

Understanding Organic Pricing and Costs of Production

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This publication provides resources to compare organic and conventional agricultural prices, discusses organic production costs, and offers tips on how to set organic crop prices. There are also several case studies included that summarize insights gained from successful organic farmers and ranchers.



Photo: Camille Green, NCAT



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Introduction

In recent years, growth in organic food sales in the United States outpaced growth in overall food sales despite the economic downturn (Nutrition Business Journal, 2010). Organic food sales grew 53% in the United States between 2005 and 2008, from \$13.8 billion to \$21.1 billion (Richards, 2011). Increased demand is motivating some farmers to transition to organic production. Financial, health, and environmental benefits can be gained from transitioning to organic farming. These benefits are due to possible price premiums, growing value-added markets, and a reduction of the use of synthetic chemicals and fertilizers, which can reduce toxic chemical exposure and possibly reduce input costs.

The key to profitable organic farming is to set prices for organic crops that exceed production costs, while being competitive in the market. This publication explores what is known and not known about organic pricing and the costs of organic production. The goal is to provide farmers and ranchers who are exploring organic production, transitioning to organic production, or are already organic producers with a better understanding of the economic and market potential and challenges of organic farming.

Organic Price Premiums and Production Costs

There are several factors that motivate farmers to certify crops as organic: environmental stewardship,

lifestyle, family and personal health, as well as price premiums, all influence farmers to grow organically (Peterson et al., 2012). Although growing organically provides for certain lifestyle benefits and fosters environmental stewardship, farmers still need to know if organic price premiums are enough of an incentive to motivate organic certification. Of secondary importance is understanding how production costs compare between organic and nonorganic growing, in order to better evaluate the economic potential of both systems.

Price Premiums

In recent years, several sources of information have been established that begin to compare organic and nonorganic crop prices within similar regions of production and markets, allowing suppliers and consumers to better gauge price premiums, if any. The Agricultural Marketing Service, Maine Organic Farmers and Gardeners Association, the Northeast Organic Farming Association of New Hampshire, the Organic Farmers' Agency for Relationship Marketing (OFARM), Inc., and the Rodale Institute all provide organic price data in some form. A description of each price index appears below. These tools can be used to compare organic prices in your area or to look at markets in other areas of the country.

Agricultural Marketing Service (AMS) Market News Reports

The United States Department of Agriculture AMS has posted current prices and sales information on nonorganic farm commodities for the past 90 years and its postings now include some

organic price data. Price data is available for terminal markets and retail outlets. The retail price data comes from advertised prices and is averaged nationally and by region. Many commodity prices can be found by state. <http://1.usa.gov/Og5PB>

Below is an example of price data that can be found in AMS reports. The table shows national price premium data for dairy products during the week of July 26, 2012.

Maine Organic Farmers and Gardeners Association (MOFGA) Organic Price Reports

www.mofga.org/Default.aspx?tabid=260

MOFGA has been tracking organic prices for products sold in Maine since 2006. It reports on price surveys for direct sales and wholesale sales from certified organic farmers in Maine. The reports are published monthly.

Northeast Organic Farming Association of New Hampshire Organic Price Index

www.nofanh.org/opx

The Northeast Organic Farming Association of New Hampshire (NOFA-NH) created an index that lists current organic prices for vegetables, fruits, herbs, meats, eggs, and dairy. The pricing data is collected from several local farms and posted weekly. The index helps producers and market managers set fair market prices and gives consumers current information on what they must pay for local organic crops.

