

Organic Agriculture Faces the Specialization of Production Systems; Specialized Systems and the Economical Stakes

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Introduction

Large, specialized food systems will quickly dominate global production and distribution of organic foods, if they are allowed free access to organic markets. During the early 1900s, essentially all food was produced without commercial fertilizers and pesticides, simply because they weren't available. Some farmers continued to produce by organic means, in defiance of the dominant trend toward reliance on inorganic fertilizers and pesticides, and became the leaders of the modern organic farming movement. But, organic production was of little interest or concern to the large, corporate food organizations until the recent rapid expansion in organic markets. Market expansion rates of 20-25 percent annually have been common during the 1990s, although rates vary among nations. At these rates, the organic market more than doubles in size every three years. Growing markets represent growing opportunities for future corporate profits. Expanding organic markets eventually will cut into profits from non-organic food markets. So the economic stakes for control of organic food production and marketing are large.

The current organic farming movement is as much a philosophy of life as a method of production. Organic farming methods are based on nature's principles of production - on farming in harmony with nature rather than trying to conquer nature. Diverse farming systems that integrated crops and livestock enterprises are designed to capture solar energy, recycle waste, and regenerate the soil. Organic farmers also believe in living in harmony with other people - in cooperating rather than competing. Healthy food, a healthy environment, caring communities, and a strong society are seen as the natural products of pursuing an organic philosophy.

However, recent trends are transforming organic foods into just another industrialized food system. Pressures to make organics conform to the dominant mass-distribution system for food is forcing organic producers to become larger and more specialized. Demands for consistency and uniformity of product quality and for dependability and timeliness of delivery are forcing producers to standardize, specialize, and 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 meet the needs of a large-scale, mass distribution systems for food.

Mass production and distribution of organic foods is a fairly recent phenomena. 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.

Over the past decade, the organic food market has changed dramatically. A New York based firm, Datamonitor, that monitors retail sales estimated that 60 percent of total organic food sales in 1997 was accounted for by specialty retailers such as Whole Foods and Wild Oats (Gilmore, 1998). Specialty retailers are not mainline supermarkets, but they are modern upscale chains of retail outlets that hold little resemblance to traditional organic consumer food cooperatives. Datamonitor estimated that sales of organic foods by conventional supermarkets grew in excess of 40 percent per year during the 1993-1997 period - doubling their share of the overall organic food and beverage market in the process. There is little doubt that specialty retailers and supermarkets now dominate total organic food sales in the U.S., although no uniform sales data for farmers markets, CSAs, restaurants, etc. are available for comparison.

Supermarkets and specialty chain retailers prefer to deal with suppliers that can provide a variety of high quality products, of consistent grade, uniformly packaged, delivered on a timely basis and at a competitive price. Most organic farms remain relatively small-scale and diversified, even as conventional agricultural producers have become larger and more specialize. But, 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. Erick Kindberg, a U.S. expert on organics, estimates that a single organic consortium produces about 30 percent of all U.S. organic produce and 4 other growers supply an additional 40 percent. He estimates that the farmers typically classified as small growers provide only about 5 percent of total organic produce sold by the specialty chains and supermarkets. 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.

A recent article by Chantal Le Noallec in *Le Monde diplomatique*, indicates that many of the same trends are underway in Europe (1999). He states, "the organic sector is about to become industrialized, because agribusinesses are beginning to take a big interest in it. Farmland is increasingly being switched to organic, and the organic industry is developing based on mono-cropping. More seriously, a number of companies are pressing for present specifications to be relaxed, under the pretext of speeding up the conversion and making it possible to supply more products at even lower prices."

The oft-stated motives for industrializing the system 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 Economics of Specialized Systems

The motives for specialization of systems of production and distribution are largely economic in nature. Specialization is a fundamental characteristic of industrialization - the dominant model of economic development over the past two centuries. Adam Smith, the father of contemporary economics, expounded on the potential gains in productivity through 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. At the beginning of the industrial era, in the late 1700s, Smith concluded that specialization, through division of labor, was one of the fundamental sources of differences in wealth among nations.

The same principle, specialization through division of labor, remains a cornerstone of industrialization today. A modern factory assembly line is nothing more than a means of coordinating specialized workers using specialized machines to perform a multitude of different tasks in producing a single product. Dividing the basic factors of production among different sources, with one group providing capital, another group providing labor, another management, and another supplying raw materials, is but another means of achieving economic efficiency through specialization. The same basic principles are applied in modern, specialized farming operations. Farms are designed to work as factories, with inputs and raw materials coming in and finished products going out, and with farmers performing a prescribed number of routine tasks in sequence to accomplish the transformation. Fields and feed lots are designed to operate as nearly as possible as biological assembly lines. Land, labor, capital, and management may each be supplied from different sources.

