Cost accounting – a practical approach

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The profitability of your business depends on your ability to control costs and returns. Cost accounting is necessary to make intelligent management decisions. However, precise cost information is not always available. As enterprises are added to the business, cost information becomes more complicated and difficult to obtain. A system must be developed and implemented to provide information.

This system, called "enterprise cost accounting," assigns costs to appropriate business enterprises, such as hay or berries. A separate record of costs must be kept for each enterprise in the business. This can be as simple as including an additional ledger column for each enterprise or as complex as having a separate ledger for each enterprise.

Enterprise cost accounting reveals whether enterprises are making or losing money. Without this vital information, you may keep unprofitable enterprises that reduce your income year after year.

A cost framework

Fixed and variable costs

A basic framework for cost analysis separates variable and fixed costs. Variable costs are incurred during production and are influenced by the volume of production. They include fertilizer, fuel, seed, repairs, and pesticides. Fixed costs are those that do not vary with production and will be incurred even if there is no production. Fixed costs include taxes, depreciation, insurance and interest on investment in land, buildings, and machinery. Total cost of production is the sum of variable and fixed costs, or:

Total variable cost + total fixed cost = total cost

Costs per acre, per bushel, (or per any unit of output) are called per-unit costs and are calculated as:

Total variable cost ÷ units of production = variable cost per unit

Total fixed cost ÷ units of production = fixed cost per unit

Total cost ÷ units of production = total cost per unit

Posted and allocated costs

A "posted" cost is any cost that can be easily identified and assigned to an enterprise at the time the cost is incurred or paid. For example, the cost of seed can be posted to the appropriate crop as the bill is paid.

An "allocated" cost is one that cannot be easily assigned to a particular enterprise. Property tax, fuel, repairs, insurance, and depreciation are examples of allocated costs. A procedure is needed to divide these costs among the various enterprises.

You must decide how much detail you want. At first, it may be wise to post only the large costs and those you can control. For example, labor may be a large cost in some businesses. A time card system could be developed to post labor costs to enterprises for this type of business. Other businesses, where labor is a minor cost, may choose to allocate labor cost on the basis of acreage or some other appropriate measure.

Fertilizer, pesticides, and seed are major costs on a grain farm that should be posted directly to the different grain crops. Machinery expenses are more difficult to assign. For similar crops like grain, many growers allocate machinery costs on an acreage basis. If the crops are quite different, machinery costs can be allocated according to hours of machinery use or gross income for each enterprise.

With the addition of these two new cost concepts, our enterprise cost framework becomes:

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Posted variable costs + allocated variable costs = total variable costs

Posted fixed costs + allocated fixed costs = total fixed costs

Total variable costs + total fixed costs = total cost

Designing the system

Practical cost accounting begins before the production season. First, you should list the types of costs you expect to incur. For new enterprises, a cost of production study or enterprise budget for the new crop or a similar crop are useful guides. These budgets are available from most county Extension offices. For existing enterprises, your experience is a valuable tool.

Next, identify the costs that have a big impact on profits. The costs that you can control should get extra attention. The costs that you cannot control (such as taxes) and the small costs can be allocated. At the same time, identify those costs that can clearly be posted to enterprises.

An example

Suppose that you operate a business called New Enterprises and raise 1 acre of berries and 10 acres of hay. During the course of the year you have the following expenses:

Time period	Type of expense	Amount ($)
January	Office expense	25
	Farm insurance	500
	Farm taxes	600
February	Office expense	25
	Shipping containers (berries)	1,000
	Labor (berries)	500
	Baling twine	175
March	Office expense	25
	Pruning labor (berries)	450
	Herbicide (berries)	150
April	Fertilizer (hay)	500
	Tractor fuel	1,000
	Fertilizer (berries)	500
May	Weeding labor (berries)	275
	Crop insurance (hay)	125
	Repair cooling shed (berries)	160
	Truck fuel	950
June	Tractor repairs	500
	Berry picking	1,750
	Custom swathing	2,000
	Truck license	350
July	Haying labor	500
	Pruning labor (berries)	350
All year	Depreciation	1,000

Allocation percentages

A percentage of some of the above costs should be allocated to enterprises. Allocation methods and percentages may differ among cost categories. For example, consider the hours of use and stress on equipment by crop when assigning percentages for items such as fuel, maintenance, and repairs. In contrast, you might use contribution to gross income for allocating such items as office costs and taxes.

New Enterprises has decided to use the following allocation percentages:

Item	Hay (%)	Berries (%)
Fuel	75	25
Repair	60	40
Overhead, licenses	40	60
Depreciation	60	40

A cost accounting system

Table 1 is a cost accounting system for New Enterprises. Note that the columns are divided into variable and fixed costs. "Allocate" is another heading. The two columns on the right are enterprise categories for posted costs. More complex operations would include more cost categories.

A quick check after each month, or other bookkeeping period, will help find posting errors. For example, add the first column to find total costs. Next, sum each of the columns except the "Enterprise accts." columns. The totals should match (note "Check total 1" in Table 1). If they don't match, identify the error before proceeding. As a second check, add the "Allocate" columns to the "Enterprise accts." columns. This sum should match the total cost column ("Check total 2").

