

Business Management Curriculum

Module 4: Financial Analysis

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University of Nevada
Cooperative Extension



THE UNIVERSITY OF ARIZONA
COLLEGE OF AGRICULTURE & LIFE SCIENCES

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United States
Department of
Agriculture

National Institute
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Agriculture



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Acknowledgments: Vicki Hebb, reviewing content, and Russ Tronstad (University of Arizona) and Stuart T. Nakamoto (University of Hawaii) , content.

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Module 4: Financial Analysis

Teaching Notes:

This module uses the help of class handouts to explain how to stay on top of financial well-being and maintain a well-rounded business. Profit is used to gauge your level of standing with regard to your competitors or your industry as a whole. Keep in mind that the key to being profitable is to increase your volume, maintain high efficiency, and change your product mix. These strategies allow you to stay current and competitive in business or in your everyday financial life. The break-even point is the point at which your expenses and your income total zero. Above this point you are making a profit; below this point you are losing income. The break-even point is critical to understanding how much you must make to have a profitable or non-profitable business idea. To make changes to your business you must keep track of your decisions. Use the example of a partial budget, which allows you to look at potential changes to be implemented and whether they will have a negative or positive impact.

Educational Objectives:

1. Analyze whether a business is profitable
2. What needs to be done to increase your profit?
3. Point of a break-even analysis
4. Benefits of partial budgeting

Discussion Topics

1. What are some steps that can be taken to increase volume in the profit equation?
2. How does one become more efficient?
3. What determines sensitivity?
4. Why is it important to understand your break-even point?
5. What are you determining when you build a partial budget?

Available Materials:

1. PowerPoint Presentation (1) – can be printed and used as a handout
2. Worksheets (5) – can be provided as homework or completed in a workshop if time allows.
 - a. Risk analysis - This worksheet explains how a small increase or decrease in price, expenses, and/or interest rates will impact a business. Here you are trying to weigh how your choices will change an aspect of your business.
 - b. Partial budget (REQUIRES EXCEL) - The first partial budget in this module looks at what a normal operation may face when they start to do their own budget. Then there is a breakdown of what the numbers that were calculated mean to the overall success of the partial budget. There is an example slide as well as an empty sheet that the students can complete.
 - c. Enterprise break-even analysis – Using this worksheet, students can try different combination of volumes and price points to examine how they affect the break-even point of their operation. The key here is to make sure that they are staying above the price that the market demands; otherwise their business will run at a deficit. Remind students to stay within their production capacity as they fill out this worksheet.
 - d. Sensitivity analysis (REQUIRES EXCEL) - This worksheet demonstrates how even simple changes can have large impacts on their operation. This worksheet helps students understand how income will change positively or negatively depending on how the business changes.

Module 4: Financial Analysis

- e. Partial budget form with examples (REQUIRES EXCEL) - This worksheet gives students a glimpse of what needs to be done to complete a partial budget for two different types of farms: cantaloupe and corn maze. Using two examples for this worksheet allows students to explore the different costs associated with running operations that appear to be very similar in nature.

Outline:

1. Objectives
2. What does it cost?
 - a. Variable costs
 - b. Fixed costs
3. Profit formula
 - a. Increase volume
 - b. Become more efficient
 - c. Change your product mix
4. Re-Introduction of MyFi
 - a. What can my business afford?
 - b. Buying a truck example
5. How do you become wealthy?
6. Sensitivity analysis
 - a. How sensitive are you?
 - b. Ranch operation example
7. Break even analysis
 - a. Break-even analysis equations
 - b. Tomato budget example
 - c. Ranch budget example
 - d. Hire out custom work
8. Partial budgeting
 - a. Evaluate a change in the business operation
 - b. Partial budgets require minimal information
 - c. Example of a tomato partial budget
9. Questions?
10. Thank you

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Objectives

- What is Profit?
 - Increasing Profit
 - Profit vs. Wealth
- Analyze Business Using:
 - Sensitivity Analysis
 - Break Even Analysis
 - Partial Budgeting



Slide 3: This module is to show how to use all the information from the other modules to understand how it affects profit and how to create strategies and analyze ideas.

What Does It Cost?

- Variable - When I plant another acre my total cost will increase
 - Seed, chemicals, labor, etc.
- Fixed – Stays the same whether I plant another acre or not
 - Depreciation, interest, long-term loans
 - Insurance and property tax

Slide 4: This was defined in earlier modules, but it here to make sure everyone is together.

