

An Analysis of Food-Chain Demand for Differentiated Farm Commodities: Implications for the Farm Sector

Report to Ag of the Middle
July 23, 2007

Submitted by:

Kathleen Painter, Ph.D.
kpainter@wsu.edu
Sustainable Systems Analyst
Center for Sustaining Ag & Natural Resources
Washington State University
Pullman, WA 99164-6210

<i>Executive Summary</i>	3
<i>Introduction</i>	5
<i>Part I: An Examination of the Size and Scope of Consumer Demand for Differentiated Farm Products</i>	7
What Does Growth in the Organic Sector Imply for Differentiated Farm Products?	7
Consumer Demand for Organic Dairy Products	11
Consumer Demand for Organic or Natural Meat and Poultry	12
Potential for Crossover Demand from Organic to Other Differentiated Farm Products	12
Consumer Demand for Sustainably Produced Foods	17
The Impact of State Marketing and Promotion Programs	23
Assessing the Impact of Eco-Labels on Consumer Demand and WTP	25
Impact of Fair Trade/Fair Labor Practices on Consumer Demand and WTP	28
Impact of Fair Trade/Fair Labor Practices on Consumer Demand and WTP	28
<i>Part II: Food Chain Demand for Sustainability and Local Food: Restaurants and Institutional Food</i>	29
Food Alliance: Providing Sustainability Certification and Education, Forging Business Relationships	30
Selling to Restaurants: Farmer-to-Chef Collaboratives	31
Farm-to-School Programs: Feed My Kids How I'd Like To Feed Them!	34
<i>Conclusions and Future Research</i>	37
<i>References</i>	39
<i>Appendix A</i>	47

Executive Summary

Overall, a survey of the literature on food-chain demand for differentiated farm commodities demonstrates growth in demand for various food characteristics including locally produced, organic, or otherwise differentiated farm products. However, core food characteristics such as fresh, tasty, safe, and healthy must be met before consumers will consider additional characteristics such as production practices and source. Strong growth in farmers' markets and direct-to-consumer marketing such as the community supported agriculture (CSA) model show that consumers are willing to spend time and money to support local food production. In general, however, only a small segment of surveyed consumers were willing to pay a premium higher than 10 percent for differentiated farm products.

As the result of sustained growth in demand for organic foods of approximately twenty percent annually over the past fifteen years, organic products now make up between two and three percent of all food products. Consumers now purchase the majority of their organic products in conventional supermarkets (Dimitri and Greene, 2002), which represents a major change in distribution away from specialty stores. With the recent entry of major chains including Wal-Mart and Safeway in the organic market, and new organic versions of many brand-name foods, the organic market has clearly achieved enough size to warrant attention from major retailers. The organic market is also increasingly concentrated, and profit margins have fallen for some commodities such as apples and grapes as increasingly larger producers achieve organic certification (NBJ, 2004; Howard and Allen, 2006).

For consumers, price remains the number one obstacle when purchasing organic items. Prices for organic products have fallen from an average of approximately double the price of comparable conventional products in 1995 to an estimated 150 percent of the conventional price in 2002 (NBJ, 2004). This decline in the organic premium helps explain the sustained growth in demand. A comprehensive international literature review reports that, overall, most consumers are not willing to pay a price premium higher than 10 to 20 percent for organic food (Yiridoe et al., 2006). In 2006, Wal-Mart announced that it planned to market organic products at prices just 10 percent higher than the comparable conventional products, and it's already the largest seller of organic milk (Warner, 2006).

Recently, considerable research has been conducted on the organic consumer, but conclusions of these studies are sometimes confusing. One national study cites that baby boomer demographics are the single most powerful driver of organic demand (NBJ, 2004). Another national survey stated that younger shoppers are increasingly buying organic, with 69 percent of organic shoppers under 50 years old (HealthFocus International, 2003). Survey results are only as good as the researchers designing and interpreting the surveys; peer reviewed journal articles have been cited to the extent to which they were available on this subject matter, but industry reports such as the previous citations are also included in this study. Please see Appendix Table 1 for specific details on the studies examined in this report.

Consumers are beginning to understand the multiple appeals of locally produced foods, from reducing fossil fuel usage to strengthening their local economy to preserving farms in their region. Several recent studies reveal a broader base of support for locally produced foods than for organic foods in the general population (Pirog, 2004; Schneider and Francis, 2005; Smith et al., 2006; Ostrom, 2006). “Locally produced” as a stand-alone attribute was ranked relatively low in a recent Washington State survey, with 34 percent of respondents considering it very important (Ostrom, 2006). However, when this attribute was combined with helping local farmers and the local economy, the appeal of locally produced foods was strengthened dramatically, with 70 percent of respondents considering it very important. According to consumer surveys in Ohio, if locally produced items can stay within 125 percent of the cost of a comparable non-local product, 85 percent of the general population would be interested in purchasing them (Smith et al., 2006). While just one-quarter of the general population felt local origin was an important purchasing criterion, over half felt that keeping a local farmer in business was important. Further research and education on the multiple benefits of local agricultural production may be warranted.

Given the growing proportion of American meals consumed outside the home, the importance of restaurant and food service markets should not be underestimated. In a survey of restaurant buyers, 73 percent felt that purchasing locally grown food had a positive impact on profitability (Food Processing Center, 2003). For these buyers, price was one of the less important characteristics in their food purchasing decisions. When consumers pay for restaurant or institutional meals, the price of the food itself may only be a small portion of the total cost. Increasingly, consumers are demanding fresher, higher quality, healthier food at work and in their hospitals and schools, preferably from local sources. While differentiated farm products could potentially fill much of this demand, much work remains to be done to create a viable alternative to the predominant commodity-based agriculture for mid-sized producers in this country.

Introduction

In restaurants, grocery stores, and corporate lunchrooms around the country, a growing number of consumers are choosing fresh local produce, pasture-raised meats, and artisan breads and cheeses. Like organic foods, the attributes of these products are not necessarily apparent—labels may be needed to describe the details. Consumers want to know where their food comes from and how it is produced. A survey mailed to over 1,000 randomly selected consumers in five coastal California counties revealed that 59 percent wanted to know more about their food. Specifically, they wanted to know about food safety, nutritional content, how food animals are treated, environmental impacts, working conditions, wages, and how far the food travels (Curlee, 2006).

Increasingly, consumers are saying they choose foods for social, environmental, and long-term health reasons. The sustained twenty percent growth rate of the organic sector over the past fifteen years tells us that consumers are dissatisfied with conventional offerings and are willing to pay more for alternative food. Recent studies have shown a greater interest in locally produced than organic products (Ostrom, 2006). In one study, consumers preferred food grown locally using some pesticides to foods grown organically (Pirog, 2004). In 2006, Whole Foods announced plans to greatly expand its local organic offerings, in response to consumer demand. A *Time Magazine* article suggests that “the new activist slogan on campus is ‘Eat Local’” (Roosevelt, 2005), and reported that 200 universities around the country were purchasing food from regional farmers, according to the Community Food Security Coalition (<http://www.foodsecurity.org>).

Price remains the most prominent barrier to increased consumption of organic products (Hartman Group, 2004). For most consumers, the relative price differential between a conventional and an organic item determines their purchasing behavior (Yiridoe et al., 2006). For die-hard organic customers, price is relatively less important, as they will purchase organic products without much regard for price (Hartman Group, 2004). However, as large discount retailers like Wal-Mart begin carrying inexpensive organic items, a new, larger group of organic consumers can be expected.

Industry leaders believe that expanding market preferences and concerns can support multiple certification options (Exo, 2006). If consumers are looking for fresh produce grown without pesticides, then a viable alternative certification will need to reflect those desires. If the main concern for consumers is that dairy cows are not fed hormones, then it might be worthwhile for the dairy industry to produce this specific type of milk. Pressure from consumers and other groups for rBST-free milk has resulted in several companies producing for this label, including Safeway and Wilcox dairy in the Pacific Northwest.

Can demand for higher quality foods help family farmers stay in business? Since institutional food service operations can use fairly large quantities, supplying high quality food to this channel holds some hope for mid-scale producers. Focused efforts to bring buyers and sellers together will be needed to coordinate these types of transactions.

Alternative certification programs such as Food Alliance certified or FamilyFarmed, both of which have web-based background information and third-party certification, help guide businesses and consumers to producers who are catering to this market. FamilyFarmed caters primarily to organic producers in the Midwest, helping to connect farmers with consumers and commercial buyers (see familyfarmed.org for more information).

Demand for high quality, differentiated farm products appears to be outpacing supply (Kirchenmann, 2006; Yee, 2006). While there is currently a window of opportunity, the timeframe may be limited. Large companies like Wal-Mart, Costco, and Whole Foods already contract directly with farmers, using their house brands to market these products. Farmers need their own branding and marketing systems if they want to maintain more control and profit for themselves, but they may need extensive marketing assistance plus processing and distribution facilities in order to do this. Organic Valley provides an excellent example of a market-savvy grower cooperative, with sales of over \$330 million and participation by more than 1000 dairy, vegetable, poultry, beef, citrus, and beef farms in 2006.

In this report, the trend toward alternative, higher quality food, including organic, sustainably produced, local and regional origin, eco-labeled food, and Fair Trade products will be explored, as well as their potential implications for the farm sector. Literature on the organic marketplace will be examined as it relates to the market for differentiated farm products (DFP). In particular, this report examines how much consumers are willing to pay for DFP. Finally, the potential of marketing DFP for food service, restaurants, and farm-to-school programs will be addressed.

Part I: An Examination of the Size and Scope of Consumer Demand for Differentiated Farm Products

Research has shown that consumers evaluate a number of attributes jointly as they make purchase decisions, with price, quality, convenience, and brand familiarity typically being the most important factors (De Pelsmacker et al., 2005). Attempting to predict purchasing decisions based on abstract considerations such as supporting sustainable production practices will be more difficult than predicting behavior for observable characteristics such as color and size. The importance of ethical appeals such as environmental considerations will be more variable among individuals than typical product considerations. According to researchers, a minority of consumers purchase goods based on ethical considerations (Bird and Hughes, 1997).

Surveys report a growing market for ethically produced products (Micheletti, 2003), but ethical intentions are not always borne out by consumer behavior. While consumer attitudes clearly influence behavior, “attitudes alone are generally poor predictors of buyer behavior (Cobb-Walgren and Ruble, 1995), especially in the social marketing area (Shaw and Clarke, 1999)” (De Pelsmacker et al., 2005). Reasons for this attitude-behavior disconnect include desire by the interviewee to conform to social pressure and the reality of a limited budget. Researchers must confront these issues as they attempt to quantify consumer preferences showing willingness to pay for various attributes, particularly “credence goods,” for which consumers must rely on the credibility of labels or other advertising claims (Caswell, 1998).

What Does Growth in the Organic Sector Imply for Differentiated Farm Products?



Currently, organic food makes up about 2.5 percent of total food expenditures in the U.S., based on an estimate of \$14.6 billion in sales for 2005 (NBJ, 2006). Industry analysts feel that price premiums for organic foods would need to fall in order to penetrate the market much beyond the 2- to 3-percent share it currently holds (Oberholtzer et al., 2005). Demand is outpacing supply in this rapidly growing sector, resulting in an increase in organic imports (Quaid, 2006). In 2005, the USDA estimated that ten percent of the nation’s organic food was imported (Warner, 2005).

In 2002, organic products were available in 73 percent of all conventional supermarkets (Dimitri and Greene, 2002). Consumers now buy more of their organic products in these conventional supermarkets than any other venue (Dimitri and Greene, 2002). Organic produce made up about 42 percent of total sales of organic foods in 2003 (Oberholtzer et al., 2005). Average prices for all organic products have fallen from approximately double the non-organic alternative in 1995 to 150 percent of the non-organic price in 2003 (NBJ, 2004). Organic price premiums have experienced considerable volatility due to supply and demand fluctuations during this period of growth (Oberholtzer et al., 2005).

In the absence of a body of research on consumer preference for differentiated farm products (DFP), an examination of consumer demand for organic foods could be instructive. The organic sector has been the subject of numerous studies in recent years (see Yiridoe et al., 2006, for an excellent review of the literature in this area). The majority of consumers who purchase organic items do not purchase organic products exclusively (Hartman, 2004).

What are some of the reasons that organic products are rising in popularity? One study cites increasing awareness of the mainstream customer; trigger points such as having children, pregnancy, aging, and safety concerns, as well as greater retail accessibility (HealthFocus International, 2003). Younger shoppers are increasingly buying organic, with 69 percent of organic shoppers under 50 years old (HealthFocus International, 2003). Another study showed that 68 percent of 18- to 24-year-olds buy organic foods at least some of the time when they shop, compared to approximately half of the non-senior adults in the other age brackets in the survey and just 37 percent of those in the 65-plus age bracket (Walnut Acres, 2001). Over three-quarters of this younger age group felt that consuming organic food and beverages was a smart choice for long-term health and well-being. That sentiment was echoed by 59 percent of adults overall in the survey (55% of 25- to 34-year-olds, 65% of 35- to 49-year-olds, 56% of 50- to 64-year-olds, and 43% of adults over 64). Top reasons for **not** purchasing organic food included lack of proof that organic foods are healthier (53%) and the fact that the consumer didn't see any benefits to buying organic (49%) (Walnut Acres, 2001). Apparently, research that could provide scientific information on the pros and cons of organic products would be useful.

