Breaking Barriers for Beginning Farmers and Ranchers
(NIFA-USDA #2010-49400-21729)

Budgeting Your Garden

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Department of Agricultural Sciences

Seminar Series
AC Williams Elementary School
615 Culver Street, Commerce, TX 75428
October 4th, 2012
What is a Budget?

• A budget provides an estimate of potential revenue, expenses, and profit
• A budget can be done for a single enterprise (also called enterprise budget)
• What is an enterprise?
  – A type of crop or livestock
• The base unit for crops is usually one acre
• The base unit for livestock may be one head or some other convenient size
Budgets

- Budgets represent typical situations
- The primary purpose is to estimate the projected costs, returns, and profit
- Budgets help planning
## Budget for Watermelon Production (One Acre)

<table>
<thead>
<tr>
<th>Item</th>
<th>Value per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
</tr>
<tr>
<td>250 cwt @ $5.50 per cwt</td>
<td>$1,375.00</td>
</tr>
<tr>
<td><strong>Variable Costs</strong></td>
<td></td>
</tr>
<tr>
<td>Seed</td>
<td>$80.00</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>95.50</td>
</tr>
<tr>
<td>Chemicals</td>
<td>97.75</td>
</tr>
<tr>
<td>Machinery expense</td>
<td>35.15</td>
</tr>
<tr>
<td>Custom Spray</td>
<td>8.00</td>
</tr>
<tr>
<td>Harvesting and Hauling</td>
<td>500.00</td>
</tr>
<tr>
<td>Labor</td>
<td>320.00</td>
</tr>
<tr>
<td>Interest @ 10% for 6 months</td>
<td>56.82</td>
</tr>
<tr>
<td><strong>Total variable cost</strong></td>
<td>$1,193.22</td>
</tr>
<tr>
<td><strong>Income above variable cost</strong></td>
<td><strong>$181.78</strong></td>
</tr>
<tr>
<td><strong>Fixed Costs</strong></td>
<td></td>
</tr>
<tr>
<td>Machinery depreciation, interest,</td>
<td>$62.00</td>
</tr>
<tr>
<td>taxes, and insurance</td>
<td></td>
</tr>
<tr>
<td>Land charge</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Total fixed costs</strong></td>
<td><strong>$162.00</strong></td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td><strong>$1,355.22</strong></td>
</tr>
<tr>
<td><strong>Estimated Profit</strong></td>
<td><strong>$19.78</strong></td>
</tr>
</tbody>
</table>

**Source:** Kay, Edwards, and Duffy (p. 178, 2011)
Remarks

• Most enterprise budgets cover a year or less.
• Revenue is typically shown first.
• The cost section comes next.
  – Variable (or operating) costs
    • Pre-harvest
    • Before harvest
  – Fixed costs
    • Costs of the machinery needed to produce
    • Cost of the land used
  – Economic budgets include opportunity costs
    • Operator labor, capital used for variable costs, capital invested in machinery, and capital invested in land.
Economic Budgeting

• On an economic budget, some opportunity costs are included.
• Typically, these opportunity costs are for operator labor and for capital invested in equipment, machinery and land.
• The profit or return that is calculated including these costs is an economic profit.
• In the example watermelon budget, no opportunity cost was included for management.
• The profit in the watermelon budget is therefore the return to management.
Examples of Operating or Variable Expenses

a. Seed, Fertilizer, and Pesticides
b. Fuel and Lubricants
c. Machinery Repairs
d. Replacement of equipment
e. Labor
f. Interest
g. Etc.
Vegetable Seed, Fertilizer, and Pesticides

• BWI Companies Inc.
  – http://bwicompanies.com/

• Genetic Seed & Chemical
  – http://www.geneticseed.com/

• Willhite Seed Inc.
  – http://willhiteseeds.com/
Grain Farmers

• Estes Inc
  – http://www.estesinc.com/

• Helena Chemical Company
  – http://www.helenachemical.com

• El Dorado Chemical Company
  – http://www.eldoradochemical.com/
Examples of Fixed Expenses

a. Machinery Depreciation
b. Machinery Interest
c. Machinery Taxes and Insurance
d. Land Charge
e. Miscellaneous Overhead
Constructing a Budget for Your Garden

• The unit of measurement in a budget is usually
  – For livestock, one head
  – For cattle, one cow
  – For swine, one litter
  – For poultry, 100 birds

• To budget your garden, you may use the measurement of the land you have available

• The time period considered in the budget may be one year or one month
Budgeting Your Garden

a. Unit of Measurement
b. Period of Time
c. Single or Multiple products
d. Assessment of Facilities
e. Inventory of Equipment
a. Unit of Measurement

- To budget your garden, you may use the measurement of the land you have available.
b. Period of Time

• The time period considered in the budget may be one year or one month.
• Costs and revenues should be calculated for the same time period.
c. Single or Multiple Products

A budget for a garden may include one or several of the following:

- Tomatoes
- Lettuce
- Cucumbers
- Carrots
- Herbs
- Etc.
d. Assessment of Facilities

- Annual depreciation, interest, taxes, and insurance should be computed for each facility when relevant.
e. Inventory of Equipment and Supplies

- Need to identify variable and fixed expenses
Lumber 2 in x 6 in x 10 ft

Community Food and Garden Network recommends ACQ (Alkaline Copper Quat) Ground Contact treated lumber that the Food and Drug Administration (FDA) approves for food contact and growing. This lasts for at least 10 yrs.