What is profit?

Profit = (price – Variable Cost) quantity – fixed cost

Margin Per Unit

Funds left to cover
fixed cost & profit

Slide 5: Without getting into numbers, it can be helpful to understand what profit is and how it is calculated. This breaks it down and shows how we can begin analyzing our profit. The first step is to understand margin and what you are making per unit. Then look at fixed costs. The next slides will talk about this and then enterprise budgets are used as examples.

Analyze Margins

Margin = (Price – Variable Cost) * Quantity

- Do you have a low margin?
- Is price greater than variable costs?
- What happens if cost increases by 10%? 20%?
- What happens if price drops by 10%? 20%?

Slide 6: This is important. If there is zero or negative margin per unit, doing more of the same thing will not increase profit. They must first figure out how to increase the margin per unit. These questions are designed to see if someone has a low margin. If they do, they will then need to look at how to increase the price or lower costs.

Analyze Fixed Cost

Profit = (price – Variable Cost) quantity – fixed cost

- Are fixed costs too high?
- How many units to cover fixed costs (fixed cost / margin)?
- Do you have equipment that sits idle for long periods of time?
- How many bulls per cow do you have?
- Is your horse trailer or truck the envy of your neighbors?



Slide 7: This slide shows how to look at fixed costs. Sometimes an enterprise has good margin, but simply too many fixed costs to be profitable. An example is too much money in equipment for the size of the operation. If someone grows 100 acres of wheat, they cannot afford to have a \$400,000 grain harvester. They will need to look at either making more money from the grain harvester (custom work); have a used cheaper harvester, or hire someone else to harvest the wheat and not have the equipment at all. Cattle can also have excessive fixed costs. A \$70,000 truck for a few cows will not work. The more money in equipment, the lower the profit.

Slide 8: In this example, the margin is very low all but zero. When margins are low, increasing volume will not increase profit. Look at ways to increase price or lowering costs. Increasing price could be done by selling into markets with a higher per unit price (i.e. a farmers market or chefs that may pay \$4-5 per pound). Labor costs seem to be really high and ways of managing and lowering labor could be sought. Lowering labor costs would decrease variable costs and increase the margin.

If margin cannot be improved, this enterprise should be re-evaluated.

In this case the problems with margin are very apparent. However, there may still be issues or room to improve fixed costs too.

Slide 9: In this example, the margin seem okay. Returns above variable cost and total costs are both positive. There is enough return over variable cost to cover the fixed and have a profit.

However, if the price drops by 14% or variable costs increase by 23% there will be no profit. This situation looks profitable, but could still have room to improve. Discussing how various decisions could affect profit. One question could be if increasing nutrition with supplements and extra feed to increase calf weight would increase profit. The reality is “it depends”. If the extra supplement and feed cost more than we get from the increased returns it would not.

It would be good here to talk about strategies to lower fixed cost, such as selling equipment that is not needed, or maybe using equipment for custom hire to generate additional revenue. Also ways to lower variable cost such as using pasture or fencing fall fields.

Analyze Profit - Tomatoes

Enterprise Budget for 14' x 100' Tomato Bed

Revenue	Quantity	Unit	Price	Total	% of Revenue
Product					
Individual product	number	size of unit	price	Total revenue	
Tomatoes Average Price	450	lbs	\$ 1.50	\$ 675.00	100%
Total Revenue				\$ 675.00	100%
Expenses					
Materials				\$ 129.00	
Labor				\$ 530.00	
Marketing				\$ 20.00	
Ownership Expenses (Fixed Costs)				\$ 125.00	
Total Expenses				\$ 804.00	119%
Net income before taxes (revenue minus expenses)				\$ (129.00)	-19%
Income and self employment taxes				\$ (19.35)	-3%
Net profit				\$ (109.65)	-16%

Price per Unit = \$1.50
Total Variable Cost = \$679
Variable Cost per Unit = \$1.51
Margin per unit = \$0.01

Will increasing quantity increase profit?
What could be done to increase margin?
What about fixed cost?
But adjustment can be made on paper!!



