OSU
OKLAHOMA COOPERATIVE EXTENSION SERVICE

Using Enterprise Budgets in Farm Financial Planning

Damona Doye
Extension Economist

Enterprise budgets project costs and returns for an activity such as raising livestock, producing grain, or growing vegetables for a production period. Most budgets are based on one year. For enterprises where production spans more than one year (for example, pecans, or cow-calf), a budget generally includes income and expenses for a representative one-year period.

An enterprise budget incorporates information about the specific resources, management practices, and technology used in the production process. For instance, separate enterprise budgets are specified for different calving seasons and feeding systems in cow-calf operations. Interpretation of the enterprise budget requires an understanding of both economic and production concepts. Each budget specifies a system of production, the inputs required (including hours of labor), and the annual sequence of operations. Managers can use enterprise budgets to compare two systems of production, estimate the amount of rent that can be paid for land or machinery, the yield needed to break even, or the potential return on an investment.

Two general types of costs make up the total cost of producing any farm commodity. These are variable costs and fixed costs. Variable costs change with the decision about how many head or acres (or other units) of the enterprise to grow. Variable costs are the costs of inputs that are used up during one production period. Fixed costs are associated with breeding livestock, buildings, machinery, equipment, and other capital assets and should be prorated over a period of years. Fixed costs are not affected by short-term enterprise decisions.

Costs that are difficult to allocate to individual enterprises (telephone, tax and accounting services, electricity, etc.), some of which may be variable and others fixed, are called overhead costs. Overhead costs are included in whole farm/ranch budgets, but are sometimes excluded from enterprise budgets. Figure 1 shows an example enterprise budget summary sheet for a cow/calf unit. Figure 2 shows an example budget summary for wheat grain and grazing.

Components of the Enterprise Budget

Title

The title section includes a description of the enterprise and highlights some of the important underlying assumptions about its production. Titles of budgets typically indicate the products to be sold (for example, cow-calf, wheat, or soybeans), the size of the enterprise (100 cows), and other descriptive information (such as the forage base). Distinguishing features of the enterprise or inputs (for example, irrigation use or harvesting methods) will be noted in the budget title.

Returns to livestock enterprises are typically specified on a per head basis, with the herd or unit size given in the title. The unit size is important when economies of size in the use of facilities or labor exist (that is, fixed costs can be spread over more units to reduce per unit production costs). Returns to the crop enterprises are specified on a per acre basis.

Production

The total quantity of production is multiplied by the actual or expected price to determine a value for production. Gross or total receipts are the sum of production values for individual items. For example, the expected returns to a 100 cow unit are averaged for reporting on a per cow basis in most cow-calf budgets. A herd technically does not wean 42.68 head of 522 pound steers for sale. This is a statistical result of the averaging process for the herd. The averaging process yields a realistic estimate of the per cow returns to the entire herd given the assumed calf crop percentage, death loss, shrinkage, and cull cow replacement rates. The sale of a portion of a commercial cow and aged bull is also a statistical by-product of the averaging process which assigns some of the receipts from the sale of cull cows and bulls to each cow.

In a crop budget, the expected per acre returns primarily reflect income from sales. Government program payments may be excluded from the crop budget, particularly if the payment is not tied to crop production. A producer will want to include those payments in a personalized whole farm budget and cash flow to get a 'true' picture of overall returns. The value for pasture may differ among producers.

Operating Inputs

Operating inputs are the resources that vary with the level of production. Their costs are variable because the total dollar value of operating inputs is a function of the amount produced. Operating costs may also be classified as cash or non-cash.

The price in dollars, the quantity or number of inputs, and the unit size (weight, volume, length, time, area, etc.) of operating inputs are often specified. In livestock budgets, for instance, operating costs include costs of hay and feed, salt and minerals, veterinary and medical expenses, hauling and marketing expenses, personal taxes, labor, fuel, lubricants and repairs for machinery, and equipment and interest on operating funds (annual operating capital). In stocker budgets, the money spent purchasing feeder cattle and the trucking expenses is also an operating cost. In crop budgets, operating costs may include seed, fertilizer, insecticide, custom harvest, labor, fuel, lubricants, repairs, and interest on operating funds (annual operating capital). In horticultural crop budgets, operating inputs may include seed or transplants, herbicide, fertilizer, insecticide, labor (for transplanting, harvesting, sorting, and grading), irrigation fuel, lubricants, repairs, rented machinery or equipment, and annual operating capital.

Lease or rental payments and other costs such as housing and insurance are generally included in operating inputs. Custom hire of machine operations or hauling should be included as an operating input rather than as a fixed machinery input.

Operating costs should include the value of inputs produced on the farm that have a market value (for instance, homegrown feed or seed and family labor) that are used in production. These inputs have an opportunity cost; they would be sold if not used in production.

