GROWERTALKS

Features

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Profitability: The New Economics of Growing

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The subject of cost accounting seems to strike fear in the hearts of growers. Why? Perhaps we don't know how to cost account. We can either face and overcome our fears or ignore it altogether until we're out of business. The first is the better option.

Or, perhaps we're wondering why we should even do cost accounting. That's easy: We can determine if we're making a profit or losing money; if our business will survive or die. My purpose here is to remove some of the fear and provide the skills you'll need to do the basic costing of your crops.

Calculating your overhead

Overhead costs are those incurred by your business that may or may not be associated with your daily operations. For example, all of us have to pay property taxes, and this is an overhead cost. It's there whether we sell our crops or not. Some other examples of overhead costs are depreciation, electricity, fuel for heating, and repairs and maintenance.

Items omitted from overhead are purchases of supplies to grow your crop—the plants, pots, media, labels, shipping boxes, sleeves and either some or all of your labor, depending on the method of cost accounting you choose. We also leave bonuses out of the formula, since bonuses are based on the profit of the company.
Once you have totaled up all the items listed above, you have your overhead cost.

Next, calculate the total square footage of usable space in your greenhouse and subtract the sidewalks from that number. This yields usable growing area. Next, divide your overhead dollar total by your total usable square feet, then divide by 52. This number is your overhead cost per square foot per week (cost/sq. ft./wk.). The industry's overhead cost average is around $0.22/sq. ft./wk.

For example:
Sum of overhead costs = $6.53 million
Divide by total usable sq. ft. = 630,000
Divide by 52 = $0.20/sq. ft./wk.

Now you're ready to apply this to your crops. Just take the cost/sq. ft./wk. and multiply this number by the crop's square footage and the number of weeks in the greenhouse. For example, an average bedding plant flat is 1.6 sq. ft. and is in the greenhouse about six weeks, so $0.20/sq. ft./wk. X 1.6 sq. ft. X 6 wk. = $1.92 of overhead costs per flat.

Because you need a complete year to calculate overhead, the overhead calculation for last year is used for the current year. If you have substantial changes to your overhead costs from last year to this year, your overhead may be off slightly and you'll need to revise last year's overhead number to reflect these changes. Keep in mind that even a 1 cent increase in overhead/sq. ft./wk. is significant. If you anticipate a substantial increase in expenses, estimate the sum of those expenses and divide that number by your usable square footage and multiply by 52.

Examples of Overhead Costs
Depreciation, electricity, fuel for heating, repairs and maintenance, shop supplies, advertising, auto and truck expenses, bad debts, bank charges, interest expense, commissions, continuing education, dues, rental fees, freight out, health insurance, employee welfare, payroll taxes, lawn maintenance, office supplies, payroll preparation, pension expense, postage, contributions, professional fees (accounting, computer, legal), pension, rent, royalties, state taxes, federal taxes, telephone, travel and waste removal.

Accounting for spring vs. fall
With the traditional method I just explained, the overhead cost/sq. ft./wk. is an average of all your costs incurred over the course of a year. But our costs don't occur on an equal basis each week—they are incurred following the cycle of our peak production. There's a close correlation between the period of peak costs and peak sales. We've found 76% of our gross sales for the year are generated January to May. We also determined that 76% of our production costs (when supplies are used, not when they're purchased) also occurred during that time.

This means that from June to December only 24% of our costs and sales are recognized. Yet with standard cost accounting for overhead, costs are allocated uniformly over the year, making it impossible for us to demonstrate if fall crops are profitable. With this "differential overhead" method, we can see fall crops are indeed profitable, since a different value for overhead is used in the fall than in the spring.

For example, Kube-Pak has an average overhead of $0.20/sq. ft./wk., but we realize approximately 76% of our costs and sales January to May. We recalculated our overhead to reflect this pattern and realized our January to May overhead was actually $0.33/sq. ft./wk. and our June to December overhead was $0.073/sq. ft./wk.

When calculating expenses for a designated period such as January to May, keep in mind that certain overhead expenses are more greatly realized at certain times of the year than others. For example, we lumped labor into overhead expenses, which was then averaged over the entire year. Yet, we generate a far greater portion of production labor in the winter-spring period. Breaking labor expenses into periods results in a closer correlation of sales percentage to expense percentage. The same techniques are required for costs such as bonuses, pension contributions, taxes, maintenance labor and materials, non-capitalized labor, oil purchases, and others that are incurred at year's end and must be reallocated over the year.

Ideally, tracking production labor separate from maintenance and administrative labor is best. Production labor would not be completely lumped into overhead, and could be allocated to specific crops and periods for a more

accurate accounting of direct costs by crop and subsequently a more accurate calculation of overhead by period.

Four methods of cost accounting

1. Year-end accounting. This is the easiest method, but the one with the most surprises. The idea is to put all your earnings in the bank each week and pay all your bills out of the same account each week. At the end of the year, whatever is left over is your profit. This sounds a little scary to me, but it's a method many use. Its greatest danger is you could be losing money all year and not know. By year's end, you could be on the verge of bankruptcy. Some get away with this method because they're making very good margins on their crops. Generally, this method is the least desirable, since you're not doing actual cost accounting.

2. Macro cost accounting. With this method you track only the major items used to produce your crop. For example, the cost of the plant, pot and media are calculated and then the overhead cost is applied to it. The labor to produce each crop is not calculated separately, but is included in the overhead cost. Once the overhead is added to the direct costs, you know your total cost and can determine the selling price.
This method is far better than the year-end method since you know ahead of time how much you're making on each crop. Its greatest drawback is that you're evenly distributing the labor costs to each crop. Some crops are more labor intensive than others and cost more to produce, but this method doesn't take this into account.