Related ATTRA Publications
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Table 1. AMS Weekly Retail Report for Conventional and Organic Dairy Products

AMS Dairy Retail Report Vol. 79 - No. 30 Thursday, July 26, 2012				
		National Average		
		Conventional	Organic	Price premium
Commodity	Pack size	Weighted Ave*	Weighted Ave*	Percentage
Butter	1 lb	\$ 2.34	\$ 4.32	85%
Cheese (natural varieties)	8 oz block	\$ 2.20	\$ 3.00	36%
Cheese (natural varieties)	8 oz shredded	\$ 2.16	\$ 2.50	16%
Milk	half gallon	\$ 1.82	\$ 3.64	100%
Milk	gallon	\$ 2.82	\$ 5.99	112%
Sour cream	16 oz	\$ 1.45	\$ 4.49	210%
Yogurt	32 oz	\$ 2.15	\$ 2.99	39%
*based on retail store advertising throughout the country			Average premium	85%

Organic Farmers' Agency for Relationship Marketing (OFARM), Inc.

www.ofarm.org

OFARM is an organization of producer groups working together to increase their pricing leverage and contract sale pricing, which they term *relationship marketing*. As part of this effort, OFARM carefully tracks organic prices for grains and attempts to identify “sustainable target prices” for members’ products. So far this group has concentrated its efforts on organic grain prices. Their list of target prices can be viewed at www.ofarm.org/assets/Uploads/Price-Lists/Grain.pdf. OFARM hopes to expand the concept of relationship marketing beyond grains in the future.

Rodale Institute Organic Price Report

www.rodaleinstitute.org/Organic-Price-Report

The Rodale Institute updates *The New Farm Organic Price Report* (OPR) weekly. It’s an online tool that helps farmers price organic produce competitively by tracking fruit, vegetable, herb, and grain prices, and by comparing organic prices to conventional prices from markets across the country.

Conventional fruit and vegetable prices are sourced from the Agricultural Marketing Service (AMS), an agency of USDA. Prices for organic fruits and vegetables are provided by large wholesale distributors and sales agencies specific to geographic areas. The prices are wholesale, as opposed to what the wholesaler pays the farmer.

Nonorganic prices for grains are collected by AMS. Organic grain prices are collected from large elevators or handlers. Nonorganic and organic price information is collected from the same geographic areas, making the prices more comparable.

Price data for organic and nonorganic fruit, herbs, vegetables, and grains is available for the following markets: Boston, Massachusetts; Los Angeles, California; Philadelphia, Pennsylvania; San Francisco, California; and Seattle, Washington. Detroit, Fargo, and Minneapolis market prices include only grains.

Price Premiums at Different Markets

Generally, organic products cost more than nonorganic versions in most sales venues and most markets. It is important to know which market venues to target to get the highest price premium available.

In January of 2011, the Northeast Organic Farming Association of Vermont (NOFA-Vermont) published a price comparison study between conventional and organic produce at farmers markets and grocery stores (Claro). Aside from cantaloupe, squash, and head lettuce, organic produce was more expensive than conventional produce at farmers markets in Vermont. At grocery stores, organic cantaloupe was the only item less expensive than the conventionally grown counterpart. Figure 1 and Figure 2 illustrate a price premium for organics in farmers markets and grocery stores.

Figure 1. Organic Price Premiums Received by Farmers at Farmers Markets in Vermont, 2010 Data.
Source: Created from *Vermont Farmers’ Markets and Grocery Stores: A Price Comparison*. NOFA-VT.

