Evaluate Your Plants'

Know your overhead costs per crop. It will help set pricing

by GALE ARENT and W. CONARD SEARCH

Editor's Note: This is the third of a four-part series on greenhouse financial management.

ONE of the most important decisions a grower-manager must make is determining the combination of plants to produce, which in turn determines profitability.

Enterprise analysis can help growers learn about their production cost structure and can be a tool in selecting profitable crops. With it, growers can discover how much each product or "enterprise" is contributing to the profit and cash flow of the business. This, in turn, will help determine appropriate pricing.

Square Foot Weeks

The first step in such an analysis is calculating square foot weeks. This figure provides a basis for allocating costs to the actual use of the greenhouse.

To derive the square foot weeks, multiply the percentage of greenhouse space used each month by the total square feet of space available. This answer is multiplied by the number of weeks in a month to get the square foot weeks for each month. The square foot weeks for all 12 months are added together to get the total square foot weeks.

Table 1 shows the percentage of an average Great Lakes greenhouse used to produce bedding plants. We estimated that a 87,509 square foot greenhouse produces 68,094 production units per year, of which 13,619 units (or 17% of the crop) are impatiens and 3405 units are tomatoes (5% of the crop). Table 2 shows the overhead costs allocated by the square foot weeks.

Once these costs are known, an enterprise budget can be developed for each crop (see Tables 3 and 4). We estimated that impatiens are a 12-week crop (with one week for prep-

Table 1. Calculation of Total Square Foot Weeks of Greenhouse Use

Month	% of Use	Weeks	Square Foot	Square Foot Weeks
January	25%	5	21,877	109,386
February	75%	4	65,632	262,527
March	90%	4	78,758	315,032
April	100%	4	87,509	350,036
May	90%	5	78,758	393,791
June	40%	4	35,004	140,014
July	5%	4	0	0
August	0%	4	0	0
September	0%	5	0	0
October	0%	4	0	0
November	5%	5	4,375	21,877
December	10%	4	8,751	35,004
		52	**385,040**	**1,645,169**

Table 2. Overhead Costs Allocated by Square Foot Weeks*

Equipment	$ 2,407.08
Gas, Fuel, Oil	3,825.17
Building/Greenhouse Repair	10,925.75
Insurance	4,918.67
Heat, Electricity, Telephone	39,922.83
Property Taxes	10,038.50
Depreciation	25,432.50
Operator/Family Labor (Unpaid)	17,420.00
Interest on Investment or Paid	30,025.08
Total Overhead Costs	**$144,925.58**
Cost Per Square Foot Week	**0.09**

*1,645,169 total square foot weekly

Worth

— and maximize profits.

aration, two weeks for germination, eight weeks of growing time, and one week for shipping). We made two assumptions in the impatiens budget: Plug trays (288s) are used four times before they are discarded by growers and 54 plants are required for a finished flat.

As shown in Table 3, the total cost of producing a flat of impatiens is $4.77. The average per-flat sales price reported in our study was $4.93 per flat. Approximately 16¢ per flat was returned to management — a 3.3% profit margin.

There is a significant reduction in overhead costs in the tomato crop (see Table 4). It is an 8-week crop — and only $1.41 is allocated to the overhead. The cost of producing tomato plugs is 5¢ less than impatiens. Growing media, trays, and labor costs are slightly higher because 72 plants — not 54 — comprise a finished flat.

As shown in Table 4, the total cost of producing a flat of tomatoes is $3.99. The average per-flat sales price reported in the study was $4.93, and 94¢ per flat was returned to management — a 23.5% profit margin.

Pricing Tip

These enterprise budgets reveal major differences in the profitability of individual greenhouse crops. In our example, tomatoes are almost seven times more profitable for the grower than impatiens. This analysis also shows that some crops may be underpriced and fail to contribute their fair share to the profitability of the business.

