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Financial Analysis and Record Keeping:
Moving Beyond the Shoebox

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Outline

- Motivation
  - Why get excited about financial analysis?
- Analyzing your farm's financial performance
  - Cash flow statements
- Investment analysis
  - Different evaluation methods
- Amortization of loans
  - Making them cash flow

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Shoebox Financials

- Many entrepreneurs and small business owners save their receipts in a shoebox all year for their accountant. When tax time comes they, full of dread, hand it over to see what the damages are....
- Does this story sound familiar?

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Shoebox Financials

- Why take the time to gather and analyze financial information?
  - You aren't big on surprises (especially from your accountant)
  - You aren't made of money (so you have a banker)
  - You don't have a crystal ball (to see what wheat prices will be next year)

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Shoebox Financials

- Careful recordkeeping and some basic financial analysis can take some of the ***guesswork*** and ***stress*** out of being a business manager
- Your lender is going to ***require*** accurate records and understanding of your farm's financial situation
  - More important than ever in current economy
    - Credit availability is tight
    - Save money with lower interest rate

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Shoebox Financials

- What did you need to show a lender 30 years ago to get approved for an operation loan?
- What do you have to show today?
  - Financial statements: current and projected
  - Up to three years of statements
  - Production records
  - Production and/or marketing contracts
  - Business plan

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Analysis of Business Performance

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Business Performance

- Analyzing your farm's financial performance is done using the following statements
  - Cash flow statement
  - Balance sheets
  - Income statements
- Cash flow statements give a picture of your farm's financial situation over a period of time
- Balance sheets and income statements are a snapshot of your farm's situation (more later)

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Cash Flow Budgeting

- How much financing will your business require this year?
- When will money be needed?
- How can you avoid short-term shortages of cash?
- A ***cash flow budget*** can be a helpful tool for planning the use of capital in the your business

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Cash Flow Budgeting

- A cash flow budget is an estimate of all cash receipts and all cash expenditures that are expected to occur during a certain time period
  - Monthly, bimonthly or quarterly
  - Includes nonfarm income and expenditures
- Cash flow budgeting is a look at money movement, not net income or profitability
  - You could have sufficient profits but insufficient cash flow
  - Or your cash flow could be adequate but profits are lacking

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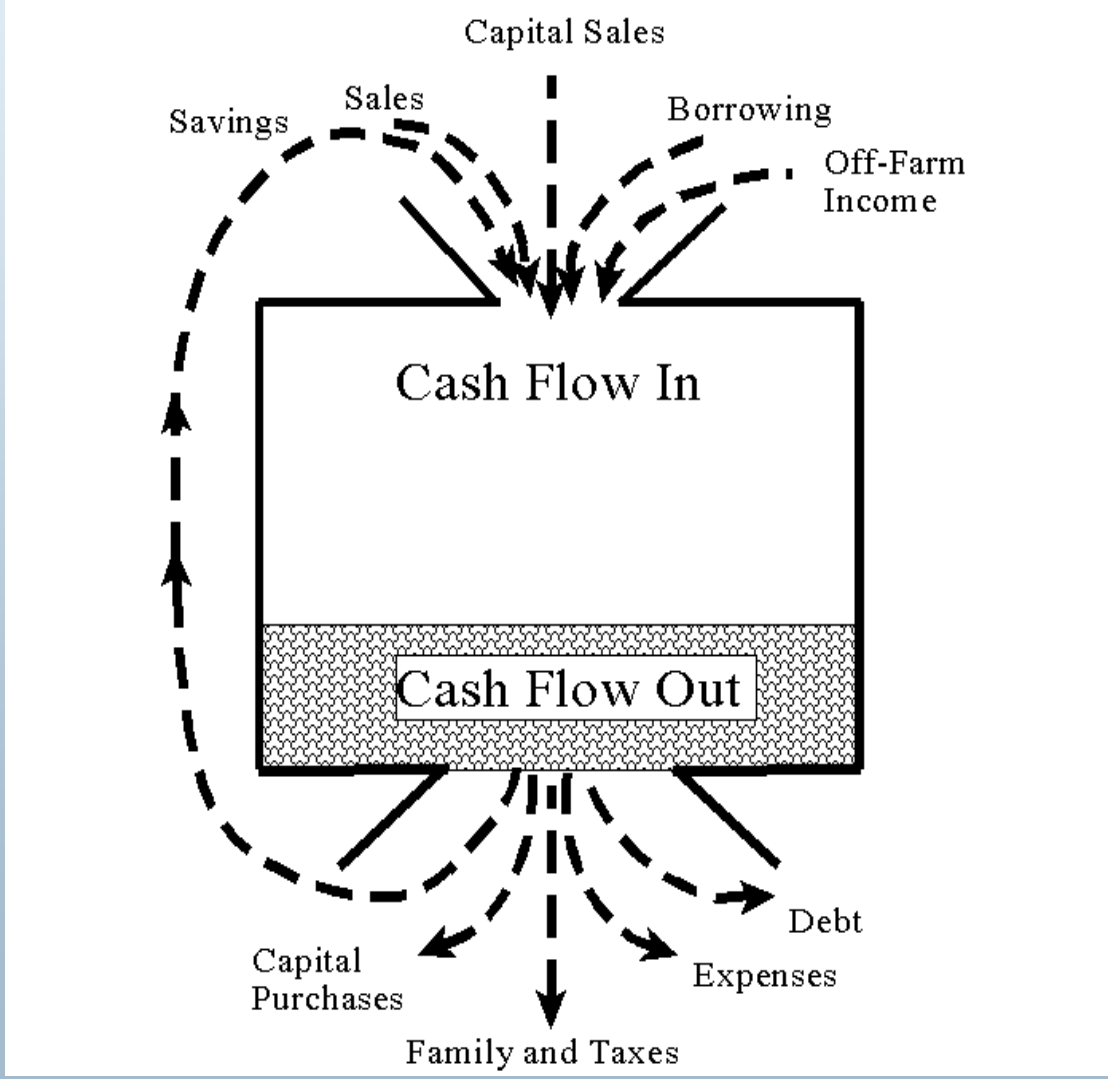
Cash Flow Budgeting



