

Optimizing Profit Improvement Potential[©]

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As business owners, you are constantly faced with challenges in your business that affects your profitability. The main factors affecting your profitability consist of the following:

- 1) The price you charge
- 2) The quantity that you sell or volume
- 3) The direct costs you incur to produce your product (i.e., direct costs)
- 4) The costs you incur regardless of whether you make any sales (i.e., fixed or indirect costs)

Profitability is impacted by a change in any one of these factors. Due to the dynamic business environment that we operate in today, it is likely that there is a change to multiple factors at any given time. Although you may have a positive impact in one factor such as an increase in sales volume, the effect of the profitability impact is only realized if there isn't an offsetting increase or decrease in one of the other factors. Also, some of the factors you have control over such as price whereas other factors are not in your control such as fixed costs like property taxes.

When conducting a review of your profitability factors and your strategy, some key questions to ask are:

- 1) Can I increase my price and what would be the effect to my sales volume?
- 2) How can I get my customers to buy more often?
- 3) How can I get more customers?
- 4) How can I reduce my costs?

If we look closer at price and volume, it is important to realize that for any increase in price, sales volume would have to remain either constant or any decline in volume would have to be less than the offset created by increasing the price. Likewise, for a decrease in price, the sales volume would have to increase sufficiently to offset the decline in price. Let's look at an example in Table 1 of a plant grower who currently sells 10,000 plants at a price of \$100 per plant and each plant costs \$60 to produce resulting in a gross margin of \$40 per plant. At current levels, the grower is realizing sales of \$1,000,000 per year with a gross margin of \$400,000 before fixed costs.

Table 1. Price and volume effect.

Volume:	10,000 plants		Current	Price Increase by 5%	Price Decrease by 5%
Price:	\$ 100				
Cost:	60				
Gross margin	\$ 40				
	Revenue		\$ 1,000,000	\$ 1,050,000	\$ 950,000
	Direct cost		<u>600,000</u>	<u>600,000</u>	<u>600,000</u>
	Gross margin		<u>\$ 400,000</u>	<u>\$ 450,000</u>	<u>\$ 350,000</u>
	Change			\$ 50,000	-\$ 50,000
	Volume adjustment required		1,250	179	1,429

If we increase the price per plant by 5% to \$105, the increase in price results in increasing the gross margin by \$50,000 to \$450,000. Likewise, if we decrease the price by 5% to \$95 per plant, the gross margin is reduced by \$50,000 to \$350,000. What is interesting is the effect on volume to deal with these changes. For example, if we didn't increase the price by 5%, the grower would need to sell an additional 1,250 plants in the base scenario for a total of 11,250 plants to achieve an increase in gross margin to \$450,000 equal to the 5% price increase. Alternatively, as a result of the price decrease of 5%, the grower would need to sell an additional 1,429 plants just to retain the gross margin of \$400,000. Many growers don't realize the effect of discounting their price and the additional volume requirements necessary to keep their gross margins or to increase their margins.

Next let's look at costs in the operations. There are two initial questions to ask:

- 1) Do you understand your costs?
- 2) Are you allocating your costs properly?

Many growers do not have a full grasp of the actual costs involved to grow their crops. Although the total expenditures are recorded, the allocation of direct costs to inventory is not necessary done correctly and there should also be an allocation of fixed or overhead costs charged to inventory to determine the actual production cost of a crop. Without a good understanding of your cost structure, it is difficult or even impossible to correctly price your crops.

Overall there are two types of costs:

- 1) Direct (or also called variable): these are costs that are directly incurred in the production of your crops. An example would be seeds or fertilizer.
- 2) Fixed (also called indirect or overhead): these relate to costs which do not fluctuate with volume levels. An example would be advertising or property taxes.

A decrease in variable costs indicates a greater efficiency in the operations and has a similar effect to the price increase in that the gross margin increases. A decrease in your fixed costs will result in improving net income but it doesn't have the same multiplier effect since it isn't linked to volume.

Table 2 below shows four different scenarios and provides some examples of the effect of price, volume, and cost adjustments. The base scenario is the same as Table 1 with 10,000 plants sold for \$100 each with a direct cost of production of \$60 resulting in a gross margin of 40% or \$400,000. In addition, we have added a fixed cost component of \$300,000 resulting in net income of \$100,000.

Scenario 1 shows the effect of a 5% price increase matched with a 3% volume increase and a \$3 per plant decrease in direct costs and a reduction of fixed costs by \$20,000. This results in an increase to revenue of \$81,500 and an increase in gross margin of 5.7% or \$94,400. When you match this with a fixed cost savings of \$20,000, the result is net income of \$214,400 for an increase of \$114,400 or 114% over the base scenario.

Scenario 2 shows the effect of a price increase of 5% per unit matched with a 10% reduction in volume, a \$3 per plant decrease in cost and a \$20,000 decrease in fixed costs. This results in revenue of \$945,000 which is lower than our base scenario by \$55,000 but is producing gross margin of \$432,000 less direct costs of \$280,000 for net income of \$152,000. This scenario is still an improvement over the base scenario by \$52,000 even though there has been a significant decrease in volume.