Image Source: homedepot.com
Wooden Raised Bed 4 ft x 12 ft

Image Sources: baybranchfarm.com
Garden Gloves
Tools

- **Long-Handled Spade**
  Unlike shovels, spades have straight blades set at an angle and are used for cutting and digging into soil.

- **Spading Fork**
  With their square, flat tines, these heavy-duty forks are invaluable for preparing and moving soil.

- **Steel Rake**
  Break up clay and soil clods, rake in fertilizer and smooth out soil with these tools.

- **Hoe**
  Hoes come in all shapes and sizes. They are used to form rows, make seed holes, cover seeds, till soil and cut/remove weeds.

- **Hand Trowel**
  Trowels are efficient for marking rows, weeding, making furrows, potting and moving smaller plants.
Long Handled Garden Hoe

Image Source: amazon.com

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Shovels with Long Handles
Long Handled Shovel
Garden Trowel

*Image Source:* lawn-and-garden.hardwrestore.com

*Image Source:* organicgardeninfo.com

*Image Source:* ok.gov
Fan Rake

Image Source: sears.com

Image Source: promo-wholesale.com

Image Source: amazon.com

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Hand Cultivator

*Image Source:* amazon.com

*Image Source:* gardentoolcompany.com

*Image Source:* gardentoolcompany.com
Veggies and Beans

Carrots
Watermelon
Green Soy Bean
Cucumbers
Radish
Lettuce
Green Beans
Tomatoes

*Image Sources:* willhiteseed.com
Seed Starter Tray

Image Source: dirtworks.net

Image Source: tianhua-plastics.com

Image Source: ebay.com
Seed Starting Mix

Image Sources: amazon.com
¾ inch 75 ft Garden Hose

Colorite Element ELCF34075 Contractor Farm Lead Free, Kink Free 3/4-Inch-by-75-Foot Garden Hose, Brick

Image Sources: amazon.com
Garbage Bags

Image Sources: amazon.com
Organic Garden Fertilizer

Image Sources: amazon.com
Outdoor Pushbroom

Image Source: amazon.com

Image Source: homedepot.com

Image Source: amazon.com
Plastic Plant Labels

Image Sources:
amazon.com
homedepot.com
Wooden Stakes

*Image Sources:*
amazon.com
homedepot.com

<table>
<thead>
<tr>
<th>Size</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 in x 2 in x 24 in</td>
<td>2 ft long and 2 inches in diameter</td>
</tr>
<tr>
<td>1 in x 2 in x 36 in</td>
<td></td>
</tr>
</tbody>
</table>
How are wooden stakes used?

Image Sources: amazon.com
Twine

Image Sources:
amazon.com
Trash Receptacle (Trash Can)

Image Sources:
amazon.com
webstaurantstore.com
Hand Towel

Image Sources:
amazon.com
homedepot.com
lowes.com

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Bypass Pruning Shears

*Image Sources:*
homedepot.com
amazon.com
lowes.com
homedepot.com
Non-Priority Items
10 ft x 8 ft Storage Shed

Vinyl-coated Steel

Image Source: homedepot.com

Galvanized Steel

Image Source: lowes.com

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Budgeting Your Garden
Wheelbarrow

4 cubic feet

Image Source: amazon.com

5 cubic feet

Image Source: homedepot.com

7 cubic feet

Image Source: homedepot.com
Scale

11 lbs or 5kg capacity

22 lbs or 10 kg capacity

44 lbs or 20 kg capacity

*Image Source:*
amazon.com

*Image Source:*
ahomedepot.com
Plastic Tote Box

18 gallons  
50 gallons

Image Sources: amazon.com, homedepot.com, lowes.com
Rain Barrel

Image Sources:
homedepot.com
lowes.com
livingdirect.com

50 gallons

55 gallons

60 gallons
Picnic Table

6 ft. length

72 in. or 7.2 ft. length

*Image Source:* homedepot.com

*Image Source:* lowes.com
Wooden Garden Benches
Budget
### Budget for Your Garden

