

The Architecture of Organic Production¹

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The architecture of organic production has no single definition or description. Today, two groups of architects are competing to design the organic food system of the future. While the stated challenge of this conference is to seek “unity through diversity,” the most critical challenge confronting humanity today is to find “sustainability.” How can we meet the needs of the present while leaving equal or better opportunities for the future? Thus, “unity and diversity” must be viewed as *means* of achieving “sustainability” and not an *end* in itself. We cannot afford to sacrifice the principles of sustainability in our quest for unity.

The principles that support organic production today are being challenged by those who view the current biological and cultural architecture of organics as unnecessary constraints to future profits and growth of the organic industry. A sustainable architecture for organic production, however, demands that future profits and growth of organics be achieved by means that are in harmony with the biological and cultural principles that ensure ecological integrity and social responsibility. A system that is lacking in economic-, ecological-, or social-integrity is not sustainable. Unity achieved through compromise rather than complementarity, quite simply, is not sustainable.

Current organic farming and marketing systems were designed to support a philosophy of life – rather than provide a means of achieving prosperity. Organic farming methods are based on nature's principles of production – on farming in harmony with nature rather than trying to conquer nature. Diverse organic farming systems, most of which integrate crops and livestock enterprises, are designed to capture solar energy, to recycle waste, and to regenerate the health and fertility of the soil. Organic farmers see themselves as stewards of nature. Organic farmers also believe in living in harmony with other people – in cooperating with other farmers rather than competing. They view their customers as *people*, with whom they can maintain positive personal relationships, not as *markets* to be exploited for profits. They view “quality of life” as more than “standard of living.” Healthy food, a healthy environment, caring communities, and a strong society are seen as the natural products of pursuing an organic philosophy.

During the early 1900s, essentially all food was produced without commercial fertilizers and pesticides, simply because they weren't available. During this time, use of organic methods wasn't a matter of philosophy; it was a matter of necessity. However, some farmers continued to produce by organic means throughout the 20th century. They resisted, even defied, the dominant trend toward reliance on inorganic fertilizers and pesticides, which emerged from World War II chemical technologies. Those who farmed organically by choice, rather than necessity, became the leaders of the modern organic farming movement.

The modern organic movement developed outside of the agricultural mainstream and maintained an essentially separate food system until the late 1980s. Organic was of little interest or concern to the large, corporate food organizations until the rapid expansion in organic markets during the 1990s, when 20-25 percent annual growth rates were typical for the organic market. At these rates, the organic market more than doubles in size every three years.

Corporations in the food industry are under pressure to keep pace with non-food sectors in returns on investment and growth. For example, they must compete with pharmaceuticals, computer technology, Internet, and other high-tech firms for stock market investors. Since overall food consumption has been growing at rates far slower than growth rates in the non-food economy, food firms have been desperate to find alternative engines for economic growth. Their primary strategy has been to grow through mergers and acquisition of other firms, but they also have been quick to seize upon opportunities presented by any fast growing food market segment – such as organics. They realize also that continued expansion of organic markets eventually will cut into profits from non-organic food markets. So the economic stakes for corporate control of organic food production and marketing are large.

Prior to 1990 most organic sales in the U.S. were direct transactions between farmers and consumers -- through local farmers' markets, community supported agriculture (CSA), pick-your-own operations, or farmers' roadside stands. Few organic retail food stores were in existence at that time and they generally were small consumer cooperatives that purchased directly from local farmers or marketed local produce on consignment. The organic food system, from producers to consumers, was essentially separate from the conventional system of mass production, mass marketing of food.

Over the past decade, however, the organic food system has changed dramatically. By 1997, more than 60 percent of total organic food sales in the US were accounted for by specialty retailers such as Whole Foods and Wild Oats (Gilmore, 1998). Organic sales through conventional US supermarkets grew by more than 40 percent per year during the 1993-1997 period – doubling their share of the overall organic food and beverage market in the process. These same basic trends have continued into the new century, and there is little doubt that specialty retailers and supermarkets now dominate total organic food sales in the U.S.