Analyze Profit - Ranch

General Composite Ranch				Total	Per AU
INCOME					
Cows	\$85.00	231	5	\$98,350	\$266.16
Cull Cows	\$38.00	37	10	\$14,042	\$38.00
Cull Bulls	\$38.00	1	15	\$527	\$1.43
Total Income				\$112,918	\$306
EXPENSES					
Variable Costs					
Lease and Grazing Fees				\$8,510	\$23
Fixed				\$11,990	\$33
Livestock Expenses				\$35,918	\$97
Labor				\$12,169	\$33
Total Variable Expenses				\$67,687	\$183
Fixed Costs					
Average Fixed Costs Per AU					
Cash fixed (property tax & insurance)	\$40			14781	\$40
Depreciation	\$40			14781	\$40
Total Fixed Expenses				\$29,562	\$80
Total Expenses				\$97,249	\$263
Net Cash Return Over Variable Expenses				\$45,231	\$122.41
Net Ranch Income				\$15,670	\$42.41

This budget reflects a 370 head ranch with a 75% calving rate.
Price per AU (unit) = \$306
Variable Cost per Unit = \$183
Margin per unit = \$123

Will increasing quantity increase profit?
What about fixed cost?
What would happen if cattle prices decreased by 10% or more?
What would happen if variable cost increased by 10% or more?



Ranch Operation Enterprise Budget

General Composite Ranch

Total Income	\$112,918	\$306
Total Variable Expenses	\$67,687	\$183
Total Fixed Expenses	\$29,562	\$80
Total Expenses	\$97,249	\$263
Net Cash return over variable expenses	\$45,231	\$122.41
Net Ranch Income	\$15,670	\$42.41

	Returns	Per cow	Per calf sold	Per cwt
Returns above variable costs	\$ 51,017	\$ 138.06	\$ 220.46	\$ 44.09
Returns above Variable and Cash Fixed Costs	\$ 35,127	\$ 95.06	\$ 151.79	\$ 30.36
Returns above all costs	\$ 19,238	\$ 52.06	\$ 83.13	\$ 16.63

Slide 10: This just illustrates the different ways to calculate and define your per unit cost. Either method will work, but be consistent in your method. The best method is however they think.

Slide 11: This summarizes the various situations that could arise in analyzing profit. It also shows the potential strategies and examples. Only a few examples are listed here. You could use examples from participants and let them discuss examples that could be used for the various strategies. Some general strategies are listed below.

Potential strategies for increasing volume: 1) sell more to the same customers, 2) sell to more customers, 3) plant more acres, 4) have more head of cattle, 5) lease more ground.

Situation	Strategy	Examples
Negative Margin	Quit and do something else	Other crops or livestock, other markets
Low Margin	Increase Price	Pool livestock, Charge more Use pasture longer, less labor, EQIP for better range
	Decrease Variable Costs	
Sufficient Margin	Look at Fixed Costs	
High Fixed Costs	Decrease Fixed Costs	Sell equipment Do custom work Plant more acres, increase herd size
	Increase Revenue from FC	
	Increase Volume	
Average Fixed Costs	Increase Volume	Plant more acres, increase herd size
Low Fixed Costs	Good Job!	

Become more efficient strategies: 1) decrease cost per unit either lower variable cost per unit, or lower fixed cost per unit by increasing volume, or 2) increase yield or productivity (i.e. healthier calves, higher calving rate, fewer open cows)

Change product mix: 1) some enterprises/products are more profitable, 2) focus more effort on more profitable enterprises. One example is a small grower in North Carolina. She grew petunias and pansies because Walmart was doing it down the street. However, it cost more for her to grow them than Walmart was selling them for. She also grew specialty plants that people drove hours to purchase. They were buying them for a \$100 in some cases. She could sell more specialty plants if she had time and space to grow them. So for her changing the product mix and not doing pansies and petunias just because others were doing it.

Slide 12: The MyFi Assist was first introduced in the Money Management modules: a guide to personal finances. MyFi Assist will be used in examples of partial budgets.

MyFi – Financial Assistant

- MyFi Assist –an app for “My Financial Assistant”



- Free
- Available in iOS and Android
- Can be personalized to your situation

What Can My Business Afford?

- Investing in capital is a way to further a business's objectives and reach its goals. But is it affordable?
- Example: Buying a new truck
 - Increase fuel efficiency, decrease truck maintenance, increase towing capacity
 - Helpful when managing a ranch
- Will the efficiency of having a truck offset the payment?
- Use MyFi Assist to figure your monthly payment and how much of product you would have to sell to make the payment.



MyFi Financial Assistant

Personal Preferences

Choose or change your item and its value below:

Turn Preferences on/off On Off

1. What is your item?

Examples: horse, work truck, head of calves, bales of hay, etc.