The organic customer is no longer the stereotypical upper middle-class Caucasian. In fact, non-Caucasian ethnic groups including Asians and Hispanics are higher consumers of organic foods than their Caucasian counterparts, according to recent research (Hartman, 2004). As discount retailers like Wal-Mart and Target begin to offer organic products with premiums as low as ten percent higher than comparable conventional products, consumers of all types are willing to pay for the organic label. A comprehensive international literature review of this specific topic reports that, overall, most consumers are not willing to pay a price premium higher than 10 to 20 percent for organic food (Yiridoe et al., 2006).

Economic theory predicts that if the premiums for organic food decline, then consumption will increase. For processed foods such as cold cereals, switching to organic ingredients may be relatively inexpensive for the manufacturer, as the cost of the raw product is only a small fraction of the total cost. Organic premiums for unprocessed organic items, such as produce, will be proportionately higher relative to the conventional counterpart. Several national brands are already producing organic versions of packaged foods, such as Kraft macaroni and cheese and Kellogg's Rice Krispies. Critics see this strategy as simply a new way to differentiate processed food and gain market share; others see progress when mainstream products are available in an organic version.

Organic products command a premium relative to conventional products for two reasons. The first reason is that producing organic foods is typically more expensive, particularly when factoring in a three-year transition period (during which the grower cannot receive organic premiums). Organic production requires growers to use organic seed, organic fertilizer, and organic pesticides, among other restrictions. Inputs may be difficult to find and/or require considerable transportation cost, especially in the case of organic fertilizer. Labor costs may be higher. Longer rotations may be needed to control pests and diseases, which may be less profitable. Lower or more variable yields can occur, for many reasons, particularly during the transition period (Temple, 2000; Oberholtzer et al., 2005). In addition, growers that sell more than \$5000 of organic products per year must be certified. Paperwork requirements for certification are another burden for organic growers.

Supply and demand fluctuations are the second reason for price differentials. As more firms enter the organic market with certified farmland, premiums will decline, all else being equal, until, theoretically, premiums simply represent cost differentials between the two types of production. Given the sustained growth in the organic sector, organic growers are likely to receive higher prices due to supply shortages in this sector. Price premiums for organic products have risen over time for many commodities (Yiridoe et al., 2006). Between 1995 and 2000, for example, producer price premiums for organic corn rose by 154 percent, premiums for organic spring wheat rose by 91 percent, and premiums for organic oats rose by 103 percent (Bertramsen and Dobbs, 2001). However, these organic premiums are volatile relative to regular commodity prices and vary considerably by commodity; relative supply and demand for each organic commodity will determine the magnitude of the price premium. New, larger organic producers have contributed to an oversupply in some markets, reducing premiums and forcing out small growers. For example, in the organic apple, grape, and kiwifruit industries, organic premiums have fallen significantly (CDS, 2006; Carman and Klonsky, 2004).

The organic market appears to be maturing, according to many analysts (CDS, 2006). Annual growth is predicted to trend downward to ten percent by 2010, which is still much higher than the growth in non-organic foods. Baby boomer demographics are viewed as the single most powerful driver of organic demand (NBJ, 2004). New dietary trends include a growing consumption of high fiber foods, including whole grains; nutraceuticals or functional food items, such as drinks fortified with antioxidants or the addition of omega-3 to milk, eggs, and other items; and sales of allergen-free foods, such as gluten-free baked goods.

Organic farmers are vulnerable to price fluctuations in the rapidly evolving and increasingly concentrated organic food sector. Many of the independent organic and natural food companies were sold to major corporations (see Figure 1). Currently, nine organic companies have organic sales of over \$100 million per year (NBJ 2004). The top organic manufacturers include White Wave (Dean Foods), a manufacturer of refrigerated organic soy milk; Hain Celestial Group; Horizon Organic Dairy, (acquired by Dean Foods in 2003), and Earth Bound Farm, a grower and packer of organic produce. These are followed in size in organic sales by General Mills (including its Cascadian Farm and

Muir Glen brands), Amy's Kitchen, Stonyfield Farm, and Organic Valley. Organic Valley, a growers' cooperative with participation by more than 1000 dairy, vegetable, poultry, beef, and citrus farms had sales of \$333.6 million in 2006, posting a record 38 percent growth over 2005. There are still a number of large independent companies, including Amy's Kitchen, Organic Valley, Nature's Path, Pacific Foods, Golden Temple, Eden Foods, Spectrum, Apple & Eve, Alvarado Street Bakery, and Annie's Homegrown.

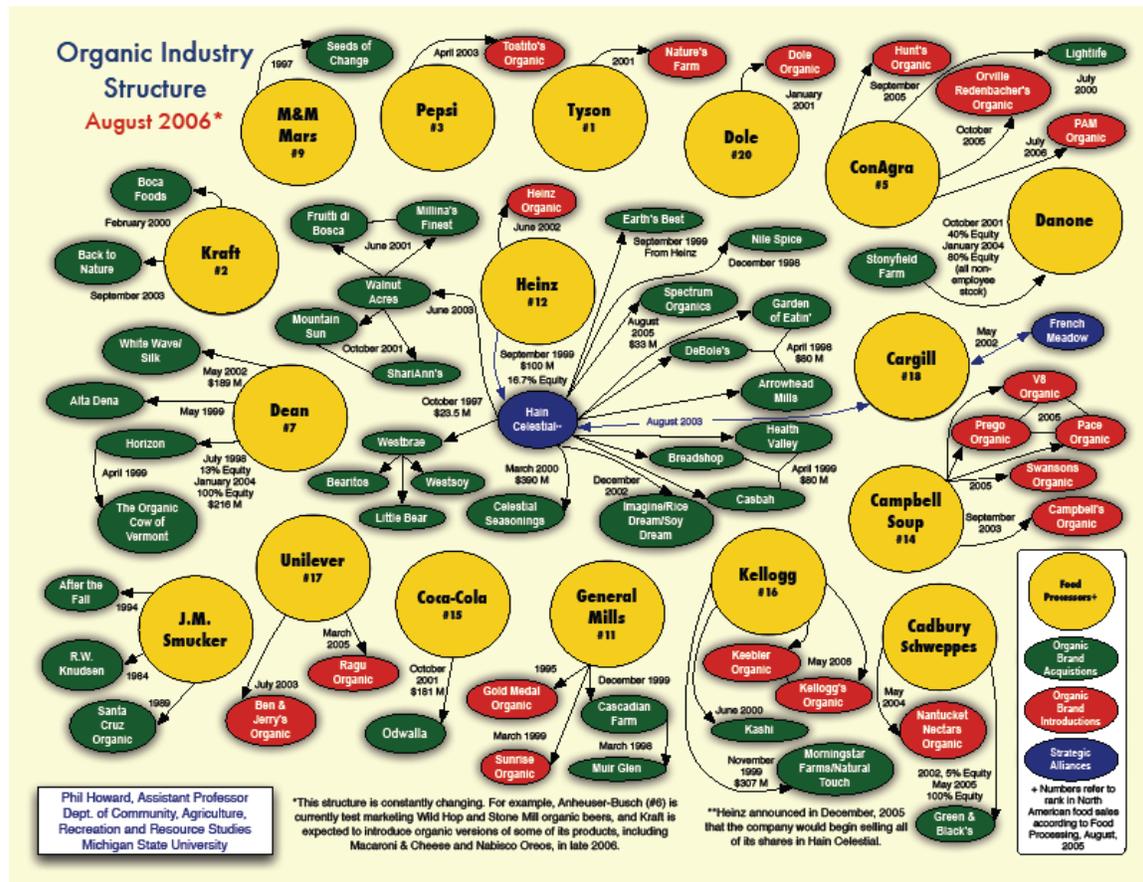


Figure 1. The organic industry is increasingly concentrated, as small private firms are being purchased by large corporate brands, whose ranks in global sales are indicated in each circle (Phil Howard, Michigan State, 2006).

Consumers cite price as the number one barrier to purchasing organic goods (Walnut Acres, 2001; Whole Foods, 2004; Hartman Group, 2004). However, mainstream U.S. shoppers are increasingly willing to pay a “slight premium” for organics, up from 48 percent in 2000 to 53 percent in 2002 (HealthFocus International, 2003). Recently, many organic products have become more competitively priced relative to the comparable non-organic item, which has increased their organic market share as well (CDS, 2006). If the price for an organic price goes down (up) relative to its non-organic substitutes, consumers will purchase more (less). “Core” organic consumers, who consistently purchase organic products on a regular basis, are the exception to this rule, however.

These consumers are relatively price inelastic; within reason, they will buy organic regardless of price (Yiridoe et al., 2006).

While demand for organic foods was stronger near major urban areas, according to a survey of farmers' market managers across the country, rural farmers' markets did well when well-priced, fresh, organic foods were provided, as these products were not available in their local stores (Kremen et al., 2004). Organic farmers were successful at farmers' markets when their produce was high quality, provided specialty varieties, and when excellent consumer service was provided. The organic consumer typically was interested in the social and environmental issues within agriculture, including its relationship to human and animal health, sustainable development, water scarcity, environmental pollution, and wildlife protection (Kremen et al., 2004). The quality of the product as well as the integrity of the producers and their attention to customer service will be critical to their success, whether the product is organic or an otherwise differentiated farm product.

Interestingly, organic does carry a negative connotation for some consumers, although that perception is changing. Particularly in nonmetropolitan areas, farmers' market managers reported in a survey that advertising organic products would not be effective, due to negative perceptions or because organic was not "part of the community's vocabulary" (Kremen et al., 2004). Studies have also shown that consumers do not have a clear understanding of what constitutes organic food (Pirog, 2003). Consumers may perceive that organic food is too costly, so they may not even consider those products.

Consumer Demand for Organic Dairy Products

Dairy has been one of the most rapidly growing segments of the organic market (Dimitri and Greene, 2002). Purchases of organic dairy products comprised 13 percent of the organic food market in 2003 (NBJ, 2003) and is predicted to grow by over 15 percent per year through 2008 (NBJ, 2004). Substantial conversions to organic production are needed to supply this growing market. Clearly, there is consumer demand for hormone-free, antibiotic-free, pastured dairy products, but large organic dairy producers are now dominating the market for these types of products.

Concerns over supplementing cattle in non-organic dairies with recombinant bovine somatotropin (rBST) seem to underlie much of the recent rise in consumer demand for organic dairy products. These concerns include their potential impact on rates of human breast and prostate cancer (Stewart, 2004) as well as earlier incidence of puberty in children, approximately one year earlier (age 9 to 10) now compared to ten years ago (Kaplowitz, 2004). Authorities have refuted the earlier puberty claim, stating that the hormones would have to be ingested, not digested, in order to affect changes in puberty rates, and that higher body mass indices were more closely linked to early puberty (Kaplowitz, 2004). Surveyed consumers clearly disliked the idea of "their kids eating hormones" (Hartman, 2004). Consumers may simply consider the use of rBST supplementation for the purpose of increasing milk production as unnatural and possibly

inhumane, as the higher induced production does increase mastitis, which is related to milk production levels (Smith, 1996).

Demand for organic milk surged ahead of supply in late 2004 and early 2005, causing a large price premium for organic milk. Organic producers were receiving about double the price of conventional milk during that period, which ranged from \$9 to \$12 per hundredweight, a 12-year low. Continuing cycles of volatile prices for organic milk can be expected to continue, given the projected 15 percent or more projected annual growth rates through 2008 (CDS, 2006). The industry is dominated by two players, Horizon Organic (acquired by Dean Foods in 2003) and Organic Valley, a growers' cooperative. Together they sell three-quarters of all organic milk (NBJ, 2004).

Consumer Demand for Organic or Natural Meat and Poultry

With a 78 percent growth rate, meat represented the fastest growing category of organic food in 2003 (NBJ, 2004). Demand for organic meat, fish, and poultry are expected to grow at a rate of 43 percent through 2008. Currently, there is a shortage of organic meat due to the recent rapid rise in demand, the time and cost of becoming organically certified, shortages of organic feed, and a relatively long production cycle, particularly in the case of beef.

Demand for "natural" brands is also very strong in the meat and poultry categories. Restaurants and food service are using natural offerings, including several restaurant chains. Burgerville USA, in the Pacific Northwest, features Oregon Country Beef (now Country Natural Beef). Panera Bread Co. uses natural chicken, and the Chipotle Restaurant chain uses meat from the Niman Ranch. Consumers are increasingly interested in breed-specific meats such as Angus beef, particularly if they are raised as natural or organic. These meats are perceived as gourmet or premium items.

Organic and natural meats are perceived as safer and "cleaner" than conventionally raised meats that can use antibiotics, steroids or growth hormones, according to a phone survey of 500 randomly selected respondents from Nebraska, Iowa, Wisconsin, and Missouri conducted in 2001 (Food Processing Center, 2001). Other important consumer concerns include the environment, animal safety, sourcing, and trace-ability. Consumers also state that natural and organically raised meat tastes better (CDS, 2006).

Strong consumer demand is evident in the organic poultry and egg categories as well. Wholesale prices for organic poultry averaged more than 350 percent of conventional poultry for Jan. 2006 through June 2006, while wholesale prices for organic eggs were over four times higher than prices for conventional eggs for the same period (USDA-ERS, 2007).

Potential for Crossover Demand from Organic to Other Differentiated Farm Products

Will consumers who buy organic food be interested in buying differentiated farm products? If these products can cater specifically to consumers' main concerns, such as free of genetically modified organisms (GMO) or grown without broad-spectrum pesticides, then consumer demand should be higher, particularly if these characteristics can be provided at a lower cost than the organic product. However, in one survey, "grown locally, some pesticides used" received more than twice as many first choice votes than "organically grown, origin unknown" (Pirog, 2004). Consumers also chose locally grown options over certified organic choices, even if they were locally grown. Either "organic" carries a negative connotation or consumers do not understand the term "certified organic."

