Increasing the Bottom Line©

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INTRODUCTION

About 15 years ago, Saunders Brothers developed a spreadsheet that we use to compare the profit potential of various products we grow, or consider growing. We developed the spreadsheet by taking a tax return from a given year and expensing all costs incurred for the business in either a direct or indirect category.

Before getting into expenses, one needs to determine the units produced in a given calendar year. These units can be determined in one of two ways. You must either know the containers per cubic yard (CCY) of the container you are analyzing, or know its volume — see Figure 1. In an industry where a 13.6-L (3-gal) container is not always 3-gal, using the CCY, one can determine the cost of media in a 3-gal pot, if the containers per cubic yard are known. To generate the figure of total units produced, convert all containers into a single unit size using one container size as the base-line unit. The system we use converts all container units to a 3.8–L (4-qt or 1-gal) container, which is our base-line #1 unit. Because the 4 qt (# 400) has a substrate capacity of 3687 cm^3 (225 in^3) and a 3-gal (or # 1200) has a substrate capacity of 11,454 cm^3 (699 in^3), the 3-gal is classified as 3.1 units (699/225). During the year, if we produce 3000 4-qt and 1000 3-gal containerized plants, then we have produced 3000 (each 4 qt is 1 unit) + (1000 × 3.1 = 3100) = 6100 units.

For the more obvious direct expenses, start with substrate costs. As with all expenses, total substrate cost is the figure that must be used. Nutrients added to media such as slow-release fertilizer (SRF), dolomitic limestone, and micronutrients are included as part of total media cost. Media cost/unit of production is determined by taking the total cost of potting media and then dividing by the units produced for the year. For growing hanging baskets or similar products in a blended medium that contains peat, perlite, wetting agents, etc. — the cost is greater and needs to be expensed against the particular crop being grown. This is done on a separate spreadsheet.

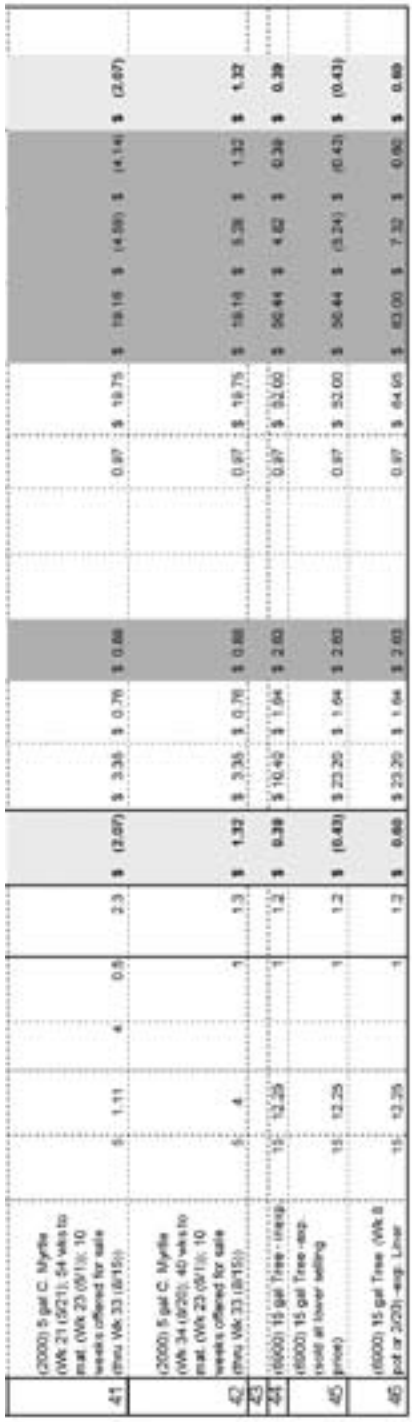
A second direct cost is labor. To get the labor cost per unit, the units of production are divided into the total cost of labor in a calendar year. We also determine a selling or marketing cost per unit. This figure is derived by accounting for all nonproduction labor — including company staff for sales, accounts payable and accounts receivable, payroll, clerical, and secretarial staff. In addition, trade show costs were added into the marketing/sales cost. Obviously any expenditure the company incurs has to be expensed somewhere.

Space costs entail the cost of the greenhouses (including water lines), grading, plastic, landscape fabric, and gravel for roads. Electricity and heat are included in space costs. The further south one produces, the less the use of overwintering houses; thus there are lower space costs compared to our Zone 7A location. Also, nurseries developed where the terrain is flatter would have lower space

Figure 1. Spreadsheet for increasing the bottom line.