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Cash Flow Budgeting

- Forces you to think through your farming plans for the year
- Projects how much operating credit you will need and when
- Projects when loans can realistically be repaid
- Provides a guide against which you can compare your actual cash flows
- Helps you communicate your farming plans and credit needs to your lender

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Cash Flow Budgeting

- Outline your production and marketing plans for the year
  - Estimate sales based on these plans
- Use your best estimate of selling prices based on previous years' prices
  - Use expected seasonal price patterns when appropriate
- Stay on the conservative side
  - If your plan will work at conservative prices, it also will work at better prices.

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Cash Flow Budgeting

- Consider preparing budgets at two or three price levels for the major crops/livestock you sell
  - This will help identify the amount of price risk you face
  - A sensitivity analysis would enable you to see how low prices and/or yields can go relative to different cost structures

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Cash Flow Statement Example

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Cash Flow Budgeting

- Creating your first cash flow budget isn't going to be easy
  - Digging out historical records
  - Thinking through the details of future activities
  - Figuring out a recordkeeping system that works for you (Quickbooks, Excel, or something else)

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Cash Flow Budgeting

- Once in place, it's a powerful tool for helping you make managerial decisions
- Comparisons to previous years
  - What is a normal year and what isn't
- Making investments in the business
  - Projecting cash flows before and after the investments are paid off

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Investment Analysis

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Investment Analysis

- Investment analysis or capital budgeting requires four types of information
  - Net cash revenues of the investment across time (cash flows)
  - Initial cost of the investment
  - Salvage value of investment
  - Opportunity cost of your money (discount rate)
- We will discuss some alternative methods you can use to evaluate investments

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Investment Analysis

Cash Flow at End of Year	Investment		
	A	B	C
0	(20,000)	(20,000)	(20,000)
1	2,000	5,800	10,000
2	4,000	5,800	8,000
3	6,000	5,800	6,000
4	8,000	5,800	3,000
5	10,000	5,800	1,000
Total Receipts	30,000	29,000	28,000

- Which one would you choose?

Investment Analysis

- Method 1: Payback period
  - The number of years it takes to repay the initial investment

Cash Flow at End of Year	Investment		
	A	B	C
0	(20,000)	(20,000)	(20,000)
1	2,000	5,800	10,000
2	4,000	5,800	8,000
3	6,000	5,800	6,000
4	8,000	5,800	3,000
5	10,000	5,800	1,000
Total Receipts	30,000	29,000	28,000

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Investment Analysis

- Method 1: Payback period
- Advantages
  - Easy to use
  - Identifies which investment will ‘cash flow’ sooner (addresses risk)
- Disadvantages
  - Ignores all revenue after payback period
  - It is not a measure of profitability
  - No time value of money consideration

Investment Analysis

- Method 2: Simple rate of return

$$\frac{\text{(Total Revenue – Depreciation) / Life of Investment}}{\text{Cost of Investment}}$$

- Define depreciation as
  - Initial value minus salvage value
  - In this example, there is no salvage value

Investment Analysis

- Method 2: Simple rate of return

$$A = \frac{(30{,}000 - 20{,}000) / 5}{20{,}000} = 10\%$$

$$B = \frac{(29{,}000 - 20{,}000) / 5}{20{,}000} = 9\%$$

$$C = \frac{(28{,}000 - 20{,}000) / 5}{20{,}000} = 8\%$$

Investment Analysis

- Method 2: Simple rate of return
- Advantages
  - Considers earnings over life of investment
  - Also pretty easy to use
- Disadvantages
  - Ignores time value or opportunity cost
  - It is not an accurate measure of profitability

