

**ORGANIC FOOD GROWTH:  
PRODUCER PROFITS AND CORPORATE FARMING**

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### ***Abstract***

Organic food consumption has increased enormously in the past 10 years. This presentation will use simple economic principles to enhance our understanding of (1) the underlying causes of the large growth in the demand for food that is perceived to be healthy, (2) the implications of the increased demand for organic food for agricultural producers, and (3) an emerging and uneasy partnership between corporate agribusiness and organic farmers.

### ***Biographical Information***

Andrew Barkley is Professor of Agricultural Economics at Kansas State University, where he has worked since 1988. He has taught economics at Kansas State University, the University of Chicago, Cambridge University in Cambridge, England, the University of Arizona in Tucson, and Quaid-I-Azam University in Islamabad, Pakistan. Current research projects include the economics of international agricultural trade, biotechnology, and international trade of organic food.

# **ORGANIC FOOD GROWTH: PRODUCER PROFITS AND CORPORATE FARMING.**

## **Introduction**

The production and sale of organic food in the United States has grown rapidly in the past decade. Although the organic food sector comprises only 2 percent of all food sales, the perceived environmental and health benefits of organic food have received increasing recognition and broader acceptance among consumers. Agricultural producers have responded to this growing demand by making the transition to certified organic food production. Sales of organic products have grown steadily at an annual growth rate of 20-25 percent since 1996, with sales reaching \$7.8 billion in 2001 (Packaged Facts). Much of this rapid growth has been due to the entry of large agribusinesses such as General Mills, Kellogg, Mars, and Heinz into the organic food market. Since organic foods have begun to be sold in mainstream supermarket chains, organic food has become the fastest growing sector of the food and beverage industry (Packaged Facts).

Globally, many consumers are willing to pay price premiums for food produced organically. Most European countries provide direct financial support for organic conversion, resulting in much higher conversion rates in Europe relative to the United States. Recently, the United Kingdom's Department of Environment, Forestry, and Rural Affairs (DEFRA) has announced plans to significantly increase subsidies to organic farmers. The United States Department of Agriculture (USDA) is increasingly involved in organic agriculture. During the 1990s, federal government participation was limited to the development of national certification standards to assure consistency and quality for both domestic consumers and international trade partners. Recently, Congress has

implemented national certification rules that require certification for nearly all organic growers (USDA 2000).

Organic farming systems are based on ecologically based practices such as cultural and biological pest management, prohibit the use of agricultural chemicals and synthetic fertilizers in crop production, and do not allow for the use of antibiotics or hormones in livestock production. Thomas and Kevan (1993) stated that organic farming systems emphasize crop management tools such as soil organism activities, nutrient cycling, and species distribution and competition. The three major types of organic food production includes vegetables fruit, and grains. Prices for organic food are typically higher than nonorganic food prices, and at times a substantial premium is paid for organic food. In spite of these higher prices, surveys have found that approximately one-third of the U.S. population currently buys some organically grown food, and approximately 60 percent would be willing to try organic products (Hartman Group).

In 1997, Kansas producers committed 24,314 acres to organic pasture and cropland (Greene, 2001). This acreage included 8313 acres of wheat, 5300 acres of beans, 2915 acres of corn, 1619 acres of hay, and 1481 acres of sunflowers. Small acreages of organic oats, sorghum, millet, buckwheat, and “other crops” were also grown in Kansas (Greene, 2001). The 2002 Farm Act contains several provisions for research and technical assistance to help organic crop and livestock producers with production and marketing (ERS). The bill authorized \$15 million for organic systems research, and \$5 million for a cost-sharing program to partially offset certification costs (Greene, 2002).

## Why Organic? Economic Principles of Growth in the Demand for Organic Food

Economists are interested in the causes, or determinants, of consumer demand. Specifically, what makes consumers buy a product? An individual consumer is likely to have an infinite number of reasons for making a purchase at any given time, including culture, psychology, physiology (for example, hunger), budget, advertising, and caprice (snap purchasing decisions). A social scientist is therefore unlikely to be able to identify and explain all of the underlying causes of consumer decision-making. However, economists have been able to isolate the major forces behind consumer purchases at the market level. These primary motivations behind consumer purchases of organic food are summarized in equation 1:

$$(1) \quad Q_d = f(P, M, P_R, T, \dots), \quad \text{where:}$$

$Q_d$  = quantity demanded of organic food (kg)

$P$  = price of organic food (\$/kg)

$M$  = per capita income (\$/year)

$P_R$  = price of “related” goods (\$/kg)