Differentiated farm products (DFP) may be able to fill a specific niche, perhaps in terms of being more locally responsible and accountable, and possibly without the expenses incurred by organic guidelines. The required three-year organic transition period can be a substantial economic barrier for producers interested in producing organic commodities. A recent poll suggest that the appeal of "grown locally by family farmers" is very broad, as 75 percent of the consumers and 55 percent of food business respondents chose these terms as their first choice for produce or meat products (Pirog, 2003). A Roper poll conducted for Organic Valley, a growers' cooperative headquartered in Wisconsin, revealed that the majority of Americans trust smaller scale farms to produce safe, nutritious food in ways that won't harm the environment. Growers could address concerns over global warming caused by fossil fuel emissions by using local sources for animal feed and fertilizer rather than importing organic ingredients. They could address regional concerns. For example, producers for Shepherd's Grain flour all use direct seeding practices to protect the soil, as they live in an area prone to severe soil erosion.

If farmers can provide fresh, locally grown, sustainably produced products, can they interest the growing segment of consumers who are purchasing organic? About two-thirds of the consumers in a recent study purchased organic foods for health and nutrition reasons (Hartman, 2004). Other reasons included taste (38%), food safety (30%), and the environment (26%). In marketing terms, characteristics such as freshness, value, taste, and quality are described as core product characteristics (see Figure 2), while characteristics including environmental quality, supporting local farmers or the local

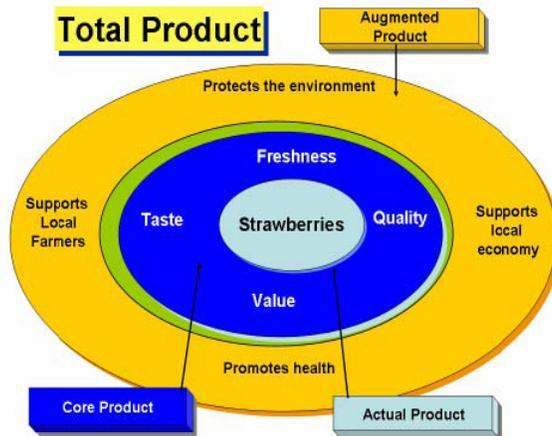
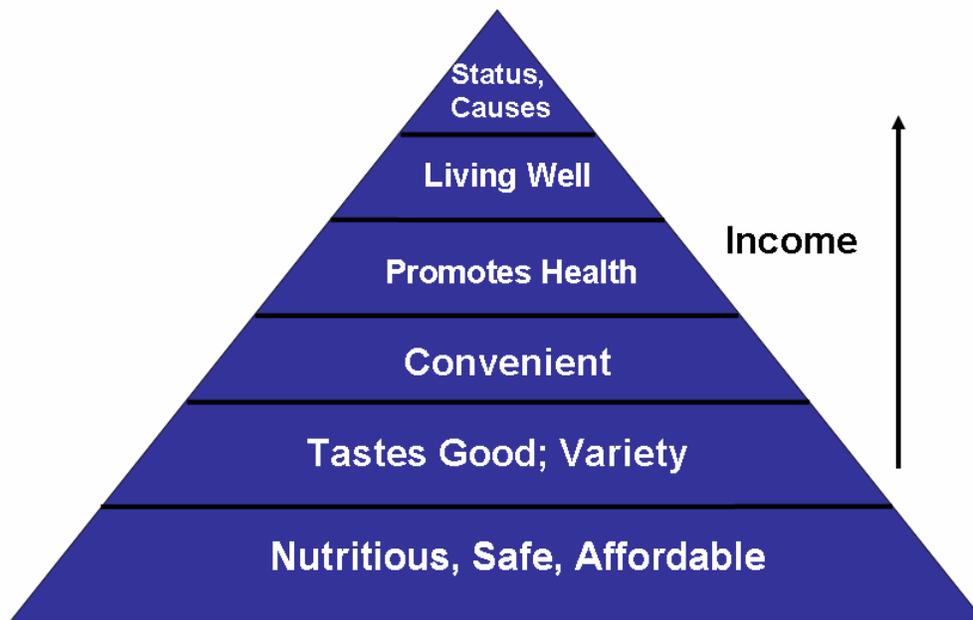


Figure 2. Total product characteristics include core product characteristics (taste, freshness, quality, value) and augmented product characteristics (environmental benefits, supports local farmers, supports local economy, promotes health).

economy, and healthiness are designated as augmented product characteristics (Pirog, 2004). Core product characteristics are the drivers behind consumer purchasing decisions. Augmented product characteristics typically include product guarantees and additional benefits. Core characteristics must be in place before customers consider augmented characteristics. As income rises, consumer demand for various food attributes grows. The consumer food demand pyramid in Figure 3, developed by Jean Kinsey of the University of Minnesota (Western Extension Marketing Committee, 2005), presents a consumer choice process beginning with basic needs such as the Safe and Affordable categories in the base of the triangle and culminating in purchasing foods for status or causes at the top of the triangle. As income rises, consumers demand more luxuries such as convenience and health-promoting foods, then gourmet foods in the Living Well category toward the top of the pyramid. This hierarchy of food needs is a spin-off of Maslow's hierarchy of needs which includes five levels of human needs (physiological, safety, love/belonging, esteem, and self-actualization) as a model of human motivation. The basic concept here is that lower needs must be met before the individual moves on to the next level.



The Hierarchy of Consumers' Food Preferences

Source: Jean Kinsey, University of Minnesota

Figure 3. The Hierarchy of Consumers' Food Preferences is a spin-off of Maslow's model of human motivation which is a hierarchy of five levels of human needs: physiological, safety, love/belonging, esteem, and self-actualization.

Consumers are increasing their consumption of fresh foods, which they believe provide better taste, health, and nutrition (Reynolds-Zayak, 2004). In a *Fresh Trends 2004* report, consumer panelists reported on their current use of fresh produce compared to five years earlier (Barton, 2004). Consumption of fresh organic produce had increased by 20 percent for 18- to 37-year-olds and by 22 percent for those with household incomes of greater than \$85,000. Overall, consumers reported purchasing an average of 18 percent more fresh produce compared to five years earlier. Households with children under six reported an increase of 36 percent in their fresh produce consumption and 18- to 37-year-olds reported a 34 percent increase. Increasingly, fresh fruit is consumed as a snack, in order to increase fresh produce intake (25% of respondents). Use of washed, cut, and bagged produce increased overall by 27%, with households with 13- to 17-year-olds leading the trend with a 36 percent increase. In another survey, "fresh" was considered an extremely or very important food label claim by 68 percent of the U.S. participants (HealthFocus International, 2003). Grown without pesticides was extremely or very important to 51 percent of the participants, while certified organic was extremely or very important to 31 percent.

If non-organic farmers can grow foods without the use of pesticides, then they may be addressing one of the consumer's most serious concerns. A successful example of this

type of approach is the certified pesticide-free tomatoes produced by Eurofresh, a US corporation in Arizona with the single largest glass greenhouse system in the world (Western Extension Marketing Committee, 2005). Their company is committed to producing a high quality, consistent, highly nutritious, flavorful tomato year-round. They claim that their varieties have more cancer-fighting lycopene than any others. Their products are certified by the Nutriclean program of Scientific Certification Systems, which performs random checks and requires stringent recordkeeping. Another example is the pasture-raised poultry label Greener Pastures Poultry (Figure 4). They successfully developed a devoted clientele for their premium pasture-raised poultry using intense direct marketing efforts. After weighing the costs and benefits of various certification schemes, they decided against the use of third-party certification. Sadly, they ceased operation after five years, due to the inability to develop a processing facility that would allow them to operate at a sustainable level. They still hope to revive their company at some future time.

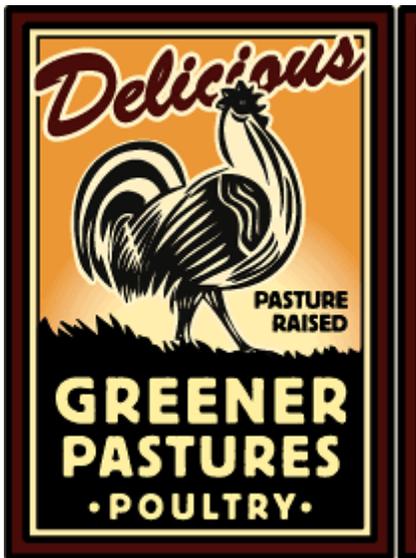


Figure 4. Greener Pastures Poultry consisted of several farming families near Eugene, OR, who produced premium pasture-raised poultry to serve the growing demand for responsibly raised, delicious poultry (see greenerpasturespoultry.com for more information).

Consumer Demand for Sustainably Produced Foods

Although research concerning consumer demand and interest in organic products abounds, few studies examine consumer demand for non-organic alternative food production practices. One exception is a study of consumer willingness to pay for sustainably produced food conducted in metropolitan grocery stores in Minnesota (Robinson et al., 2002). The study, which involved 547 participants, showed that consumers care about sustainable practices, such as protecting the environment and humane treatment of animals, but consider basic qualities of freshness, taste, safety, and healthfulness much more important, as would be expected based on the marketing information presented earlier. On a scale of 6 for extremely important to 1 for extremely unimportant, these characteristics were rated as follows:

Practices to protect water quality	3.96
Practices to maintain or improve natural resources and the environment	3.62
Practices to protect soil quality	3.52
Produced by farmers earning a living wage	3.47
Low price	3.30
Produced locally (defined as within the Midwest)	1.96
Produced organically	1.75

The following graph created from data in the consumer survey cited above illustrates consumer willingness to pay (WTP) for various food categories if they are produced “in a way shown to maintain or improve the environment, community life, and the livelihood of local farmers.” In Figure 5 below, those who were willing to pay a ten percent to 30 percent premium were grouped together, as were those willing to pay 40 percent more. Three-fourths of the respondents were willing to pay a premium for sustainably produced fruits and vegetables, which was the highest ranked category. Respondents were least willing to pay a premium for lunch meats, with 57 percent willing to pay 10 to 30 percent more for this highly processed product. Consumers are consistently willing to pay higher premiums for organic food with a short shelf life (Yiridoe et al., 2005), so similar results for sustainably produced foods are not surprising.

While the Robinson et al. study, conducted in the fall of 2000, shows limited interest in organic and local products as a specific category, like many other studies it does reveal a strong desire for fresh, tasty, safe, and healthful food. However, more recent studies discussed in the next section of this report show that consumers are increasingly interested in sourcing their food locally. As discussed earlier, strong growth in consumer demand for organic foods continues. In addition, rising demand for farmers’ markets and other direct-to-consumer marketing channels such as CSAs show that consumers are willing to spend time and money to increase the quality of their food and support farmers in their area. Development of new marketing organizations and channels, including grower cooperatives, as well as further research on consumer demand for differentiated farm products (DFPs) will be necessary to coordinate DFP production with consumer demand. Consumer research needs should be conducted in accordance with standard

marketing theory on consumer preferences, as discussed earlier, while avoiding the common pitfalls of hypothetical responses given by consumers in surveys.

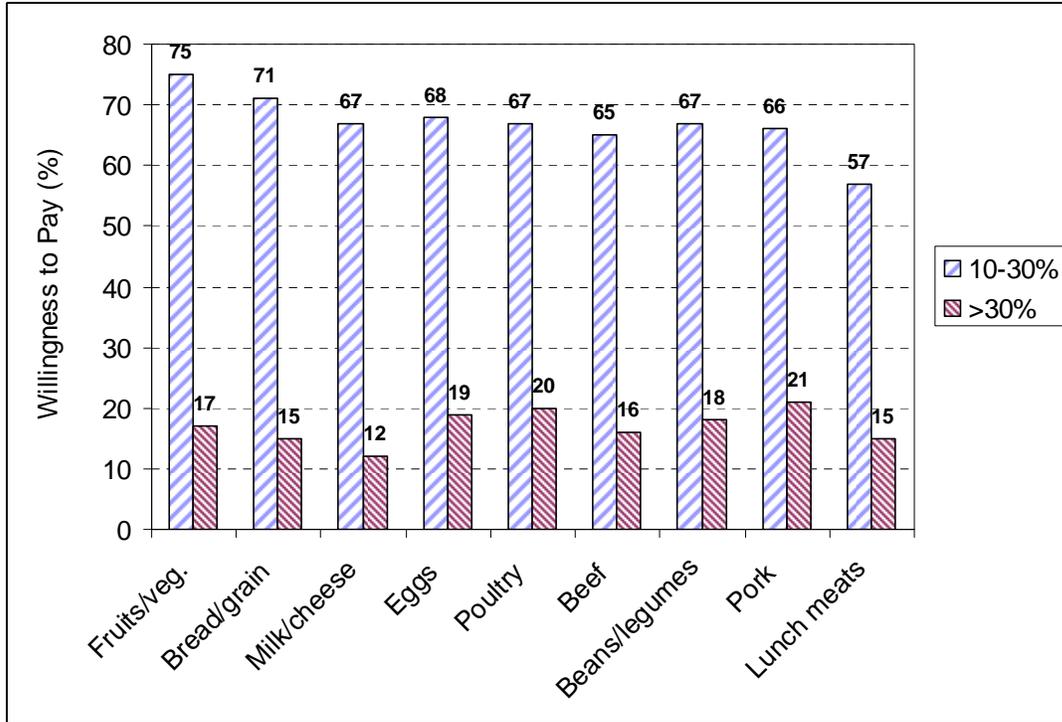


Figure 5: Consumer Willingness to Pay for Sustainably Produced Products (figure derived from Robinson et al., 2002).