2. What is the value of this item?

Example: the value of each horse worked is \$10

Visit: DiverseAg.org/money for more information.

Personal Preferences – Ranch Example

- Input calves as the item of interest.
- In this example, each calf is valued at \$500.
- What is the monthly payment of a truck bought for \$30,000?
- The interest on the loan is 6%, and there is no down payment.
- Plan to pay the loan off in 4 years.

Slide 14: This is a very generic example. Other examples can be used. The \$30,000 borrowed could also be fencing and corrals, equipment, etc.

MyFi Financial Assistant

Paying for a Loan

When you use a loan or a credit card to buy something, you will pay back the amount of the loan plus interest and any fees. Fill in the information in the gray boxes below to find out the total cost of buying using credit.

What is the annual interest rate?

How many years will you take to pay the loan back?

How much do you owe or does the item cost?

What is the amount of your down payment if any?

Your monthly payment will be \$704.55

The total amount you will pay in interest is 3,818.44
After making all your payments you will pay 33,818.44
Your interest cost is equivalent to 12% of the original cost.

You will need 1.8 calves each month
18.0 calves each year
 The total amount is equivalent to 17.8 calves
 The total interest is equivalent to 1.8 calves

Personal Preferences – Ranch Example

- You would like to purchase a pickup and need to borrow \$30,000 now. You will pay it off with monthly payments over 4 years. The interest rate is 6% annually.
- Use MyFi Assist, "Paying for a Loan"
- Calculate the monthly payment
- Calculate how many calves you would have to sell to make the truck payment.
- What is the total you will pay for the pickup?

Slide 15: The total payments each year could be used in an enterprise budget as the cost of the equipment. Being able to think about this in terms of what they are selling can help them know if they should buy something. In this example, what will the pickup provide to make it worth 17 calves? Would they rather have 17 calves or the pickup?

The screenshot shows a financial calculator interface with the following data:

Your monthly payment will be	\$704.55
The total amount you will pay in interest is	3,818.44
After making all your payments you will pay	33,818.44
Your interest cost is equivalent to 13% of the original cost	
You will need	1.4 calves each month
	16.9 calves each year
	The total amount is equivalent to 57.6 calves
	The total interest is equivalent to 7.6 calves

Below the calculator, there is a yellow button labeled "Menu".

- The monthly payment for the truck is \$705.
- 17 calves per year must be sold in order to make the truck payment.
- Can the business justify buying this truck?
- We will look at the effects of buying this truck using a sensitivity analysis, break-even analysis, and a partial budget.

Slide 16: They can also think about can they justify using 17 calves each year to pay for the truck? They will now have to have that may extra to have the same profit.

How Do You Become Wealthy?

Growth = Profit – Taxes – Consumption

Deferring taxes does not generate wealth

- Either increase profit or lower consumption
- Spend time looking at alternatives and effects of decisions (desk time).

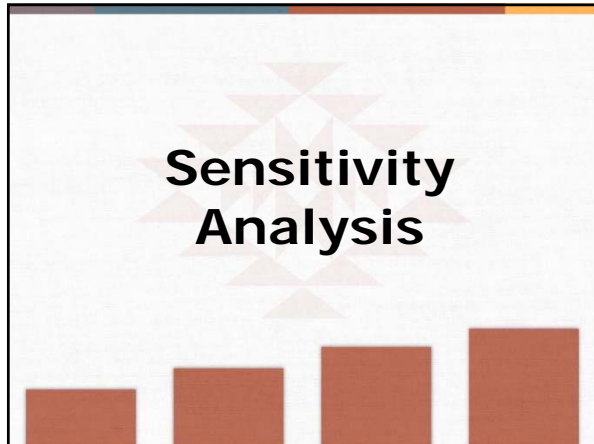
Slide 17: Profit is not wealth. Profit is what is made each year. If you work for someone as a job, the whole profit after taxes can be used as consumption. In a business, often profit must be kept in the business and not taken out for consumption or family living. That increases wealth. Sometimes people think deferring taxes increases wealth. If profits are zero taxes is zero, but there is no growth (increase in wealth).

To increase growth (change in wealth) look at ways to increase profit without increasing consumption.