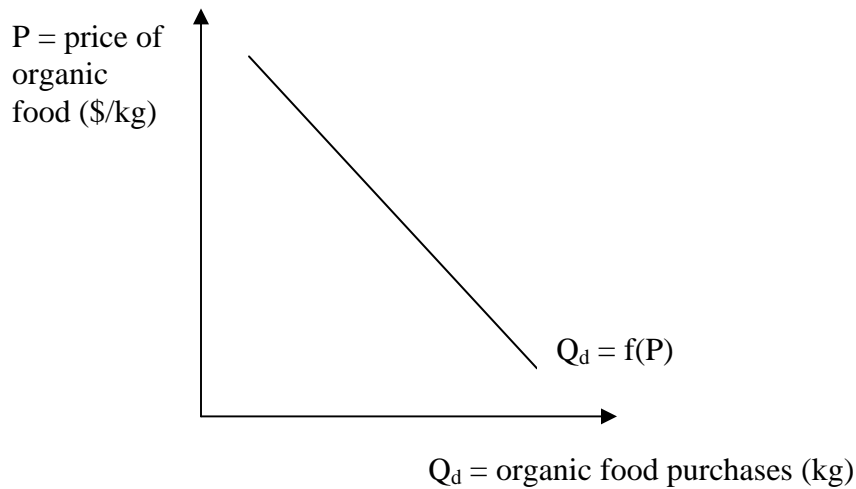
$T$  = consumer tastes and preferences

The relationship “ $f$ ” in equation 1 is a simple economic “model,” or a summary of human behavior. The equation simply states that the quantity of organic food purchased ( $Q_d$ ) is related to the four economic variables listed in the right hand side of the equation ( $P, M, P_R, T$ ). In recognition of the various other motivations and causes of consumer purchases, equation 1 includes the “...” which reflects the numerous other possible determinants of consumer purchases that are not included in the four listed variables. Each of the four included variables is discussed and summarized below.

*Price (P)*

One relationship that economists have confidence in is the Law of Demand. This “law,” or relationship, states that if the price of a good increased, then the quantity demanded will decrease, as illustrated in figure 1 for organic food.

Figure 1. The Relationship between Price and the Demand for Organic Food.



The relationship was first developed by Alfred Marshall in the 1890s, and has formed the foundation of modern economics. The negative association between the price of a good and consumer purchases ( $Q_d$ ) is critical to the production and marketing of organic food. Any change in the retail price of organic food will impact the quantity of organic food purchased. Therefore, any decrease in the cost of production, marketing, or certification of organic food will lower the retail price and, as a result, demand will increase. The implications are crucial to the future growth of organic food markets, for two reasons. First, the technology of organic food production is changing rapidly, as producers discover more efficient production processes that result in larger quantities and higher

qualities of organic food produced at lower costs. This rapid technological change will decrease the retail price of organic food, resulting in an increase in quantity demanded and sales. Similarly, a cost-saving technological or regulatory change in the processing, transportation, packaging, marketing, advertising, or certification of organic food will also result in lower retail prices, and larger quantities purchased by price-conscious consumers.

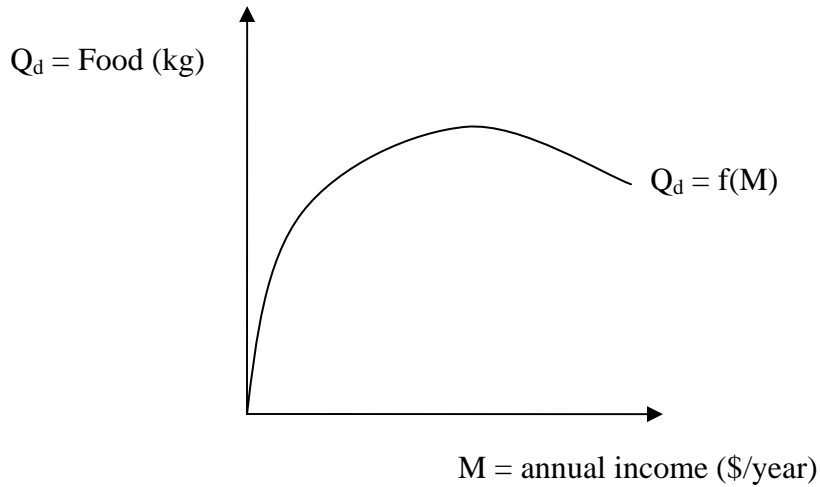
Two aspects of the inverse relationship between price and quantity demanded are important to note before we move into the study of how income affects consumer demand in the next section. Many consumers of organic food are not responsive to changes in price: this group purchases organic food regardless of price. There are two possible reasons for this form of consumer behavior: (1) strongly held beliefs, or (2) high incomes. The “true believers” in organic food include individuals and families who are deeply committed to the ideals and lifestyle associated with organic food. This group is very unlikely to alter organic food purchases based on price movements, due to strong convictions about the complex interactions between agricultural chemicals, human health, and the environment. The second group of consumers does not alter consumption habits when prices of organic food change, simply because they spend a very small fraction of their income on food. As a result, price increases are unimportant to these individuals, and consumption decisions are unlikely to be affected by price. For high-quality goods such as organic food, income is a major determinant of consumer ability to pay price premiums for the perceived benefits of a healthy diet.