The Promise of Local: Fresh, Healthy, and Good For Your Local Economy

The Buy Local movement is quickly taking us beyond the promise of environmental responsibility that the organic movement delivered, and awakening the US to the importance of community, variety, humane treatment of farm animals, and social and environmental responsibility in regards to our food economy.

“Buying local” is one way for consumers to support local agriculture while eating fresher, less processed foods and reducing energy spent on transporting food. Food security issues due to 9/11, as well as recent scares such as the nationwide *E. coli* outbreak, have made consumers more aware of food safety issues. A Midwestern “food miles” study indicated that, on average, produce travels about 1500 miles before it is consumed (Pirog and Benjamin, 2003). Eating local foods helps preserve distinctive regional cuisine and varieties, such as the Jersey tomato. In fact, consumers all over the world have been shown to prefer food that is sourced locally (Yiridoe et al., 2005).

In reviewing literature regarding consumer preference for locally produced foods, Schneider and Francis (2005) found studies revealing weak preferences for the “locally produced” quality attribute (Govindasamy et al., 1997; Kezis et al., 1998; Thomson and Kelvin, 1996; Lockeretz, 1986; and Eastwood et al., 1987). In the reviewed studies, they found that other quality attributes were more important and/or local production was perceived as an unimportant characteristic. In other studies, which tend to be more recent, possibly revealing a trend, a stronger preference for locally produced foods is noted. In particular, consumers shopping at farmers’ markets and other direct markets show a distinct preference for locally produced foods, as might be expected (Gallons et al., 1997; Kezis et al., 1998; Ross et al., 1999).

In a 2001 random sample survey, Food Processing Center found positive preferences for locally produced foods when interviewing 500 residents of Nebraska, Iowa, Missouri, and Wisconsin via telephone. Respondents stated their top three reasons for purchasing local food as freshness, better taste, and supporting local farmers. They expressed a high level of interest in purchasing local foods from grocery stores, farmers’ markets, directly from farmers, and in restaurants and cafeterias. While small town and rural residents indicated the greatest interest in buying locally grown food, suburban and urban consumers were more willing to pay a premium for these foods (Food Processing Center, 2001).

This quote from the LocalHarvest website highlights the complex implications that the food system has for society as a whole. LocalHarvest.org features a national directory of stores, restaurants, farms, CSAs, farmers’ markets, and an on-line shop connecting organic and local growers with consumers. It was founded in 1998 by Guillermo Payet, a software engineer in Santa Cruz, CA, who is committed to generating positive social change via the Internet. About 9000 members participate on this site, which is growing at the rate of about eight members per day.

Consumers in a random sample mail survey in Nebraska were very supportive of locally grown or produced food, with over half of respondents citing this as an extremely or very important characteristic (Schneider and Francis, 2005). While product quality, taste, nutrition, and price were by far the most important characteristics, rated “very to extremely important” for 90 percent or more of the respondents, the categories of “Nebraska grown” and “locally grown/produced” were considered “very to extremely important” for 53 percent and 52 percent of respondents, respectively. “All-natural food” and “organic” were considered “very to extremely important” by just 33 percent and 28 percent of respondents, respectively. However, this interest in local food did not translate into much in terms of willingness to pay. Over half of the participants (58 percent) were not willing to pay any premium for locally produced food; 34 percent were willing to pay 10 percent above the typical price, and only two percent were willing to pay 25 percent or more above the typical price. Research shows that producers charging premiums for their locally produced foods must meet the number one consumer criterion of quality if they want to attract consumers. The study results indicate that locally produced products were more appealing to consumers than organic or all-natural products. The study results also indicate that interest in locally produced products would translate into purchases if producers stay within about 10 percent of the price of conventional products. Given the general lack of small processing facilities and the expense of custom processing, producers are going to need some help in order to bridge this gap.

Maynard et al. (2004) used an experimental approach to elicit consumers’ willingness to pay for two differentiated meat products: beef that was certified locally produced (within the state), and guaranteed tender steak. Their method was designed to avoid common pitfalls of food product valuation studies, including: 1) determining WTP for a single unit rather than enough to feed a family; 2) not including appropriate substitutes when determining demand; and 3) inflated values for hypothetical situations (Cummings et al., 1995). Maynard et al. present an excellent review of the literature on these WTP issues, including a paper by Lusk and Schroeder (2002) that found nonhypothetical values for steak products to be about 80 percent of hypothetically determined values. In other words, if consumers were actually purchasing the products, the value of their purchases would be only about 80 percent of the hypothetical value they gave in the survey.

The experiment for Maynard’s study involved a representative sample of 227 consumers in Lexington, KY, who were given an actual \$20 budget to purchase any of five different meat products. The price of USDA Choice was fixed at \$9.10 per lb. The prices for the other cuts were randomly drawn from a uniform distribution with an upper bound of \$12 per lb and a lower bound of \$8 per lb for locally produced, a lower bound of \$9.10 per lb for lean and guaranteed tender, and \$10 per lb for premium quality. Locally produced steak was chosen by 55 percent of the participants (Table 1). Premium quality steak (with the highest price) was purchased by 45 percent, while 37 percent chose USDA Choice steak, with the lowest price. Certified tender steak was purchased by 36 percent; while lean steak was purchased by 24 percent. Additional results of this study showed demand for locally produced meat was highly price elastic, indicating that consumption would be very sensitive to price. If the locally produced meat was available at the same price as steak produced elsewhere, 88 percent of respondents said they would buy it often. If the

locally produced steak cost \$1 more per pound than its alternative, 20 percent would buy it, but if it cost \$2 more per pound only 4 percent would purchase it. These results contrast with a previous study by Maynard et al. (2003) using standard contingent valuation (CV) techniques showing that 52 percent of participants would be willing to pay a 20 percent premium for locally produced meat. The more recent study uses methods to correct for the typical overstatements by survey participants in hypothetical situations. The 2004 study also showed that consumers' interest in locally produced meat was highly contingent on the product being available in regular supermarkets.

Table 1. Meat purchases by category for surveyed Kentucky customers

<i>Meat product:</i>	<i>Percent:</i>
Locally produced steak	55%
Premium quality steak (highest price)	45%
USDA choice steak (lowest price)	37%
Certified tender steak	36%
Lean steak	24%

A recent national study of consumer perceptions of place-based foods, food chain profit distribution, and family farms was distributed via email to a random sample population and received 851 responses (DeCarlo et al., 2005). Place-based foods are defined as differentiated food made from locally grown products, enjoying a heritage of being handed down from generation to generation with a story to explain their connection to a particular place. Respondents were willing to pay more for local products that provided economic benefit to the farmers and investors in their own community; this was the most important factor in their decision making. They also would like to see farmers receiving a higher percentage of profit than other partners in the food chain (reported by 65%). When asked if they believed that geographic characteristics such as type of soil, drainage, and other natural resource characteristics of a region influenced the taste and quality of foods such as meat, produce, or dairy, one-third thought it likely. In terms of WTP for place-based foods, 56 percent of respondents were willing to pay more for place-based foods grown in their state, and a third were willing to pay more for place-based foods grown in other states. Thirty percent were willing to pay up to 10 percent more for place-based foods from their state, and another 20 percent were willing to pay up to 20 percent more. When asked if a label signifying the product came from a family farm would have a positive influence on their buying behavior, 83 percent replied that a "family farm" label would have a positive effect.

In a two-part random sample survey of consumers and farmers conducted in 2002 in Washington State, Ostrom (2006) attempted to elicit definitions of what constituted "local," and to determine the importance of that characteristic relative to other attributes. Nearly one-third of surveyed consumers (5,200 consumers were chosen in four diverse counties, with a response rate of 23 percent) defined their county plus adjoining counties as their "local" "foodshed." Just under one-quarter of the respondents defined food grown in their own county as locally produced, and another 21 percent felt that food produced within Washington State should be defined as local. For farmers, food produced within

their county or bordering counties was also the most common response, with nearly one-third giving this response. Similar to the consumer survey, their own county (23%) and Washington State (18%) were given as the next most common definitions of locally produced food.

These surveyed consumers ranked the characteristic “locally produced” quite low relative to other food qualities when considered as a stand-alone quality (Ostrom, 2006). However, when this characteristic was linked with helping local farmers, its ranking changed dramatically, from 34 percent considering “locally produced” as very important to over 70 percent. Other characteristics that consumers ranked as very important included freshness (94%), taste (90%), nutritional value (77%), and convenience (74%). Helping local farms was ranked very important by 70 percent of the consumers. Appearance, price, and the environment were ranked very important by 62 percent, 59 percent, and 45 percent of the surveyed consumers. Grown in Washington, grown locally, and grown organically were considered very important by 41 percent, 34 percent, and 16 percent of the respondents. However, this study concludes that the concept of locally produced food is closely associated with freshness, quality, and idealized images of local farmers. When purchasing fresh, local, high quality food is tied to helping local farmers and the local economy, its appeal is strengthened dramatically.

A comparison of a random sample survey of consumers in Ohio with a targeted survey of consumers actively involved in food system issues shows significant differences in attitudes toward organic and local foods as well as health and farming issues (Smith et al., 2006). Motivated Consumers (MC), defined as those belonging to two different organizations actively involved in alternative foods, had on average three more years of education and most defined themselves as liberal (88%) compared to just 26 percent of those surveyed in the general population. In the general population, 8 percent stated that they frequently buy organic, compared to 73 percent in the motivated group. In terms of WTP, 59 percent of the general population was not willing to pay more for organic foods. Nearly all (95%) in the MC group said they would be willing to pay more for organic products.

This Ohio study also examined stated preferences for local foods. Consumers in the motivated group were supportive, with 51 percent frequently purchasing local foods, compared to 31 percent in the general population. In the motivated group, 92 percent stated they would be willing to pay more for locally produced foods, compared to 59 percent in the general population in that region. Of the respondents who said they would be willing to pay more for local foods, close to half said they would pay 10 percent more for local products in both of the surveyed groups (52% of MC and 48% of GP). Another one-third of MC and 11 percent of the GP would pay 25 percent more for local foods. These results indicate a broad base of support for locally produced foods, broader than the demand for organic alone. Demand for organic local produce will appeal to the consumers who buy organic, but not necessarily to the broader group that only occasionally purchases organic products. Local products that can stay within 125 percent of the comparable non-local product would be of interest to 85 percent of the general population, according to this survey.

The challenge of local food systems may come more from the supply side than the demand side. A Nebraska study showed that few farmers in Washington County were interested in producing food crops; rather, the majority was heavily invested in the production of feed and commodity crops (Schneider and Francis, 2005). Producers at existing farmers markets were hobbyists, vegetable growers, or retired farmers. However, even a small conversion in acreage might be sufficient to meet consumer demand in a particular region.

Given that consumers may not be willing to pay much more than conventional prices for local products, farmers may need to a) find specialty products for which they can command larger premiums; b) deal with food service suppliers that are willing to support them for various reasons and who can afford to pay more and buy larger quantities; and/or c) work together in cooperatives or other marketing organizations to determine how to differentiate and promote their products. Adding value through some sort of processing is one way to differentiate local farm products and increase profits. Nelson Farms, a nonprofit company affiliated with Morrisville State College in Morrisville, NY, helps producers develop recipes, package, and distribute more than 200 different value-added products (Gregory, 2005). A fee is charged to cover labor and other production costs. For example, honey producers can get more money for their product by creating a honey barbecue sauce; cabbage producers can shred their product and command a higher price per pound; strawberry vinegar can be produced with fresh produce that doesn't get sold.

The Impact of State Marketing and Promotion Programs

As of 1999, about 23 states had established programs of some sort to promote their own agricultural products (Patterson et al., 1999). Massachusetts' program, called "Be A Local Hero," lists restaurants on their website promoting local food (<http://buylocalfood.com/Restaurants.htm>). The "Pride of New York" was established by Governor Pataki in 1996. It currently has 1500 members who market food grown or processed in NY. On their website, available at <http://www.prideofny.com/>, is a listing of "Pride Restaurants," a guide to NY restaurants featuring local products. California's Buy Fresh, Buy Local campaign, sponsored by the Community Alliance with Family Farmers (www.caff.org), has an interactive guide to restaurants, farmers' markets, CSAs, U-pick, grocers, etc., by region on their website, www.buylocalca.org. Consumers were largely unaware of their state agricultural promotion programs in Arizona (*Arizona Grown*) and Missouri (*AgriMissouri*), despite the fact that they were supportive of locally produced products (Patterson et al., 1999; Brown, 2003).



In Washington State, producers received a price premium by using the Washington Apple label when advertising their products, indicating that the apple industry in Washington benefits from its historical reputation for quality apples (Quagraine et al., 2003). Price premiums and marketing data were used in a dynamic multiple-indicator multiple-cause (DYMIMIC) modeling approach to estimate the collective

reputation of Washington apples as a dynamic latent variable.

In New Jersey, Govindasamy et al. (1997) reported that 77 percent of consumers surveyed were aware of the Jersey Fresh label and state-sponsored program. In 2000, the state spent \$1.16 million promoting the program. The statewide economic impact of this program was estimated at \$63 million, based on increases in fruit and vegetable receipts and related economic activity within the state (Govindasamy, 2004). Adelaja et al. (1990) conducted an analysis of the state's efforts to promote locally grown tomatoes. They found out that Jersey's Fresh tomatoes had higher own-price and income elasticities of demand, suggesting that consumers perceived them to be a high quality product.