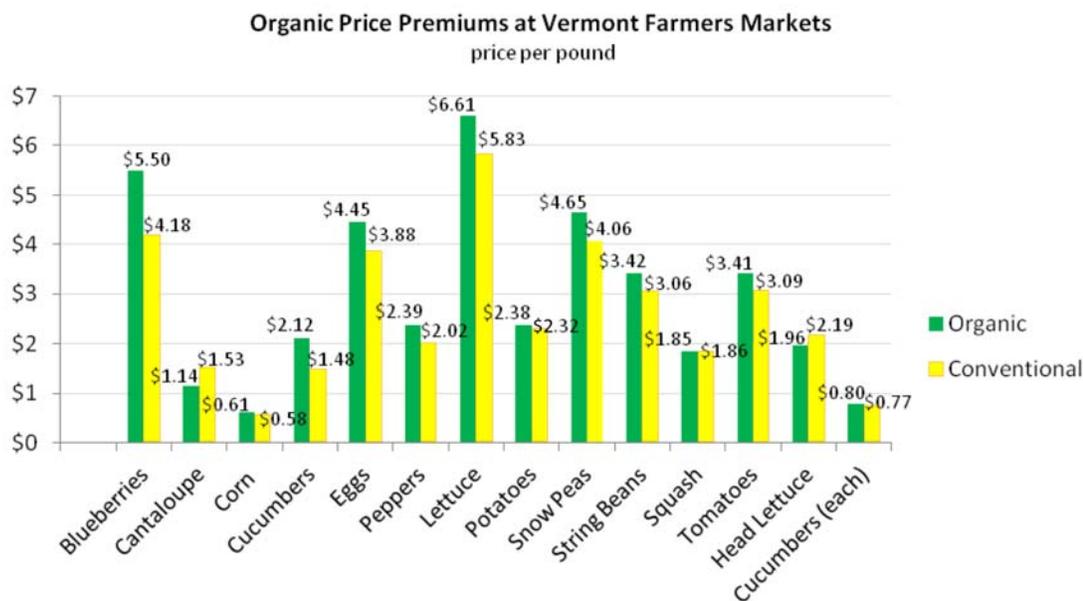
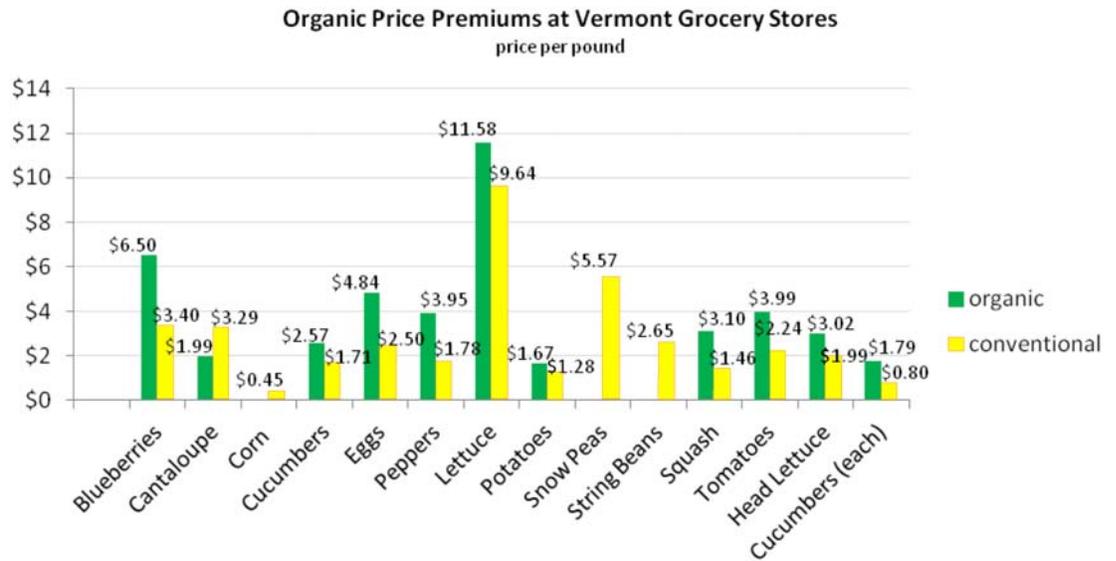


Figure 2. Organic Price Premiums at Grocery Stores in Vermont, 2010 Data.
 Source: Created from *Vermont Farmers' Markets and Grocery Stores: A Price Comparison*. NOFA-VT.



Price premiums exist not only for organic versus nonorganic crops, but also arise from the venue where the product is sold: farmers markets, grocery stores, or wholesale to restaurants. For many producers, direct sales are best because the farmer receives the entire markup. However, it is important to account for the time and labor to participate in direct marketing, in order to fairly weigh the benefits and challenges involved.

The NOFA-Vermont study mentioned earlier also found that when comparing organic prices at farmers markets, grocery stores, and co-ops, out of 14 fruits or vegetables tracked, all but potatoes were cheapest to buy at the farmers market. On average, produce was 38% less expensive at farmers markets than at grocery stores and 28.7% cheaper at farmers markets than at co-ops. There is a perception that produce is expensive to buy at farmers markets, but this study shows otherwise. The implications are important for consumers and producers. Figure 3 (on page 5) shows price differences from the study.