3. "Quickie" accounting. If you don't want to calculate your overhead, a variation is to add your direct costs and the labor to get the crop on the floor of the greenhouse only, and then double this number. This is your selling price. Generally, this will produce a decent profit for your company, but it is not a calculated profit.
If your crop is labor intensive after its initial production or is in the greenhouse a long time, you may even lose money on this item. Your poinsettia crop is a perfect example of a crop that has low initial costs, but has high costs due to the length of time it takes to grow. This method also doesn't work with plugs. Since the cost of some seed is so expensive, if you doubled the direct costs, the selling price would be too high to sell.

4. Micro cost accounting. With this method your goal is to track as many individual costs per crop as possible. In addition to tracking direct costs, labor is broken down as accurately as possible per crop. This is the most accurate but also most difficult and time-consuming method of cost accounting, and that's why few growers use it.

With micro cost accounting, each employee has a type of time card. As they start each new job, they swipe the card through a bar-code reader and indicate the type of work and the crop they're working on next. They repeat this with each task. If you don't have the appropriate software, you must manually track and record each employee's hours per day per crop.

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4 Methods of Cost Accounting: The Breakdown

Year-end accounting method

Earnings – money paid out = PROFIT

Macro cost accounting

Direct costs		Total
Plants + pots + media	=	$1.00
Overhead, including all labor (cost/sq. ft./wk.)	=	$0.75
Total cost	=	$1.75
Selling price	=	$2.50

Profit	=	$0.75

Quickie accounting

Direct costs		Total
Plants + pots + media + labor to produce and place on greenhouse floor	=	$1.25
Double this cost	X	2
Selling price	=	$2.50
Profit	=	Unknown

Micro cost accounting

Direct costs		Total
Plants + pots + media + labor to produce and put on greenhouse floor	=	$1.25
Overhead, minus direct labor to produce ($/sq. ft./wk.)	=	$0.50
Total cost	=	$1.75
Selling price	=	$2.50
Profit	=	$0.75

At Kube-Pak, we use a system that incorporates the micro method but puts a limit on how far the labor costs are calculated. For example, the cost of the plant, pot, media and labor to get the crop on the floor of the greenhouse is calculated for each crop each day. We add to that the labor cost for picking the crop to ship. The labor to water, clean, apply growth regulators or pesticides and move within the greenhouse is included in our overhead.

The advantage of this method is that it's easy to implement and follow. The most difficult part is keeping track of your initial cost to produce this crop and the overhead cost calculation. Once this is done, you're well along in the art of cost accounting. If you stick with this process, you'll feel more confident regarding the profitability of your crops and your overall profit.

A 52 million sq. ft. revelation

Despite our long experience at tracking our costs, we had some doubts that the cost differential model was adequately addressing our true overhead costs. Then we realized the model made one very wrong assumption—that our greenhouse was full 100% of the time.

Now we're in the process of addressing this. We began with taking an inventory of the percentage of greenhouse space used on a weekly basis. Each Saturday, a spreadsheet graphically depicting the greenhouse's overall layout is filled in to indicate whether a bay is 25%, 50%, 75% or 100% full. The bays are summarized to determine the total number of sq. ft./wk used. We divide this by the total number of usable square feet to calculate percent usage. By the end of the year we will know our annual, monthly and weekly percentage of usage. It's important do this counting on a weekly basis since the changes on a monthly basis don't adequately address true usage.

Another way to look at this problem is to take the total number of usable square feet and multiply this by 52. For example, with 1 million sq. ft., there are 52 million sq. ft. weeks. available for use through the year. If you then itemize each crop grown and the square footage that crop uses and multiply by the number of weeks it's in the greenhouse, you have your actual sq. ft. wk. usage. So far, our data has indicated that we are using far less than 100% of the sq. ft. wk. throughout the year, perhaps as low as 50%.

Right now we're using 65% usage for the winter-spring period and 52% usage for the summer-fall period. How do we determine this? Using our differential overhead for winter-spring of 76% or $0.33/sq.ft/wk. and applying the 65% usage to this number, our new overhead is: $0.508/sq. ft./wk. Our summer-fall differential overhead is $0.073/sq. ft./wk. which, when multiplied by 52%, is now $0.014/sq. ft/wk. That's a dramatic increase in our overhead/sq. ft./wk!

What about shrink?

In the case of plugs, there's a significant amount of shrinkage because of the need to fix plug trays to 100%. The average fixing loss is 20%, but loss can be higher. To take this shrinkage factor into account, we have also added this to our overhead calculation. Our winter-spring overhead cost of $0.508 is now $0.61/sq. ft./wk. ($0.508 X 20%= $0.10 + $0.508 = $0.61). Our overhead cost for summer-fall of $0.14 is now $0.168 ($0.14 X 20% = $0.028 + $0.14 = $0.168). Again, our true overhead cost is much higher than the previous model predicted.

How to stay profitable

If you take the time to make these cost calculations, does this ensure that you're going to make money? No! The greatest challenge of staying profitable is not the paper calculation, but the day-to-day management of costs. If not carefully managed, our labor costs of production will rise without reason. I call it the "fat factor." Just as we'll eat until we're fat and happy, adding more fat to our frames, our good-intentioned managers, if left unchecked, will add people to a production job until they're comfortable with the pace of the work. That's why it's imperative to track the cost of labor production daily and compare current costs to the previous year. If we can do this on a regular basis, then our production costs will be under control.

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