### *Income (M)*

As an individual's income increases, purchases change: consumers shift out of low-quality goods such as used clothes, and increase expenditures on high-quality goods. Food is a necessity for life. As a result, if a homeless person with no budget or income received a \$5 handout from a passerby, we would expect most, if not all, of this income increase to be spent on food. As incomes increase, however, consumers are able to expand their consumption beyond food, to include clothes, rent, etc. Therefore, the percentage of income spent on food declines as income increases, as consumers diversify their purchases beyond necessities. This concept is illustrated in figure 2, where it can be seen that food purchases increase as income increases, but at a decreasing rate. The relationship reflects the expansion of purchases beyond necessities as incomes increase.

At a certain level of income, consumers reach a maximum of food purchases: they have enough to eat, and spend additional increase in income on other goods. Interestingly, there is some evidence that food purchases actually decline at higher levels of income: as the standard of living increases, some individuals cut back on the quantity of food eaten.

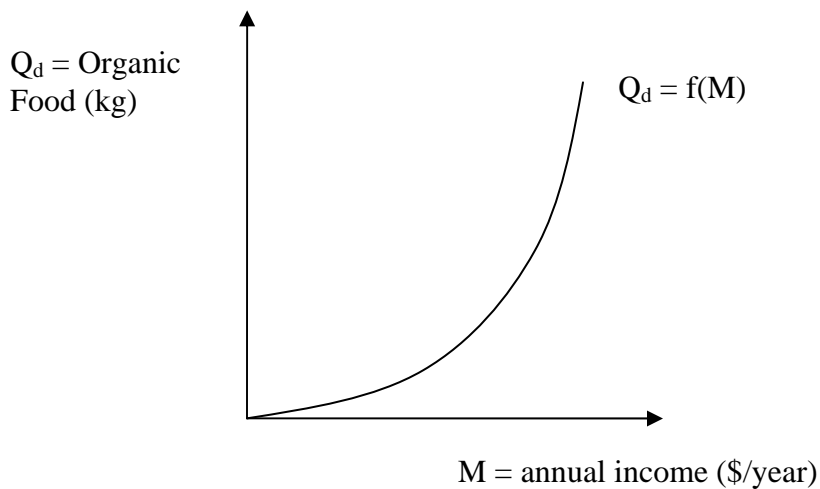
Figure 2. The Relationship between Income and the Demand for Food, a Necessity.



Nutritionists have found that obesity is more prevalent among individuals in low income brackets, which supports the shape of the relationship depicted in figure 2.

As the standard of living increases, consumers shift their purchases away from higher quantities of food (figure 2) and into higher quality food (figure 3).

Figure 3. The Relationship between Income and the Demand for Organic Food, a Luxury.



Larger budgets allow for more expensive items such as ice cream, steak, frozen dinners, restaurant food, and organic food. Since high-quality food items are more expensive,

increases in income result not only in an increase in purchases of “luxury” goods, but these increases are at an increasing rate, as shown in figure 3.

This simple analysis of the relationship between income and consumption is crucial for understanding and/or forecasting the likely future of the organic food industry. As the standard of living increases, consumers are very likely to spend an increasing amount on food quality, including certified organic products.

#### *Price of Related Goods ( $P_R$ )*

Consumers base purchasing decisions on not only the price of a good ( $P$ ), but also the price of goods that are “related” ( $P_R$ ). The term, “related” refers to goods that are bought as a replacement (substitutes, for example coffee and tea), or goods that are bought together (complements, such as peanut butter and jelly). The price of related goods is highly significant for organic good, since conventional food is readily available to consumers, often at prices below those for organically produced food products. Thus, conventional food and organic food are “substitutes,” meaning that consumers easily shift purchases between organic and conventional food.

It is important to emphasize that not every consumer will base organic/nonorganic purchase decisions on price comparisons alone. Individuals who are committed to organic food, or who have high incomes, and are unaware or insensitive to price changes are unlikely to discontinue purchasing organic food. However, a majority of consumers in the U.S. are likely to make price comparisons between organic and conventional foods, and switch purchases based on prices.

Since the bulk of consumers are willing to “trade off” the benefits of organic food with the lower prices of conventional food, the actual prices between products are likely to be a major determinant of future organic food sales. Figure 1 emphasizes the economists’ belief that price is the major determinant of consumer purchases.