Fixed Costs

Fixed costs are those that do not change with the level of production. They remain the same whether or not a crop is produced and whether or not income is high or low. Fixed costs may be cash or non-cash costs. Real estate taxes, personal property taxes, insurance on buildings and equipment, interest payments on non-current (intermediate and long term) debt, and farm maintenance are cash fixed costs. Non-cash fixed costs include costs that are not cash expenses in the production period. Non-cash costs such as depreciation and interest on the money invested in buildings and equipment result in foregone opportunities. If a charge for the use of land owned is included in the enterprise budget, it too is a non-cash fixed cost.

It is important to remember that all components of fixed costs, cash and non-cash, should be included in an enterprise budget. It is the only valid way to determine enterprise profitability. Total fixed cost is the sum of interest, depreciation, taxes, and insurance costs.

Returns Above Total Operating Costs

The return to fixed costs, land, overhead, risk, and management (that is, the returns above total operating costs) is computed by subtracting total operating costs from total receipts. As long as returns above operating costs are positive, production is economically rational for an enterprise already in production. Positive returns above total operating costs indicate that the enterprise generates enough revenue to cover all variable costs and some portion of fixed costs. If returns above total operating costs are negative, the enterprise is not generating enough revenue to cover even variable costs. Eliminating this enterprise will increase profits or decrease losses in the overall operation.

The returns to overhead, risk, and management are computed by subtracting total operating costs and total (returns above all costs) fixed costs from total receipts, or by subtracting total fixed costs from the returns above total operating costs. When returns to overhead, risk, and management are positive, the enterprise is self-supporting, contributes revenue to general farm maintenance, and rewards the operator financially for managerial skills. In budgets where no land charge is included in this section, returns should be interpreted as returns to land, overhead, risk, and management.

Using the Enterprise Budget in Decision Making

An enterprise budget summarizes costs and returns, inputs and production, and timing of resource use for a particular farm activity. Reviewing the budgets for a specific geographic area may bring attention to certain cost items and price relationships that might be overlooked. Farmers and ranchers can modify representative budgets to fit their individual operations. Spreadsheets now make recalculation of alternatives quick and easy. Information about OSU enterprise budget software is available at www.agecon.okstate.edu/budgets or through your local Extension office or the OSU Agricultural Economics Department, 515 Agriculture Hall, Stillwater, OK 74078 or 405-744-9836. Producers may:

1. Change prices, yields, rates, practices, and or costs to fit the planning situation being considered.
2. Combine returns and costs in different ways to evaluate residual returns to owned capital and labor.
3. Add land charges.
4. Adjust for other soil or production conditions.

Because the enterprise budget contains both ownership and operating costs, the budgets can be used in long-term planning. Enterprise budgets can be used to provide data for whole farm planning, estimate potential income for a particular farm, estimate the size of farm needed to earn a specified return, estimate cash flows during the year, and estimate the costs of production for different products.

Figure 1. **Cow-Calf Enterprise Budget - 100 Cow Unit Size**
Caddo County - Southwest Oklahoma
February calving percentage - 88%, calf death loss - 3%
25% heifer replacement rate with 0 purchased and 25 raised
Primary forages - Native, Native-leased,
Used machinery complement

