

# Farm business analysis can be divided into the following:

- 1 **Enterprise Analysis.** Often important to estimate profitability of individual enterprises.
- 2 **Financial.** Focuses on capital position of the business. Includes solvency, liquidity, and changes in net worth.
- 3 **Profitability.** Analyzed by comparing income and expenses. Short-term profitability measured by net farm income. Long-term profitability measured by return on assets.

## **Efficiency of Production and of Input Use**

- Refers to measures of biological parameters.**
- Measures of the efficiency of input use.**
- These should be used as assumptions in the business plan as a basis for the financial analyses in the plan.**
- Once in business, the farm manager should re-calculate these and review these each year to make comparisons on farm performance from year to year.**

# Biological Parameters

- **Gross yield (kg/ha)**
- **Net yield (kg/ha)**
- **Survival**
- **Growth (g/day)**
- **Average size of fish**
- **Weight of marketable products**

# Efficiency of Input Use

- **Feed conversion ratio**
- **Fish production per worker**
- **Fish production per dollar of working capital**
- **Fish production per 1,000 fingerlings stocked**

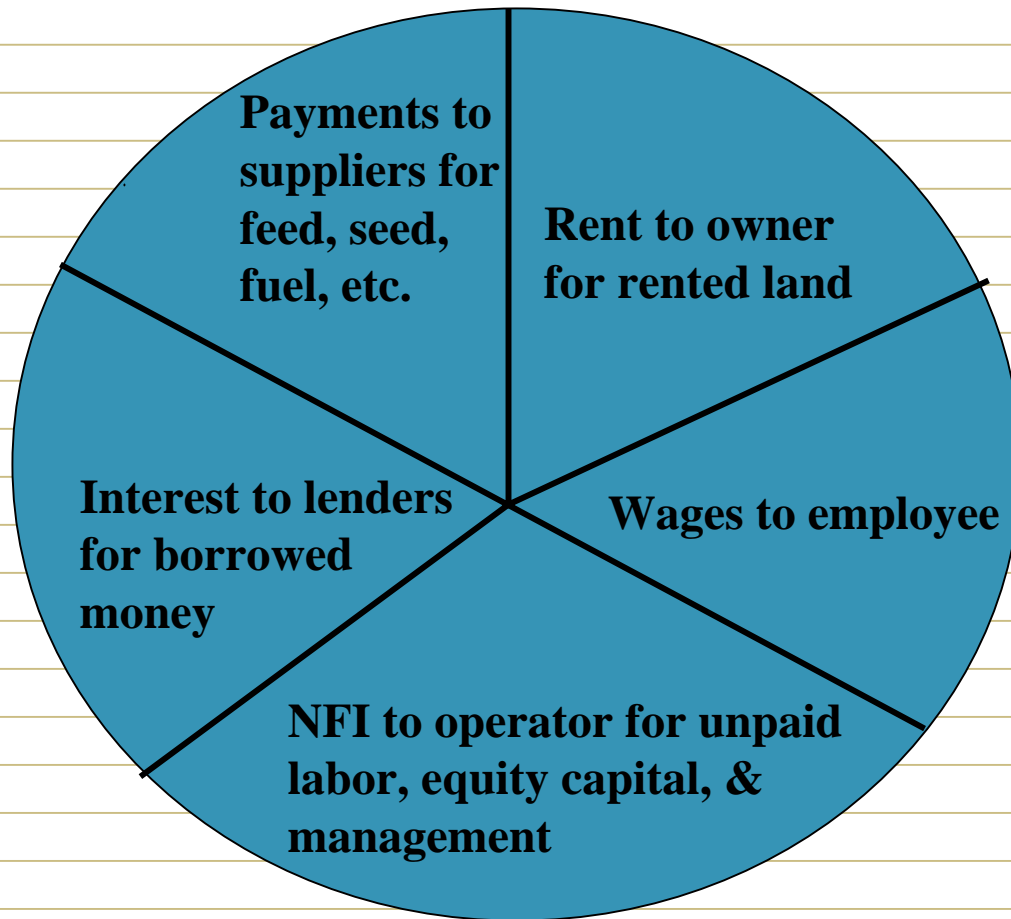
# Profitability Measures

- **Profitability = Total revenues - total costs**
- **A business that is both solvent and liquid will not necessarily be profitable.**
- **Farm profits are measured from the Income Statement**