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost ($)</th>
<th>Unit</th>
<th>Qty</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumber 2&quot; x 6&quot; x 10'</td>
<td>7.00</td>
<td>per piece</td>
<td>6</td>
<td>42.00</td>
</tr>
<tr>
<td>Gloves</td>
<td>7.27</td>
<td>each</td>
<td>1</td>
<td>7.27</td>
</tr>
<tr>
<td>Long-Handled Garden Hoe</td>
<td>27.54</td>
<td>each</td>
<td>1</td>
<td>27.54</td>
</tr>
<tr>
<td>Long-Handled Shovel</td>
<td>18.66</td>
<td>each</td>
<td>1</td>
<td>18.66</td>
</tr>
<tr>
<td>Trowel</td>
<td>4.49</td>
<td>each</td>
<td>1</td>
<td>4.49</td>
</tr>
<tr>
<td>Fan Rake</td>
<td>8.04</td>
<td>each</td>
<td>1</td>
<td>8.04</td>
</tr>
<tr>
<td>Hand Cultivator</td>
<td>5.00</td>
<td>each</td>
<td>1</td>
<td>5.00</td>
</tr>
<tr>
<td>Veggie Seeds</td>
<td>1.3</td>
<td>per packet</td>
<td>10</td>
<td>13.00</td>
</tr>
<tr>
<td>Seed Starter Tray</td>
<td>7.15</td>
<td>each</td>
<td>10</td>
<td>71.50</td>
</tr>
<tr>
<td>Seed Starting Mix</td>
<td>7.50</td>
<td>per 16 quart bag</td>
<td>1</td>
<td>7.50</td>
</tr>
<tr>
<td>Garden Hose</td>
<td>44.44</td>
<td>3/4&quot; x 75 feet</td>
<td>1</td>
<td>44.44</td>
</tr>
<tr>
<td>Garbage Bags</td>
<td>26.99</td>
<td>70 bags of 33 gallons</td>
<td>1</td>
<td>26.99</td>
</tr>
<tr>
<td>Organic Garden Fertilizer</td>
<td>13.76</td>
<td>4 lbs</td>
<td>1</td>
<td>13.76</td>
</tr>
<tr>
<td>Pushbroom</td>
<td>18.99</td>
<td>each</td>
<td>1</td>
<td>18.99</td>
</tr>
<tr>
<td>Wooden Stakes</td>
<td>17.93</td>
<td>pack of 25</td>
<td>1</td>
<td>17.93</td>
</tr>
<tr>
<td>Twine</td>
<td>3.04</td>
<td>per 190 ft</td>
<td>1</td>
<td>3.04</td>
</tr>
<tr>
<td>Trash Can</td>
<td>9.88</td>
<td>32 gallon trash can</td>
<td>1</td>
<td>9.88</td>
</tr>
<tr>
<td>Hand Towel</td>
<td>10.65</td>
<td>set of 2</td>
<td>1</td>
<td>10.65</td>
</tr>
<tr>
<td>Bypass Pruner</td>
<td>19.98</td>
<td>each</td>
<td>1</td>
<td>19.98</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$380.65</strong></td>
</tr>
</tbody>
</table>
Where to sell your produce?
Where to sell your excess produce?

- Farmer’s Markets
- Local supermarkets
- Local restaurants
- Start your own business
Fruteria Mary, Sulphur Spings, TX
Prices and Yields

• The appropriate price and yield data used in an enterprise budget will depend on its use.
• A budget for next month’s planning may use current price and yield.
• A budget to be used for next year’s planning will require the best estimate of next year’s price and yield.
• A budget used for long-run planning will require estimates of average prices and yields over the long run.
Cost of Production

Cost of Production = \( \frac{\text{Total Cost}}{\text{Yield}} \)

- If the product can be sold for more than the cost of production, a profit will be made.
- If opportunity costs are included in the budget, the resulting profit is an economic profit.
Break-Even Analysis

- The budget can be used to do a break-even analysis
- Break-even yield and break-even prices can be computed
Break-Even Yield

The table below shows a hypothetical analysis of break-even yields for different expected prices.

<table>
<thead>
<tr>
<th>Total Cost ($)</th>
<th>Price ($/lb)</th>
<th>Break-even yield (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>0.75</td>
<td>133</td>
</tr>
<tr>
<td>100</td>
<td>1.00</td>
<td>100</td>
</tr>
<tr>
<td>100</td>
<td>1.25</td>
<td>80</td>
</tr>
<tr>
<td>100</td>
<td>1.50</td>
<td>67</td>
</tr>
<tr>
<td>100</td>
<td>1.75</td>
<td>57</td>
</tr>
</tbody>
</table>
Break-Even Price

The table below shows a hypothetical analysis of break-even prices for different expected yields.

<table>
<thead>
<tr>
<th>Total Cost ($)</th>
<th>Yield (lbs)</th>
<th>Break-Even Price ($/lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>250</td>
<td>0.40</td>
</tr>
<tr>
<td>100</td>
<td>300</td>
<td>0.33</td>
</tr>
<tr>
<td>100</td>
<td>350</td>
<td>0.29</td>
</tr>
<tr>
<td>100</td>
<td>400</td>
<td>0.25</td>
</tr>
<tr>
<td>100</td>
<td>450</td>
<td>0.22</td>
</tr>
</tbody>
</table>
Summary

• Budgets help deter future income and expenses for a single enterprise.
• Most enterprise budgets include opportunity costs in addition to explicit costs and depreciation.
• Enterprise budgets can be used to compare the profitability of different enterprises and are useful for developing a whole-farm plan.
Questions?
Next Seminar

Thursday, October 11, 2012, 6:00 – 8:00 p.m.

Food Preservation

AC Williams Elementary School
615 Culver Street, Commerce, TX 75428
Thanks!