Enterprise Budgeting

Enterprise budgeting is a primary tool to use in planning and decision making. It enables a manager to determine the profitability of an existing or an alternative enterprise before any money is invested. In light of the "cost" of making poor decisions, using "paper and pencil management" first, may be a very profitable practice.

All budgeting is guided by five basic economic principles:

1. Invest money where it will earn the largest returns (Maximum Profit Principle) — with limited resources, use each resource where it will give the greatest return.

2. Invest more if the returns increase — continue to add units of input as long as the resulting output or return is greater than the added costs.

3. Invest as little as possible in costs (inputs) — as long as output is maintained, substitute one input for another if the costs of the new input is less than the costs of the input it replaced.

4. Invest in a different product if the return (output) is greater — with costs remaining constant, substitute one product for another as long as the value of the new product (output) is greater than the one it replaced.

5. Discount for time and risk — if different problems or decisions involve different time periods or levels of risk, adjustments (discounts) must be made in order to make comparisons.

The budget process can involve any one, a couple or all five principles in making decisions. The type of budget is not tied to any one principle or vice versa. These economic principles are used as required in the decision making process while the type of budget determines what will be planned.

The production of one commodity makes up an enterprise. A budget is a list of all income and expenses of production. Hence, an enterprise budget is a detailed list of all income and expenses related to one commodity. Even though a farm business may produce several commodities, the enterprise budget separates all income and expenses into single crop or livestock enterprises. Each enterprise is based on a small common unit, usually per acre or per head. This allows the manager to compare different enterprises for profitability.

For the most part, crop and livestock enterprise budgets are very similar. Both are made up of three primary sections: income, variable costs and fixed costs. Variable costs are inputs that will change proportionately depending upon the volume of production. Fixed costs are inputs that will not change with production volume.

Livestock budgets are different from crop budgets in that they usually have several types of output to account for, such as: calves, cull cows for a beef herd; milk, calves, cull cows for a dairy; and lambs, wool, cull ewes for sheep. They must also determine how to account for raised feedstuffs fed to the livestock and raised and/or purchased replacement animals to maintain a breeding herd.
Income Section: Start by estimating output (production levels) and the expected price. Crop production should be the average expected yields under normal weather conditions, taking into account the soil type and the amount of inputs to be used. Livestock production also should be the average expected output with consideration for death loss, breeding rate, replacement rate, prorated share for male/female offspring and cull animal sales.

Example: Beef cow/calf enterprise -- based on one beef cow, 90 percent calving rate, 10 percent replacement rate, an average of 0.45 steer calf/cow, 0.35 heifer calf/cow and 0.1 cull cow sold per year for each cow in the herd. For simplicity, there is no death loss in the cow herd, which would be very small.

Income:

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Price</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steer calf</td>
<td>0.45 hd</td>
<td>500 lbs @ $0.94</td>
<td>$211.50</td>
</tr>
<tr>
<td>Heifer calf</td>
<td>0.35 hd</td>
<td>450 lbs @ $0.84</td>
<td>132.30</td>
</tr>
<tr>
<td>Cull cow</td>
<td>0.10 hd</td>
<td>1100 lbs @ $0.45</td>
<td>49.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$393.30</strong></td>
</tr>
</tbody>
</table>

Note: 0.45 hd steer calf plus 0.35 hd heifer calf equals 0.80 of a calf per cow per year, which is equal to a 90 percent calving rate less a 10 percent replacement rate (heifers retained for breeding). It is calculated this way to compensate for the difference in price and weight between steer and heifer calves, not knowing what sex the calf will be and the fact that some heifers are retained for breeding stock.

Prices should be the manager’s best estimate for the planning year when sales are expected to take place. Output and price have a great impact on the profitability of an enterprise budget so try to be as accurate as possible knowing “perfect prediction” is not the aim. Conservative, realistic estimates based on good, sound records or factual advice balanced with common sense management should be the rule.