Investment Analysis

- Method 3: Net present value

$$NPV = \sum_{t=0}^{n} \frac{Net\ Flow}{(1+i)^t}$$

$$i = discount\ rate$$

$$t = \#\ of\ years$$

Investment Analysis

- Method 3: Net present value

	Investments			Net Present Value			
Year	**A**	**B**	**C**	**A**	**B**	**C**	**ADR**
0	(20,000)	(20,000)	(20,000)	-20,000	-20,000	-20,000	10%
1	2,000	5,800	10,000	18,182	5,273	9,091	
2	4,000	5,800	8,000	1,653	5,273	7,273	
3	6,000	5,800	6,000	5,455	5,273	5,455	
4	8,000	5,800	3,000	7,273	5,273	2,727	
5	10,000	5,800	1,000	9,091	5,273	909	
Total Receipts	30,000	29,000	28,000	1,187	1,806	2,618	

Investment Analysis

- Method 3: Net present value
- Advantages
  - Considers all cash flows
  - Considers time value of money
  - Accurate measure of profitability
- Disadvantages
  - Requires knowledge of opportunity cost
  - It is not an accurate measure of profitability

Investment Analysis

- Method 4: Internal Rate of Return (IRR)
- Linked to net present value method
  - Find the interest rate where the NPV = 0
  - Select the investment with the greatest IRR (as long as IRR ***exceeds*** cost of capital)

Investment Analysis

- Method 4: Internal Rate of Return (IRR)

	Investments			Net Present Value		
Year	**A**	**B**	**C**	**A**	**B**	**C**
0	(20,000)	(20,000)	(20,000)	-20,000	-20,000	-20,000
1	2,000	5,800	10,000	18,182	5,273	9,091
2	4,000	5,800	8,000	1,653	5,273	7,273
3	6,000	5,800	6,000	5,455	5,273	5,455
4	8,000	5,800	3,000	7,273	5,273	2,727
5	10,000	5,800	1,000	9,091	5,273	909
Total Receipts	30,000	29,000	28,000	1,187	1,806	2,618
			IRR:	12%	14%	18%

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Investment Analysis

Analysis Method	Investment		
	A	B	C
Payback Period			✓
Simple Rate of Return	✓		
Net Present Value			✓
Internal Rate of Return			✓

- Your choice depends on the method you use

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Loan Amortization

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Loan Amortization

- Understanding your loan options
  - What is your ‘best’ option when it comes to picking between methods of loan amortization?
  - It depends on cash flow constraints
  - How much interest cost will you incur?

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Loan Amortization

- Equal Payment Method
  - Payment amounts are the same over the entire payback period
- Terms of the loan
  - Loan amount is $25,000
  - Interest rate is 10%
  - Number of payments is 5

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Loan Amortization

- How do we calculate the payment amount?

$$A = V_0 / \left[\frac{1 - (1 + i)^{-n}}{i} \right]$$

$V_0 =$ loan amount

$i =$ interest rate

$n =$ # of payments

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Loan Amortization

Payment #	Total Payment	Interest	Principal Paid	Principal Balance
0	--	--	--	$25,000.00
1	6,594.94	2,500.00	4,094.94	20,905.06
2	6,594.94	2,090.51	4,504.43	16,400.63
3	6,594.94	1,640.06	4,954.88	11,445.75
4	6,594.94	1,144.57	5,450.37	5,995.38
5	6,594.94	599.54	5,995.40	-0.02
Total Paid	32,974.70	7,974.68	25,000.02	

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Loan Amortization

- Equal Principal Payment Method
  - Payment amounts decline over the payback period
- Terms of the loan are the same
- What is the payment required for this loan?
  - Divide loan amount by number of payments
  - Calculate interest on remaining principal balance

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Loan Amortization

Payment #	Total Payment	Interest	Principal Paid	Principal Balance
0	--	--	--	$25,000.00
1	7,500.00	2,500.00	5,000.00	20,000.00
2	7,000.00	2,000.00	5,000.00	15,000.00
3	6,500.00	1,500.00	5,000.00	10,000.00
4	6,000.00	1,000.00	5,000.00	5,000.00
5	5,500.00	500.00	5,000.00	0.00
Total Paid	32,500.00	7,500.00	25,000.00	

- If you can make it ‘cash flow’, you can save $474 in interest over the life of the loan
- Savings increases as interest rate increases

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Homework

- Handout with more detail
  - More resources available upon request
- Invest in education
  - Don’t stop with today’s workshop, continue to find new ways to gather and analyze financial information
- Once you start, don’t go back to the shoebox

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