GROWING FOR MARKET
news, advice and resources for market farmers

If you want to make a profit know your cost of production

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By Robert Hadad

I have been an extension educator working with farmers in Kentucky, North Carolina, Minnesota, and New York for over 20 years and had a small organic vegetable operation before that. For many years in extension it was all about production and we avoided providing marketing or financial information to farmers. It didn't seem to matter if we knew that a farmer investing in growing two acres of cabbage was only going to make nine cents a pound or not, our job was just to assist with weed and pest recommendations.

Times have changed. I focus heavily on the economics of a crop especially if a farmer is trying it for the first time. It doesn't make sense to grow something without the financial information to evaluate the production and marketing. To sell the product at a profit, knowledge of cost of production is essential for setting the price that translates into making a true profit.

Unfortunately, fewer farmers are taking the time to figure out their costs. Sure, it's boring and time consuming. Guessing may give you an approximation but the reality of all the inputs and labor of production and marketing along with overhead is hard to accurately guess. A cold dreary day in the off-season is ideal for sitting down and putting pencil to paper or filling in a spreadsheet.

Why bother? There are many reasons to bother. Having that financial information is a powerful tool. You can make decisions based on facts and figures that are more accurate. You will be able to definitively know if you can afford hiring labor at your current production level or if you'll have to lease more land and expand the quantity you grow. Is the market you are selling to really as profitable as you think? Is Swiss chard worth more or less than snap peas? Can you make more money by selling beets at a higher price or do you need to reduce the labor required to weed them?

Knowledge of cost of production is especially important when farmers try to scale up. If they are used to doing the work themselves, hand labor on two acres for example, how much do they need to expand to double their sales? They may have to purchase equipment, maybe with a loan, or need to hire a laborer for 30 hours a week. Can they afford that? Do they have enough land? How much more do they actually have to grow to meet these new costs? The answer isn't double, it is higher than that. To make double and pay for equipment or another worker, a higher percentage of the crop needs to be grown and sold to cover the increased costs of scaling up.

There are a number of spreadsheets and other programs out there. I use Richard Wiswall's templates in The Organic Farmer's Business Handbook (available from Growing for Market) for figuring out cost of production and crop budgets. He lays out all of the production and marketing aspects from his diversified farm experience and allows you to put in your own numbers. The many crop budget spreadsheets give you the opportunity to drop in your figures as well. The worksheets cover labor, market costs, overhead, tractors, some basic equipment, transplant production, greenhouse tomato production, and all of these costs can be plugged into the crop budgets.

The crop budgets are figured on 1/10 of an acre (two beds – 350ft long so for some crops 2 rows while others are 4 rows) that is easily translated into other scales. You can set the prices either retail or wholesale and harvest quantities. The time consuming part is figuring out your own time for labor and input costs. If you are used to guessing then you can use those guesses to get yourself started with these sheets. Then as you get into the growing season, you can collect the necessary information to add to the charts. You will be able to see how close your estimates are to the real numbers. Farmers have told me they were really surprised by finding numbers that were not what they'd thought they would be.

I have taken the crop budgets created by Richard Wiswall and plugged in time and inputs to figure out the general costs for producing selected crops in western New York. There are many assumptions and generalities to this mainly because I am not doing it for a specific farm. I gathered items such as length of time it took several farmers to hoe out weeds from different crops at 100ft lengths, time it took to do soil prep, direct seeding, transplanting, overhead costs, retail direct marketing costs, and a lot more. The chart can be found at the Cornell Vegetable Team's website cvp.cce.cornell.edu. The data was obtained from small and mostly organic vegetable farms of less than three acres.

Some crops showed losses while some others did quite well overall. Prices will vary wildly but I tried keeping to conservative numbers that might be prevalent in the rural farmers markets or CSA programs out here. The overall picture indicates a profitable venture when combining 22 crops (each crop fits into 1/10th acre such as two 350ft beds with one or two rows in each) equaling 2.2 acres. Allowances were included to represent losses in the field and post-harvest, storage costs, and food safety implementation. I showed the numbers to a couple of growers who said they wished they did this well particularly after the droughty year we had in 2016.

In the example, after all the costs were accounted for, there was a real profit of $14,000 to $17,000 for the 2.2 acres. Again, the numbers used were averages and estimates. Every farm is unique and runs differently. This is great news. The farm is moving in the right direction. The personal question that must be asked is does this provide enough of a living? How can I make things better and more profitable?

All costs used in the equations were calculated from my data plugged into the Wiswall spreadsheets. Hourly labor was $10 plus comp. and is based on total number of hours rather than on number of workers.
Most of the numbers plugged into the crop budget sheets (time devoted to labor and inputs) are averages collected from farms and suppliers in western New York in 2015-16.