OSU
OKLAHOMA COOPERATIVE EXTENSION SERVICE

PRODUCTION	Wt.	Unit	Price	Quantity	Total	$/Head
Steer Calves	5.22	cwt.	$ 75.55	42.68 Hd.	$ 16,845	$ 168.45
Heifer Calves	4.93	cwt.	$ 69.59	17.68 Hd.	$ 6,065	$ 60.65
Cull Cows	9.50	cwt.	$ 36.24	12.00 Hd.	$ 4,131	$ 41.31
Cull Replacement Heifers	7.00	cwt.	$ 64.30	12.00 Hd.	$ 5,401	$ 54.01
Cull Bulls	17.50	cwt.	$ 49.01	1.00 Hd.	$ 858	$ 8.58
Other Income		Head	$ -	1.00 Hd.	$ -	$ -
Total Receipts					**$ 33,300**	**$ 333.00**
OPERATING INPUTS		**Unit**	**Price**	**Quantity**	**Total**	**$/Head**
Pasture		Head	$ 49.60	1.00	$ 4,960	$ 49.60
Hay		Head	$ 25.20	1.00	$ 2,520	$ 25.20
Grain		Head	$ -	1.00	$ -	$ -
Protein Supplement		Head	$ 49.03	1.00	$ 4,903	$ 49.03
Salt		Head	$ 0.51	1.00	$ 51	$ 0.51
Minerals		Head	$ 0.52	1.00	$ 52	$ 0.52
Other Feed Additives		Head	$ -	1.00	$ -	$ -
Vet Services/Medicine		Head	$ 2.29	1.00	$ 229	$ 2.29
Vet Supplies		Head	$ 1.19	1.00	$ 119	$ 1.19
Marketing		Head	$ 6.14	1.00	$ 614	$ 6.14
Mach/Equip Fuel, Lube, Repairs		Head	$ 16.07	1.00	$ 1,607	$ 16.07
Machinery/Equipment Labor		Hrs.	$ 6.50	2.65	$ 1,723	$ 17.23
Other Labor		Hrs.	$ 6.50	3.00	$ 1,950	$ 19.50
Other Expenses		Head	$ -	1.00	$ -	$ -
Annual Operating Capital		Dollars	8.80%	113.02	$ 995	$ 9.95
Total Operating Costs					**$ 19,722**	**$ 197.22**
Returns Above Total Operating Costs					**$ 13,578**	**$ 135.78**
FIXED COSTS		**Unit**	**Rate**		**Total**	**$/Head**
Machinery/Equipment						
Interest at		Dollars	9.10%		$ 556	$ 5.56
Taxes at		Dollars	1.00%		$ 111	$ 1.11
Insurance		Dollars	0.60%		$ 37	$ 0.37
Depreciation		Dollars			$ 991	$ 9.91
Livestock						
Interest at		Dollars	9.10%		$ 6,224	$ 62.24
Taxes at		Dollars	1.00%		$ 889	$ 8.89
Insurance		Dollars	0.60%		$ 410	$ 4.10
Depreciation		Dollars			$ 1,300	$ 13.00
Land		$/Acre	$ -			
Interest at		Dollars	0.00%		$ -	$ -
Taxes at		Dollars	0.00%		$ -	$ -
Total Fixed Costs					**$ 10,518**	**$ 105.18**
Total Costs (Operating +Fixed)					**$ 30,239**	**$ 302.39**
Returns Above all Specified Costs					**$ 3,060**	**$ 30.60**

Figure 2.

Dryland Wheat Enterprise Budget - Grain and Graze
Garfield County - North Central Oklahoma
Owned field and harvest equipment
Owner-Operator
1000 acres farmed, 160 acres for this budget
Used machinery complement

OSU
OKLAHOMA COOPERATIVE EXTENSION SERVICE

				Total
PRODUCTION	**Units**	**Price**	**Quantity**	**$/Acre**
Wheat	Bu.	$ 3.23	30	$ 97.32
Small Grain Pasture	Acre	$ 33.00	1	$ 33.00
Other Income	Acre	$ -	0	$ -
Total Receipts				**$ 130.32**
OPERATING INPUTS	**Units**	**Price**	**Quantity**	**$/Acre**
Wheat Seed	Bu/acre	$ 6.00	2.00	$ 12.00
Fertilizer	Acre	$ 15.11	1	$ 15.11
Custom Harvest	Acre	$ -	0	$ -
Pesticide	Acre	$ 1.50	1	$ 1.50
Crop Insurance	Acre	$ 2.10	1	$ 2.10
Annual Operating Capital	Dollars	8.80%	36.81	$ 3.24
Machinery Labor	Hrs.	$ 6.50	0.94	$ 6.10
Custom Hire	Acre	$ -	0	$ -
Machinery Fuel, Lube, Repairs	Acre	$ 20.74	1	$ 20.74
Other Expense	Acre	$ -	0	$ -
Total Operating Costs				**$ 60.79**
Returns Above Total Operating Costs				**$ 69.53**
FIXED COSTS	**Units**	**Rate**		**$/Acre**
Machinery/Irrigation	$/value			
Interest at	Dollars	9.10%		$ 31.03
Taxes at	Dollars	1.00%		$ 5.51
Insurance	Dollars	0.60%		$ 2.06
Depreciation	Dollars			$ 41.55
Land	$/acre	$ -		
Interest at	Dollars	0.00%		$ -
Taxes at	Dollars	0.00%		$ -
Total Fixed Costs				**$ 80.15**
Total Costs (Operating + Fixed)				**$ 140.94**
Returns Above All Specified Costs				**$ (10.62)**

Grain Break-Even (B-E) Analysis			
B-E Yield at $/bu.	**3.23**	**B-E Price at bu./acre**	**30**
Above Operating Costs	9	Above Operating Costs	$ 0.92
Above Total Costs	33	Above Total Costs	$ 3.58

Break-even yield is the yield needed to cover costs given the expected price, pasture income, and other income such as government payments. Break-even price is the price needed to cover costs given the expected yield, pasture income, and other income.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Samuel E. Curl, Director of Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Dean of the Division of Agricultural Sciences and Natural Resources and has been prepared and distributed at a cost of 20 cents per copy. 0702