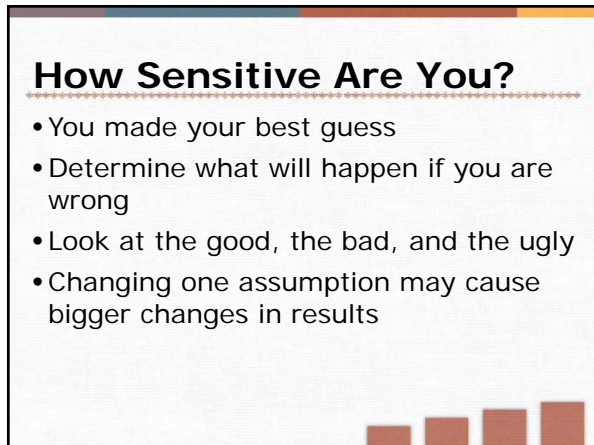
How Do You Become Wealthy?

- You do not need to be a financial expert
- Understand how changes affect bottom line so you know what to work on
- Use the tool to find out how much you need to change to make it profitable
 - Then think of what you can do physically on the farm or ranch

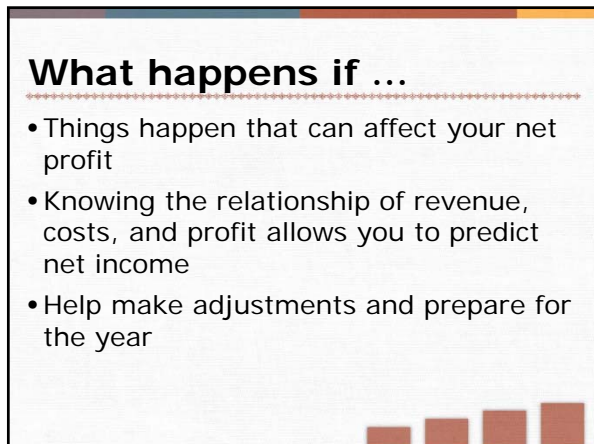
Slide 18: The next areas show how to use specific tools to analyze decisions and risk.



Slide 19: Sensitivity analysis is one way of understanding risk. You look at what happens if something changes.



Slide 20: These next two slides show why we do sensitivity analysis.



Doing it

- Need to know revenue (value of sales) for a typical year
- How much you paid for
 - Expenses
 - Labor
 - Overhead (electricity, phone, insurance, etc.)
- Convert to percentages of revenue

Slide 22: There is an Excel file that has the example used in the following. You can use the Excel file to look at participants situation.

• Sensitivity Analysis – Ranch Operation

What if we increased production by 10%?... Revenue would increase by 10%
Variable expenses would increase by 10%
Your bottom line would increase by 29%

Sensitivity Analysis: A Place To Start

change these cells to reflect the operation
Use these cells to examine the effect of percentage changes.

		% change	New Result
Revenue	\$ 306.00	10%	\$ 336.60
Expenses			
Inputs	\$ 97.00	10%	106.70
Feed	\$ 53.00	10%	58.30
Labor	\$ 33.00	10%	36.30
Overhead	\$ 80.00		80.00
Total Expenses	\$ 263.00		\$ 281.30
Net Income before taxes	\$ 43.00		\$ 55.30
Income taxes	15.0%	6.45	\$ 8.30
Net Income	\$ 36.55		\$ 47.01
			Percent change in net income 29%

• Sensitivity Analysis – Ranch Operation

What if we bought the \$30,000 truck? Revenue would stay the same

Sensitivity Analysis: A Place To Start

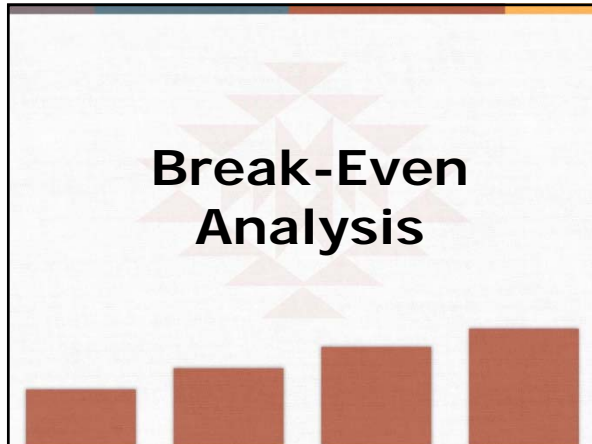
change these cells to reflect the operation
Use these cells to examine the effect of percentage changes.