The production, distribution, and marketing of organic foods is more costly than conventional food. This is due to the costs of segregation of organic products. Since there are no visual distinctions between organic and conventionally produced food, any product that is sold as “organic” must (1) meet the criteria for what the term “organic” refers to, (2) be kept separate from conventionally-produced food, and (3) be “certified” by a regulatory agency to ensure “truth in advertising.” Each of these three issues is expensive, leading to higher production costs for organic foods, and higher retail prices for organic food.

How will consumers determine whether or not to purchase organic food products? Economic theory provides a simple model of human behavior, based on rational, or consistent, behavior: if the benefits of purchasing organic food outweigh the costs, then consumers will buy organic food. If, on the other hand, the costs of organic food are greater than the benefits, then the consumer will not purchase organic food. The perceived benefits of organic food purchases include enhanced health for the consumer and his or her family, a decrease in damage to the rural environment, greater health for farmers and other individuals involved in the production, processing, and distribution of food, and any perceived benefits to rural communities. The costs of purchasing organic food are simply the higher retail prices paid for organic products that result from higher production, segregation, and certification costs. An additional cost of organic food

production is the loss of profits to the agricultural chemical and fertilizer industries. Managers and employees of chemical companies may not embrace organic food, as future expansion of organic production techniques would result in lower chemical and fertilizer sales.

How does this simple model further our understanding of the rapidly growing consumer demand for organic food? By focusing our attention on the most important determinants of consumer decision making, simple economic principles allow us to understand what is driving consumer purchasing decisions. If the price of organic food decreases, more consumers will purchase it. Future price decreases for organic food relative to conventional food are highly probable. Why? As the fledgling organic food industry develops, it will capture “economies to scale” associated with the growth and development of organic food markets. Specifically, as the infrastructure and institutions for organic food production, processing, and distribution become larger and more established, the per-unit cost of organic food will decline. Also, rapid technological change in organic food production is likely to continue, as organic farmers become more widespread, and the information base for organic processes grows and is disseminated to a larger group of organic farmers. Certification and segregation costs are also likely to be reduced as private and public institutions are developed. To summarize, the price of organic food is very likely to decrease relative to the price of conventional food as the demand for organic food grows in the future.

Perhaps the most important determinant of organic food demand is the perceived benefits to human health. As more scientific evidence accumulates and is made available about the consequences of agricultural chemicals on human health and the environment,

the demand for organic food is likely to grow. However, the substitution between organic and conventional food is not unidirectional: organic food purchasers will substitute into conventional food if the benefits and/or costs are altered in favor of conventional food or against organic food. For example, organic food may be more susceptible to food safety and recall problems than conventionally grown foods (Avery). Organic food may also be subject to pesticide drift, resulting in positive amounts of agricultural chemicals detected in certified organic food (Brasher). Lastly, as organic food moves through the complex multinational distribution channels, organic labels can be falsified or mistakenly altered. In many cases, detection of the presence of chemicals is difficult and expensive, making credibility and reliability extraordinarily important to the future demand for organic foods.

To summarize, market information about the benefits and costs of consuming organic and nonorganic foods will determine the future market shear of organic food in the food and beverage industry. Income growth, and the high standard of living that is enjoyed in the high-income nations of the world, is likely to be the single most important determinant of organic food consumption. Why? Because any perceived benefits, no matter how small, become affordable to wealthy consumers. Price premiums also become inconsequential to individuals and families with high incomes. As per capita incomes rise, we can expect a shift into organic food. An important implication of this is that low-income individuals in the USA, and low-income nations will be less interested in organic food, if it is more expensive than conventional food. For individuals and nations with low level so purchasing power, the perceived benefits of organic food are unlikely to outweigh the lower prices of conventional food. Historically, the Green Revolution has

increased the well-being for millions of persons by using modern agricultural inputs (chemicals, high yielding seed varieties, and fertilizers) to significantly increase food production. As incomes increase above subsistence levels, health issues shift from a lack of food and starvation to healthy diets and nutrition. Those who can afford it will purchase products that are perceived to be healthy, including organic food, even if the purchase price is considerably higher than conventional food. The price differential between organic and conventional food is explored in the next section.

### *Tastes and Preferences (T)*

To some observers, organic food purchases may appear to be extravagant, or unnecessary, since there is not hard evidence that conventional (nonorganic) food is related to human health. Two aspects of this critique of organic food consumers are important. First, as social scientists, economists do not make value judgments about consumer purchases. Consumer preferences for Coke or Pepsi, opera or soap opera, candy or salad, are not judged by the economist as either good or bad. The social scientist seeks to understand human behavior, and therefore it is not important to a market analyst whether or not consumers are “wrong” or “making a mistake.” What is important is that the demand for organic food is increasing at a rapid rate, and is likely to continue expanding.