To complete the process, those expenses not directly posted to one of the enterprises are allocated. Table 2 shows the assignment of costs to hay and berries for New Enterprises. The allocation percentage for each enterprise category was determined earlier. The first expense category, fuel, is allocated by multiplying the appropriate percentage for hay (75 percent) times the $1,950 fuel expense, or $1,462.50. Similarly, 25 percent times $1,950, or $487.50, is the amount of fuel expense allocated to the berry enterprise. The procedure is the same for repairs and overhead.

Next, allocate depreciation and other noncash costs to determine the total cost of production. Finally, total cost per unit can be calculated by dividing the number of units produced by each enterprise. Dividing the $6,368.50 total cost of production for the hay crop by 70 tons of hay produced gives a cost per ton of $90.98.

Management applications

Once costs of production and revenue are determined, you can answer questions and make decisions. First, is the enterprise profitable? If not, can it be made profitable? If not, should it be dropped or continued with the understanding that it will be subsidized by other activities? If an enterprise shows a small profit or loss, you should consider a more detailed cost accounting. Analysis of equipment

Table 1. An example of a simplified cost accounting system for New Enterprises, January through July.

		Variable costs ($)					Fixed ($)		
					Allocate			Enterprise accts. ($)	
Date/Item	Amount ($)	Misc.	Fertilizer and pesticide	Labor	Fuel	Repair	Overhead	Hay	Berries
1/31									
Office expense	25	—	—	—	—	—	25	—	—
Farm insurance	500	—	—	—	—	—	500	—	—
Farm taxes	600	—	—	—	—	—	600	—	—
2/28									
Office expense	25	—	—	—	—	—	25	—	—
Berry containers	1,000	1,000	—	—	—	—	—	—	1,000
Berry labor	500	—		500	—	—	—	—	500
Baling twine	175	175	—	—	—	—	—	175	—
3/31									
Office expense	25	—	—	—	—	—	25	—	—
Berry labor	450	—	—	450	—	—	—	—	450
Berry herbicide	150	—	150	—	—	—	—	—	150
4/30									
Hay fertilizer	500	—	500	—	—	—	—	500	—
Tractor fuel	1,000	—	—	—	1,000	—	—	—	—
Berry fertilizer	500	—	500	—	—	—	—	—	500
5/31									
Berry labor	275	—	—	275	—	—	—	—	275
Hay crop insurance	125	125	—	—	—	—	—	125	
Truck repair	160	—	—	—	—	160	—	—	—
Truck fuel	950	—	—	—	950	—	—	—	
6/30									
Tractor repair	500	—	—	—	—	500	—	—	—
Berry labor	1,750	—	—	1,750	—	—	—	—	1,750
Custom swathing	2,000	2,000	—	—	—	—	—	2,000	—
Truck license	350	—	—	—	—	—	350	—	
7/31									
Haying labor	500	—	—	500	—	—	—	500	—
Berry labor	350	—	—	350	—	—	—	—	350
Totals	12,410	3,300	1,150	3,825	1,950	660	1,525	3,300	4,975
Check total 1	12,410			12,410					
Check total 2	12,410						12,410		

Table 2. An example of assigning allocated costs to hay and berries for New Enterprises.

	Allocate ($)			Enterprise accts. ($)	
Notes	Fuel	Repair	Overhead	Hay	Berries
Posted[1]				3,300.00	4,975.00
	1,950.00	666.00	1,525.00		
Fuel	75% hay			1,462.50	
	25% berry				487.50
Repairs		60% hay		396.00	
		40% berry			264.00
Overhead			40% hay	610.00	
			60% berry		915.00
Total cash costs				5,768.50	6,641.50
Depreciation			1,000.00	—	—
			60% hay	600.00	—
			40% berry	—	400.00
Total cost of production				6,368.50	7,041.50
Cost per ton (70 tons produced)				90.98	—
Cost per pound (6,000 pounds produced)				—	1.17

[1]Posted costs are from Table 1.

hours, fuel used, and overhead expenses can help make a better decision.

If no production or marketing changes can be made to improve profits, you should consider dropping the enterprise. In the short run (normally 1 or 2 years), an enterprise should cover its variable costs to continue production. If variable costs are not covered (price is lower than per-unit variable costs), the enterprise should be dropped. If the enterprise is covering variable costs and contributing something to fixed costs (price is higher than per-unit variable costs but less than per-unit total costs), the enterprise can be continued on a temporary basis.

Some enterprises are kept because of indirect benefits. For example, some crops are grown at a loss to provide a necessary rotation for the major cash crop. The loss associated with the rotation crop should be considered a cost of producing the cash crop. Some enterprises are kept because they create enjoyment or a learning experience for the family. If so, understanding costs can help you decide if the enterprise's contribution can justify the cost.

Summary

Cost accounting is an important management tool that can be done in several ways and with varying degrees of complexity. Your system should reflect the complexity of your operation and your understanding of accounting methods. The key is to recognize that some costs can be posted to enterprises but others must be allocated. The allocation procedure should have some underlying reason for assigning costs to the enterprises. From a practical point of view, maintain only the amount of detail necessary for the decision or analysis you want to make.

For further reading

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