		% change	New Result
Revenue	\$ 306.00		\$ 306.00
Expenses			
Inputs	\$ 97.00	-5%	92.15
Feed	\$ 53.00		53.00
Labor	\$ 33.00	-5%	31.35
Overhead	\$ 80.00	25%	100.00
Total Expenses	\$ 263.00		\$ 276.50
Net Income before taxes	\$ 43.00		\$ 29.50
Income taxes	15.0%	6.45	\$ 4.43
Net Income	\$ 36.55		\$ 25.08
			Percent change in net income -31%

Inputs:
Fuel and Vehicle Maintenance would decrease by ~5%
Labor for Maintenance would decrease by ~5%
The bottom line would decrease by 31%

Because no additional revenue is being generated, the bottom line is affected a lot. This does not take into account the time it takes to pay off the truck; it is the reflection of one year's worth of truck payments.

Slide 24: We know the truck payment, so we can use that to see what percent of overhead it would be. Then look at what might decrease for inputs and labor. We did some very basic examples here. This is better to use the Excel file and look at situations live. Look at a small change in price/revenue or a drop or increase in yield. Its also good to look at some combinations or changes that need to be made to get profit to increase by the desired percent. Often a few small changes can make the difference. In the ranch operation, maybe having a slightly heavier calf with some extra feed, but less feed is used because you are able to graze some fall fields.



Slide 25: This is another analytic tool. Here it is understanding what is your breakeven, price to quantity to either just break-even (zero profit) or to meet a profit goal.

Break-Even Analysis

- Utilize cash expenses to determine cash break-even costs
- Can calculate yields required to cover cost
- Helps determine your price floor
 - Cash cost
 - Total cost (economic cost)
- Custom operations or own equipment?

Slide 26: This is similar to what we were doing in the profit and margin analysis above. This just provides formulas and more specific ways of looking at it. It's important to understand your breakeven and know that there are multiple ways of looking at break even. You will see that in the next slides.

Break-Even Analysis

- Profit Equation

$$\text{Profit} = (\text{Price} * \text{Quantity}) - (\text{Unit Operating Cost} * \text{Quantity}) - \text{Total Fixed Cost}$$
- Given Price: Quantity to break-even (\$0 profit)

$$\text{Quantity} = \frac{\text{Total Fixed Cost}}{\text{Price} - \text{Variable Cost}}$$
- Given Quantity: Price needed to break-even

$$\text{Price} = \frac{(\text{Unit Operating Cost} * \text{Quantity}) + \text{Total Fixed Cost}}{\text{Quantity}}$$
- Price after taxes – solve for Quantity or Price with profit = \$0.

Slide 27: Another way to display the break even price is price = unit operating cost + Fixed cost/quantity.

Tomato Budget – Break-Even Price Analysis

Enterprise Budget for 14' x 100' Tomato Bed

Different break-even points:

Revenue	Quantity	Unit	Price	Total	% of Revenue
Product					
Tomatoes Average Price	450	lbs	\$1.50	\$ 675.00	100%
Total Revenue				\$ 675.00	100%
Expenses					
Materials				\$ 129.00	
Labor				\$ 530.00	
Marketing				\$ 20.00	
Ownership Expenses (Fixed Costs)				\$ 125.00	
Total Expenses				\$ 804.00	119%
Net income before taxes (revenue minus expenses)				\$ (129.00)	-19%
Income and self employment taxes				\$ (19.35)	-3%
Net profit				\$ (109.65)	-16%

- Cover variable costs
 - Variable Expenses / Quantity = Break-even price point
 - \$679/450 = **\$1.50 per lb.**
- Cover variable and fixed costs
 - (Variable + Fixed) / Quantity = Break-even price point
 - (\$679+\$125) / 450 = **\$1.78 per lb.**

Slide 28: Use the tomato budget in Excel to show the different break-even terms.

Tomato Budget – Break-Even Quantity Analysis

Enterprise Budget for 14' x 100' Tomato Bed

Different break-even points:

Revenue	Quantity	Unit	Price	Total	% of Revenue
Product					
Tomatoes Average Price	450	lbs	\$1.50	\$ 675.00	100%
Total Revenue				\$ 675.00	100%
Expenses					
Materials				\$ 129.00	
Labor				\$ 530.00	
Marketing				\$ 20.00	
Ownership Expenses (Fixed Costs)				\$ 125.00	
Total Expenses				\$ 804.00	119%
Net income before taxes (revenue minus expenses)				\$ (129.00)	-19%
Income and self employment taxes				\$ (19.35)	-3%
Net profit				\$ (109.65)	-16%

- Cover variable costs
 - Variable Expenses / Price = Break-even quantity point
 - \$679/\$1.50 = **452 lbs.**
- Cover variable and fixed costs
 - (Variable + Fixed) / Price = Break-even quantity point
 - (\$679+\$125) / \$1.50 = **536 lbs.**

Ranch Budget Example – Break Even

General Composite Ranch

This budget represents a 370-head cattle ranch operation.