A second, related, point is the difference between perception and reality. Real-world consumer purchases are all based on perception, which may be different from reality. For example, consumers may purchase a Ford instead of a Chevrolet based on family tradition, or neighbors’ experiences, rather than consumer reports. Purchasers of

organic food may believe that food produced without agricultural chemicals or synthetic fertilizers is healthier than conventional food. This belief can not be proven (or disproven) by scientists. Human health is enormously complicated, and as such, medical scientists, nutritionists, and statisticians are unable to provide specific proof that organic food is healthier than conventional food. As a result, perceptions and beliefs about organic food are more important to consumer behavior than facts. This should not be surprising: gambling is a large and profitable industry, in spite of the fact that the probability of winning is below even odds.

As medical, environmental, and nutritional science advance, higher quality information becomes available concerning the impact of agricultural chemicals and synthetic fertilizers on (1) human health, (2) the environment, and (3) rural communities. As this information becomes available, consumers will shift purchases based on the new information.

### **Price Premiums for Organic Food**

The price premiums for organic food products at the retail level are often considerable. Hodgson Mill, of Effingham, Illinois, produces and sells both organic and conventional all-purpose white, unbleached flour. In August 2002, the stated price on the internet ([www.hodgsonmill.com](http://www.hodgsonmill.com)) for conventional flour was \$0.56/lb. (\$2.80 per 5 lb. bag), compared to \$1.15/lb. for certified organic flour (\$2.30 per 2 lb. bag). It is interesting to note that the price premium for organic flour is equal to 59 cents per pound, which is higher than the 56 cents per pound price of nonorganic flour. This is but one

example of relatively large price premiums that consumers typically pay for organic foods.

As the demand for organic food has grown, food processors and distributors can earn a considerable “mark-up” for organically-produced food products. Recall the economic reasons: the price of flour relative to the budget is inconsequential for many consumers. As the standard of living increases and production costs for organic food diminish, the price will become increasingly unimportant for future consumers. The price premium for organic food, however, is an important determinant of the production of organic food. Agricultural producers who choose to convert their farms and production practices to organic techniques must bear considerable transition costs. Organic production practices are often management-intensive, requiring greater managerial time, skill, and decision making. Also, organic certification requirements can also require that a farmer not use chemicals or synthetic fertilizers for three years prior to the land becoming available for organic food production. Thus, some of the transition costs are incurred prior to reaping the benefits of organic conversion.

Organic production techniques replace agricultural chemicals and synthetic fertilizers with labor- and management-intensive practices, which can increase the costs of production. Welsh synthesized and interpreted economic studies of grain and soybean production by Midwestern universities, and concluded:

A review of the results of these land-grant university studies indicates that, *without price premiums*, the organic cropping systems were more profitable than the most common conventional system (generally a corn-soybean system) in three studies (Kansas, Minnesota, and one of the South Dakota studies); and less profitable than the most common conventional system in three studies (Iowa, Nebraska, and the other South Dakota study).

Thus, the producer adoption of organic practices is likely to depend heavily on the price premiums associated with organic food products. Price premiums for organic farm products have been relatively high in the past: the USDA found annual average prices for organic vegetables to generally be double conventional vegetable prices, with wide variation in weekly prices (ERS 1989-1992). Grain and soybean prices were also characterized by substantial price premiums during 1993-1999 (Dobbs 1998 and 1999). The Kansas City Star recently reported that Goff, Kansas farmer Ed Reznicek received as much as \$5 per bushel for organic wheat compared to \$3 per bushel for conventional wheat (Hegeman).

Mendenhall and Evenson used simple numerical calculations to demonstrate that a price premium at the retail level "...translates into an increasing percentage along the supply chain" (p. 60). This is due to the small fraction of food costs that are attributable to farm products. On average, consumers in the U.S. spend 10 percent of their income on food. However, only about 20 percent of the dollar expenditures on food go to farmers. The remaining 80 percent pays for processing, transportation, marketing, packaging, and advertising. Mendenhall and Evenson use examples to emphasize that the revenues associated with price premiums for food quality characteristics such as non-genetically modified (GM) food or organic food can be passed back to agricultural producers for a profit-sharing relationship that promotes the production of a desired food product. Following their work, three examples relevant to Kansas agricultural producers are presented here: bread, margarine, and corn flakes.