We believe that bedding plant

Table 3. Impatiens Enterprise Budget

	Number	Price	Value	Cost/ Flat
1. **Overhead cost (sq. ft. wks.)**	326,851	$ 0.09	$28,792.84	$2.11
2. **Produce Seedling Plugs**				
Growing media (trays)	2,554	0.11	275.78	0.02
Trays	2,554	0.20	510.71	0.04
Seed (oz.)	16.2	400.00	6,471.65	0.48
Hired Labor (hours)	213	10.00	2,127.94	0.16
3. **Transplanting**				
Flats and liner	13,619	0.64	8,688.79	0.64
Media	13,619	0.33	8,688.79	0.64
Labels (per 1,000)	245	3.63	889.85	0.07
Labor (flat)	13,619	0.30	4,085.64	0.30
4. **Growing on**				
Fertilizer, chemicals	13,619	0.22	2,996.14	0.22
Labors (hours) 2 min/flat	454	5.00	2,269.80	0.17
5. **Shipping**				
Loading Labor (flat)	13,619	0.20	2,723.76	0.20
6. **Marketing**	13,619	0.04	544.75	0.04
TOTAL OPERATING COST			**$36,079.02**	**$2.67**
TOTAL COSTS			**$64,871.86**	**$4.78**

crops that require more than 10 weeks of production time will have relatively high total production cost because they carry a large overhead created by the space they utilize. Growers should price these crops — which include geraniums, impatiens, fibrous begonias, pansies, and vinca — at a premium.

Parting Thoughts

These two enterprise budgets illustrate a process of allocating all of the costs of operating a greenhouse business to individual crops. The process is more important than the numbers we used or the conclusions we reached about the cost of producing a flat of impatiens or tomatoes.

In fact, we believe that managers who keep accurate records are able to develop very accurate enterprise budgets for each of their crops. This process is basic to both profitability pricing of greenhouse products and developing a business plan that can become the basis for achieving the business' financial goals. **GG**

About the authors: Gale Arent is district greenhouse agent and W. Conard Search is district farm management agent, Cooperative Extension Service, 302 County Administration Building, 201 West Kalamazoo Ave., Kalamazoo, MI 49007.

Table 4. Tomato Enterprise Budget

	Number	Price	Value	Cost/ Flat
1. **Overhead cost (sq. ft. wks.)**	54,475	$ 0.09	$ 4,798.81	$1.41
2. **Produce seedling plugs**				
Growing media (trays)	851	0.11	91.93	0.03
Trays	851	0.20	170.24	0.05
Seed (oz.)	27.0	45.00	1,213.44	0.36
Hired Labor (hours)	71	10.00	709.31	0.21
3. **Transplanting**				
Flats and liner	3,405	0.64	2,172.20	0.64
Media	3,405	0.33	1,123.55	0.33
Labels (per 1,000)	61	3.63	222.46	0.07
Labor (flat)	3,405	0.30	1,021.41	0.30
4. **Growing on**				
Fertilizer, chemicals	3,405	0.18	612.85	0.18
Labors (hours) 2 min/flat	85	5.00	425.59	0.13
5. **Shipping**				
Loading Labor (flat)	3,405	0.20	680.94	0.20
6. **Marketing**	3,405	0.04	136.19	0.04
TOTAL OPERATING COST			**$ 8,580.09**	**$2.54**
TOTAL COSTS			**$13,378.90**	**$3.95**

A Taxing Issue

RETAILERS may be happy to know that excess inventory of lawn and garden supplies can be turned into an above-cost federal tax deduction when donated to charity.

Donors are allowed to deduct the cost of the item donated, plus half the difference between cost and fair market selling price. Deductions may be up to twice the cost.

The donations may be coordinated through the National Association for the Exchange of Industrial Resources (NAEIR). This 12-year-old, non-profit organization accepts donations, then redistributes them to 7500 schools and charities in the U.S.

Donors receive their tax documentation from NAEIR within 10 days after their merchandise is received at NAEIR's Galesburg, IL warehouse. There is no charge for this service. Recipients of the materials include schools, hospitals, nursing homes, orphanages, and other charities.

For free information, contact NAEIR, Dept. LG-1, 560 McClure St., Galesburg, IL 61401.