The recent surge in interest in local food has created a relatively small but growing demand for locally produced food. Given our vast production potential as a country, local food systems will not be a panacea for the decline of the family farm, but we as a country could eat higher quality food produced in a way that preserves our environment and helps our economy. Farmers wishing to cater to local outlets would probably need marketing and product development assistance in order to determine what types of products might be successful, given the characteristics of their farm and their location. As in any new business venture, there is inherent risk. A strategically located farm with adequate capital, land, labor, entrepreneurial skills, and a successful product could be successful—unless the market is flooded by others with the same idea.

Assessing the Impact of Eco-Labels on Consumer Demand and WTP

An eco-label identifies environmentally preferable products based on an environmental impact assessment of the product compared to other products in the same category.¹ The environmental impact assessment includes the entire lifecycle of the product, from production through disposal. While eco-labels require compliance to standards, they are still considered market-oriented because they are not directly regulated by the government. Food labeled as organic, on the other hand, must comply with the national standards for organic food established by the U.S. Department of Agriculture (USDA) on October 21, 2002. According to the USDA, in order to be certified organic, food must be produced without the use of most conventional pesticides, fertilizers made with synthetic ingredients or sewage sludge, bioengineering, or ionizing radiation.

Eco-labels have been developed in response to a wide range of public concerns. Many of these public concerns relate to environmental health including such aspects as wildlife preservation, biodiversity, and sustainability. One function of eco-labels for marketing and promotion is to reward producers who make a conscious effort to use sustainable practices. Agricultural sustainability incorporates the preservation of agricultural productivity while protecting the environment and remaining economically viable.

Individual eco-labels may represent one or more aspects of sustainable agricultural practices. They provide a mechanism for communicating these practices to consumers, who can demonstrate their support by purchasing the product. For the eco-label to be successful in economic terms, it must increase consumer demand. While a number of studies have examined consumers' apparent willingness to purchase products with certain environmental characteristics, there has been little examination of actual impact in retail markets.



In Europe, the environmentally friendly marketing movement is successful and growing rapidly. Nearly 4,000 certified products use the German eco-label, Blue Angel (left), introduced in 1978. It has become a successful instrument in both environmental protection and marketing. The Euro Daisy eco-label (right), launched in 1998, regulates and sets common standards



for all eco-labels in the European Union countries. In addition, it provides scientific information to consumers. Eco-labeling programs are flourishing in the U.S. food industry as well. From the Pacific Northwest to the Northeastern United States, one can find eco-labeling programs that deal with the production of environmentally sound fruits, vegetables, and milk. In addition, many regional sustainable agriculture programs use labels to assure acceptance in regional niche markets for "green" products.

¹ See Consumer's Union (CU) Eco-label website (<http://www.eco-label.org/home.cfm>) to learn more about how eco-labeled products compare to conventional products and CU's report card for specific eco-labels.

In general, eco-labels increase consumers' WTP for a particular product. A study by Blend and van Ravenswaay (1999) examines willingness to pay for eco-labeled apples in the continental U.S. using a random sample telephone survey. They concluded that at a \$0.40 per pound premium, over a third of surveyed households would be willing to buy eco-labeled apples.



Loureiro et al. (2001) assessed consumer choice from among eco-labeled (certified by the Food Alliance), organic, and regular apples. Randomly selected produce shoppers, 285 in all, were surveyed at two grocery stores in the Portland, OR, area, using trained interviewers and conducted during weekend and weekday hours. Characteristics of eco-labeled and organic apples appeal to a similar group of consumers concerned about food safety and environmental quality, but this type of consumer would prefer to buy organic when both products are offered at equal prices. Perceived quality of eco-labeled apples significantly increased the probability of their purchase. Some of the factors that have a positive and significant effect on the probability of organic choice (concerns over food safety and the environment, and the presence of children in household) have a negative impact on the probability of the eco-label choice. Consumers may feel that organic apples are safer, as Food Alliance certified products can use reduced levels of pesticides, and they may be more familiar with the organic label.

Premiums for Food Alliance certified products tend to be relatively small, reflecting the overall difficulty of garnering a premium based on “environmentally sound” practices. Complicating eco-label valuation is the fact that eco-labels may work better for some products than for others, implying that a general recipe to stimulate green markets may not work. In a relevant study, Wessells et al. (1999) found that consumers do not value all certified fish and seafood species in the same way. For example, consumers gave higher values for subjective willingness to pay for certified salmon than for cod. Further, consumers from different countries may respond differently to the same eco-label. Johnson et al. (2001) investigated differences in consumer preferences for eco-labeled seafood across the United States and Norway. They found that consumer preferences differed by price premium, species, consumer group, and certifying agency.

A recent random sample mail survey of consumers in the Central Coast area of California examined what consumers want to know about their food (Howard and Allen, 2006). Food safety and nutritional content were their two main concerns, but they also wanted to know about how food animals were treated, the environmental impacts of the production process, working conditions of the food handler, their wages, the influence of large corporations, and how far the food traveled (Curlee, 2006). Consumers were asked to rank the importance of five criteria, including humane treatment of animals, locally grown, U.S. grown, small-scale production, and living wages. Humane treatment was chosen as the most important cause by 30 percent of the participants, followed by locally grown (22%), and living wage (16.5%). U.S. grown and small scale were considered the most important criteria by less than 6percent of the votes (Howard and Allen, 2006).

Women were almost twice as likely as men to choose humane treatment of food animals as the most important criterion among these five choices.

In a mail survey of 2400 randomly selected households (resulting in surveys from 1200, a very respectable 50 percent response rate), Onozaka et al. (2005) examined consumer preferences for various attributes of organic food in the Sacramento area. They found that consumers who do not regularly purchase organic produce were willing to pay between 10 and 19 percent more for pesticide-free produce across the four produce items in the study, while regular organic consumers were willing to pay from 17 to 34 percent more for pesticide-free versions. The regular organic consumers were much more willing to pay for produce that was environmentally friendly than the non-regular consumers, ranging from 20 to 39 percent across the four produce items, while the non-regular organic consumers were willing to pay 4 to 7 percent more for “environmentally friendly” produce. For the “No GMO” organic characteristic, regular organic consumers were willing to pay from 13 to 27 percent more, but one-third found this characteristic unappealing (negative WTP). The consumers who did not regularly purchase organic foods were only willing to pay 3 to 7 percent more for GMO-free foods. The survey used “choice experiments,” a more rigorous and consumer friendly alternative to hypothetical WTP procedures.

After several years of market prices hovering below break-even points, potato growers in the San Luis Valley of southwestern Colorado were desperately looking for some way to differentiate their product and add value. Researchers at Colorado State University conducted a random sample survey of Colorado consumers to elicit their willingness to pay for various characteristics, including Colorado grown, organic, and GMO-free (Loureiro and Hine, 2002). Using an improved contingent valuation method with a multiple bounded probit model that fits payment card data, they found that consumers were willing to pay the highest premium for Colorado Grown, but the potatoes had to be linked to a certain quality level to earn the \$0.09 per lb premium. While wealthier consumers with higher education levels were willing to pay more for organic and GMO-free potatoes, they were not willing to pay a premium for Colorado Grown.

Overall, these studies highlight the difficulties of marketing products with credence characteristics. First of all, consumers need to understand the issues. The previous studies of the importance of GMO-free foods is a case in point; if consumers do not know the impact of GMOs on themselves and the environment, how will they know how to value them? For some of these issues, the scientific community is still unsure of their impacts. Marketing theory tells us that core product characteristics must be met before consumers will be willing to pay for augmented characteristics like eco-labels.

Impact of Fair Trade/Fair Labor Practices on Consumer Demand and WTP



The Fair Trade label, certified by TransFair USA in this country, signifies that farmers have worked under fair conditions and received a fair price to ensure a minimum standard of living. Many coffee brands use fair trade labels (left) in their marketing strategies. TransFair USA reports that fair trade coffee is experiencing a 72 percent average annual growth rate in this country (Howard and Allen, 2006). Global Exchange, a human rights organization, convinced Starbucks to start serving fair trade coffee in 2000 (Straus, 2000). In 2005, MacDonaldis began to test-market fair trade coffee. Fair trade labels have also been used for cocoa, bananas, and sugar. Little academic literature is available that deals with consumer response toward labeling that signals socially conscious or socially correct production practices.

A Belgian study (De Pelsmacker et al., 2005) examined consumers' willingness to pay for fair trade coffee in a survey of college employees conducted online and through the mail. This survey used a conjoint analysis technique that simulates the situation in a real supermarket and thus is a better predictor of consumer behavior than contingent valuation techniques that use hypothetical values. The average WTP for fair trade coffee across the sample of 808 respondents was a 10 percent premium, well below the actual fair trade premium of 27 percent. Ten percent of the sample would pay the actual premium. Coffee brand was the most important attribute, followed by flavor and then the fair trade label.

Loureiro and Lotade (2005) analyzed consumer preferences for ethical and environmentally sound labeling programs for coffee. Valuation questions regarding fair trade, shade grown, and organic coffee labels were asked using a payment card format. Results suggested that consumers are very receptive toward both fair trade and shade grown coffee labels, and consequently are willing to pay higher premiums for these labeling programs than for organic coffee.

Part II: Food Chain Demand for Sustainability and Local Food: Restaurants and Institutional Food

Institutional food and food service customers are increasingly searching for fresher, healthier, more appetizing food choices. In a survey of food business representatives, respondents chose “grown locally” as the most frequent consumer request for produce and meat items, over four organic choices including “organic, grown locally” (Pirog, 2003). Many large national food service suppliers, including Sysco, Sodexo, and Bon Appétit, have begun sourcing from organic and local suppliers. In fact, loss of small and mid-sized farms worries Rick Schneiders, CEO and chairman of Sysco (Halweil, 2004). He wonders how he will source the products his customers are demanding, such as pasture-raised beef, heirloom vegetables, free-range chickens, and salad mixes, without these smaller growers (Schneiders, 2004). Sysco uses Food Alliance certified products (see next section), a voluntary certification and eco-labeling program launched in Portland, OR, in 1998.

Sometimes all it takes is one committed leader to start an avalanche of change. This was the case with Bon Appétit, a food service provider that provides on-site restaurants and catering for universities and corporate accounts across the country. When CEO Fedele Bauccio heard that his Monterey Bay Aquarium restaurant was only serving seafood that was on the approved-for-consumption list published by the aquarium, based on sustainable seafood consumption, he extended the list to all of his restaurants. This initiative was followed by a host of other sustainable measures. All across the country their chefs serve fresh, locally sourced food, including cage-free chicken eggs, antibiotic-free meat, free trade coffee, and rBST-free milk. At the Intel campuses, chef Joe McGarry organizes farmers’ markets for employees to buy fresh produce, then often buys any leftover produce for use in his kitchens. Nearly a ton of kitchen scraps a week are generated by the kitchens at Intel, so chef Micah Cavolo partnered with an area farmer to have the scraps composted. Bon Appétit favors direct relationships with farmers. Signs over the salad bar at an on-site restaurant indicate the sources for various items, “Basil from Siri Farms,” “Mushrooms from Yamhill.”

This type of authenticity resonates with consumers, according to a research consultant (Demeritt, interview, 2006). They like to know the story behind their food. If it’s a local source, they can see the benefits to themselves as part of a larger community, e.g. Puget Sound Fresh. Consumers want a brand that makes identification easy and quick. Consumers were most responsive to simpler eco-labels in an internet survey testing various formats for eco-labels (Pirog, 2003). Too much information can get confusing; most consumers don’t have time to carefully study every food choice.

Dr. Preston Maring, with Kaiser Permanente in California, wanted to do something very basic—bring healthy food to the staff at their huge medical center in Oakland, CA. Meanwhile, local growers wanting to sell at the farmers’ market had a two- to three-year waiting list. In May of 2003, he launched the first Friday Fresh Farmers’ Market in the parking lot. It has been a resounding success; Kaiser Permanente has set up 30 farmers’

markets in medical center locations around the country (<http://members.kaiserpermanente.org/redirects/farmersmarkets/>).

Maring's next step is to bring healthy foods to the patients in their hospitals, by working directly with growers who are too large for direct marketing and too small for wholesale markets. Kaiser is big enough, and orders enough food to make a difference, Maring said.

Anya Ferald with Community Alliance with Family Farmers (<http://www.caff.org>), a nonprofit based in Davis, CA, is developing the pilot project for Maring (Ness, 2006). She is working mainly with H'mong, African American, and Latino farmers' groups in the area to contract directly with Kaiser, at prices slightly above the current wholesale price. They had to arrange to deliver their produce to the Sysco-owned distributor, Lee-Ray Tarantino of South San Francisco, who then delivers all of the products to Food Service Partners, who makes the patient meals for Kaiser. Tarantino says the focus on small farmers is new—and could potentially be huge, he feels. Both UC Santa Clara and the University of San Francisco are interested in the pilot program.

Another alternative distribution system in southern California, the Growers Collaborative, has successfully funneled small farmers' crops to Ventura public schools, the Getty Museum, and Bon Appétit clients like Dream Works and Sony (Ness, 2006). The Ventura program kept a 20-acre strawberry farm in business. The two brothers who owned it grew too little for the wholesale market and too much to sell at farmers' markets.

Food Alliance: Providing Sustainability Certification and Education, Forging Business Relationships

The Food Alliance program is experiencing tremendous growth. Scott Exo, Food Alliance executive director, says that current demand for Food Alliance products continues to exceed supply. In 2006, an estimated \$87 million (farmgate value) of Food Alliance-certified products were sold to distributors, restaurants, and grocery stores. They now have a Midwest location, in St. Paul, MN, as a joint project with the Land Stewardship project and CDS. In March 2007, a California Program Manager, David Visher, was added to their staff.