As food corporations joined the organic movement, they brought their own vision for the future architecture of organic production with them. Many of these new entrants, and would-be entrants, are “powerful players” in agriculture and food production, both locally and globally. They include such firms as Kroger, Albertson, and Wal-Mart of the food-retailing world. They include ADM, Cargill, and Con-Agra from food processing and manufacturing. And, they include Monsanto, Novartis, and Du Pont, as would-be providers of modified-genetics for future organic products. These firms threaten, perhaps purposefully or perhaps unknowingly, to transform the organic food sector into just another industrialized food system.

Many sincerely believe that the only route to future profits and growth through organics is to reduce cost and increase market access. To achieve these goals, they are using the same business strategies that they have used to transform food production in general from a family farm, local processor, mom-and-pop grocery store system to an industrial farming, mass distribution, supermarket system. They are moving toward greater specialization, standardization, and centralization of control of organic food production and distribution. This corporate philosophy of food production is putting even the most ardent philosophical organic farmers under increasing pressures to conform to an industrial organic architecture.

Pressures to make organics conform to a system of mass-distribution are pressuring organic producers to industrialize. Demands for large quantities of specific products to supply large

numbers of retail outlets are forcing farmers to specialize. Demands for consistency and uniformity of product quality are forcing producers to standardize. And demands for dependability and timeliness of delivery are forcing producers to centralize control of production and distribution processes. Such operations can reduce costs – but only if they are operated at a large scale. So large-scale, specialized organic production systems are emerging in the U.S. to conform to the architecture of large-scale, industrial systems for foods in general.

However, most organic farms remain relatively small-scale and diversified, even though larger retailers deal primarily with the larger producers who can ensure quality produce, of consistent grade, uniformly packaged, delivered on a timely basis, at a competitive price. Few of the smaller organic farmers have been willing or able to meet the large retailers' standards. Thus, the bulk of mass retailers' purchases are made from a handful of large-scale commercial organic operations. Anecdotal information indicates that U.S. organic retailers only buy sufficient quantities from local farmers to lend an element of credibility to their claims of selling locally grown foods.

The oft-stated motives for industrializing organics is to make organic foods more accessible and acceptable to more consumers, to enhance the healthfulness, safety, and quality of food supplies, to expand markets for farmers, and to protect the environment from commercial fertilizers and pesticides. While these motives may seem logical, the consequences may be far different than initial expectations -- for consumers, for farmers, and for the environment.

The fundamental principles of the industrial architecture are specialization, standardization, and centralization of control. Adam Smith, the father of contemporary economics, expounded on the potential gains in productivity through specialization – as he called it, division of labor. Division of labor, put simply, means that each laborer specializes in performing a single task, or a limited number of tasks, in the production process rather than attempting to perform the entire process. By performing fewer tasks, each laborer could perform their specific tasks much more efficiently. Thus, several specialized workers, by coordinating their work, could produce far more than could an equal number of workers working independently.

Specialization alone is not adequate to capture the full benefits of industrialization. Industrial systems also require standardization, so that each function in the production process can be specified for the purpose of dividing responsibilities -- the output of each stage of production must fit the input requirements of the next. Also, when different organizations perform different functions, standardization is required so a given producer can obtain and utilize the same input materials from a number of different suppliers.

Industrialization also requires centralization of command and control. Specialization results in increased efficiency only if each stage in the standardized production process is coordinated with the others. Coordination is achieved through centralization – fewer people telling more people what to do and when, where, and how to do it. If each specialized worker performs his or her specific task, but does so independently, the process is not likely to be efficient.

Centralized command and control allows each decision-maker to control more resources – to achieve economies of scale. Thus, industrialization is characterized by large-scale operations. Large organizations require large amounts of capital, thus, and large “publicly

owned” corporations have evolved to meet the capital requirements of industrial organizations. The separation of the management and financing functions, characterized by corporate ownership, is but another means of specializing within an industrial organization.