Producers impressed by the farmers market premium for organic products must remember that the costs of travel and labor in setting up and selling do add to costs of marketing directly. Furthermore, though organic products generally command higher prices, the question still remains as to whether they carry a price premium that covers the cost of certified organic production.

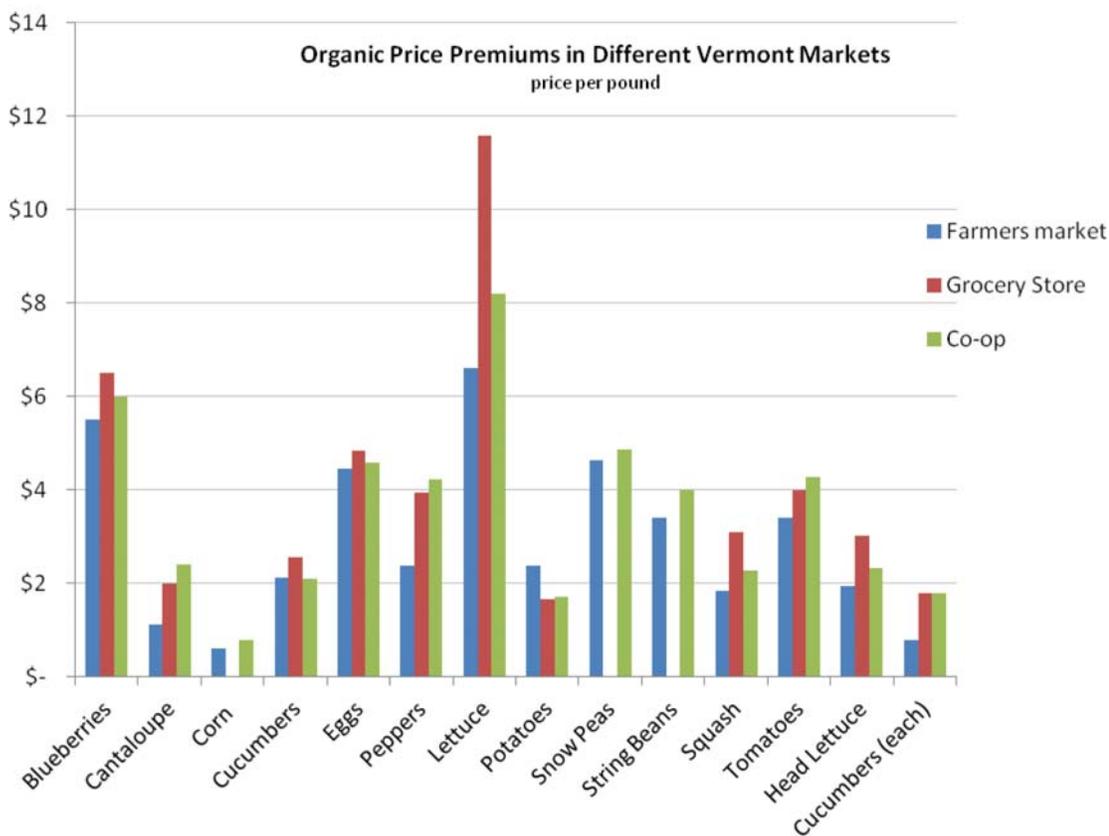
Production Costs

There have been several studies looking into production costs of organic versus nonorganic crops, and some findings do show higher production costs for certain organic crops and livestock products. However, other studies have found very similar production costs when comparing organic and nonorganic production systems. Butler (2002) estimated 10% higher production costs in a California organic dairy operation than for similar nonorganic producers. In contrast, Dalton et al. (2005, 2008) compared organic and nonorganic dairies in Maine and Vermont and found production costs to be similar. Barham, Brock, and Foltz (2006) found organic and nonorganic dairy operating characteristics in Wisconsin to be similar, and the organic operators expressed more satisfaction and optimism about their future in the dairy business.