### *Bread*

The USDA reports that in 2000, a one-pound loaf of bread had an average retail price of \$0.88, and a farm value of \$0.04 (USDA/ERS). Wheat producers therefore receive approximately 4.5 percent of the retail price of bread. The farm-retail price “spread” is equal to 84 cents per pound of bread, and the percentage spread is 2100 percent ( $0.84/0.04$ ). If the supermarket were to charge a 10 percent premium for certified organic bread, or 96.8 cents per one pound loaf, holding all other expenses constant, the organic wheat farmer could earn up to 10 percent of the retail price, or 21 percent of the retail price, which is 20.33 cents per loaf. Restated, a 10 percent premium at the retail level allows farmers to earn a greater percentage premium. The importance of this example is to demonstrate that a small willingness of consumers to pay for organic food at the retail level could in most circumstances accommodate an increase in farmer profitability, since the farm component of retail food is a small fraction of food expenditures.

### *Margarine*

Margarine, whose major ingredient is soybean oil, sold for \$0.88/lb. in 2000 (USDA/ERS), with a farm value of \$0.13/lb., resulting in 14.77 percent of the price of margarine going to soybean producers. If the price of certified organic margarine were 10 percent greater than the conventional margarine price, this price premium could translate into a 67.7 percent ( $=1/14.77*0.10$ ) premium to certified organic soybean producers, or 8.8 cents per pound of soybean oil.

### *Corn Flakes*

An 18-ounce box of corn flakes sold for an average price of \$2.14/box in 2000 (USDA/ERS), with a farm value of \$0.09/box. The farm-retail price spread is \$1.95/box, or 2377.8 percent. If organic corn flakes had a 10 percent price premium, the final price could equal \$2.35/box. If corn producers were to receive 10 percent of the price spread, they could earn 237.8 percent of the original corn price, or 21.4 cents per box.

These three examples demonstrate that small price premiums for organically-grown food at the retail level could be used to significantly increase price premiums paid to organic producers. Therefore, to the extent that consumers are willing to pay higher prices for organic goods, it is likely that the price difference will be large enough to cover additional production, certification, and transition costs borne by farmers who convert to organic production techniques.

The transition costs from conventional to organic production can be considerable (Padel and Lampkin). Welsh identified two major types of costs during the transition period, when synthetic chemical use is discontinued: bureaucratic and ecological. To meet certification requirements, the bureaucratic transition lasts three years, during which organic farmers can not earn price premiums. Posner et al. (1995) identified the ecological transition as the biological and managerial transition before long-term yield equilibrium is established. The duration of the ecological transition may be longer than the three years required for the bureaucratic transitions.

Padel and Lampkin (1994) identified other potential transition costs as a lack of available information, lack of available credit, and an incomplete or poorly constructed conversion plan. Additionally, costs may include the cost of learning a new enterprise, the need to buy new or different equipment, increased paperwork and bookkeeping

requirements (Welsh). The 2002 Farm Act is designed to help farmers offset these transitional costs.

Once these transition costs are considered, the conversion to organic production will be determined by the economic relationships between increased production cost, possible yield decreases, and price premiums for organically-produced food, as explained further in the next section.

### **Producer Profitability from Organic Conversion**

The conversion to organic production must be given careful consideration to make the most profitable decision. Welsh's report provides a summary of previous studies that are relevant to producers in Kansas. His work found organic cropping systems to be more profitable than conventional practices in many cases due to (1) lower production costs, (2) the net returns to organic rotations being higher than those for conventional rotations, and (3) organic systems are drought hardy, and can outperform conventional systems in drier area during drier periods. In addition to the economic benefits of organic production, Welsh also emphasized the potential health benefits to farm workers and environmental benefits of soil loss reductions and soil quality increases.

Diebel, Williams, and Llewelyn (1995) compared the net returns for conventional and organic cropping systems using data from the Kansas Farm Management Association's (KFMA) database of 332 farms in 14 Northeast Kansas counties from 1986 to 1990, as well as personal interviews with producers. They concluded that a fully organic system ranked second in overall net returns behind a near-organic alternative

system. The conventional system, which reflects the traditional cropping practices of Northeast Kansas, ranked fourth in net returns relative to several other systems. This result assumed equal yields and no price premiums for organic crops. With price premiums included in the net return calculations, organic farming appears to be profitable for many Kansas producers.

Two qualifications to this general claim are important to consider: (1) the future existence of price premiums for organic food and agricultural commodities, and (2) producer lifestyle and career preferences. First, future premiums paid for organic food and organically produced grains and cereals will depend on supply and demand conditions for these products. The demand for organically grown food is increasing rapidly, which places upward pressure on future price premiums. Organic production is increasing rapidly, however, and as supplies increase, this places downward pressure on the price premiums as more farmers convert to organic production practices. The actual premiums paid to organic farmers in the future will be the outcome of changes in the forces of supply and demand.

