

Risk Management

Making Decisions with Enterprise Budgets

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How should you organize your farm or ranch operation? What products should you produce and how can you produce them economically? Decisions like these should be made in accord with the goals, objectives and mission you have set forth for your operation. You may not be able to make perfect decisions, but by developing and using enterprise budgets you can improve the quality of information available to you. This information can make it much easier to analyze the economics of alternative enterprises.

What is an Enterprise Budget?

An enterprise budget is an estimate of the costs and returns associated with the production of a product or products—referred to as an enterprise. An enterprise, or profit center, is a distinct part of the farm or ranch business that can be analyzed separately. An enterprise is usually based on some production input unit—an acre of land for most crop enterprise budgets, or an individual animal unit for livestock enterprise budgets. In some cases, two enterprises may be merged into one, such as grazing wheat pasture and growing wheat for harvest. Enterprise budgets estimate costs and returns based on a specific complement of machinery, land, labor and technology. When done correctly, enterprise budgets can help identify the following:

- Enterprise(s) that contributes the highest return to fixed resources
- Amount of labor needed
- Amount and types of equipment needed given the combination of enterprises

- How to best use the equipment on the available land
- Amount of operating capital needed
- Production practices to use
- Areas where you might cut costs or become more efficient
- Break-even prices and yield
- Level of risk exposure within enterprises

It Starts with Good Records

Cost and return estimates are projections for some future time period, such as the coming calendar year or crop year. Without good, historical production and financial records, developing enterprise budgets can be time consuming and frustrating. Historical records are a useful starting point for estimating future costs. Whether you have good records or not, you may be surprised at some of the costs you discover and budget for in your enterprise budgets, as well as the net returns above variable costs and above all costs. If you do not have the financial and production records necessary to develop an enterprise budget, you can begin by using budgets from other sources, such as the Texas AgriLife Extension Service, which can provide regional information for planning and decision making. If you use this method, you will need to adjust the budget to reflect your specific situation. Because enterprise budgets are a part of forward planning, some assumptions are necessary in the following areas:

- Production costs
- Farm or ranch size



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- Types of enterprises available
- Types of operations and technology involved in production
- Types of machinery and equipment needed
- Soil productivity and yield potential
- Forage quality and quantity
- Operating capital available
- Inventory of machinery, land and labor

Types of Costs

As budgets are developed, costs are often categorized to make the information more useful to the decision maker. Costs are sometimes broken into two groups, referred to as variable and fixed costs, direct and indirect costs, or operating and overhead costs. The variable and fixed classification will be used here.

Variable costs: Variable costs vary with the size of the enterprise (number of head, acres, etc.) and with the management decisions made, such as the type of field and tillage operations that will occur. Variable costs occur because of the decision to purchase additional inputs for use in production. In the long run, all costs are variable, and at a point in time near the end of the production period, almost all costs are fixed.

Fixed costs: Fixed costs are those costs the business is committed to pay regardless of the actions taken during the current planning period. Producers who have already invested in land, machinery and buildings are committed to owning these resources for the upcoming production period or year. There are certain fixed costs associated with these resources that the producer will incur whether or not there is any production. Fixed costs include depreciation and insurance on machinery, equipment and buildings; interest on machinery, equipment, buildings and land; and land taxes.

Both fixed and variable costs are considered when deciding whether to continue production. Most producers will eventually face the problem of not covering all their costs for an enterprise. In the short run, the amounts of some inputs can be changed, while others cannot. Generally, all inputs, including land, can be changed in the long run. In the short run (when at least some costs are fixed), the producer should stay in production if it appears that revenue will at least cover variable costs. However, if variable costs cannot be covered, continued production, even in the short run, only makes things worse. In the

long run (when all costs can be varied), a farmer or rancher should continue production only if all costs can be covered. Anything short of that usually results in cash flow deficits and the erosion of net worth.

Sometimes it is useful to separate variable costs into pre-harvest and harvest costs. Faced with the cost of harvesting a crop, a producer with a low yield will be trying to determine whether the value of the crop will cover the harvest costs. At this point pre-harvest costs are “sunk” costs and will not be considered when deciding whether or not to harvest.

Using Enterprise Budgets

Enterprise budgets require less data than the whole farm budget, and when realistic and accurate cost allocations can be made by enterprise, the comparative profitability of enterprises can be measured. Enterprise budgets also can be used to derive break-even prices and break-even yields.

Developing Enterprise Budgets

A variety of information sources are used to develop an enterprise budget. Rely on your own records if you are evaluating an existing enterprise, but use outside data to evaluate a new enterprise. The process of developing a budget can often uncover cost items that might otherwise be overlooked.

When enterprise budgets are developed for the first time, records from the whole farm or ranch are usually the starting point. The allocation of costs to the individual enterprises is an important step in the development of useful enterprise budgets. Some costs are easily allocated, but for certain indirect (overhead) costs it is not always clear how the allocation should be made. The key to allocating cost is to not distort relationships so that one would be misguided in choosing between enterprises.

Example Enterprise Budget

Table 1 contains an example enterprise budget for a Texas High Plains producer who is trying to determine the profitability of a dryland sorghum enterprise. The unit for this budget is 1 acre. The producer has developed this dryland sorghum budget with an expected yield, a given set of production practices, and a size of operation in mind.