	plot size 1/10th acre	costs include post-harvest & marketing	costs	costs			total production costs	yield estimate	retail sales unit prices $	retail sales total $	profit $	loss $
crop	labor	labor plus additional part time worker	equipment	materials	total crop costs	overhead						
bush bean	784	1176	39	88	1303	288	1591	400lbs	2.5	1000	-591	591
beets	720	1080	53	120	1253	288	1541	1400lb	2	2800	1259	
basil	774	1161	33	446	1640	288	1928	1400 bunches	2.5	3500	1572	
broccoli	442	663	33	181	877	288	1165	500 head	2	1000	-165	15
cabbage	470	705	33	199	937	288	1225	800	2	1600	375	
carrots	720	1080	35	117	1232	288	1520	980 -1lb bunch	2	1960	440	
celeriac	765	1147.5	34	290	1471.5	288	1759.5	1200lb	2	2400	640.5	
cilantro	463	694.5	32	182	908.5	288	1196.5	1200 bunch	1.75	2100	903.5	
swt corn	247	370.5	34	122	526.5	288	814.5	100 dz	6	600	-214.5	214.5
cucumber	373	559.5	33	181	773.5	288	1061.5	1000lb	1	1000	-61.5	
dill	497	745.5	32	181	958.5	288	1246.5	1200bunch	1.75	2100	853.5	
kale	883	1324.5	34	273	1631.5	288	1919.5	1500	2	3000	1080.5	
lettuce	697	1045.5	32	225	1302.5	288	1590.5	1248hd	2	2496	905.5	

The author created this chart using Richard Wiswall's spreadsheets and data from small farms in western New York. A more detailed version is available at cvp.cce.cornell.edu. For a free download of the NOFA Enterprise Analysis Workbook, a whole-farm recordkeeping system developed by Richard Wiswall, go to http://www.beetclock.com/NOFA-Enterprise-Analysis-Workbook.php

The beauty of this exercise is in determining where there might inefficiencies in your systems. If hoeing beets takes 20 hours then maybe a better method of weed control can be tried. If weeding by hand is the only way, then maybe the selling price needs to be increased. If you are thinking about selling wholesale to a food hub but are used to selling retail, having the numbers there to figure out how much more you need to grow and where the costs lie can be invaluable.

Profit isn't just what is left at the end of the season and that's your salary, it's what's left over after all your costs are covered, including paying yourself. In a survey I conducted of small produce growers through three list serves, 76 farmers replied. I asked them how they set prices. Guessing at pricing – 18%; looking to see what the super markets charge – 18%; looking to see what their competition charges 20%; 40% said all of the above and only 4% said they figured out their costs to set their prices.

Another question was how much did they pay employees? The average was $12/hr. I then asked if they paid themselves and 72 out of 76 said "no." I then asked them to figure out how much they were making if they didn't pay themselves. The reply, 72 farmers were only averaging $2.75/hr. The other 4 farmers said they paid themselves and the range was $12-15/hr and money left over was their profit they used to reinvest back into the business or for other family-related items.

In the past few years there have been a number of growers writing about their experiences with farming and marketing. Learning about new experiences is great. Most troubling to me are growers who come out with books and conference appearances speaking about making hundreds of thousands of dollars selling vegetables from tiny amounts of land. Listening to them speak and scouring their books, little is mentioned about their costs of production. They tend to be selling into higher end metropolitan areas that most farmers struggling in rural areas will never be able to market to. Location. Location. Location.

Long-term sustainability requires a farmer to be able to build up healthy soils and manage weeds, pests and fertility while increasing profitability to maintain a reasonable lifestyle. I see many farmers struggling out there. Many are starting out and trying to get into farmers markets or start CSAs. Land prices are higher than a decade ago. They can't afford much, so are settling for smaller plots in more rural locales. The markets available to them are limited and customers are not buying a lot of fresh produce or accustomed to paying the prices small farmers need.

New and beginning farmers are finding that making a living wage in the countryside is a lot harder than they thought. They believed that if they could grow fruits and vegetables they would have no problem selling. The marketplace is more challenging than many think. Starting out without a sense of what it will cost to farm and then not keeping track of their real costs is hurting them in the long run. So what to do?

Here in New York outside of the Big Apple, food hubs are the new marketing avenue. Collaborative marketing is a great opportunity to pull together large enough volumes of produce to make wholesaling to larger accounts more viable. Selling wholesale is a big change from retail. Margins are much tighter and prices are usually extremely low. To make a profit a farmer needs to be sharp and know what they can afford to sell commodities for. Wholesale isn't for the grower who can produce small amounts of 30-40 different varieties. Wholesale is a place where a grower can concentrate on just one or a couple of crops that can be grown in volume, grown according to standard grades for size and quality, and packed specifically to the buyers' requirements.

Collaborative marketing, cooperative farming, group supply purchasing, and other novel business ideas can be hugely beneficial for farmers. The push for food hubs and other initiatives will keep the demand for locally grown strong. Getting a good price and making a profit means adapting to new market pressures.

The key to success in wholesaling or retailing is knowing your costs across all aspects of the farm enterprise. Each production price has a cost based on inputs and labor. Knowing this information can be a tool in your efforts to be more efficient to save on labor or having secondary markets available for parts of the harvest that don't make the wholesale grade. There is little room for guessing but being accurate with the numbers can make all the difference. Knowledge is power.

Robert Hadad started out as an organic vegetable grower in Rhode Island back in the 1980s. He has been an extension vegetable educator with the University of Kentucky covering organic farming, and an extension vegetable educator with North Carolina State. He was a research fellow with the University of Minnesota, then for the last 11 years with Cornell as a vegetable specialist with the Cornell vegetable team.

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