In spite of pressures to specialize, standardize, and consolidate into larger operations, most organic farms remain diverse, individualistic, and decentralized. At present, most organic farms are still small and diverse. Organic farmers are as varied in as the natural ecosystems and communities that support them. Most sell their products direct to their customers, relying on their personal reputation rather than organic standards to ensure product integrity. They are still making their living through decentralized local niche markets rather than industrial mass markets.

A 1998 survey conducted by the Organic Farming Research Foundation indicated that nearly 90 percent of U.S. organic farms are single-family operations or family partnerships. More than 60 percent are full-time farming operations, but the average size of an organic farm is only about 140 acres – just over one-third as large as the “average” US farm. Only one-out-of-seven farmers responding to the survey reported annual total sales of more than US \$100,000. Thus, organic farming in the U.S., at least in terms of farm numbers, is still dominated by small, family farms. In terms of annual sales, organic farms are not greatly different from the average of all U.S. farms – which includes a large proportion of small farms. However, the proportion of full-time organic farmers is far larger than the proportion of full-time conventional farmers.

In the future, however, small, diversified family farms will not be able compete economically in a fully industrialized agriculture – neither in organic nor conventional production. The number of farms in the U.S. has dropped dramatically over the past several decades and it's generally conceded that there will be few independent producers left producing basic agricultural commodities in the US in another ten to twenty years. Corporate control of input and marketing sectors will force farmers to become contract growers within vertically integrated systems that control all aspects of the system from genetics to retailing. Until recently, organics had seemed to be among farmers' best alternatives to avoid either giving in to corporate control or getting out of farming. Now it appears that organic production may become industrialized almost as quickly as conventional farming.

But, organic farmers do not have to become a part of the industrialized food system. Organic farmers can join with other small farmers in developing an alternative food system that can coexist with, and someday displace, the global-industrial, corporately-controlled food system. Independent organic farmers may well lose the battle to keep industrial agribusiness from dominating the mass production and mass distribution of organic foods. But, smaller, organic farmers can still compete effectively for the fast-growing and profitable organic niche markets – both locally and internationally. And more important, small-scale organic farming can be carried out by means that are ecologically and socially sustainable over the long run, whereas, industrial organic production cannot.

The sustainable agriculture movement offers the best hope for the future success of small-scale, independent organic producers. The sustainable agriculture movement reflects a philosophy of life that is quite compatible with the current organic philosophy. In fact, one might logically argue that all sustainable systems of agriculture production ultimately must be organic systems –

although all “organic” systems most certainly are not sustainable. However, the industrial philosophy is fundamentally incompatible with the concept of agricultural sustainability.

The architecture of sustainability is currently competing with the architecture of industrialization for the future of organic agriculture, as well as for the future of agriculture in general. In essence, a sustainable agriculture is one capable of meeting the needs of the present while leaving equal or better opportunities for the future. Consequently, all sustainable systems must be ecologically sound, economically viable, and socially responsible. These principles define the architecture of sustainability.

A system lacking in any one of the three simply is not sustainable. It isn't necessary to prove this proposition; it's just plain common sense. Any system that uses up, or degrades, the productivity of its natural resource base cannot sustain production, and thus, is not sustainable. Any system that fails to provide an adequate economic return to producers eventually will become financially insolvent, and thus, is not sustainable. And, any system that fails to meet the needs of society, either as consumers or as producers, will not be sustained by society, and thus, is not sustainable. The economic, ecological, and social dimensions of sustainability are like the length, width, and depth dimensions of a box. An agricultural system lacking in any one of its three dimensions is not sustainable, just like a “box” lacking in any one of its three dimensions is “not a box.”

Organic production methods address most directly the ecological dimension of sustainability. True organic systems are inherently ecologically sound systems of production – they rely on the regenerative capacity of nature. The primary challenge of organics is economic viability. The economic challenge must be met through efficient management of natural resources so as to minimize costs, and through effectively marketing to customers who are concerned about food safety and nutrition and who most value ecologically and socially responsible production. Such consumers realize that, over the long run, humanity must pay the full ecological and social costs of food, and not just the short-run economic costs.