Food Alliance currently certifies 250 producers in 19 states plus Alberta, just over 4 million acres (Exo, 2006). Certified farms must provide safe and fair working conditions; provide healthy and humane care for livestock; eliminate the use of hormones and sub-therapeutic antibiotics; eliminate the use of genetically modified organisms (GMO); reduce pesticide usage and toxicity through Integrated Pest Management (IPM); conserve soil and water resources; and protect and enhance wildlife habitat (see www.foodalliance.org). In a 2004 survey, farmers and ranchers in the program reported an average 8 percent premium. They have a number of formal "market partnerships" with regional businesses, including Bon Appétit, ARAMARK, Sodexo, and Sysco Corporation. Over half of these market-side partners report increases in sales directly attributable to their participation with the Food Alliance (www.foodalliance.org).

The Food Alliance provides a certification program that is sensitive and flexible enough to address regionally specific environmental problems. For example, Shepherd's Grain (www.shepherdsgrain.com) is made up of a group of grain growers who use direct-seeding (also called no-till) techniques to farm in the highly productive, highly erodible grain growing region of eastern Washington, eastern Oregon, and northern Idaho. Growing organic grain would be very challenging in this region, due to fertility and pest control issues. In fact, organic practices such as hauling manure into the region for fertility and typical tillage practices for weed control are not sustainable in terms of fuel usage and soil erosion. These farmers are conserving carbon by not disturbing the soil and reducing emissions by eliminating tillage. Their unique flour blends and, more recently, baked goods from a regional bakery have been very well received. Several state and private universities use Shepherd's Grain flour exclusively, as well as corporate lunchrooms at Intel and Adidas. In August of 2006, Shepherd's Grain milled 37,000 bu of grain from 17 growers, compared to the preceding 12-month period, when 34,000 bu of grain from 10 growers were milled (Kupers, 2006). (This is approximately equivalent to half the annual output for one small to medium size family farm.) They have been able to "de-commodify" their product and make it work for participating growers, as their pricing system is based on their cost of production. In 2006, when yields were down and fuel and fertilizer costs had risen significantly, prices paid to producers had to reflect these facts. For once, farmers were able to pass on their costs of production, albeit for a small fraction of their product.

One of the more promising developments in terms of sustainable certification is the Food Alliance's handler (or processor) certification. In a new program begun in 2006, firms that process Food Alliance products, like Truitt Brothers of Salem, OR, can be also certified (<http://www.truittbros.com/sustainability.htm>). They had to meet comprehensive standards requiring them to:

- Create natural products considering purity and nutritional value
- Ensure quality control and food safety
- Responsibly manage water and energy resources
- Responsibly manage waste with an emphasis on recycling and reuse
- Provide a safe and fair work environment
- Commit to continuous improvement of these sustainable practices

Four other companies were certified in 2006, and several more are working on the process. The exciting aspect of this type of certification is that these companies will need more Food Alliance certified growers as they expand, so they may be providing the incentive growers need to also become certified (Exo, 2006). This reduces the risk to growers of changing practices and getting certified without knowing with certainty that they will receive any return on their investment.

Selling to Restaurants: Farmer-to-Chef Collaboratives

Since 48 percent of our food dollar or about \$420 billion was spent on food eaten away from home as of 2005 (USDA-ERS, 2006), marketing to the food service industry could become a lucrative outlet for mid-size growers. While food service is currently a relatively small purchaser of organic, natural, and local foods, rapid growth is expected. Natural and organic sales are predicted to grow from \$330 million in 2002 to almost \$2 billion by 2007 (Natural Foods Merchandiser, 2004). While restaurants as an outlet for agricultural output may seem to be a fairly limited high-end outlet, more middle-class restaurants such as HotLips Pizza and Burgerville (see box, next page) are successfully differentiating themselves with their commitment to local food sources.

Featuring local ingredients is a fashionable new trend in upscale restaurants. The Chef's Collaborative organization (www.chefscollaborative.org) has chapters around the country, forming partnerships with local farmers, ranchers, and artisanal producers. Founded in 1993, the Chef's Collaborative "inspires its members to embrace seasonality, preserve traditional practices and agricultural diversity, and support local economies." An impressive national list of member restaurants is posted on their website. They also have regional chapters, such as the Portland, OR, chapter, that help publish a regional directory of local and seasonal products available in Washington and Oregon (www.farmerchefconnection.org), in collaboration with Ecotrust and the Washington State Department of Agriculture. This guide matches "farmers, ranchers, and fishermen with chefs, retailers, institutions, caterers, and other food buyers who are looking to purchase locally grown food products."

Purchasing locally grown products is considered profitable by nearly three-quarters of the respondents in a recent survey of Chef's Collaborative members (Food Processing Center, 2003). Their reasons for purchasing locally grown products included their superior quality, freshness, positive relationships with producers, customer requests, and the availability of unique or specialty products. Over half of the respondents preferred to purchase directly from a farmer. Commonly stated obstacles included consistent availability, reliable supply, knowing what's available in the area, complicated ordering procedures, and too many purveyors. Price of the product was one of the less important characteristics in their food purchasing decisions. Results from this research project show that some type of grower clearinghouse is needed; perhaps a system that could help facilitate standardized ordering and billing for a group of local growers like a B2B website.

HotLips Pizza Brand: Selling Points Include Sustainability and Locally-Sourced Foods

David Yudkin, a member of the Chef's Collaborative and owner of HotLips Pizza, a four-store chain in Portland, Oregon, has differentiated his restaurant with his focus on sustainability. He pursued the Natural Step sustainability framework (see www.naturalstep.org) and has incorporated its principles into his business. Working with students from Portland State University to analyze his impact on the environment, he has impressively reduced CO₂ emissions from his business by reducing energy consumption and by converting delivery trucks to more fuel-efficient models. His restaurants feature local, seasonal produce and organic ingredients.

Yudkin's commitment has paid off; Hotlips Pizza has an annual growth rate in gross revenue of 18 percent. But it requires a great deal of work, he explains. It's much more complicated to source local ingredients, and it's more expensive--about a 3 percent increase in food expense, he estimates (Yudkin, personal interview, 2006). It takes a commitment all the way up and down the line, from the accountant to the chef. He emphasized that you need to be flexible. Products change throughout the season. But he loves to work with the growers; it makes it worth going to work everyday, he says. His goal is to leave a better world for his children in terms of the environment, the economy, and our food choices.

In terms of a model for other restaurants, he feels that branding is key. In other words, customers associate HotLips with environmental responsibility, organic and local ingredients, and sustainable practices, as well as high quality, tasty food. This concept of the importance of a store's image or branding is shared by Jack Graves from Burgerville, a burger chain that sources local and Food Alliance certified ingredients, and Brian Rohter from New Seasons Market in Portland (Stevenson, 2005). They expressed a strong belief that the primary and most powerful influence on customers was the business itself. Customers have come to trust the businesses to maintain high standards for their products, and to address customers' concerns in a responsible manner. For example, when concerns over BSE in meat arose, store personnel can point to the Food Alliance certification, which does not allow feeding of animal by-products and only uses U.S. beef.

Websites serve as an inexpensive method for bringing buyers and sellers together, reducing transaction costs and supplying valuable firsthand marketing information. Higher value farm products such as the range-fed beef used by the Burgerville chain appear to be a more feasible product for many growers than, for instance, greenhouse production or specialty vegetables. For example, Country Natural Beef (formerly Oregon Country Beef), which is Food Alliance-certified, markets beef raised on over 4 million acres by more than 100 ranch producers in Hawaii, Nevada, Nebraska, New Mexico, California, Colorado, Oregon, Washington, Wyoming, and Idaho. A list of over 20 restaurants serving their beef is listed on their website, www.oregoncountrybeef.com.

A guide produced by Iowa State University Extension for farmers who wish to sell to the restaurant industry discusses opportunities, potential pitfalls, and helpful organizations and resources (Strohbehn and Gregoire, 2002). This Iowa State Extension guide makes some recommendations including cooperative efforts and use of nonprofit organizations such as the Practical Farmers of Iowa, who can serve as an intermediary for farmers. As one person put it, when mid-size farms try to compete in the food marketplace, they are up against the “big guys” and they could use some help!

Farm-to-School Programs: Feed My Kids How I’d Like To Feed Them!

Young people today may live less healthy and possibly shorter lives than their parents due to the life-shortening effect of obesity, and these impacts could increase as younger obese individuals carry their increased mortality risk into old age (Olshansky et al., 2005). Current trends in obesity in the United States may end the steady increase in life expectancy over the past two centuries. To address this public health crisis, federal legislation now requires that all schools with federally-funded school meal programs must develop nutrition and physical activity programs for reducing childhood obesity and promoting student health (S.2507 Child Nutrition and WIC Reauthorization Act of 2004). This legislation presents a great opportunity for initiating farm-to-school programs. In 2004, some 400 school districts in 22 states already had programs linking farmers with school cafeterias, according to one report (Orenstein, 2004). Some schools are inviting farmers into the classroom to provide a closer link with agriculture for their students. Educational opportunities are a natural extension of the farm-to-school programs.

Farm-to-school programs have taken many different forms around the country (http://www.foodsecurity.org/farm_to_school.html#casestudies). Probably the oldest example is the New North Florida Cooperative (NNFC), consisting of farmers in Florida, Georgia, Alabama, Mississippi, and Arkansas who have been providing fresh produce to school in 72 different districts since 1995. In Michigan, over \$1 million in funds from the Department of Defense Farm to School Program have been used to purchase apples, pears and nectarines from Michigan farmers. Also through this program, North Carolina has purchased \$4.5 million of apples, carrots, and potatoes from farmers in their state. Funding sources, organizing tips, and more can be found on the Community Food Security Coalition website (http://www.foodsecurity.org/farm_to_school.html#casestudies). Some programs have been initiated by farmers, some by parents, some by principals and staff, but the more inclusive the process, the better chance of success it has.

A program called Rethinking School Lunch developed by the Center for Ecoliteracy (<http://www.ecoliteracy.org/programs/rsl.html>) has produced a comprehensive guide to improving school lunches, academic performance, ecological knowledge, and the wellbeing of children. The farm-to-school model is an essential element of this program. The program provides an integrated curriculum on agriculture, sustainability, food waste, food policy, and human health. Alice Waters, founder of Chez Panisse and the Edible

Schoolyard, a 10-year-old program that established an organic garden and kitchen classroom in a poor urban middle school, also collaborated on this project.

In New York, Governor Pataki signed a Farm-to-School Program into law in 2002. The program helps procure NY apples, cider, baby carrots, pears, potatoes, and even cookies made with butternut squash. It helps growers meet specifications for the school district. For example, a yogurt producer was able to adjust its product to meet the specification and be awarded the school contract. This past summer, the City University of New York sponsored a forum entitled “Schools and Food: Innovation, Opportunity, and Wellness.” Over 400 school food advocates attended the conference.

In Chicago, a nonprofit organization called Seven Generations Ahead (SGA) has established a Fresh From the Farm program to improve school meals and educate schoolchildren on the connection between agriculture and their food (http://www.sevengenerationsahead.org/fresh_from_the_farm.html). In March 2006, a SGA Healthy Lunch Forum drew over 70 school superintendents, parents, food service directors, school board, and PTO members to learn about successful healthy lunch program models, both locally and around the country. Healthy diets affect both student learning and academic achievement, they feel. They have developed an eight-week curriculum with modules on nutrition, earth-friendly agriculture, and global food traditions. They tour local organic farms and also have classroom visits from farmers. Local chefs demonstrate cooking techniques for creating healthy food and discuss nutrition. Fresh from the Farm serves as a resource, advocate, and procurement coordinator for school districts wanting to incorporate healthier foods, from local sources if possible. The program supports implementation of pilot healthy school lunch fundraisers for sourcing vegetables, fruits, and grains. They sponsor Parent-Child Healthy Eating Nights to teach families about healthy eating in a fun atmosphere. Newsletters are available on their website. A market basket program by a partner organization delivers fresh produce to the schools for purchase by parents and community members. The produce is grown by the Rainbow Farmers’ Cooperative, consisting of Wisconsin farmers, H’mong immigrant farmers, and African American family farmers from southern states. Further case studies and materials can be found at http://www.sevengenerationsahead.org/school_case_studies_resources.html.

A study in England involving a project to source local and/or organic food for school lunches encountered some interesting problems that might be instructive to U.S. programs (Berkshire Food Group, 2004). Below are some conclusions from the study:

- Chronic produce shortages in some parts of the country would make it difficult to supply schools.
- Few farmers could meet the required price specifications or other requirements, such as delivery schedules.
- Small businesses cannot necessarily meet the necessary health and safety requirements.

- A great deal of effort and commitment is needed for the school lunch supplier. Suppliers need to provide healthy food that meets parents' approval, yet be popular enough among children to sell enough meals to be a viable supplier.
- Parents were very interested in what their children were being fed and many wanted all processed foods to be removed from the menus. Most said they were willing to pay more for local and/or organic food.
- This project successfully engaged the children, their parents, and the school lunch staff in the subject of healthy eating and sustainable sourcing.
- The decline in knowledge and cooking skills in the kitchen staff needs to be reversed in order to improve the quality of school food.