# **Profitability Measures**

- **Primary measure of farm profitability is :  
Net Farm Income**
- **Net Farm Income is a measure of the return to operator's equity, capital, unpaid labor, and management.**
- **Net Farm Income can be distributed among the four principal factors of production:  
land, labor, capital, and management**

# Gross Revenue “Pie”



# Net Farm Income

- **Total revenue**
- **Less total costs**
- **= Net income from operations**
- **Plus or minus the gains/losses from sales of capital assets**
- **= Net farm income**

# Return to Labor and Management

- **Some businesses have more assets or borrow more money than others**
- **Net income from operations**
- **Plus interest expenses**
- **= Adjusted net income**
- **Minus opportunity cost of capital**
- **= return to labor and management**

# **Return to Labor**

- **Return to labor is that portion of adjusted net farm income remaining after the opportunity costs of both management and capital have been subtracted.**
- **Represents the residual return to the owner for the labor input.**
- **= Return to labor and management**
- **Minus the opportunity cost of management.**

# Return to Management

- **Return to management is that portion of adjusted net farm income remaining after opportunity costs of both labor and capital have been subtracted.**
- **Represents the residual return to the owner for the management input.**
- **Negative returns to management are not unusual, but positive net returns are the goal.**

# Return to Management

- = Return to Labor and Management
- Minus the opportunity cost of labor.

# **Rate of Return on Farm Assets**

- Can be compared to the rates of return on other long-term investments.**
- ROA is independent of the type and amount of financing.**
- ROA can be compared to other similar farms, returns from other investments, opportunity costs of the farm's capital & past ROA's for farm to measure profitability.**

# Rate of Return on Farm Assets

$$\bullet = \frac{\text{Return to assets}}{\text{average farm asset value}} \times 100$$

**Return to assets = NFI + interest**

**- opportunity cost of labor**

**- opportunity cost of**

**management**

# Rate of Return on Farm Equity

- **More indicative of a farm's financial progress.**
- **Measures the percent return to owner's net worth or equity.**

# Rate of Return on Farm Equity

- $$= \frac{\text{return on equity}}{\text{average equity}} \times 100$$

- Return on equity =

**Net Farm Income from Operations**

**Minus opportunity cost of unpaid family labor**

**Minus opportunity cost of management**

# Operating Profit Margin Ratio (OPMR)

- = 
$$\frac{\text{return to farm assets}}{\text{gross revenue of farm}}$$
- Measures the proportion of gross revenues left after paying expenses

# **Operating Profit Margin Ratio (OPMR)**

- Farms with large investments in fixed assets such as land & few operating expenses will show higher OPMR.**
- Farms with more rented assets will have higher ROA but lower OPMR**
- Only problem if both ROA and OPMR are below average - then problems of profitability are evident.**

# Financial Measures:

- **Designed to measure the solvency and liquidity.**
- **To identify weaknesses in structure or mix of types of assets and liabilities.**
- **Primary sources of data to calculate financial measures are the balance sheet and income statement.**

# **Financial Efficiency: Liquidity**

- **Liquidity is the ability of a business to meet cash flow obligations.**
- **It is important to keep financial transactions of the business running smoothly.**

# Liquidity Measures

- **Current ratio**

$$= \frac{\text{current farm assets}}{\text{current farm liabilities}}$$

- **Quick indicator of a firm's liquidity**
- **Current assets will be sold or turned into salable products in the near future & will generate cash to pay debt obligations that come due.**
- **The higher the value, the more liquid the business.**

# Liquidity

- **Working Capital**
- **Working capital is the difference between current assets and current liabilities.**
- **Working capital represents excess dollars available from current assets after current liabilities have been paid.**