Researchers from Purdue University found that costs for organic soybeans and corn are lower than nonorganic costs for the same crops, although not all labor costs were considered. They found that yields for organic soybeans and corn were lower than nonorganic but that the organic price premium makes up for the lower yield (Clark and Alexander, 2010).

UC Davis publishes “cost and return” studies for a variety of nonorganic and organic crops grown in California. A farmer can look at sample cost

Figure 3. Organic Price Premiums in Different Vermont Markets, 2010 Data.
 Source: Created from Vermont Farmers' Markets and Grocery Stores: A Price Comparison. NOFA-VT.



reports for pears, for example, and compare production costs for both organic and conventional fruit. <http://coststudies.ucdavis.edu/current.php>

As an example, the 2007 reports on sample costs to establish and produce organic and nonorganic blueberries in San Luis Obispo, Santa Barbara, and Ventura Counties can help producers understand costs and, ultimately, pricing differences (Takele et al., 2007). To estimate sample costs for both organic and nonorganic blueberries, the authors used the same locations in California, same acreage, same harvesting mechanism, and the same year. The main difference in production cost was in the pesticides, herbicides, and fungicides used. The study found overall costs to be slightly higher for organic blueberry production: \$63,582 for 10 organic acres versus \$61,665 for 10 conventional acres, a \$1,917 difference. The main cost increase in the organic production was for organically approved fungicides, wood waste, acidification, and fertilizers; these were double the price of nonorganic fertilizers and pesticides. The other cost difference was higher fees for marketing and brokerage, with an organic certification fee of \$300. No labor difference was recorded between the two methods of production. The net returns

above the total operating costs were \$41,418 for the organic blueberry crop and \$30,035 for the nonorganic crop, an \$11,383 profit difference (Takele et al., 2007). Typically, organic farmers replace purchased inputs with a higher degree of planning and management that anticipates weed, pest, disease, and fertility issues.

The Rutgers New Jersey Agricultural Experiment Station has prepared several organic and conventional crop budgets to be used as references to plan personal crop budgets, <http://aesop.rutgers.edu/~farmmgmt/ne-budgets/nebudgets.html>. The costs used in each comparison were estimated from average labor costs, average input costs, averaged land costs, etc. The budget does not reveal individual farm data. Budgets are posted for field crops, fruits, vegetables, and livestock. These budgets provide cost information for one acre of production and include variable and fixed costs such as:

- Soil amendments
- Pest management
- Labor
- Irrigation
- Machinery repair and fuel

- Marketing
- Machinery and equipment
- Land

Comparing the organic and nonorganic grain corn production costs in these budgets shows that organic variable costs are more than twice as much as the nonorganic variable costs, \$526.01 compared with \$266.45. The variable costs compared include fertilizers, soil amendments, pest management, labor, irrigation, machinery repair and fuel, and marketing. The total cost of one acre of organic corn for grain production was estimated at \$619.19, while one acre of nonorganic corn for grain production cost \$378.74 (Brumfield and Brennan, 1996).

Utilizing cultural practices such as crop rotations and improving beneficial- and predator-insect habitat can ultimately lower the costs of inputs in organic production.

Another study that has some of the best data over five years from actual organic and nonorganic farms is provided by the Minnesota Department of Agriculture (MDA, 2011). From 2006 to 2010 the average cash expense for the 44 to 54 organic farms sampled was \$523 per acre, while the much larger sample of between 2,317 and 2,503 nonorganic farms showed expenses of \$634 per acre. Operating profit margins for the organic farms ranged from -2.9% to 20% for this period, while those for nonorganic farms ranged from 7.9% to 27.5%, suggesting a greater profitability for nonorganic farms. However, the data also show that some organic farms are clearly as profitable as, or more profitable than, some conventional farms. Finally, the study also suggested that nonorganic farmers must make at least 20% margins to stay profitable and that organic farmers need to make slightly higher 25% to 30% profit margins to account for lower sales volumes (MDA, 2011). The important point is that profitability is not easily guaranteed in either organic or nonorganic production systems.