	A	B	C	D	E	F	G	H	I	J	K	L	T	V	W	X	Y	Z	AA
1	Assumptions:		Labor costs =		$ 0.24	per unit per year				Convert production into units first									
2			Mix costs =		$ 0.18	per unit				4 quart = 1 unit									
3			Mktg/Selling costs =		$ 0.54	per unit				3 gal = 3.1 units (based on volume not CCY)									
4			Space cost =		$ 0.09	per ft2 per year (is adjusted for multiple crop plants)													
5			Value 2nds for dump plants=		$ -	per unit													
6		**DIRECT COSTS**																	
7						volume turnover in given area					Credits/ Debits	trickle irrigation - shipping				x column - y column	w column/ z column	z column + a column	
8	Plant	# Units	Ft sq occpd Year 1	Ft sq occpd Year 2	no. crops/ year	Units/ sq ft/year	**Profit per sq ft/year**	Liner	Cnthr	Mix	Tag/Other incidental (heat, pruning, special sprays (PGR's))	Other costs	% Sell	Wholesale price	Wghted Value/ potted Plant	Profit per potted plant	Profit per sq ft	**Profit per sq ft/year**	Cost/finished grade unit
9	(275) 6" annuals (144 plug; 1/pot) (1/2 of crop with 1 plug)	0.68	0.32		3.5	7.4	**$ 8.30**	$ 0.13	$ 0.09	$ 0.12	$0.06		0.92	1.95	$ 1.79	$ 0.78	$ 2.37	**$ 8.30**	
10	(275) 6" annuals (144 plug; 2/pot) (1/2 of crop with 2 plugs)	0.68	0.32		3.5	7.4	**$ 6.89**	$ 0.25	$ 0.09	$ 0.12	$0.06		0.92	1.95	$ 1.79	$ 0.63	$ 1.97	**$ 6.89**	
11	(275) 6" pansy (144 plug 1/pot), (2/3 of crop with 1 plug)	0.68	0.32		3.0	7.4	**$ 9.09**	$ 0.15	$ 0.09	$ 0.12			0.99	1.85	$ 1.83	$ 0.83	$ 2.60	**$ 9.09**	
12	(275) 6" pansy plugs (144 plug; 2/pot) (1/3 of crop with 2 plugs)	0.68	0.32		3.5	7.4	**$ 7.40**	$ 0.30	$ 0.09	$ 0.12			0.99	1.85	$ 1.83	$ 0.68	$ 2.12	**$ 7.40**	
13	(275 Gr. Pot) 6" pansy plugs (144 plug; 2/pot) (1/3 of crop with 2 plugs)	0.68	0.32		3.5	7.4	**$ 6.17**	$ 0.30	$ 0.20	$ 0.12			0.99	1.85	$ 1.83	$ 0.66	$ 1.78	**$ 6.17**	