Variable Costs Section: Variable costs may include seed, fertilizer, chemicals, feed, vet/medicine, and supplies (on a per acre/head basis) and are relatively straight forward. The quantities and prices usually are available in farm records or can be obtained easily. For the crop enterprise, fuel, machinery repairs and labor depend on size and type of equipment used, and the number of operations to be performed. Labor is directly accounted for by the enterprise and should include both hired labor and owner/operator labor. Whether the owner receives a salary or not, a labor rate representing the value of the owner’s labor should be included. For the livestock enterprise, all purchased feed should show its estimated cost, but raised feed should show its market value. This will automatically include an opportunity cost for feeding that item as opposed to selling it. The alternative, which can be done but is not as accurate, is to value all raised feed at cost of production. This will eliminate the opportunity cost portion. A pasture charge for grazing animals should be included, which is the total costs of seed, fertilizer and chemicals used to maintain the pastures. This information should come from the pasture enterprise budget. Also included are prorated charges for repairs to buildings, equipment, and fences; for machinery used by the livestock enterprise, and for maintaining replacements.

One item that is included on both crop and livestock budgets is interest on variable costs. This is an opportunity cost of capital for the variable costs of production. It covers the period from the time capital is expended for the variable inputs to harvest/sale. Usually a six-month time frame is used for an average estimate at the available interest rate. Use the following formula to calculate this amount: total variable costs times the interest rate times 0.5 (represents six months).

Fixed Costs Section: There are two primary fixed costs associated with a crop enterprise, machinery and a land charge. The machinery fixed cost should include depreciation, insurance, repairs, taxes (property, not income) and interest, easily remembered by the acronym "DIRT I 5." This amount should be prorated for each crop on a per acre basis. The repairs portion may be covered in the variable cost section depending upon the type of repairs. The tax portion is only for personal property tax and may not apply. If all machinery work is done on a custom basis, then use that amount which will serve as an important comparison.

The land charge is the opportunity cost of land and represents a charge for its use. It can be figured in one of three ways: (1) an interest charge based on the value of the land, Ex. $500/acre times 9 percent equals an annual land charge of $45; (2) the owner’s rental income from a typical crop share lease; or (3) a typical cash rent charge. One of the two rental methods is the most appropriate and most accurate to use. If the land is rented, then the actual rental charge is used.

Livestock enterprise fixed costs typically include: a land charge (figured similarly to the crop enterprise); depreciation on breeding livestock (if purchased) and facilities; and opportunity cost interest (or actual interest if borrowed money) on the capital invested in livestock, including replacements, equipment and facilities. If the land charge is
included on a crop enterprise budget and feed costs come from that budget do not include a land charge on the livestock budget or you will be counting the cost twice. The depreciation on purchased livestock represents the replacement value and should be prorated for replacement dams and sires; Ex. -- purchase price for a bull $2,000, cull value $500, will be used for three years on 25 cows. Bull depreciation or charge equals $2,000 - $500 divided by 3 years = $500; to get a per cow basis divide by 25 = $20 annual per cow charge.

By following the guidelines above, the estimated profit would represent a "pure" profit. It is also regarded as a return to management since all other costs are accounted for in the budget, including opportunity costs for investments and a charge for all labor. A management charge can be included in the fixed cost section, if so desired, resulting in the estimated profit being just that, (Ex. -- 5 percent of gross income). For this discussion the estimated profit will represent a return to management. In this regard, an estimated profit equal to zero is not all together bad, especially in the short run with long-term improvement, since all other costs are covered.

An enterprise budget does not automatically determine the profit-maximizing input levels since it represents only one point in the production function. Looking at management alternatives for maximizing profit within the enterprise should be done before completing an enterprise budget.

The enterprise budget can be used to determine break-even prices and yields for both crop and livestock budgets. The following formulas describe this process:

\[
\text{Break-even yield} = \frac{\text{total costs}}{\text{output price}}
\]

\[
\text{Break-even price} = \frac{\text{total costs}}{\text{expected yield}}
\]

Since both use estimated instead of actual numbers, the break-even yield and price become very beneficial information when you make management decisions. Also by using a previous years actual production figures, you can calculate your actual break-even price/yield for the year.

Cost of Production is a term that describes the average cost of producing one unit of a given product. It is equivalent to the concept of average total cost if the same costs and yield are used to calculate each. It is found by the following formula:

\[
\text{cost of production} = \frac{\text{total cost/acre or head}}{\text{estimated yield (output)}}
\]

As you can see the cost of production is the same as break-even price. Cost of production has become a more widely used term but just as with break-even price and yield, it is only as good as the estimated prices and yields used in its computation.

Enterprise budgets are very beneficial business management tools. The W.Va. TRIM resource notebook contains examples of crop, horticultural and livestock enterprise budgets. These budgets can be very useful as guides in developing your own enterprise budgets. The important thing to remember is to fill in your own information from your farm business situation to find out what your costs are.