Karen Klonsky, a Cooperative Extension agent with the Department of Agriculture and Resource Economics at the University of California, Davis, recently did a comparison of production costs and resource use for organic and nonorganic production systems in California (2012). She modeled the cost of production and resource use for individual farms and applied the costs to hypothetical commercial organic and nonorganic farms. She looked at field crops (alfalfa, processing tomatoes, and corn), vegetables (broccoli and lettuce),

fruit (raisin grapes and strawberries), and tree nuts (almonds and walnuts) and compared the differences in fertility and pest- and weed-control costs, which include materials, labor, fuel, lube, and repairs on used equipment.

The study found that fertilizer costs are higher for organic production for all crops except alfalfa. Organic broccoli and organic lettuce had the highest cost difference at \$632 and \$910 for organic broccoli and lettuce compared to nonorganic versions at \$260 and \$382, respectively. Because organic production doesn't allow herbicides, weed control costs were higher for all organically grown crops dependent on hand weeding, and lower for corn and alfalfa that don't require hand weeding.

Overall, production costs for fertility, weed control, and pest and disease control for organic production systems are more than costs for nonorganic systems, with strawberries and lettuce being the exceptions due to fumigation costs of strawberries and the use of synthetic pesticides in lettuce.

The similarity between these studies was that the cost for organic pest control is higher than nonorganic methods because the allowed substances used in organic production are generally more costly. However, many organic farmers are trying very hard to move away from costly inputs that are mere substitutes for nonapproved and generally more toxic nonorganic pest-control methods. Utilizing cultural practices such as crop rotations and improving beneficial- and predator-insect habitat can ultimately lower the costs of inputs in organic production.

Another issue is whether the cost of labor is higher in organic production systems. Most of the studies reviewed did not note higher labor inputs, despite the fact that the extra recordkeeping required for organic certification may be a source of cost difference.

Another cost difference found in the comparison studies arose from the marketing and distribution or brokerage fees. Because a more-developed infrastructure exists for sales of nonorganic products, farmers can more easily bring their products to existing markets. In contrast, organic producers often spend extra time to market and distribute their products.

Organic Pricing Strategy: How to Set Organic Prices

A frequently asked question is how to price organic crops and livestock. Does pricing depend on production costs, market prices, or putting a price premium on top of nonorganic crop and livestock prices? Does it depend on debt capital, what commodity you're selling, volume, or a combination of these factors? After interviewing experts in the field and successful farmers, the number-one factor in effective pricing is quantifying your costs and selling above those costs. It can be difficult to quantify production costs accurately and estimate profits from sales, but knowing production costs is key to staying in business. You must make sure that you're making more than you're spending and also know whether your investment in time and money is providing an adequate return.

Organic pricing strategies vary between farmers. Some farmers quantify production costs and add a price margin to assure a reasonable profit margin. Some price according to local market prices. Most farmers likely use a combination of both approaches. Pricing also depends on what market outlet you use—whether you're selling directly at a farmers market or to a retailer like a grocery store or restaurant.

Several factors should be considered when developing your pricing strategy (Acorn Organics.org, 2007):

- Operations, overhead, equipment, depreciation, and marketing costs
- Labor wages
- Profit desired
- Competitors' production costs and prices
- Demand, customer motivation, and priorities
- Brand, image, quality, and reputation of your products

Don Hofstrand, the co-director for the Ag Marketing Resource Center at Iowa State University Extension, stresses three factors to consider when deciding on a pricing strategy. First, consider the cost of producing and marketing your product, which is the minimum price you should set for your product. Second, consider what the buyer is willing to pay. For instance, if you're direct-marketing sides of beef or CSA shares, talk to

consumers about what they're getting and what they will pay, while explaining your costs. Try and negotiate what is reasonable for both parties. Finally, consider competitors' prices by looking at market prices at venues similar to those you'll use.