Income: The gross income section shows the projected gross revenue from grain to be sold and possible income from grazing the stalks. Because

enterprise budgets are developed before the production period begins, you will be estimating sales prices a year before the products are sold. Yield and price are often the most volatile and difficult to project; as a result, it is useful to analyze the budget with different combinations of yield and price. Computer software makes this process relatively simple. In the case of crop production, production flexibility contract (PFC) payments should not be included because they are received regardless of whether the specific commodity is grown or not.

Costs: The second section of the example budget itemizes the variable costs, divided into pre-harvest and harvest costs. The amounts budgeted for herbicide and fertilizer include the custom application costs. The costs for fuel, lube, repairs and labor reflect what is required for the expected field operations (land preparation, planting, cultivating, etc.).

Interest on operating capital is an estimate of the amount of interest attributable to this enterprise. This can be estimated by taking the total variable costs for the enterprise, multiplying by the operating loan interest rate over the number of months you think the funds will be borrowed, and then dividing by the number of head or acres. For the example budget, operating interest was based on the funds borrowed for all of the pre-harvest costs for half of the year.

Fixed costs include the depreciation, taxes, insurance and interest on machinery and buildings. These costs generally remain the same within a production period and do not vary with output. Each enterprise is allocated a share of the total fixed cost. In the example budget, the operator owns the land and the land cost in the budget reflects typical cash rent for his area. The cost of owned land could also be

Table 1. Example enterprise budget for dryland sorghum.

	Quantity	Unit	\$/Unit	Total
Gross income from production				
Grain sold	18.0	cwt	\$6.50	\$117.00
Total Gross Income				\$117.00
Variable costs				
Pre-harvest costs				
Herbicide & custom application	1.0	acre	\$10.50	\$10.50
Seed	2.25	lbs	\$1.25	\$2.81
Fertilizer-nitrogen	40.0	lbs	\$0.60	\$24.00
Custom fertilizer application	1.0	acre	\$4.50	\$4.50
Fuel & lube	1.0	acre	\$11.00	\$11.00
Repairs	1.0	acre	\$15.25	\$15.25
Labor	1.0	acre	\$10.00	\$10.00
Interest on operating capital*	1.0	acre	\$2.29	\$2.29
Total Pre-harvest costs				\$80.35
Harvest costs				
Custom combining	1.0	acre	\$12.60	\$12.60
Custom hauling	18.0	cwt	\$0.25	\$4.50
Total Harvest costs				\$17.10
Total Variable Costs				\$97.45
Gross Income minus variable costs				\$19.55
Break-even grain price minus variable costs				\$5.41
Fixed costs				
Machinery and equipment	1.0	acre	\$27.80	\$27.80
Land – cash rent	1.0	acre	\$20.00	\$20.00
Total Fixed Costs				\$47.80
Total Costs				\$145.25
Net Projected Returns				(\$28.25)
Break-even grain price minus total costs				\$8.07

*Interest cost is based on all pre-harvest costs being borrowed for 6 months.

calculated as a typical net crop share rent or as the opportunity cost on investment in owned land, using current fair market value. A typical rate of return on land is a good estimate for the opportunity cost of land. Rates of return on land generally are in the 1 to 5 percent range and vary by location. For rented land, use the rental rate you actually pay or share.

Returns: Gross income minus variable cost is referred to as returns above variable costs, or gross margin. It can be used to compare the profitability of different enterprises in the same business. In the short run, the producer must at least cover total variable costs or production should be discontinued. The break-even grain price for covering variable cost shows what grain price is needed, given the yield, to generate enough revenue to cover variable costs only. In order to calculate the break-even grain price for covering variable costs, take the total variable costs and divide by the quantity of grain sold (production). The same process holds true for calculating the break-even grain price for covering total costs; divide the total costs by the quantity of grain sold (production).

With the price, yield and costs shown in the budget, the net projected return is negative. If the information is accurate and not likely to improve, this enterprise does not appear very promising in the long run. The break-even grain price for total cost is the price that would result in zero net projected returns.

Using Enterprise Budgets with your Marketing Plan

If an enterprise budget is being used in the development of a marketing plan, you could consider how much higher the break-even price would have

to be to also cover a share of family living costs and/or some specified profit margin. For the example sorghum budget, with a yield of 17 cwt per acre, the break-even price would need to be \$1.18 more, or \$9.25, to provide \$20 per acre additional revenue for family living or profit margin.

To get the most out of enterprise budgeting, you must make an effort to determine which factors are likely to change and which ones have a major effect on profitability. The effect of different combinations of yields and prices should certainly be analyzed. When doing these “what if” scenarios on yield and price, also factor in an estimate for any applicable loan deficiency payments and crop insurance indemnities.

Summary

Enterprises are the basic building blocks for a farm plan. An enterprise budget is a summary of projected income and expenses associated with producing one unit of the enterprise. Such a budget can help you decide which enterprises will be most profitable and how to best use your available resources. It can be useful in deciding whether to add new enterprises or eliminate or change existing enterprises. The enterprise budget is, however, only the first step in evaluating an enterprise and developing a marketing plan.

References

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