A second important factor to consider prior to organic conversion is the potential changes in lifestyle, work, and management. Organic farming is management-intensive for many farmers, and the production processes often use labor to replace chemicals and synthetic fertilizers. Therefore, more knowledge and information acquired prior to making the decision to convert to organic production provides for superior decision making. Finally, organic production practices are not uniform across locations. Some areas, soil types, climatic regions, and crops are better-suited to organic farming practices

than others. Interested producers should consult with experts at both the national and local levels to ensure a successful conversion.

### **An Unlikely Partnership: Corporate Agribusinesses and Organic Farmers**

Organic farming was popularized in the 1960s and 1970s as a counter-culture alternative to conventional, industrialized food and agriculture. Organic farming pioneers sought to change food production with organic farms, food distribution with cooperatives and health food stores, and consumption. According to Michael Pollan, a “counter cuisine” was developed to challenge conventional food supply channels and eating habits. Over time, the demand for organic food has increased, and a shift in the type of consumer interested in organic food has taken place. The original consumer group was the “true natural,” a committed, socially-conscious activist consumer devoted to “better food for a better planet.” R. Brooks Gekler, the vice president for marketing at Small Planet Foods, believes that this group represents 10 percent of the U.S. food market (Pollan).

A second group of organic consumers has emerged, according to Gekler: the “health seekers.” This group buys supplements, works out, drinks wine, drives imported cars, and buys organic food. Representing approximately one quarter of the food market, the health seekers buy organic food for the perceived health benefits. Pollan highlights that the health benefits of organic food are difficult to measure or prove, whereas the environmental benefits are convincing and significant. Interestingly, the purchasing habits of this large and growing group of consumers has resulted in a large increase in the demand for organic food, and as a result, enhanced profitability of organic food products.

In a free market economy, profits draw attention and resources. Organic farming has become a \$7.7 billion industry, representing approximately 2 percent of total food sales in the United States. This small sector, however, has sustained annual growth of 20 percent each year for the past decade, and is the fastest growing category of supermarket sales. This increase in sales has attracted corporate agribusinesses to invest in organic food and agriculture. Specifically, Gerbers, Heinz, Dole, ConAgra, A.D.M., and General Mills have all created or acquired organic brands. Horizon, a Colorado dairy firm, is a \$127 million public corporation that controls over 70 percent of the retail organic milk market. Milk produced and sold by Horizon is produced in massive, industrialized dairies that meet strict organic production criteria, but do not reflect the original, small-farm, wholesome values that the label “organic” connotes to many consumers.

As the demand for organic products has grown, organic farms have become larger and more consolidated. A majority of organic crops are now grown by large firms that produce both organic and conventional crops. Pollan reports, “...today five giant farms control fully one-half of the \$400 million organic produce market in California. Partly as a result, the price premium for organic crops is shrinking.”

Organic farming has also been affected by governmental regulation and information. Specifically, the national standards for organic food were created by a long political process that resulted in compromise between industrial organic producers and small, family organic farmers with idealistic notions of how organic food should be defined. The national standards allow numerous food additives in organic processed foods, moving the definition of what organic food is away from what the original organic pioneers emphasized: a counter culture lifestyle that rejected conventional food systems.

As the demand for organic food products increases, the presence of large agribusiness firms in the organic food industry is likely to increase. As a result, the future of the organic industry is likely to be one of two types of organic foods: industrial organic, dominated by a few large agribusiness corporations, and small, local organic farms that produce crops for local distribution and sales. Organic farmers and consumers interested in retaining the original goals and ideals of organic food are likely to establish labels, institutions, and markets that go beyond the organic labels that have become national standards used by large agribusiness corporations. Consumers of organic foods will likely devote more time and effort to discerning the exact definition and meaning of the labels used on the packages of food in the supermarket.

### **Implications and Conclusions**

The demand for organic food is growing rapidly, and is likely to continue to become a larger share of food products sold in the United States and other high-income nations. Over the past decade, sales of organic food products have increased 20 percent per year, and comprise the fastest-growing sector in the food industry. Economic principles suggest that this trend will continue, as the standard of living increases. Luxury consumer goods such as bottled water, free trade coffee, and organic food will continue to replace necessities, as high-income consumers can afford to pay for product attributes that are perceived to be healthy or good for the environment. Scientific evidence that organic food is good for human health or good for the environment is not necessary for consumers to continue to purchase organic food. The major determinant of

the future demand for organic food is consumer perceptions about health and the environment.