Mary Peabody, from the University of Vermont Extension and Director of the Women's Agricultural Network, recently presented a webinar titled *Direct Markets, Pricing for Profit* (www.uvm.edu/newfarmer/?Page=webinars/webinar_recordings.php&SM=webinars/sub-menu.html#management). The webinar offers information on identifying costs, factors that affect pricing, and pricing survival tips.

Peabody's advice is to record costs consistently over time so that you know your expenses and how they change, and also to record all time put in by keeping a labor log. Peabody feels that operating expenses and overhead should be the biggest determinant of pricing if you want to be successful. "Don't set prices based on others' prices!" Peabody says. Thinking you have to price competitively with, for example, the price in a co-op isn't realistic; a small, beginning farmer cannot compete with large producers who have paid off start-up costs. Instead, find different markets or find ways to capture greater value for your products using marketing tactics that aren't obvious. One example is to use different packaging or bundling.

Production Costs Recordkeeping

Good recordkeeping is the best way to determine good pricing. If you know how much it costs to produce each item and each item's corresponding sales price, you can determine which products you should continue to produce and which don't make sense to sell because you lose money on them. It is important to calculate expenses frequently so you can keep track of how costs change over time. Don't be afraid to adjust your prices halfway through the season if costs go up significantly. If you don't, you're doing a disservice to your customers because you won't be in business long-term.

Operating costs (labor, seeds, irrigation, fertilizers, cover crops, etc.), fixed costs (land, equipment), and return on investment are considered when evaluating a farming business. See the ATTRA publication *Evaluating a Farming Enterprise*.

Recordkeeping Resources

AgSquared software is a great resource to help with financial recordkeeping, crop-rotation planning, and farm management (www.agsquared.com).

There are other factors that Peabody says impact pricing:

- Harvesting costs
- Quality and selection of products
- Location and market
- Customer income/demographic
- Sales volume offered
- Supply and demand in your market
- Market price in your area

Your pricing strategy speaks volumes about your business. You will quickly earn a reputation as fair and ethical if you have a good pricing strategy. The alternative is to be known as cheap, dishonest, and desperate among consumers and competitors. Your pricing strategy should be consistent, accurate, and reliable. Many people want farmers to have a good quality of life and are willing to pay a fair price for quality products, so price according to what you are spending and add a reasonable markup.

There are some pricing strategies that may help if you are charging a fair price but not making enough profit:

- Produce more
- Focus on the products that are generating the most profit
- Decrease expenses
- Redefine your niche, customers, or marketing (repackage products in different sizes or by the bunch to get away from the same volume as competitors)

Tips for Farmers to Be Profitable and Stay in Business through the Medium- to Long-Run

The goal is to price to stay in business. Following are some tips to consider:

- Be aware when prices and costs change; be flexible and change prices accordingly.
- Get new things to market so you don't look like everyone else.
- Keep a close eye on costs but don't compromise quality; if you have an exceptional product people will pay for it.
- Do market research, know who the customer is and what they want, and educate them about production costs.

Case Studies

Chinook Farms Snohomish, Washington

Chinook Farms produces organic vegetables and grains, as well as grass-finished beef and poultry.

Eric Fritch, owner of Chinook Farms, records all costs to know how he should set prices. He has two full-time employees who must be paid salaries, but some costs of labor can't easily be planned—for instance, 38 hours of labor spent in response to elk-herd damage. Fritch doesn't set prices based on farmers market prices per se but says there is etiquette involved in being aware of them. "It's frowned upon if someone comes in and undercuts others. Not good for that farmer either because buyers become suspicious of the produce, wondering what are they doing to sell so cheap," Fritch says. He says you don't have to be the lowest guy on the block if your product has some kind of higher value, but also that the value of a local, sustainable farm only goes so far, so you have to take care to price with value and quality in mind.

For meat and grain sales, Fritch first finds interested customers and then the price is determined based on what the customer is willing to pay and what he's willing to accept. Fritch sells directly to end-consumers to maximize profit. "There's not enough margin to sell to a wholesaler who then sells to a retailer."

