



**Development & Analysis of
Enterprise Budgeting**

Introduction

Enterprise Budgeting
- A Projection into the Future -



A "Statement" is history.
A "Budget" is a projection into the future.



Enterprise budgeting

- Forward-planning tool
- Estimate of profitability
- Tests feasibility
- Reflect the best estimate of a manager
- Imperative to conduct a proper and correct analysis in order to make the right decisions



The primary purpose of enterprise budgets are to provide:

- Estimates of potential revenue
- Estimates of expenses
- Estimates of profit
(Revenue – expenses = profit)



What is an enterprise?

- A particular crop
- A type of livestock
- A particular method or technology for raising crops or livestock
- A unique region or approach for raising crops or livestock
- A particular level of production

Uses for enterprise budgets:

- Together they can provide a whole-farm plan
- Very data intensive, but once constructed they can be used for many purposes
 - Sensitivity analyses: what happens when crop prices or input prices change?
 - Land lease arrangements
 - Loans
 - Litigation

Typical formats

- Revenue
- Variable (operating, direct, cash) costs
- Fixed (ownership) costs
- “Returns to”
 - Refers to what’s left out of the analysis (the residual)

What is an enterprise budget?

- Costs of production
 - Inputs such as seed, fertilizer, pesticides
 - Costs of operating machinery
 - Labor costs
 - Land costs
- Expected yields
- Expected prices
- Ultimately provides net returns
 - Projection of future profitability



Data needs for determining costs:

- List all activities
 - Date
 - Inputs used
 - Quantity
 - Costs per acre
 - Machinery used
 - Speed (mph or ac/hour)
 - Annual repair cost (labor & parts)
 - Current market value of machinery
 - Expected life of machine



Economic vs Cash Budgets

- Economic budgets include opportunity costs
 - What is the value of the next best alternative for your land or capital?
 - Include land rent in an economic budget
 - If you weren't farming, you could rent your land
 - Include the cost of your labor
 - If you weren't farming, you could work elsewhere
 - Include interest on your investment in machinery and operating capital
 - You could alternatively put your money in the bank

Why use economic budgets?

- An economic budget values all factors of production
- If returns are positive then the operation is profitable and you are earning returns to risk & management
- If returns are negative, then you would be making more money by investing your assets elsewhere
- Reality check --
 - Assets may not be extremely liquid – you can't easily go in & out of farming

What is a cash budget?

- A cash budget uses actual outlays for
 - Labor
 - Land
 - Machinery
- Cons:
 - Does not factor in contributions of the farm's assets over time
 - Does not tell you if your investment in the farm enterprise is profitable relative to alternatives
- You can convert an economic budget to a cash budget

Cost Categories

- Variable or Operating Costs
 - These costs vary by type of crop grown
 - Seed, fertilizer, pesticides, labor
- Fixed Costs (Ownership Costs)
 - These costs occur regardless of whether you grow a crop or not
 - Land cost, taxes, machinery fixed costs such as insurance, housing, taxes, depreciation, interest
- Opportunity Costs
 - Foregone income, such as land rent if you own the land, or interest payments for money invested in farming

Production Costs for Irrigated Winter Wheat, 2008

| Item | Quantity Per Acre | Unit | Price or Cost /Unit | Value or Cost/Acre |
|---------------------------|----------------------|------|---------------------------|-----------------------|
| <u>Operating Inputs</u> | | | | |
| Seed: | | | | \$27.00 |
| Winter wheat | 90 | lb | \$0.30 | \$27.00 |
| Fertilizer: | | | | \$177.10 |
| Nitrogen (urea) | 160 | lb | \$0.80 | \$128.00 |
| Sulfur (ammonium sulfate) | 40 | lb | \$0.29 | \$11.60 |
| 16-20-0-14 | 0.05 | ton | \$750.00 | \$37.50 |
| Pesticides: | | | | \$10.55 |