# Liquidity - Interest Coverage Ratio

- **Net income after taxes plus interest paid and accrued, divided by interest.**
- **Measured from the income statement.**

**→ Interpretation: The higher the ratio, the less the burden of interest on income.**

# Interest Coverage Ratio

- **Some texts list this as a measure of solvency and financial risk.**
- **Relates a firm's financial charges (interest) to the firm's ability to service debt.**
- **Indicates how much of the firm's returns to assets are available for every dollar in interest commitment.**
- **Covers a period of time, rather than a point in time.**

# Liquidity - Cash Flow Coverage Ratio

- **Excess available cash divided by cash required for interest and principal payments.**
- **Calculated from the cash flow budget.**

**→ Interpretation: The higher the ratio, the more favorable the liquidity.**

# Cash Flow Coverage Ratio

- **Excludes payments on the operating loan balance because they are so flexible.**
- **Indicates the extent to which the excess cash generated by the business provides a cushion for or flexibility in covering these debt-servicing requirements.**

# Liquidity: Debt-Servicing Ratio

- **Cash required for interest and principal payments divided by total cash available.**
  - **Measured from the cash flow statement.**
- Interpretation: The higher the ratio, the greater the burden of debt on cash flow and the lower the liquidity.**

# Cash Flow Risk and Sensitivity Ratios

- 1 Percent farm revenue can decline and still meet cash flows. (Excess available cash/ total cash available)**
- 2 Percent farm expenses can increase and still meet cash flows. (Excess available cash/cash operating expenses)**
- 3 Percent interest rates can increase and still meet cash flows. (Excess available cash/total liabilities)**

# **Financial Efficiency: Solvency**

- **Refers to the value of assets owned by the business compared to the amount of liabilities owed.**
- **Indicates whether, if the business were to be sold, if there would be enough capital to be able to pay off the debts.**

# Solvency Measures

- **The debt/asset ratio is a common measure of business solvency. It is calculated by dividing total farm liabilities by total farm assets using current market values for each.**
- **Debt/asset ratio = total farm liabilities  
total farm assets**

# Solvency Measures

- **Smaller values are preferred to larger ones.**
- **Smaller values indicate a better chance of maintaining solvency of business should it be faced with a period of adverse economic conditions.**
- **A low debt/asset ratio may also indicate that a manager is reluctant to use debt capital to take advantage of profitable investment opportunities.**

# Measures of Solvency

- **Equity/asset ratio**
- **Indicates what part of total assets is financed by the owner's equity capital.**
- **Equity/asset ratio =  $\frac{\text{total equity}}{\text{total assets}}$**

# Equity/Asset Ratio

- Higher values are preferred, but cannot exceed 1.
- If the equity/asset ratio = 1, then liabilities = 0.
- An insolvent business would have a negative equity/asset ratio because equity would be negative.

# Solvency Measures

- **Debt/equity ratio**
- **Also called the leverage ratio.**
- **Compares the proportion of financing provided by lenders with that provided by business owner.**
- **Debt/equity ratio =  $\frac{\text{total liabilities}}{\text{total equity}}$**

# Solvency Measures

- **Smaller values are preferred.**
- **Debt/equity ratio will approach zero as liabilities approach zero.**
- **Very large values result from very small equity, which means an increasing chance of insolvency.**
- **New businesses tend to have low levels of equity which results in higher debt/equity levels.**

# Solvency Measures

- **Change in Net Worth**
- **Indicates business growth, additional capital investment, and a greater borrowing capacity.**
- **Net Worth =**  
$$\text{total assets} - \text{total liabilities}$$
- **The objective of the business is to increase net worth over time, to accumulate capital.**

# Financial Efficiency Measures

- **Gross Ratio: Total farm expenses divided by gross farm revenue.**

**→ Interpretation: The lower this value, the more efficient the farm business.**

# Financial Efficiency Measures

- **Turnover Ratio: Gross farm revenue divided by average total farm assets.**

**→ Interpretation: The higher this value, the more efficient the farm business.**