Use these numbers to figure the break-even price points for:

- 370 cattle
- 231 calves
- Per CWT

	Price	Quantity	Unit	Total	Per AUY
INCOME					
Calves	\$85.00	231	5	\$98,350	\$266.16
Cull Cows	\$38.00	37	10	\$14,042	\$38.00
Culls Bulls	\$38.00	1	15	\$527	\$1.43
Total Income				\$112,918	\$306
EXPENSES					
Variable Costs					
Lease and Grazing Fees				\$8,510	\$23
Feed				\$11,090	\$30
Livestock Expenses				\$35,918	\$97
Labor				\$12,169	\$33
Total Variable Expenses				\$67,687	\$183
Fixed Costs					
Average Fixed Costs Per AU					
Cash fixed (property tax & insurance)	\$40			14781	\$40
Depreciation	\$40			14781	\$40
Total Fixed Expenses				\$29,562	\$80
Total Expenses				\$97,249	\$263
Net Cash Return Over Variable Expenses				\$45,231	\$122.41
Net Ranch Income				\$15,670	\$42.41

Slide 30: Use Ranch budgets to show and discuss break even

Ranch Budget Break-Even Analysis Examples

Costs	Breakeven		
	Per cow	Per calf	Per CWT
Variable Costs	\$ 183.18	\$ 292.50	\$ 58.50
Variable Costs & Cash Fixed Costs	\$ 226.18	\$ 361.16	\$ 72.23
All Costs (cash and non-cash)	\$ 269.18	\$ 429.82	\$ 85.96

What if we added the \$30,000 truck?

Costs	Breakeven		
	Per cow	Per calf	Per CWT
Variable Costs	\$ 175.56	\$ 280.33	\$ 56.07
Variable Costs & Cash Fixed Costs	\$ 235.56	\$ 376.14	\$ 75.23
All Costs (cash and non-cash)	\$ 295.56	\$ 471.95	\$ 94.39

- The break-even price to cover the variable costs went down because of a decrease in the variable inputs like fuel and maintenance.
- The decrease in the variable costs did not off-set the increase in the fixed expenses, therefore the break-even price point increased when we include all costs.



Break-Even Acres for Equipment

Break – even acreage

$$= \frac{\text{Annual Ownership Costs}}{\text{Custom Rates} - \text{Operating Costs Per Acre}}$$

Annual Ownership Costs: Annual; depreciation, interest, taxes, insurance, and housing

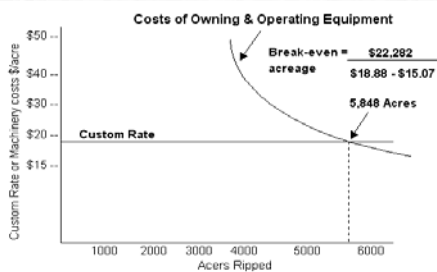
Custom Rate per Acre: Rate charged per acre

Operating Costs per Acre: Fuel, maintenance, labor, and other inputs

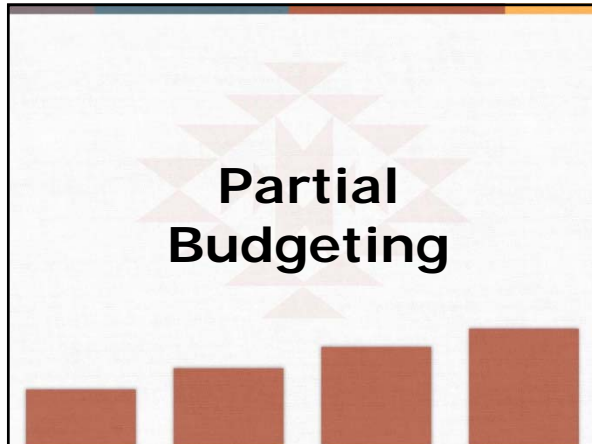


Slide 32: Producers are often faced with the decision of should I buy a piece of equipment or should I have the operation done by a custom operations? For example, should I buy a grain combine or they hire a customer harvest operation to do it. In this example the annual ownership costs including the payment and any annual insurance or taxes. The rate charged per acre by the custom harvesting operation would be the custom rate.

