CULTIVATING HEALTHY COMMUNITIES

# Farm Finance and Analysis: Part 2

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# Ag Business Programs

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- Management Education
- Forest Business
- Business Planning
- Transfer Planning
- Applied Research

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# Financial Analysis

Financial Analysis compares trends in

- revenues and expense
- projected to actual cash flow
- Changes in ratios related to solvency, liquidity, profitability and efficiency.

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# Analysis Goals

- Assess the business position
- Promote proactive decisions… based on information.
- Embodies "time" and trends

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# Analysis Options

- 1st Step: Production Based Income Statement
- Horizontal and Vertical Analysis
- Ratio Analysis
  - Savvy 7
- Enterprise
- Break-even

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# Production-based Income S.

Interest Only: principal payments not included

Accrual Adjustments:

- Beginning vs. Ending Inventories
- Accounts Receivable and Accounts Payable

Depreciation: annual "non-cash" cost of wear and tear on assets

Opportunity Cost of Owners: $40,000 +

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# Cash Flow

| | |
|---|---|
| **Cash Receipts** | **$200,000** |
| | |
| Total Revenue | $200,000 |
| | |
| - Operating Expenses | $130,000 |
| **Net Cash** | **$70,000** |
| - Debt Service | $27,500 |
| - Capital Purchases | $ 7,500 |
| + Accrual Income | |
| - Accrual Expense | |
| - Depreciation | |
| **NFIFO** | |
| - Owner Draw | $30,000 |
| **Net Earnings** | $5,000 |

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# Income Statement

| | |
|---|---|
| **Cash Receipts** | **$200,000** |
| | |
| **Total Revenue** | **$200,000** |
| | |
| - Operating Expenses | $ 130,000 |
| - Interest (no principal) | $ 15,000 |
| **Net Operating Income** | **$ 55,000** |
| | |
| + Accrual Income (A/R) | $ 8,000 |
| - Accrual Expense | $ 4,000 |
| - Depreciation | $ 20,000 |
| **NFIFO** | **$39,000** |
| - Value of Owner Labor | $40,000 |
| **Net Earnings** | **- ( $1,000)** |

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# Adjustments

| | BS 2016 | BS 2017 | Accrual Change |
|---|---|---|---|
| A/R | $5,000 | $13,000 | + $8,000 |
| A/P | $5,000 | $5,000 | ---- |
| Inventory: Feed | $30,000 | $26,000 | - $4,000 |

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# Depreciation

Straight-line depreciation

| Item | Purchase Price Less Salvage | Lifespan | Annual Depreciation |
|---|---|---|---|
| Machinery | $140,000 | 10 | $14,000 |
| Equipment | $ 25,000 | 5 | $ 5,000 |
| Improvements | $ 20,000 | 20 | $ 1,000 |


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# Income Statement

NOT CASH BASIS ANYMORE

MULTI-YEAR LENS

| | |
|---|---|
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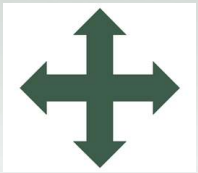
# Horizontal and Vertical

Horizontal Analysis: % Change from Year to Year

$$\frac{Current\ Year - Last\ Year}{Last\ Year}$$



Produce Sales:

$$\frac{\$125{,}000 - \$108{,}000}{\$108{,}000} = +16\%$$

- Cross check an income change with an expense change
- Drag the formula down the statement, thank you Excel!

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# Ratio Analysis


- Established farm financial standards
  - See the Scorecard
  - Requires multiple years of records
  - 2 BS, 1 IS, 1 Cash Flow

Liquidity: ability to meet financial obligations as they come due

Solvency: ability to pay all debts if the business sold tomorrow

Profitability: difference between the value of goods produced and the costs (plus resources) to produce them

Efficiency: how effectively the business uses assets to generate income

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# Savvy - 7 Ratio Analysis

| Concept | Ratio | Calculation |
|---|---|---|
| 1. Liquidity | Current | Current Asset/ Current Liability |
| 2. Solvency | Debt | Debt / Asset |
| 3. Profitability | Return on Assets | Net Farm Income* / Total Assets |

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# Savvy - 7 Ratio Analysis

| Concept | Ratio | Calculation |
|---|---|---|
| 4. Investment Efficiency | Turnover | Sales/ Total Assets |
| 5. Operating Efficiency | Operating | Op Expense / Revenue |
| 6. Interest Efficiency | Interest | Interest Expense/ Revenue |
| 7. Machinery Efficiency | New Paint | Machine Value / Acres |
| | | |
| Repayment Capacity | Term Debt Coverage (TDC) | |

Efficiency Measures can be easily adapted to a key management area

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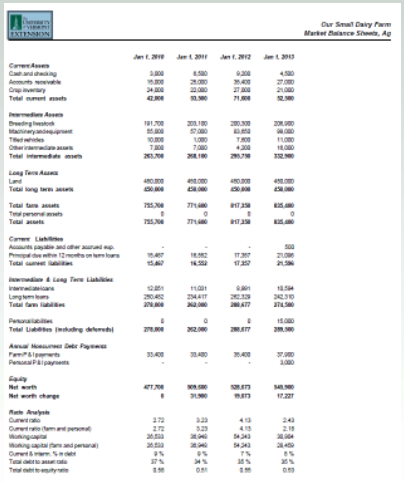
# Sample



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## Enterprise Analysis

The Goal: Isolating the income and expense from a single enterprise to evaluate financial performance.

- Isolate Income: The easy part
- Isolate Expenses: pick a strategy

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## Enterprise Analysis 2

Strategies to Allocate Costs

*(Often Fixed Costs)*

1. Track Variable Expenses: Categorize expense by "income categories
2. "percent of resources used" method
3. "percent of total sales" method
4. "number of enterprises" method

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# Break Even Quantity

1. How many units to produce to "break-even" on fixed costs.

$$BEQ = \frac{Fixed\ Costs}{Price\ -Variable\ Cost\ Per\ Unit}$$

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# Break Even Quantity 2

Steps:

1. Collect historical records from previous year (expenses, units produced and sold, capital log)

2. Divide expenses by units produced to get variable expenses per unit.

3. Contribution Margin =
Selling Price per unit - Variable Expenses per unit

4. Break Even Units =
Total Fixed Costs / Contribution Margin

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# Break-Even Dollars

Fixed Expenses / 1 – (contribution margin ratio)

Contribution Margin Ratio = 1 – Variable Costs
VC= 80% of total sales
CM Ratio: 1 – 80% = 20%
BE Dollars: Fixed Expenses / 0.20

Example: $120,000/0.20 = $600,000

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# Partial Budget

**Partial Budget**

| **Items that add to net income** | | **Items that reduce net income** | |
|---|---|---|---|
| Added Returns: | | Reduced Returns: | |
| _____ | $_____ | _____ | $_____ |
| _____ | $_____ | _____ | $_____ |
| _____ | $_____ | _____ | $_____ |
| _____ | $_____ | _____ | $_____ |
| Total | $_____ | Total | $_____ |
| Reduced Costs: | | Added Costs: | |
| _____ | $_____ | _____ | $_____ |
| _____ | $_____ | _____ | $_____ |
| _____ | $_____ | _____ | $_____ |
| Total | $_____ | Total | $_____ |
| **Total added returns & reduced costs (A)** | $_____ | **Total reduced returns & added costs (B)** | $_____ |

**A minus B equals change in net farm income** $_____

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