Scenario 3 includes an increase in volume by 10% to 11,000 plants with a 5% decrease in the unit price and direct cost per unit remaining at \$60 per plant which is the same as our base scenario. Fixed costs have remained at \$280,000. This results in revenue of \$1,045,000, a gross margin of \$385,000 and net income of \$105,000.

Scenario 4 is almost identical to Scenario 3 except it shows a \$3 decrease in the per unit direct cost. This results, in revenue of \$1,045,000 with a gross margin of \$418,000 and net income of \$138,000.

Table 2. Price, volume and cost scenarios.

	<u>Scenario 1</u>		<u>Scenario 2</u>		<u>Scenario 3</u>		<u>Scenario 4</u>			
Volume		10,000		10,300		9,000		11,000		11,000
Price	\$	100	\$	105	\$	105	\$	95	\$	95
Direct cost	\$	60	\$	57	\$	57	\$	60	\$	57
Fixed costs	\$	300,000	\$	280,000	\$	280,000	\$	280,000	\$	280,000
Revenue	\$	1,000,000	\$	1,081,500	\$	945,000	\$	1,045,000	\$	1,045,000
Cost of goods sold		<u>600,000</u>		<u>587,100</u>		<u>513,000</u>		<u>660,000</u>		<u>627,000</u>
Gross margin		400,000		494,400		432,000		385,000		418,000
%		40.0%		45.7%		45.7%		36.8%		40.0%
Fixed costs		<u>300,000</u>		<u>280,000</u>		<u>280,000</u>		<u>280,000</u>		<u>280,000</u>
Net income before tax	\$	<u>100,000</u>	\$	<u>214,400</u>	\$	<u>152,000</u>	\$	<u>105,000</u>	\$	<u>138,000</u>
\$ improvement over base			\$	114,400	\$	52,000	\$	5,000	\$	38,000
% improvement over base				114%		52%		2%		25%

As a result, one can see the powerful effect that price adjustment and volume adjustments can have in the profitability of your business.

The next two tables show some information regarding the amount of volume adjustments that are necessary to compensate for changes in your inputs. Table 3 shows the amount of volume increases necessary to produce the same profit. For example, if your margin is 35% and you have a price decrease of 6%, then you would need to increase your sales volume by 21% to keep the same gross margin. Table 4 shows the amount your sales can reduce when you increase your price in order to produce the same profit. If you have a price increase of 4% with a 35% gross margin, your sales can decrease by 10%.

In conclusion, it is important first to correctly understand your cost of production. Once you have the correct cost bases, then you can review your pricing decisions and effect on cost and volume to fully maximize your returns.

Table 3. Compensating for price discounting.

		If your price margin is:								
		20%	25%	30%	35%	40%	45%	50%	55%	60%
And you reduce price by	To produce the same exact profit, sales volume must increase by:									
	2%	11%	9%	7%	6%	5%	5%	4%	4%	3%
4%	25%	19%	15%	13%	11%	10%	9%	8%	7%	
6%	43%	32%	25%	21%	18%	15%	14%	12%	11%	
8%	67%	47%	36%	30%	25%	22%	19%	17%	15%	
10%	100%	67%	50%	40%	33%	29%	25%	22%	20%	
12%	150%	92%	67%	52%	43%	36%	32%	28%	25%	
14%	233%	127%	88%	67%	54%	45%	39%	34%	30%	
16%	400%	178%	114%	84%	67%	55%	47%	41%	36%	
18%	900%	257%	150%	106%	82%	67%	56%	49%	43%	
20%	-	400%	200%	133%	100%	80%	67%	57%	50%	
25%	-	-	500%	250%	167%	125%	100%	83%	71%	
30%	-	-	-	600%	300%	200%	150	120%	100%	

Table 4. Sales decline following a price increase.

		If your price margin is:								
		20%	25%	30%	35%	40%	45%	50%	55%	60%
And you increase price by	To produce the same exact profit, sales volume must reduce by:									
	2%	9%	7%	6%	5%	5%	4%	4%	4%	3%
4%	17%	14%	12%	10%	9%	8%	7%	7%	6%	
6%	23%	19%	17%	15%	13%	12%	11%	10%	9%	
8%	29%	24%	21%	19%	17%	15%	14%	13%	12%	
10%	33%	29%	25%	22%	20%	18%	17%	15%	14%	
12%	38%	32%	29%	26%	23%	21%	19%	18%	17%	
14%	41%	36%	32%	29%	26%	24%	22%	20%	19%	
16%	44%	39%	35%	31%	29%	26%	24%	23%	21%	
18%	47%	42%	38%	34%	31%	29%	26%	25%	23%	
20%	50%	44%	40%	36%	33%	31%	29%	27%	25%	
25%	56%	50%	45%	42%	38%	36%	33%	31%	29%	
30%	60%	55%	50%	46%	43%	40%	38%	35%	33%	