Various farm-to-school programs are in place around the country and provide different models, from focusing on local food sources to health education to agricultural sustainability. Schools in moderate climates may be able to grow some of their own food or buy from local farmers, but the school year may not coincide well with the growing season in many areas. With sufficient planning and will, most schools should be able to purchase at least some of their food from local sources and perhaps provide local businesses with a value-added opportunity.

Conclusions and Future Research

In examining consumer preference for differentiated farm products, consumers clearly demand that food quality considerations be met before they will consider purchasing a product for non-observable characteristics such as sustainable production or fair labor practices. This was particularly important for socially responsible and eco-labeled products. Local concerns have considerable appeal, in terms of supporting the local agriculture, the local economy, and the local environment. Local also carries the connotation of fresher, more likely to be traceable, and using less transportation. Appealing to consumers' broader self-interest in protecting laborers in developing countries and other less tangible products also has consumer appeal, but to a smaller segment of society.

Two models of consumer purchasing behavior were presented: a triangular hierarchy of consumer needs based loosely on the Maslow hierarchy of needs, and a circular model using core and periphery characteristics. While the models differ, they both show that basic core attributes of a product, such as fresh, tasty, and healthy, must be present before consumers will consider purchasing a product for additional attributes such as method of production. When consumers make a purchase, they are buying a set of product attributes. Labeling or educational campaigns linking additional attributes to core product attributes will help sell these differentiated products to consumers. For example, one study showed that the Jersey Fresh state promotion program generated over \$60 million in economic activity while spending \$1.16 million per year. If consumers realize that purchasing local produce can help their state economy, they may make an effort to buy more in-state products.

This survey of the literature reveals a broadening base of support for locally produced foods, with more widespread appeal than the organic label. Locally grown or produced was considered very to extremely important by 52 percent of respondents in a consumer survey in Nebraska, while organic production was very or extremely important to 27 percent of those surveyed (Schneider and Francis, 2005). In one survey, locally produced was ranked relatively low at 34 percent as a stand-alone quality (Ostrom, 2006). When combined with helping local farmers and the local economy, the appeal of locally produced foods was strengthened dramatically to 70 percent. Linking these impacts to local production was necessary in order for respondents to understand the ramifications of supporting local production. Local products that can stay within 125 percent of the comparable non-local product price would be of interest to 85 percent of the general population, according to a random sample survey of the general population in Ohio (Smith et al., 2006).

The strong growth in consumer demand for organic foods has several lessons for farmers interested in producing differentiated farm commodities. Sustained high premiums for organic food resulted in intense competition as larger players enter the organic marketplace. Price premiums have fallen over the last decade, causing some of the smaller organic farms to go out of business. In order to avoid the industrialization of the

organic label, producers need to educate consumers on the importance of supporting conscientious farmers.

Mid-sized producers or producer groups that can identify niche markets and market to them may well be able to garner more than the typical 10 to 20 percent maximum premium expected from the general population. Businesses spend millions in marketing research dollars to identify profitable niches; farmers will need to capitalize on their unique advantages, whether it's humane treatment of animals, local production, or some type of environmental stewardship that only they can provide.

The Colorado Potato Growers Association's market research project provides an excellent example for other commodity organizations (see Loureiro and Hine, 2002). They hired researchers from Colorado State University to determine consumers' willingness to pay for three differentiated farm products: organic potatoes, GMO-free potatoes, and Colorado Grown potatoes. Only wealthier consumers would pay a premium for organic or GMO-free potatoes. The general population was willing to pay a premium of \$0.09 per lb for Colorado Grown potatoes, but only if the potatoes met certain quality standards. Thus, a small segment of the population would support organic (which is by definition GMO-free) potato production while broader support can be expected for locally grown potatoes. This type of collaboration warrants strong support, as both farmers and consumers benefit.

An upsurge in interest in farmers' markets and other direct-to-consumer marketing channels such as CSAs show that consumers are willing to spend time and money to increase the quality of their food and support farmers in their area. Development of new marketing organizations and channels, including grower cooperatives, as well as further research on consumer demand for differentiated farm products (DFPs) will be necessary to coordinate DFP production with consumer demand. Continuing support is highly recommended for successful nonprofit organizations like the Food Alliance, Chef's Collaborative, Local Harvest, and FamilyFarmed that have forged the way for many exciting new partnerships among farmers, food processors, restaurants and food service companies, and consumers. Finally, consumer research needs should be conducted in accordance with standard marketing theory on consumer preferences, as discussed earlier, while avoiding the common pitfalls of hypothetical responses given by consumers in surveys.

References

- Adelaja, A.O., Brumfield, R.G., and Lininger, K. 1990. Product differentiation and state promotion of farm produce: An analysis of the Jersey Fresh tomato. *Journal of Food Distribution Research* 21(2):73–85.
- Barton, K. 2004. *By the Numbers: Fresh Trends 2004*. The Packer. Lenexa, Kansas, USA: Vance Publishing Corp.
- Berkshire Food Group. 2004. *Eating Local Food in Thames Valley Schools*. Final Report. http://www.business.brookes.ac.uk/research/ceshi/final_report_schools.pdf
- Bertramsen, S.K. and Dobbs, T.L. 2001. Comparison of Prices for Organic and Conventional Grains and Soybeans in the Northern Great Plains and Upper Midwest: 1995 to 2000. Economics Department, Agricultural Experiment Station, South Dakota State University.
- Bird, Kate and David R. Hughes. 1997. Ethical Consumerism: The Case of 'Fairly-Traded' Coffee. *Business Ethics: A European Review*, 6 (3): 159–167.
- Blend, J.R and E.O. van Ravenswaay. 1999. Consumer Demand for Eco-labeled Apples: Results from Econometric Estimation. *American Journal Agriculture Economics* 81:1072-1077.
- Brown, C. 2003. Consumers' Preferences for Locally Produced Food: A Study in Southeast Missouri. *American Journal of Alternative Agriculture* 18(4):213–224.
- Carman, H.F. & Klonsky, K.M. 2004. California Handlers Describe Marketing Issues for Organic Kiwifruit. *California Agriculture* 58:169–175.
- Caswell, J.A. How Labeling of Safety and Process Attributes Affects Markets for Food. *Agricultural and Resource Economics Review* 27(October 1998):151–158.
- Cobb-Walgren, Cathy J., Cynthia A. Ruble, and Naveen Donthu. 1995. Brand Equity, Brand Preference, and Purchase Intent. *Journal of Advertising*, 24 (Fall): 25–41.
- Cooperative Development Services (CDS). 2006. *Report on the Organic and Natural Industry: Market Opportunities for Producer and Retail Cooperatives*. Madison, WI. Available at <http://www.ams.usda.gov/tmd/FSMIP/FY2004/ND0426.pdf>.
- Cummings, R.G., Harrison, G.W., Rutstrom, E.E., 1995. Homegrown values and hypothetical surveys: Is the dichotomous choice approach incentive-compatible? *Am. Econ. Rev.* 85, 260–266.

- Curlee, Don. 2006. Survey Shows Shoppers Want More Food Data. Capitol Press, April 7.
- DeCarlo, Thomas, V.J. Franck, and Rich Pirog. 2005. Consumer perceptions of place-based foods, food chain profit distribution, and family farms. Leopold Center for Sustainable Agriculture, MSP04-05, Iowa State University, Ames, IA.
http://www.leopold.iastate.edu/pubs/staff/files/placebased_1005.pdf
- Demeritt, Laurie. 2006. Interview with CEO, Hartman Group, Inc., September 19, 2006.
- De Pelsmacker, Patrick, L. Driesen, & G. Rayp. (2005) Do consumers care about ethics? Willingness to pay for Fair-Trade coffee. *Journal of Consumer Affairs* (39):363–385.
- Dimitri, C., and C. Greene. 2002. Recent Growth Patterns in U.S. Organic Foods Market. *Agricultural Information Bulletin No. 777*, U.S. Department of Agriculture, Economic Research Service, September, www.ers.usda.gov/publications/aib777/.
- Eastwood, D.B., Brooker, J.R., and Orr, R.H. 1987. Consumer Preferences for Local Versus Out-Of-State Grown Selected Fresh Produce: The Case of Knoxville, Tennessee. *Southern Journal of Agricultural Economics* 19(2):183–194.
- Exo, Scott. 2006. Interview with Food Alliance Executive Director, September 20.
- Food Processing Center, Institute of Agriculture and Natural Resources, University of NE—Lincoln. 2003. Approaching Foodservice Establishments with Locally Grown Products. Report prepared for the North Central Initiative for Farm Profitability. Institute of Agriculture and Natural Resources, University of Nebraska – Lincoln. <http://www.foodmap.unl.edu>.
- Food Processing Center. 2001. Attracting Consumers with Locally Grown Products. Report prepared for the North Central Initiative for Small Farm Profitability. Institute of Agriculture and Natural Resources, University of Nebraska – Lincoln. <http://www.foodmap.unl.edu>.
- Frances, Valerie, John Hall, Nessa Richman and J. Phillip Gottwals. Local & Organic: Bringing Maryland Organics from Farm to Table. Chestertown, Md.: Chesapeake Fields Institute, April 2004.
- Gallons, J., Toensmeyer, U.C., Bacon, J.R., and German, C.L. 1997. An Analysis of Consumer Characteristics Concerning Direct Marketing of Fresh Produce in Delaware: A Case Study. *Journal of Food Distribution Research* 28(1):98–106.
- Govindasamy, R., Italia, J., and Liptak, C. 1997. Quality of Agricultural Produce: Consumer Preferences and Perceptions. New Jersey Agricultural Experiment Station, Rutgers University, New Jersey.

- Govindasamy, R., 2004. Economic Impact of the Jersey Fresh State Marketing Program: Final Report to Federal-State Marketing Improvement Program. <http://www.ams.usda.gov/tmd/FSMIP/FY2002/NJ0374.pdf>
- Gregory, Tracy. 2005. N.Y. Farmers Turn to Value-Added Products. CNY Business Journal, August 26.
- Halweil, Brian. 2004. Eat Here: Reclaiming Homegrown Pleasures in a Global Supermarket. Worldwatch Institute, Washington, DC.
- Hartman Group, Inc. 2000. The Organic Consumer Profile. Bellevue, WA.
- Hartman Group, Inc. 2004. Organic Food and Beverage Trends, 2004. Bellevue, WA.
- HealthFocus International. 2003. HealthFocus Trend Survey. Viewed at http://www.organiccentre.ca/DOCs/Lynn_Ciacco.pdf, September 16, 2006.
- Howard, Philip H., and Patricia Allen. 2006. Beyond Organic: Consumer Interest in New Labelling Schemes in the Central Coast of California. *International Journal of Consumer Studies* 30 (5), 439–451.
- Jekanowski, M.D., D.R. Williams II, and W. Schiek. 2000. Consumer's Willingness to Purchase Locally Produced Agricultural Products: An Analysis of an Indiana Survey. *Agricultural and Resource Economics Review* 29(1):43-53.
- Johnston, R.J., C.R. Wessells, H. Donath, and F. Asche. 2001. Measuring consumer preferences for ecolabeled seafood: An international comparison. *Journal of Agricultural and Resource Economics* 26:20-39.
- Kaplowitz, Paul. 2004. *Early Puberty in Girls: The Essential Guide to Coping with This Common Problem*. Random House
- Kezis, A., Gwebu, T., Peavey, S., and Cheng, H. 1998. A Study of Consumers at a Small Farmers' Market in Maine: Results from a 1995 Survey. *Journal of Food Distribution Research* 29(1):91–99.
- Kirchenmann, Fred, PhD. 2006. Personal interview with author.
- Kremen, Amy, Catherine Green and Jim Hanson. 2004. Organic Produce, Price Premiums, and Eco-Labeling in US. Farmers' Markets. USDA-ERS Report VGS-301-01.
- Kupers, Karl. 2006. Personal interview with author.