Many agricultural producers have found organic production practices to be a profitable alternative to conventional crops. Transition costs are high, but the cost advantages of eliminating chemical and fertilizer bills, together with crop rotation advantages can contribute to net returns. Price premiums for organic crops are often high relative to food produced with agricultural chemicals or synthetic fertilizers. The future magnitude of these price premiums will depend on market forces: the supply of and demand for each individual organic food product will determine market value. In a free market economy, there is risk associated with these returns to growing organic food.

The high profitability of organic food has drawn corporate agribusiness into the industry once dominated by counter culture farmers and consumers. These large corporations now dominate many sectors of the organic food industry, and are likely to continue to expand organic food production, distribution, and sales. The presence and influence of large firms such as General Mills in the organic food industry promises to make the future of the food business interesting and consequential. Future demand growth is likely to cause further separation and redefinition of organic food into products that are carefully defined by specific traits about how the food was produced, and the specific ingredients of the food.

## References

- Avery, Alex. July 2002. "Natural and Organic Foods 8 Times More Likely to Have Safety and Recall Problems." Press Release. Churchville, Virginia: The Center for Global Food Issues, a Project of the Hudson Institute.
- Brasher, Philip. May 8, 2002. "One-Quarter of Organic Produce Contains Pesticides, Study Finds." Washington, D.C.: Associated Press. Available at: <<http://www.enn.com>>
- Diebel, P. L., J.R. Williams, and R.V. Llewelyn. 1995. "An Economic Comparison of Conventional and Alternative Systems for a Representative Northeast Kansas Farm." *Review of Agricultural Economics* 17(3):323-335.
- Dobbs, Thomas. 1998. "Price Premiums for Organic Crops." *CHOICES*, Second Quarter.
- Dobbs, Thomas. May, 1999. "Organic Price Premiums for Northern Great Plains and Upper Midwest Crops: 1995-98." *South Dakota State University Economics Pamphlet 99-1*. Brookings, South Dakota.
- Greene, Catherine R. June 2001. "U.S. Organic Farming Emerges in the 1990s: Adoption of Certified Systems." United States Department of Agriculture/Economic Research Service (USDA/ERS), Resource Economics Division, Agricultural Information Bulletin No. 770.
- Greene, Catherine R. 2002. United States Department of Agriculture, Economic Research Service. ERS Analysis: Organic Agricultural Provision. <[www.ers.usda.gov/feature/farmbill/analysis/organicagriculture.htm](http://www.ers.usda.gov/feature/farmbill/analysis/organicagriculture.htm)>
- Hartman Group. January, 2000. The Organic Consumer Profile. The Hartman Group, Inc. Bellevue, Washington. <[www.hartman-group.com](http://www.hartman-group.com)>
- Hegeman, R. March 4, 2002. "Organic Farming Growing Market for Traditionally Grown Crops." Kansas City, Missouri: Kansas City Star.
- Mendenhall, C.A., and R.E. Evenson. 2002. "Estimates of Willingness to Pay a Premium for Non-GM Foods: A Survey." Chapter 5 in: *Market Development for Genetically Modified Foods*. Eds. V. Santaniello, R.E. Evenson, and D. Zilberman. London, U.K.: CAB International.
- Packaged Facts. *Organic Foods Market - US Report*. Available online at: <http://www.MarketResearch.com>.

Padel, S. and N. Lampkin. 1994. "Conversion to Organic Farming: An Overview." N.H. Lampkin and S. Padel (eds.) *The Economics of Organic Farming: An International Perspective*. Wellingford, U.K.: CAB International, pp. 295-313.

**References (continued)**

Pollan, M. May 13 2001. "Behind the Organic-Industrial Complex." New York, New York: New York Times.

Posner, J.L., M.D. Casler, J.O. Baldock. 1995. "The Wisconsin Integrated Cropping Systems Trial: Combining Agroecology with Production Agronomy." *American Journal of Alternative Agriculture* 10(3):98-107.

Thomas, V.G. and P.G. Kenan. 1993. "Basic Principles of Agroecology and Sustainable Agriculture." *Journal of Agricultural and Environmental Ethics*, Vol. 6, No. 1.

United States Department of Agriculture, Agricultural Marketing Service, December 21, 2000. "Natural Organic Program; Final Rule, 7 CFR Part 205." *Federal Register*.

United States Department of Agriculture, Economic Research Service. 2002. Briefing Room: Food Marketing and Price Spreads: Farm-to-Retail Price Spreads for Individual Food Items.  
<<http://www.ers.usda.gov/briefing/foodpricespreads/spreads/table1.htm>>

United States Department of Agriculture, Economic Research Service, 1989-1992. *Vegetables and Specialties Situation and Outlook Report*, TVS-248 to TVS-258.

Welsh, Rick. May 1999. "The Economics of Organic Grain and Soybean Production in the Midwestern United States." Henry A. Wallace Institute for Alternative Agriculture.