Kalon Farm Ashburnham, Massachusetts

Kalon Farm is a small farm a few miles south of the New Hampshire state line that raises grass-finished beef, lamb, and pork. They also sell cage-free eggs and seasonal vegetables and berries. This is their fifth year in operation. The farm is not certified organic but they use antibiotic-free feed for chickens and pigs and do not use growth hormones. The cattle and sheep are grass-based and are only fed hay and grass, with no grain. Kalon Farm avoids the use of any type of insecticide, herbicide, or fungicide on the gardens and pastures and relies on crop rotation, on-site composting, cover cropping, and rotational grazing to build soil health.

Keith Kopley breeds, raises, and butchers most of the animals so he really pays attention to prices

and market value, feed costs, lamb prices during Easter, and the impact of events like pink slime news scares on demand for good-quality meat. Kalon Farm tries to make a 35% profit at grocery stores but profit percentage may be lower for bulk orders like half a cow, so for those sales they particularly have to watch costs. Kopley said that veggie prices are more market-driven than meat prices. The farm is close to Boston so they have to price a little lower since Boston markets are very competitive.

Live Springs Farms Carrollton, Illinois

Live Springs Farm is a 610-acre biodynamic farm that produces pasture-raised pork, free-range or pastured chicken and eggs, and grass-fed, grass-finished beef. They also produce certified organic grains, hay, and legumes, all grown biodynamically. Biodynamic farming is a system that combines most or all elements of certified organic production with additional inputs and practices designed to maintain soil biological balance.

To price their products, Bobbi Sandwisch and Alex Weber quantify all costs using enterprise budgeting and also scan competitors' prices in the market area, including Whole Foods and Trader Joes. After assessing a competitive market value, they add a fair profit percentage onto their products' prices. Sandwisch believes that their crops are higher quality than what is sold at Whole Foods, but keeps her prices lower because buying from her is not as convenient for consumers.

When it comes to selling their eggs, Sandwisch would like to charge more but thinks the eggs draw in customers who will usually buy additional items. Sandwisch and Weber are still starting out, so they are letting the profit margin slide to build up a customer base. They anticipate profits eventually going up because their costs will go down. For instance, they won't always be improving infrastructure and building herds.

Certain costs they incur that their competitors may not include building new marketing, distribution, handling, and accounting infrastructure comparable to what is already in place for conventional agriculture. Sandwisch said they have higher costs for organic feed because local grain elevators don't carry it so it must be shipped from far off. Also, it's harder for a non-conventional

enterprise to get bank loans. Bankers are used to conventional operations and see less risk in them.

Because of higher costs, Sandwisch says the best pricing advice is to quantify costs so that you know which items you're making money on and which you're not, so you can act accordingly

Summary

Maintaining profitable farming is not easy whether producing organically or nonorganically. While the costs of production for organic farming are not always higher than costs for similar nonorganic farms, yield differences and the lack of fully developed markets for organic products could make profitability more of a challenge for the organic producer. Organic price premiums exist for many crop and livestock products, but it is important to realize that organic prices can be volatile. Also—though not often the case—it is possible for some organic products to fetch lower prices than nonorganic products. For instance, from April 2010 through March 2011 market prices for organic soft red winter wheat were either equal to or actually lower than those for its nonorganic equivalent (Hayes, 2011). This was due mostly to the exceptional price of nonorganic wheat, driven by many market factors.

Finally, it is important to remember that supply and demand drivers in organic markets are not necessarily the same as in nonorganic markets. Pricing in organic markets is not as simple as raising prices by some fixed percentage over equivalent nonorganic products. Many immature, undeveloped organic markets are what economists term “thin” markets, which means the number of buyers and sellers in the market are few and the number of transactions is relatively low (compared to nonorganic markets), leading to generally higher market-price volatility. If organic prices are very volatile it is often hard to have a high level of certainty in the ultimate market prices of your products. However, it does seem that where there are more organic farmers and better market access to larger markets, organic markets are becoming less thin and prices are more stable. Finally, with limited, but improving, national sources of organic price and production cost information becoming more available, the economic and marketing risks of organic production may potentially be lowered.

Organic price premiums exist for many crop and livestock products, but it is important to realize that organic prices can be volatile.

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