The final dimension of sustainability, social responsibility, includes social justice and social equity. This is the dimension of greatest advantage for philosophically organic producers. Small-scale organic farms are management intensive – they require more thinking, caring people per acre and per dollar invested. They require people who understand how to work in the dynamic, living systems rather than simply follow someone else's “recipe” for farming. Thus, they provide opportunities for more people to make a better living farming, while providing consumers with an adequate supply of safer and more healthful food. Consequently, they provide the foundation for reconnecting farmers and consumers in a society made up of healthy, viable rural communities.

The architecture of sustainability is defined in terms of economic, ecological, and social principles rather than in specific farming methods or practices. Sustainable production methods are individualistic, site specific and dynamic. Sustainability for a given farmer, on a given farm, and at a given time may be different from those of another farmer, on another farm, or at a different point in time. Thus, sustainability cannot be standardized. Sustainable farming systems are inherently diverse because nature is diverse and sustainable farming must be carried out in harmony with nature. Thus, sustainable production cannot be specialized. Finally, since

sustainability cannot be standardized or specialized, it cannot be centrally controlled or consolidated. Thus, a sustainable agriculture cannot be industrialized.

It follows directly, that an industrial agriculture quite simply is not sustainable, regardless of whether it might be defined as “organic.” The growing ecological problems associated with conventional agriculture are a direct reflection of conflict between the diversity of nature and the specialization of industrial farming. The chronic economic problems of conventional farmers is a direct reflection of the specialization and standardization of farming methods, which demand that farms become larger and fewer by forcing other farmers out of business. The demise of family farms, the decay of rural communities, and much of the social decay within the larger society are directly related to separation of people and the destruction of relationships that accompany industrialization. An industrial agriculture, quite simply, is not sustainable.

Sustainable organic farmers must reject the industrial architecture. They must develop instead a food system that is compatible with the principles of sustainability. This alternative system may continue to rely on direct marketing through niche marketing methods, or may evolve into a flexible, decentralized, producer-agent-customer network. Regardless of how it evolves, it will not be an industrial system.

Sustainable organics may require government protection, at least to allow truthful labeling of products with respect to diverse production methods. Sustainable farmers may also require protection from predatory pricing tactics of industrial food producers. At the very least, sustainable organic producers should demand elimination of current government subsidies for industrialization of agriculture – conventional or organic.

However, small-scale sustainable producers can survive, with or without government help, and eventually can displace industrial agriculture – in fact, must displace industrial agriculture, if civilized human society is to survive on earth. But, sustainable producers must put more of themselves into their operation if they expect to survive, prosper, and ultimately succeed in replacing an industrialized agricultural economy. Sustainable agriculture may require more labor, but there is a limit to how hard anyone can work – at least, while maintaining a desirable quality of life. Thus, the key to sustainable organic production will be to manage more “intensively” – to apply more imagination, innovation, creativity, and thinking per acre farmed or dollar of investment.

Sustainable farmers must match their unique abilities and talents with their land, their community, and their markets. This requires a higher level of understanding of themselves, their capabilities, their values, and their purpose in life. This requires a higher level of understanding of consumer tastes and preferences and of the uniqueness of relationship markets. This requires a higher level of understanding of the land and of nature's productive capacities. Sustainable farming is thinking farming. It requires an ability to translate observation into information, information into knowledge, knowledge into understanding, and understanding into wisdom. Sustainable farming is not easy, but the reward is a broader and higher quality of life.

Today's organic farmers must choose between the two alternative architectures now competing for the future of organics. To choose wisely, they must realize that industrial organic production is no more sustainable than is the chemically dependent conventional production they seek to

displace. Perhaps unity can be found among the diverse opinions competing for the future of organics. Perhaps a system may be devised by which industrial organics initially displace conventional food in the industrial food system, while allowing sustainable organics to continue to evolve to serve the growing local niche segment of food markets. But eventually, niche marketing must become the dominant form of marketing, if agriculture is to be sustainable globally. We must create an agriculture that conforms to the diversity of nature and of humanity, rather than bend and twist nature and humanity to fit an industrial architecture. But first, we must move beyond thinking of organic as a means of food production, to seeing organic as a philosophy for sustaining human life on earth and a philosophy for quality living.

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