14																			
15	(300) 1 gal hemlock	0.75	0.33		1	2.3	$ (0.27)	$ 0.46	$ 0.34	$ 0.13	$ 0.02	$ -	0.86	$ 2.25	$ 1.91	$ (0.06)	$ (0.27)	$ (0.27)	
16	(300) 1 gal wh pine	0.75	0.33		1	2.3	$ (2.07)	$ 0.13	$ 0.34	$ 0.13			0.86	$ 1.45	$ 0.94	$ (0.68)	$ (2.07)	$ (2.07)	
17																			
18	(300) 1 gal Kalmia 'Elf' (buy or sell)	0.75	0.33		1		$ (2.49)	$ 1.54	$ 0.34	$ 0.13			0.83	$ 3.74	$ 2.36	$ (0.82)	$ (2.49)	$ (2.49)	$5.04
19	1 gallon Kalmia 'Elf' purchase price																		$5.03
20																			
21	(400) 4 qt grass	1	0.43		2	4.7	$ 2.38	$ 0.96	$ 0.18	$ 0.18	0.15		0.9	$ 3.40	$ 3.06	$ 0.61	$ 1.19	$ 2.38	
22	(400) 4 qt hosta	1	0.43		1	2.3	$ 3.07	$3.68	$ 0.18	$ 0.18	0.15		0.9	$ 8.00	$ 7.20	$ 1.32	$ 3.07	$ 3.07	
23	(400) 4 qt hosta (2006 pot price)	1	0.43		1	2.3	$ 2.84	$3.68	$ 0.27	$ 0.18	0.15		0.9	$ 8.00	$ 7.20	$ 1.22	$ 2.84	$ 2.84	
24																			
25	(1000) 3 gal boxwood	2.336	0.66	0.66	0.5	1.8	$ 4.52	$ 3.00	$ 0.27	$ 0.41			0.95	$ 17.00	$ 16.15	$ 5.97	$ 8.04	$ 4.52	
26	(1000) 3 gal boxwood	2.336	0.66	1.344	0.5	1.8	$ 1.13	$ 3.00	$ 0.27	$ 0.41			0.95	$ 14.00	$ 13.30	$ 1.46	$ 2.26	$ 1.13	
27																			
28																			
29																			
30	(1200) 3 gal. Jump. 'Grey Owl'	3	2.14		1	1.4	$ 0.25	$ 2.79	$ 0.47	$ 0.50			0.97	$ 9.75	$ 9.46	$ 0.54	$ 0.25	$ 0.25	
31	(1200) 3 gal Jump. 'Grey Owl'	3	2.14		1	1.4	$ 0.32	$ 2.79	$ 0.34	$ 0.50			0.97	$ 9.75	$ 9.46	$ 0.68	$ 0.32	$ 0.32	
32	(1200) 3 gal Jump. 'Blue Star'	3	1.48		1	2.1	$ 0.79	$ 6.14	$ 0.34	$ 0.50			0.97	$ 12.00	$ 11.64	$ 1.02	$ 0.79	$ 0.79	
33																			
34	(1200) 3 gal Flow. Shrub (in house propag.)	3	2.14		1	1.4	$ 1.36	$ 0.58	$ 0.34	$ 0.50			0.97	$ 9.50	$ 9.22	$ 2.90	$ 1.36	$ 1.36	
35	(1200) 3 gal Flow. Shrub (liner purchased)	3	2.14		1	1.4	$ 1.01	$ 1.23	$ 0.34	$ 0.50			0.97	$ 9.50	$ 9.22	$ 2.15	$ 1.01	$ 1.01	
36	(1200) 3 gal Flow. Shrub (liner purchased)	3	2.14		1	1.4	$ 1.27	$ 4.00	$ 0.34	$ 0.50	0.03		0.97	$ 13.25	$ 12.85	$ 2.73	$ 1.27	$ 1.27	
37																			
38	(1200) 3 gal Knockout Ros	3	2.14		2	2.8	$ 1.75	$ 3.50	$ 0.34	$ 0.50	0.02		0.95	$ 10.50	$ 9.98	$ 1.87	$ 0.87	$ 1.75	
39	(1200) 3 gal Knockout Ros	3	2.14		1	1.4	$ 0.18	$ 3.50	$ 0.34	$ 0.50	0.02		0.95	$ 10.50	$ 9.98	$ 0.40	$ 0.18	$ 0.18	
40																			



costs. Our production site requires the use of larger horsepower tractors, adding to production cost.

One can debate where figures are entered into the spreadsheet. However, the most important factor is that all expenses are accounted for.

Why was the spreadsheet developed? We developed the spreadsheet years ago when we were at a crossroads in our business. At the time, we had mixed emotions about expanding anymore, but wanted to make sure the products that we were growing were the most profitable. Later, we acknowledged that the decision to put the nursery on its current site was not the best choice. The site is located under pine trees on a hillside. This site worked fine when the main crop grown was *Buxus*. Furthermore, the site provided protection from the flood waters of Hurricane Camille in August 1969, when the river bottoms were wiped out. In later years, when overwintering houses were constructed to protect the finished product during winters like those in the late 1970s, the cost of grading and/or terracing became a great concern. The lack of sufficient flat land near the container nursery's origin made us more determined to get the best return from the site; thus the development of the profit potential spreadsheet (Fig. 1). Besides lack of sufficient flat space for production, water is another limited resource that we deal with.

Over time, we decided to become a "one-stop shop" for anyone in the market for plants. To do this, we determined we would also have to grow trees. Growing trees on drip irrigation was an easy choice. However, buying liners, finishing the product in one season, and making a profit required some planning. The spreadsheet has been an immense help.