- Lockeretz, W. 1986. Urban Consumers' Attitudes Toward Locally Grown Produce. *American Journal of Alternative Agriculture* 1(2):83–88.
- Loureiro, M.L. and S. Hine. 2002. Discovering Niche Markets: A Comparison of Consumer Willingness to Pay for Local (Colorado Grown), Organic, and GMO-free Products. *Journal of Ag. and Applied Economics* 34(3):477-487.
- Loureiro, M.L. and J. Lotade. 2005. Do Fair Trade and Eco-labels in Coffee Wake Up the Consumer Conscience? *Ecological Economics*, vol. 53; 129-38
- Loureiro, M.L., J.J. McCluskey, and R.C. Mittelhammer. 2001. Assessing Consumers Preferences for Organic, Eco-labeled and Regular Apples. *Journal of Agricultural & Resource Economics* 26(2):404-416.
- Loureiro, M.L., J.J. McCluskey, and R.C. Mittelhammer. 2002. Will Consumers Pay a Premium for Eco-labeled Apples? *Journal of Consumer Affairs* 36(2):203-219.
- Lusk, J.L., Schroeder, T.C., 2002. Are Choice Experiments Incentive Compatible? A Test with Quality Differentiated Beef Steaks. Staff Paper. Department of Ag. Economics, Mississippi State University.
- Maynard, Leigh J., Jason G. Hartell, A. Lee Meyer, Jianqiang Hao. 2004. An Experimental Approach To Valuing New Differentiated Products. *Agricultural Economics* 31 (2004) 317-325
- Maynard, L.J., Burdine, K.H., Meyer, A.L., 2003. Market Potential for Locally-Produced Meat Products. *J. Food Distrib. Res.* 32, 26–37.
- Micheletti, M. (2003) *Political Virtue and Shopping: Individuals, Consumerism, and Collective Action*. Palgrave Macmillan, New York.
- Natural Foods Merchandiser. 2004. Market Overview.
- Ness, Carol. 2006. Chez Kaiser's Food Revolution: Hospital Experiment Putting Local Grown Produce on Patients' Plates. *San Francisco Chronicle*, August 6.
- Nutrition Business Journal (NBJ). 2003. The NBJ/SPINS Organic Foods Report 2003, Penton Media, Inc.
- Nutrition Business Journal (NBJ). 2004. Organic Foods Report 2004, Penton Media, Inc.
- Nutrition Business Journal (NBJ). 2006. Organic Trade Association 2006 Manufacturer Survey. <http://www.ota.com/bookstore/2.html>

- Oberholtzer, Lydia, Carolyn Dimitri, and Catherine Greene. 2005. Price Premiums Hold as U.S. Organic Produce Market Expands. USDA-ERS, VGS-308-01.
- Olshansky, S Jay; Passaro, Douglas J.; Hershov, Ronald C.; Layden, Jennifer; Carnes, Bruce A.; Brody, Jacob; Hayflick, Leonard; Butler, Robert N.; Allison, David B.; Ludwig, David S. 2005. A Potential Decline in Life Expectancy in the United States in the 21st Century. *Obstetrical & Gynecological Survey*. 60(7):450-452..
- Onozaka, Y., D. M. Larson, and D. S. Bunch. 2005. Choosing Fresh Produce-What's Important to You? Summary Report, Department of Agricultural and Resource Economics, University of California, Davis, October 2005.
www.agecon.ucdavis.edu/aredepart/facultydocs/Larson/summary-report-100505.pdf.
- Orenstein, Peggy. 2004. Food Fighter. *New York Times Magazine*, March 7.
- Ostrom, Marcy. 2006. Everyday Meanings of 'Local Food': Views from Home and Field. *Community Development: J. of the Community Development Society* 37(1):65-78.
- Ostrom, Marcy. October, 2006. Personal interview with author.
- The Packer. 2002. Fresh Trends: Profile of the Fresh Produce Consumer.
- Patterson, P.M., Olofsson, H., Richards, T.J., and Sass, S. 1999. An Empirical Analysis of State Agricultural Product Promotions: A Case Study for Arizona Grown. *Agribusiness* 15(2):179-196.
- Pirog, Richard. 2004. Ecolabel Value Assessment Phase II: Consumer Perceptions of Local Foods. Leopold Center for Sustainable Agriculture.
<http://www.leopold.iastate.edu/pubs/staff/ecolabels2/ecolabels2.htm>
- Pirog, Richard. 2003. Ecolabel Value Assessment: Consumer and Food Business Perceptions of Local Foods. Leopold Center for Sustainable Agriculture.
<http://www.leopold.iastate.edu/pubs/staff/ecolabels/index.htm>
- Pirog, Richard, and Andrew Benjamin. 2003. Checking the Food Odometer: Comparing Food Miles For Local Versus Conventional Produce Sales To Iowa Institutions. Leopold Center for Sustainable Agriculture, Iowa State University, Ames, IA.
http://www.leopold.iastate.edu/pubs/staff/files/food_travel072103.pdf
- Quaid, Libby. 2006. Demand for Organic Food Outstrips Supply. Associated Press, July 6, 2006. Accessed 12/7/06 at <http://www.washingtonpost.com/wp-dyn/content/article/2006/07/06/AR2006070601038.html>

- Quagraine, K.K., J.J. McCluskey, and M.L. Loureiro. 2003. A Latent Structure Approach to Measuring Reputation. *Southern Economic Journal* 67(4):966-977.
- Reynolds-Zayak, Leona. 2004. Understanding Consumers Trends Can Present New Opportunities. Agri-Processing Branch, Business & Innovation, Alberta Agriculture, Food and Rural Development.
[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/sis8735](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sis8735)
- Robinson, Ramona, Chery Smith, Helene Murray, and Jim Ennis. 2002. Promotion of Sustainably Produced Foods: Customer Response in Minnesota Grocery Stores. *American Journal of Alternative Agriculture*, 17(2): 96-104.
- Roosevelt, Margot. 2005. What's Cooking on Campus? *Time Magazine*, 11/07/05.
<http://www.time.com/time/magazine/article/0,9171,1126709,00.html>
- Ross, N.J., Anderson, M.D., Goldberg, J.P., Houser, R., and Lorge Rogers, B. 1999. Trying and Buying Locally Grown Produce at the Workplace: Results of a Marketing Intervention. *American Journal of Alternative Agriculture* 14(4):171–179.
- Schneider, Mindi L. and Charles A. Francis. 2005. Marketing Locally Produced Foods: Consumer and Farmer Opinions in Washington County, Nebraska. *Renewable Agriculture and Food Systems* 20(4): 252-260.
- Schneiders, Richard. 2004. Sysco Corporation, presentation to Georgetown University Law School, Corporate Counsel Institute, Washington, D.C. Available at www.agofthemiddle.org.
- Shaw, Deirdre and Ian Clarke. 1999. Belief Formation in Ethical Consumer Groups: An Exploratory Study. *Marketing Intelligence & Planning*, 17 (2/3): 109–119.
- Smith, John F. 1996. Commonly Asked Questions about rbST. MF-2168 Cooperative Extension Service, Kansas State University.
- Smith, Molly Bean, Jeff S. Sharp, and Melanie Miller. 2006. A Comparison of Attitudes About Local and Organic Foods, Health and Farming: Social Responsibility Initiative Topical Report #1. Dept. of Human and Community Resource Development, The Ohio State University.
- Stevensen, George. 2005. Notes from interview with Brian Rohter (New Seasons Market) and Jack Graves (Burgerville) (obtained from author).
- Stewart, Alison. 2004. Hormones in Milk Are Linked to Cancer. *Consumer Health Journal*. Powell, WY. Available at www.consumerhealthjournal.com.

- Straus, Tamara. 2000. Fair Trade Coffee: An Overview of the Issue.
<http://www.organicconsumers.org/starbucks/coffback.htm>.
- Strohbehm, Catherine A., Mary Gregoire, Gary Huber, Robert Karp, and Richard Pirog. 2002. Local Food Connections: From Farms to Restaurants. PM 1853b, Iowa State University Extension, Ames, IA.
<http://www.leopold.iastate.edu/pubs/other/files/PM1853B.pdf>
- Temple, S. 2000. The Transition from Conventional to Low-Input or Organic Farming Systems: Soil Biology, Soil Chemistry, Soil Physics, Energy Utilization, Economics, and Risk, Sustainable Agriculture Research and Education Program-Final Report, University of California, November.
- Thomson, J.S. and Kelvin, R.E. 1996. Suburbanites' Perceptions About Agriculture: The Challenge for Media. *Journal of Applied Communications* 80(3):11–20.
- U.S. Department of Agriculture, Economic Research Service (USDA, ERS). 2003. Briefing Room—Organic Farming and Marketing: Questions and Answers, June, www.ers.usda.gov/Briefing/Organic/Questions/orgqa6.htm/.
- U.S. Department of Agriculture, Economic Research Service (USDA, ERS). 2006. Briefing Room—Food CPI, Prices, and Expenditures, June, 2006. <http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/>.
- U.S. Department of Agriculture, Economic Research Service (USDA, ERS). 2007. Data Sets—Organic Farmgate and Wholesale Prices, June, 2007. <http://www.ers.usda.gov/Data/OrganicPrices/About.aspx>
- Walnut Acres. 2001. The Walnut Acres Certified Organic Future, www.walnutacres.com/.
- Warner, Melanie. 2005. Wal-Mart Eyes Organic Foods. *The New York Times*, May 12.
- Wessells, C.R., R.J. Johnston, and H. Donath. 1999. Assessing Consumer Preferences for Eco-labeled Seafood: The Influence of Species, Certifier and Household Attributes. *American Journal Agriculture Economics* 81:1084-1089.
- Western Extension Marketing Committee. 2005. EB 1372 Certification and Labeling Considerations for Agricultural Producers. Univ. of Arizona College of Agriculture and Life Sciences.
<http://cals.arizona.edu/arec/wemc/certification.html>
- Whole Foods. 2004. Organic Foods Continue to Grow in Popularity According to Whole Foods Market Survey. www.wholefoods.com/company/pr_10-21-04.html/.

- Wilkins, J.L., Bokaer-Smith, J., and Hilchey, D. 1996. Local Foods and Local Agriculture: A Survey of Attitudes Among Northeastern Consumers. Project Report. Division of Nutritional Sciences, Cornell Cooperative Extension.
- Yee, Larry. 2006. Ventura County University of CA Cooperative Extension Director, personal interview with author.
- Yiridoe, Emmanuel K., Samuel Bonti-Ankomah and Ralph C. Martin. 2005. Comparison of Consumer Perceptions and Preference Toward Organic Versus Conventionally Produced Foods: A Review and Update of the Literature. *Renewable Agriculture and Food Systems* 20(4):193–205.

Appendix A

Appendix Table 1: Description of surveys from cited literature

<i>Author, date</i>	<i>Description</i>
Blend and van Ravenswaay, 1999	National random sample telephone survey conducted by the Institute for Public Policy and Social Research at Mich. State Univ.; 972 interviews were completed, response rate of 67%.
Brown, 2000	Random sample mail survey of 544 households in southeast MO on consumer preferences for locally grown food.
De Pelsmacker et al., 2005 (Belgium)	Survey of faculty & staff at Gueph College via computer (4,664) or mail (550), with a response rate of 16%. Examines willingness to pay for fair trade coffee using conjoint analysis.
DeCarlo et al., 2005	National random sample via email; rec'd 851 responses for a 24% response rate.
Eastwood et al., 1987	Random sample interviews of consumers in Knox Co., TN, studied consumer preference for locally grown vs. out-of-state produce.
Food Processing Center, University of Nebraska, 2001	Random sample telephone survey of heads of household, 100 each in NE and IA, 150 each in WI and MO. Goals of project included estimating size of current & potential market for: 1) locally grown, produced, and labeled food, 2) locally grown pastured and free-range chicken, 3) market for organic and all-natural
Hartman Group 2004	National study of organic trends: Internet survey of 5,000 respondents, weighted to be nationally representative Hartman's Interactive Consumer Panel: 353 of the 15,000 consumers from their self-selected online consumer panel, weighted to be nationally representative and corrected for pro-health & wellness nature of self-selected consumers
Health Focus Inter. 2003	National random sample of approx. 2,000 qualified respondents chosen from a random pre-recruiting phone call; 12-page, self-administered written questionnaire of public attitudes and actions toward shopping and eating. Conducted every two years to identify current issues in consumer health and nutrition behavior and attitudes, and to assess the trends in consumer priorities regarding nutritional issues.
Howard and Allen, 2006	Mail survey to more than 1,000 randomly selected households in San Mateo, Santa Clara, Santa Cruz, San Benito, and Monterey counties; 48% response rate.
Loureiro and Hine, 2002	Payment card method used to solicit WTP from 437 consumers randomly selected in various supermarkets in CO.
Loureiro and Lotade, 2005	Personal interviews conducted in supermarkets in 4 locations in CO and over various times of the day; 284 completed surveys.
Loureiro et al., 2001 & 2002	Randomly selected consumers were interviewed in supermarkets in OR using trained interviewers and across multiple timeframes.
Maynard et al., 2003	Used a focus group, a consumer taste-testing and WTP survey, and a restaurant survey. The consumer experiment involved 61 panelists who completed the survey before the taste-testing in a lab. This relatively low number is typical of taste-testing experiments.

<i>Author, date</i>	<i>Description</i>
Maynard et al., 2004	Experiment conducted in a lab involving 227 consumers recruited from various sources to obtain a representative sample.
Onozaka et al., 2005	Random sample mail survey with 1200 responses (50% response rate) examined consumer willingness to pay for organic food.
Ostrom, 2006	Farmer and consumer surveys in WA State to study meaning of locally produced foods and importance of various characteristics. Random sample mail survey sent to 10% of farmers in WA; 1201 responses (49% response rate). Random sample telephone survey of consumers in 4 counties; 950 completed surveys (23% response rate).
Pirog, 2003	Internet survey of 7,000 consumers in 10 states (IL, IN, IA, KS, MN, MO, NE, WI, WA, MA) returned 1600 surveys. Conducted by surveymonkey.com.
Pirog, 2004	Internet survey of consumers in IA, Omaha, NE, Quad Cities (IL and IA) returned 580 surveys. Conducted by surveymonkey.com. Smaller WTP survey sent to 1500 email addresses; 230 surveys were returned.
Organic Valley, 2002, 2004	Random sample telephone survey of 1,000 adults (Roper poll) on food preferences. Conducted every two years.
Robinson et al., 2000	Survey of 550 customers in 3 stores in St. Paul, MN, area; self-selected, paid \$10 for participating. Studied impact of 8-week campaign promoting MWFA certified applies in 3 grocery stores.
Schneider & Francis, 2003	Conducted both a farmer and a consumer survey on interest in locally grown foods. Random sample mail survey of 567 consumers (Dillman method). Survey of farmers: sent to all 507 farmers registered with FSA in Wash. Co, NE; 35% response rate.
Smith et al. 2005	Motivated Food Consumer: survey of 600 members of alternative food systems in Ohio; 73% response to mail survey (Dillman) Survey of general population in central OH: random sample mail survey looking at food, ag, and environmental issues (also Dillman method)
Whole Foods, 2002	Online survey, random sample, 1,000 respondents, nationally representative
Wilkins et al., 1994	Random sample phone survey of 500 consumers in upstate NY; conducted by Cornell's Survey Research Facility.