AGRICULTURAL ALTERNATIVES

Enterprise Budget Analysis

The *Agricultural Alternatives* series provides information on marketing, production costs, resource requirements, and other management factors that small-scale and part-time farmers should consider before starting an alternative farm enterprise. This publication explains the design and format of sample budgets used in the series.

Using Enterprise Budgets

Enterprise budgets represent estimates of receipts (income), costs, and profits associated with the production of agricultural products. The information contained in the enterprise budgets can be used by agricultural producers, extension specialists, financial institutions, governmental agencies, and other advisers making decisions in the food and fiber industry. Budgets are used to:

- itemize the receipts (income) received for an enterprise
- list the inputs and production practices required by an enterprise
- evaluate the efficiency of farm enterprises
- estimate benefits and costs for major changes in production practices
- provide the basis for a total farm plan
- support applications for credit
- inform nonfarmers of the costs incurred in producing food and fiber crops

Enterprise budgets should be prepared with specific objectives in mind. The sample budgets in this and other *Agricultural Alternatives* publications should help ensure that you include all costs and receipts in your own budget. Receipts and costs often are difficult to estimate in budget preparation because they are numerous and variable. Therefore, you should think of the sample budgets as a first approximation and then make appropriate adjustments using the column "Your Estimate" to add, delete, and adjust items that reflect your specific production situation. The example dairy and corn budget formats in this publication outline typical livestock or crop budgets. These examples, unlike those for specific enterprises in this series, omit the estimated amounts for individual entries.

Enterprise budgets should contain receipts for every product and by-product of the enterprise. Prices used should reflect market values and productivity of enterprise resources (land, labor, equipment, etc.).

Enterprise budgets contain several cost components. Determining the costs of production practices can be difficult. Individuals often disagree over which costs to include and how they should be measured. Understandably, these differences arise because production costs are unique to each resource situation. An important financial distinction is the concept of variable and fixed costs.

This publication was developed by the Small-scale and Part-time Farming Project at Penn State with support from the U.S. Department of Agriculture–Extension Service.

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- Variable costs are those expenses that vary with output within a production period. Examples include expenses for feed, marketing, herd health, breeding, seed, fertilizer, chemicals, fuel, repairs, and hourly or seasonal labor. Other terms used to describe variable costs include cash costs (or expenses), direct costs, and out-of-pocket costs.
- Fixed costs do not vary with the level of output. They include depreciation, taxes, interest on investment, land charges, salaried labor, and insurance. Sometimes a management fee also is included as a fixed cost. Indirect, noncash, and overhead costs are other terms used to describe fixed costs.
- Total costs are variable and fixed costs added together. While an enterprise should earn a profit above total costs, this is not always possible. Income received often is less than total production costs. Should an enterprise be continued under these circumstances? The answer may be yes if (l) returns are above variable costs and (2) this is a short-term condition. If fixed costs are not covered in the long run, however, reinvestment in capital items (such as tractors, implements, buildings, and equipment) cannot be made and existing capital stock eventually is depleted.

Breakeven Analysis

Enterprise budgets are useful for performing breakeven analysis for prices and yields. The breakeven price is computed as follows:

Breakeven price = anticipated total costs ÷ anticipated yield

This is the minimum price per unit required to cover all costs at the anticipated yield. The breakeven yield is computed as follows:

Breakeven yield = anticipated total costs ÷ anticipated price

This is the minimum yield required to cover all costs at the anticipated price per unit.

Breakeven analysis is a useful farm management tool because it allows calculation of various combinations of price and yield that will cover anticipated costs. Breakeven analysis can also be used to calculate the breakeven price or yield required to cover variable costs (short-term production decisions). If anticipated receipts are greater than anticipated variable costs, you should continue the enterprise. Any loss would be equal to some amount between the difference in total costs (variable costs plus fixed costs) and variable costs. If anticipated receipts are less than variable costs, losses would be minimized by not continuing the enterprise. In this situation, losses would be limited to the amount of fixed costs that you would have to absorb.

Enterprise Planning and Financial Management

Enterprise budgets also are very useful in selecting the mix of enterprises which will be undertaken on the farm. They can be used to provide an estimate of overall profitability and resource requirements (land, machinery, labor). Budgets also can be used to estimate borrowing needs and cash flow for the farming operation. When borrowing money to finance operations, you can show that you have carefully evaluated potential earnings and credit needs with a good set of enterprise budgets.