Using the spreadsheet taught us the significance of obvious things in production, such as the importance of selling a high percentage of a given crop. Improving this number meant the difference between having positive cashflow and being in the black, compared to being in the red with losses from producing certain crops. Through the spreadsheet we learned that plants such as white pine and hemlock that we had been growing in containers were not as lucrative as we had thought. Even though these plants could be purchased at a minimal cost, the percentage of plants not meeting market grade was substantial because of the seedlings' variability. Unlike crops that can be pruned to improve the finished product, white pine has a specific pruning window that made it tough to finish the desired number of plants on time. Another crop that we quickly eliminated from production was garden mums. Growing mums in 20-cm (8-in.) pans on spacing larger than 1 ft^2 per plant and then selling these brittle, perishable plants for less than $2 per plant was a bad idea.

Deciding to eliminate some of the aforementioned products was easy. Next, determining plants that could be grown can-tight and multi-cropped with higher returns was emphasized; space was allocated based on their anticipated demand. In this category were plants such as spring annuals and fall pansies that are sellable within 6 weeks from a 144 plug. We felt that the margin of return on these crops could justify the higher grading costs we were faced with. Perennials also fit into this category. Any and all crop handling must be minimized to generate the highest profit potential. An obvious next step for anyone growing perennials from purchased plugs is to evaluate the possibility of buying unrooted cuttings and rooting them in-house to save more money. I can not overemphasize the importance of growing crops either can tight or on the tightest possible spacing. Along with proper spacing, finishing crops when the market is ready for the plant is essential. For example, finishing a 3-gal *Ilex* in June and not selling it until October means the crop likely will have to be pruned, fertilized, or spaced an additional time. Remember, these extra steps are hurting the bottom line. To avoid this, one staggers planting time so ready dates more closely match the desired sales window. Again, it is critical to have the crop finished when the market is ready for the crop. *Spiraea* is a good example of this. We plant *Spiraea* at two planting times. Plants are propagated in the summer during Weeks 27 and 32. The Week 27 crop is propagated into a higher fertility medium and planted into 3-gal containers on Week 34. This crop is ready for market by Week 24 the following year. The Week 32 crop is propagated into a lower fertility medium and planted during Week 18 the following year. It is ready for market by September of the same year. Hopefully, the Week 18 crop will need to be spaced only once.

It is crucial when evaluating a product in the spreadsheet that one enters the landed cost of the liner. Any royalty, packaging, and/or freight cost associated with the crop must be included before analyzing the plant in question.

Column K on the spreadsheet is the credit and debit column, which is used to expense tag costs and more importantly any additional costs of a given crop. An annual planted during Week 8 and covered with plastic and heated would have additional costs for heating and plastic added to its total production cost. A patented crop that has to be marketed with a specific tag can be expensed in this column or the tag cost could be added in Column K. This column also can be used to subtract costs from a given crop. A good example of this would be pansies, which can be

grown and sold in the fall without any additional charge for overwintering, including plastic and/or heating.

We have also generated additional returns by varying the spacing on the crop based on its form and/or marketable size. Obviously, an *I. crenata* 'Skypencil' does not need to be grown on the same spacing as an *I. crenata* 'Soft Touch', which can also be grown on a different spacing than *I. crenata* 'Helleri'. Furthermore, the finished size of a *Pieris* 'Cavatine' doesn't need the same spacing as does a *P.* 'Mountain Fire'. Grouping plants in the same production area based on similar cultural needs, including irrigation and fertilization, is important for profitability. Blocking species with similar spacing requirements is not that difficult.

I can not overemphasize the importance of propagating crops in-house and finishing a high percentage of liners. This greatly increases the product's profitability. It is also important to know the percentage of a crop finished-off and sold, calculated on the base-line 1-gal unit. If the percentage is not high enough, buying gallons may not be as bad an idea as one might think. This is especially true if the growing area utilized could have been used for producing a crop with a higher return per square foot.

Always assign someone on staff to be responsible for taking advantage of new opportunities — staying on top of "what's new" or "riding the wave." You will be surprised at the return on items whose price can be higher than the average 3-gal plant. For example, you might sell a 3-gal compacta holly for $8.50, but a 3-gal 'Carissa' holly that is in higher demand might gross $10.00. Some of the newer releases of flowering shrubs are even more attractive. Naturally you could spend a little more for these liners and still come out "smelling like a rose," but if you can propagate it in house, one's profitability will be higher.

Pricing should be determined by both production numbers and sales. Production costs should help formulate the minimum selling price based on factors mentioned (i.e., liner cost, space occupied, etc.), while sales should naturally sell for the highest possible price based on anticipated demand. If production and sales staff are not communicating, there will be problems.

The attached spreadsheet (Fig. 1) has columns hidden because of space limitations — but the message is still clear.

The bottom line is that having a limited growing area should make us better business people — particularly if production and profitability are increased.