Florida Small Farms and Alternative Enterprises Conference

The Business of Farming

11:00-12:30 Passing Down the Farm
2:00-3:00 Setting a Price Through Break-even Analysis
4:30-5:30 Farmer to Farmer Strategic Enterprise Assessments
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For more information on Small Farms, visit our website at: http://smallfarms.ifas.ufl.edu or contact your local County Extension Agent.

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The Business of Farming: Setting a Price Using Break Even Analysis

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LEARNING OBJECTIVE

- Price, Volume, Cost, Gross Margin relationship
- Markup vs margin
- Understanding costs as it relates to pricing
- Profit margin needed to cover costs and desired profit
- Determine PROPER pricing needed
- Break Even as a tool for all the above
KEY TERMS

- **Break-Even** ............................... To have no profit and no loss; the point at which revenues exactly cover expenses.

- **Variable Costs** ......................... Expenses that vary directly with sales; those costs that are incurred *only if* sales are made.

- **Variable Cost Percentage** ........ The percent of each dollar of sales that goes to cover variable costs.

- **Fixed Costs** ............................... Expenses that do not vary with sales; those costs that are incurred whether or not any sales are made.

- **Contribution Margin** ............... The amount left *after* variable costs are paid. The amount that is left to *contribute* to covering fixed costs (and profits).

- **Contribution Margin Percentage** ..................................The percent of each dollar of sales that is left after the variable cost percentage has been deducted; the amount from each dollar of sales that is contributed to cover fixed costs and profits.

- **Target Profit** .............................. The amount of profit that is planned. The profit that is added to fixed costs to determine the sales goals – in relation to a given contribution margin.
Selling Price = $1.50   Cost = $1.00
What’s my profit margin.....50%, 33.3%, other?

- Markup = \( \frac{1.50 - 1.00}{1.00} = 50\% \)
  \( \frac{(SP - C)}{C} \)

- GPM = \( \frac{1.50 - 1.00}{1.50} = 33.3\% \)
  \( \frac{(SP - C)}{SP} \)
Price Exercise

What is the selling price when cost is $4.00 and target gross margin is 26%?

a. Correct Answer: $5.41

Do the math: 

\[ \frac{4}{SP} = 0.74 \]

\[ SP = \frac{4}{0.74} \]

\[ \frac{4}{1 - 0.26} = \$5.41 \]

C/(1-GPM)

b. Most Common Wrong Answer: $4 \times 1.26 = $5.04
COSTS

- Fixed
  - independent of sales

- Variable
  - result of sales

- What are your fixed and variable costs?
  rent, payroll, utilities, insurance, fertilizer, seeds, machinery, production labour, etc.
The Cup Theory
The Concept of Contribution Margin

Sales Dollars -> Variable Cost Cup -> Fixed Cost Cup -> Contribution Margin -> Net Profit Cup
Break Even

- No profit is made……Sales = Total Costs
- BE($) = (FC )/GPM
- Exercise
  If FC = $100, VC = $1, GPM = 25%, what’s BE

  BE ($) = 100/.25 = $400  ($1 in FC req $4 sale)
  BE (SP) = BE($) / Units  4 = 400/100
  BE (U) = BE ($) / SP  100 = 400 / 4
EXERCISE

- If I want $100 in profit, what must my sales be?
  - $500, $525, $625, $800, $2000, “I Don’t Know”

Let’s do the math: Treat profit as a fixed cost

FC = $100 + $100 profit = $200
BE ($) = $200 / .25 = $800

After BE ($), Additional Sales create Profit

$AS = $100 profit / .25GPM% = $400
Add $400 for BE + $400 for profit for $800 total sales
Check sales price and units to see if profit is feasible
Break Even and Price

- How changes in price, costs, gross margin affect BE and profitability

Four ways to increase profit:

Sales: Increase volume sold
      Increase price (inc. GPM which dec. BE $ and vol)

Costs: Lower FC (dec. BE $ and vol)
       Lower VC (inc. GPM which dec. BE $ and vol.)
FARMING CHALLENGES

- Multiple crops
  - identifying VC for each....fertilizer, irrigation, labor (planting and harvest), acreage use
- Uncontrollable Factors
  - yield, spoilage, unsellable product, competing quality
- Price Influencers
  - commodities market, customer (consumer/commercial/distribution channel)
STEPS TO CALCULATE BREAK EVEN

- Identify costs as FC or VC; total each
- Calculate VC as percentage of sales
  \[ VC\% = \frac{VC}{Sales} \]
- Determine GPM (aka Contribution Margin)
  \[ GPM \text{ (or CM)} = 1 - VC\% \]
- \[ BE(\$) = \frac{FC}{GPM} \]
- \[ BE(SP) = \frac{BE(\$)}{Units} \]
- \[ BE(U) - BE(\$) / SP \]
SUGGESTIONS

- The Key to Break-Even Analysis - Know Your Cost Structure! So you can effectively react to changes in your business
  - Price
  - Volume
  - Costs
- KISS, if unsure cost is variable or fixed, treat it as fixed
- Generate P&L Statement (aka Income Statement)
- If no P&L, use Tax returns
- Accurate and timely recordkeeping, especially costs
Focuses attention on fixed costs and variable costs -- and how changes in either affect profits.

Relate changes in costs and/or changes in pricing to the corresponding changes required in sales volume if a given level of profit is to be maintained.
Benefits of Break Even Analysis

Allows you to answer questions such as:

- What additional sales will I need to cover the rent increase my landlord is proposing?
- If I raise prices, how much can my sales drop before my profits are affected?
- If sales drop (in a recession, for example), how much do I need to cut fixed costs to maintain my current level of profit?
- If I cut my price, what additional sales will I have to make in order to maintain my current profit level?
Profit Considerations

- Should I plant a different crop than planned?
- Can I hedge profit by allocating some of the crop to a fixed price channel? (CSA or Presold)
- If prices drop can I offset with a drop in labor? (switch to U-Pick or Buy-a-Row)
- Can I move product to a niche market with a higher price? (fertilized eggs vs. non-fertile)
- Can I increase profit by adding value? (cheese vs. milk or stew package vs. bulk vegetables)
Breakeven is a planning tool, but don’t plan to breakeven... plan for a target profit.

You can calculate breakeven by crop or for the entire farm (enterprise breakeven).

If you calculate by crop it will enable you to:
- Plan the least loss in a rotated field
- Determine if a crop should be plowed under after a price or weather event
- Compare crop costs year over year if different production methods or processes are tried.