| | | | |
|----|------------------------------|--|-----------------|
| 53 | Ownership Costs: | | |
| 54 | Machinery depreciation | | \$18.09 |
| 55 | Machinery interest | | \$26.59 |
| 56 | Machinery insurance | | \$1.60 |
| 57 | Machinery taxes | | \$4.78 |
| 58 | Machinery housing | | \$0.94 |
| 59 | Net rent | | \$271.81 |
| 60 | Land taxes | | \$4.16 |
| 62 | Total Ownership Costs | | \$327.97 |
| 63 | Ownership Costs per Unit | | \$2.73 |
| 64 | | | |
| 65 | Total Costs per Acre | | \$733.81 |
| 68 | Total Cost per Unit | | \$6.12 |
| 67 | | | |
| 68 | Returns to Risk | | \$346.19 |
| 69 | | | |
| 70 | Notes: | | |
| 71 | | | |
| 72 | | | |

Production Costs for Irrigated Winter Wheat, 2008

| Item | Quantity Per Acre | Unit | Price or Cost | Value or Cost/Acre |
|--|----------------------|------|------------------|-----------------------|
| <u>Ownership Costs</u> | | | | |
| Machinery depreciation | 1 | ac | \$32.50 | \$32.50 |
| Machinery interest | 1 | ac | \$29.80 | \$29.80 |
| Machinery housing, insurance, licenses | 1 | ac | \$5.25 | \$5.25 |
| Land taxes | 1 | ac | \$4.80 | \$4.80 |
| Land rent | 1 | ac | \$300.00 | \$300.00 |
| Total Ownership Costs | | | | 372.35 |

These values in red are calculated from the Machinery Cost Software program from the University of Idaho.

Calculating Crop-Share Land Cost

- Arrangements differ by landlord
- Typically, rent is equal to 1/3 of crop revenue less 1/3 of fertilizer and chemical costs
- Landlord and tenants thus share the benefits and the costs of crop production
 - Reduces risk when crops fail
 - Share in price risk, both crop & input prices
- Other common arrangements include 70/30 shares or excluding chemical costs

The screenshot shows a spreadsheet with the following data:

| | | | | | | | | | |
|----|---|--------|--|------|--|--|--|--|----------|
| 54 | Total Operating Costs | | | | | | | | |
| 55 | Operating Costs per Unit | | | | | | | | |
| 57 | Net Returns Above Operating Expenses | | | | | | | | |
| 59 | Ownership Costs: | | | | | | | | |
| 60 | Machinery depreciation | | | | | | | | |
| 61 | Machinery interest | | | | | | | | |
| 62 | Machinery insurance, taxes housing, licence | | | | | | | | |
| 63 | Land Cost* | | | | | | | | \$165.11 |
| 64 | *Based on Share Rent Percentage: | 1 | | 0.0% | | | | | |
| 65 | Landlord | 33.00% | | | | | | | |
| 66 | Tenant | 67.00% | | | | | | | |
| 67 | | | | | | | | | |
| 68 | Land taxes | | | | | | | | |
| 70 | Total Ownership Costs | | | | | | | | |
| 71 | Ownership Costs per Unit | | | | | | | | |
| 72 | | | | | | | | | |
| 73 | Total Costs per Acre | | | | | | | | |
| 74 | Total Cost per Unit | | | | | | | | |
| 75 | | | | | | | | | |
| 76 | Returns to Risk | | | | | | | | |

Alternative Land Cost Approaches

- Use cash rent in areas where this is the predominant form of land rent
 - Irrigated land (includes irrigation system)
 - Areas with less risk of crop failure
- A specified % return on land investment is another typical approach (typically 3% - 6%)
 - At 4%, annual rent is \$60/ac for land worth \$1500/ac

Sources of Enterprise Budgets

- http://www.cals.uidaho.edu/aers/r_crops.htm
- http://www.cals.uidaho.edu/aers/r_livestock.htm
- http://extecon.wsu.edu/pages/Enterprise_Budgets
- <http://arec.oregonstate.edu/oaeb/>
