Equity At Book Value Ratio:** A ratio in which the numerical representation for total debt exceeds the whole number 1.00, as in 1.26:1.00, signifies that the business is leveraged more than 50% at book value. While debt as a stand-alone factor is not a reliable determinant of current or future profitability, inherent risk of accompanying business weakness mounts as liabilities climb. Interest expense itself increases in direct proportion to greater debt. Additional principal payment requirements also place greater pressure on cash flow. ***The Dollar Sum of Total Debt to the Dollar Sum of Ownership Equity at Book Value***.
- **Debt To Equity At Fair Market Value Ratio:** A ratio in which the numerical representation for total debt exceeds the whole number 1.00, as in 1.26:1.00, signifies that the business is leveraged more than 50% at fair market value. Linking consistent profitability with substantial leveraging requires attractive Gross Profit On Cash Revenue margins coupled with strong Asset Turnover Index values. Much too often agricultural businesses with high debt loads are also burdened with low profitability and weak Asset Turnover Indices. Disaster is a virtual certainty in those instances unless major corrections are made. ***The Ratio of the Dollar Sum of Total Debt to the Dollar Sum of Ownership Equity at Fair Market Value***.

- **Current Debt To Long Term Debt Ratio:** The significant market price volatility of commercial agriculture suggest that current liabilities should not exceed a 1.00:2.00 Current Debt To Long Term Debt ratio in large debt situations that do not have a strong liquidity as an offsetting reinforcement. ***The Ratio of the Dollar Sum of Total Current Liabilities to the Dollar Sum of the Long-Term Liabilities***.
- **Debt Added Per Dollar Of New Sales Ratio:** Weak performance in this index often triggers serious financial stress for business ownership and management. ***The Amount of Additional Total Debt Incurred during a Specific Time Period to Produce One Dollar of Additional Total Cash Sales during the Same Time Period***.
- **Interest Expense Percentage Of Pre-Tax Profit Index:** Achieving consistently attractive profitability becomes increasingly unlikely to difficult on farms and ranches as indices climb above 100%. ***Total Dollars of Interest Expense Paid During the Period / The Sum of Taxable Profit for the Same Period***.

- **Interest Expense Percentage Of Total Revenue Index:** Maintaining an optimal Interest Expense Percentage Of Total Revenue is another inviolate financial requirement for achieving attractive profitability on a consistent basis. Indices above 15% usually restrict prospects of attractive profitability in agriculture. ***Total Dollars of Interest Expense Paid for the Period divided by The Sum of Total Cash Revenue for the Same Period***.
- **Interest Expense Percentage Of Total Expense Index:** Traditional views during 1960-75 considered Interest Expense Percentage Of Total Expense indices of 12-14% to be maximal limits. As indices move above 20% prospects for satisfactory profitability on farms and ranches should be expected to decrease correspondingly. ***Total Dollars of Interest Expense Paid for the Period / The Sum of Total Cash Expense for the Same Period***.
- **Debt Payment Index:** Most nonvolatile businesses should not exceed a 25% index. Agricultural firms should generally not maintain an index above 20% if appreciable income variability and weather or disease risks are present. Operations having indicies below 15% seldom experience problems meeting debt repatriation requirements. ***Total Dollars of Both Debt Principal and Interest Payments Required Annually / The Sum of Total Revenue***.