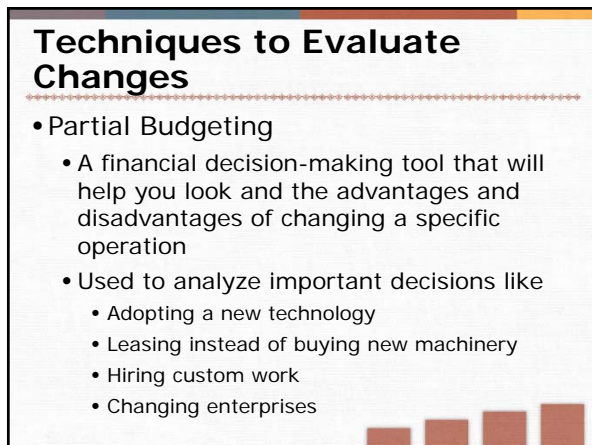
Break-Even Acres Self vs. Custom



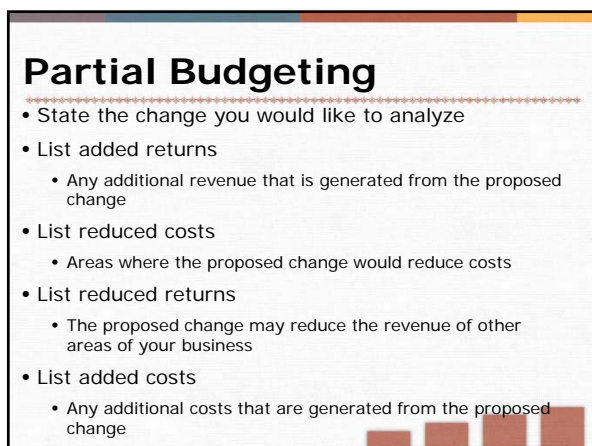
Slide 33: In this example, The owner would have to work 5,848 acres annually in order to break even with owning their own equipment vs using a custom operation at \$18.88 per acre. However another consideration that needs to be considered is the timing and availability of the custom operation. Sometimes losses can be incurred due to delayed harvesting, weed control, insect control, planting etc.



Slide 34: This is a good tool to look at changes that only affect some items. For example, planting corn instead of wheat.



Slide 35: Unlike an enterprise budget that needs all revenue and expenses for one thing, a partial budget only needs the information about what will change. However, the information is needed for both what is currently done, and what is being considered.



Slide 36: This is the information needed.



Thank You!

Business Management Module 4: Risk Analysis

Use the space below to record and compare the results of a 5% decrease in market prices, a 5% increase in expenses, and a 2% increase in interest rates for each strategy alternative. You will need to use software or another sheet of paper to calculate the effect of these very real market uncertainties. How do these market- and finance-related shocks affect your present business and its future under the strategy alternatives that you are considering?

	Base Plan	Strategy #1	Strategy #2
Effect of a 5% decrease in price			
Net income	_____	_____	_____
Net cash flow	_____	_____	_____
Effect of a 5% increase in expenses			
Net income	_____	_____	_____
Net cash flow	_____	_____	_____
Effect of a 3% increase in interest rates			
Net income	_____	_____	_____
Net cash flow	_____	_____	_____

Business Management Module 4: Enterprise Break-Even Analysis

Calculate the break-even value or volume for each enterprise or product. Try experimenting with a range of market prices to see how they affect your break-even volume. Is your break-even value below or above the projected market price you identified?

Break-Even Volume Enterprise or Product: _____

Annual overhead costs (a)	_____
Direct costs/unit (b)	_____
Estimated market value/unit (c)	_____
Break-even value (a+b)/(c)	_____
Estimated sales volume	_____
Upper limit or output capacity	_____

How does your break-even volume for this product compare to your projected sales volume and production capacity estimates? Can you break even?

Break-Even Volume Enterprise or Product: _____

Annual overhead costs (a)	_____
Direct costs/unit (b)	_____
Estimated market value/unit (c)	_____
Break-even value (a+b)/(c)	_____
Estimated sales volume	_____
Upper limit or output capacity	_____

How does your break-even volume for this product compare to your projected sales volume and production capacity estimates? Can you break even?