Published Budgets

Penn State Cooperative Extension, like many state extension services, makes production cost and return estimates (in budget format) for many crop and livestock enterprises. In Pennsylvania, these budgets are available through county extension offices and PENpages—a computerized document retrieval system maintained by the Penn State College of Agricultural Sciences. Budgets are provided in the following production guides and handbooks.

Penn State Agronomy Guide
Beef Cow Management
The Penn State Farm Management Handbook
Pennsylvania Forage Handbook
Small Fruit Production and Pest Management Guide
Tree Fruit Production Guide

Prepared by George L. Greaser, senior research associate for agricultural economics, and Jayson K. Harper, assistant professor of agricultural economics.

Example Crop Budget Format

Conventional corn grain production.
Summary of estimated costs and returns per acre.

Item	Quantity	Unit	Price	Total	Your Estimate
Receipts					
Corn	_____	bushel	_____	_____	_____
Other	_____	_____	_____	_____	_____
Total receipts				_____	_____
Variable costs					
Custom lime application	_____	ton	_____	_____	_____
Fertilizer					
Nitrogen	_____	pound	_____	_____	_____
P2O5	_____	pound	_____	_____	_____
K2O	_____	pound	_____	_____	_____
Herbicides					
_____	_____	gallon	_____	_____	_____
_____	_____	gallon	_____	_____	_____
_____	_____	gallon	_____	_____	_____
Insecticides					
_____	_____	pound	_____	_____	_____
_____	_____	_____	_____	_____	_____
Soil test	_____	acre	_____	_____	_____
Corn seed	_____	acre	_____	_____	_____
Labor					
Tractor	_____	hour	_____	_____	_____
Self-propelled equipment	_____	hour	_____	_____	_____
Additional labor	_____	hour	_____	_____	_____
Fuel					
Tractors	_____	gallon	_____	_____	_____
Self-propelled equipment	_____	gallon	_____	_____	_____
Drying	_____	points	_____	_____	_____
Repairs and maintenance					
Tractors	_____	acre	_____	_____	_____
Self-propelled equipment	_____	acre	_____	_____	_____
Implements	_____	acre	_____	_____	_____
Interest on operating capital			_____	_____	_____
Total variable costs				_____	_____
Fixed costs					
Tractors		acre	_____	_____	_____
Self-propelled equipment		acre	_____	_____	_____
Implements		acre	_____	_____	_____
Land charge		acre	_____	_____	_____
Total fixed costs				_____	_____
Total costs				_____	_____
Returns					
Returns over variable costs				_____	_____
Net returns				_____	_____

Sample Livestock Budget Format

Dairy heifers—large breeds, birth to freshening (24 months).
Fed corn silage and hay for six months and pasture for six months.

Item	Quantity	Unit	Price	Total	Your Estimate
Receipts					
Bred heifers	_____	head	_____	_____	_____
Total receipts				_____	_____
Variable costs					
Winter feeding					
Grain	_____	pound	_____	_____	_____
Hay equivalent	_____	ton	_____	_____	_____
Corn silage (as fed)	_____	ton	_____	_____	_____
Milk replacer	_____	pound	_____	_____	_____
Summer feeding					
Grain cost	_____	pound	_____	_____	_____
Pasture	_____	ton	_____	_____	_____
Other variable costs					
Vet. and medicine	_____	head	_____	_____	_____
Breeding	_____	head	_____	_____	_____
Utilities	_____	head	_____	_____	_____
Bedding	_____	ton	_____	_____	_____
Misc. expenses and supplies	_____	head	_____	_____	_____
Interest on investment				_____	_____
Cost of calf	_____	head	_____	_____	_____
Total variable costs				_____	_____
Fixed costs					
Salaried labor	_____	hour	_____	_____	_____
Equipment	_____	head	_____	_____	_____
Building	_____	head	_____	_____	_____
Management				_____	_____
Total fixed costs				_____	_____
Total costs				_____	_____
Returns					
Returns over variable costs				_____	_____
Net returns				_____	_____

Penn State College of Agricultural Sciences research, extension, and resident education programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

This publication is available from the Publications Distribution Center, The Pennsylvania State University, 112 Agricultural Administration Building, University Park, PA 16802. For information telephone (814) 865-6713.

Issued in furtherance of Cooperative Extension Work, Acts of Congress May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture and the Pennsylvania Legislature. T. R. Alter, Director of Cooperative Extension, The Pennsylvania State University.

This publication is available in alternative media on request.

R1M799ps