Specialization alone is not adequate to capture the full benefits of industrialization. Industrial systems also require standardization. Standardization is necessary so each function in the production process can be specified for purposes of dividing responsibilities -- the output of each stage of production must fit the raw material requirements of the next. When different organizations perform different functions, standardization is required so a given producer can procure and utilize the same raw materials from a number of different sources. Food retailers who demand consistency and uniformity in the items they purchase for resale, are demanding standardization. A supermarket is but the last stage in a highly specialized food production system.

Industrialization also requires centralization of command and control. Specialization results in increased efficiency only if each stage in the production process is coordinated with the others. Coordination is achieved through centralization - one person telling other people what to do and when, where, and how to do it. If each specialized producer performs their assigned task, but does it independently, the process is not likely to be efficient. Centralized command and control allows each decision maker to control more resources, thus, industrialization is characterized by large-scale operations. Large organizations require large amounts of capital, thus, large publicly-owned corporations have evolved to meet the capital requirements of industrial organizations.

U.S. agriculture has followed the same general path toward industrialization as other industries. The process for agriculture has just proceeded more slowly. Agricultural processes, being fundamentally biological in nature, have been more difficult to standardize and control than were basic mechanical, chemical, and electronic processes. But over time, U.S. agriculture has become increasingly specialized, standardized, and centralized in nature -- first through larger, independently owned farms but more recently through large-scale, corporate organizations.

The trend toward industrialization has been a trend away from organic agricultural production. Low cost, inorganic fertilizers and pesticides have been the primary technological facilitators of agricultural industrialization. Of course, mechanization also facilitated large-scale production. But, commercial fertilizers and pesticides allowed farmers to specialize without sacrificing basic productivity -- to break away from the diversified crop and livestock systems that were used previously to regenerate and recycle nutrients and to control pests. Standardized applications of commercial fertilizers gave farmers far greater control over the production process than had been possible before, and in turn gave farmers economic incentives to abandon organic farming methods.

The large agribusiness corporations became interested in control of agricultural production only after specialized, standardized farming systems were shown to be technically and economically feasible. These large corporations have sufficient capital to bring increasing shares of total agricultural output under increasingly centralized control. The new information and biological technologies promise even greater advantages for specialized, standardized, centrally controlled systems of agriculture production. The system of production that initially chided organic farming as being obsolete now proposes to adopt it.

The Economics of Industrialization

Industrialization typically follows a fairly standard process from conception to completion - regardless of whether the process is applied to automobiles, public services, or foods. First, a potential mass market is identified - a sufficient number of customers who might be willing to buy enough of the same basic product to achieve economies of scale in production. Next, standards are established to define a specific end product that might be acceptable to the target market. Standards may be defined internally, through product development by a private firm, or through some public process, establishing grades and minimum requirements, for goods and services in the public realm. Standardized production processes are then put in place to facilitate mass production of the end product, and production is begun. If adequate capital is available, a vigorous advertising campaign may be mounted to help create market demand sufficient to ensure successful initiation of the new enterprise.

If the new enterprise is initially successful, specialized mass production will result in reduced production costs which in turn will allow the fledgling industrial operation to price its products at levels below those of its non-industrial competitors. Lower prices will allow the new firm to increase its market share, which will further reduce its costs of production and enhance its market advantage. The producer of the new product is now in a position to make major investments in non-price competitive strategies to further enhance its market share, increase its size of operation, and reduce costs. The objective is to establish the new industrial product as the "industry standard" with which all others will now be forced to compete, and ultimately, to which others must attempt to conform.

Invariably, the objective is to control an ever increasing share of the target market. Increased market share means greater economies of scale, and more important, more power to control total industry supplies and prices. Often times, the initiator of a new industry does not survive to reap the ultimate benefits of market control. But, the organization which initiated the process has the advantage of a head start on its competition, at the very least, and in many cases, will hold legal patents on processes that are critical to the production process. Some initiators have been

unable to compete with new market entrants once the potential for industrialization becomes clear. Other initiators are bought out by competitors who have even more capital and market advantages than the initiator as result of their involvement in other industries.

The initial battles for market share can be brutal - cut-throat price competition may result in large losses for all competitors as the dominant firms compete for market control. By this time, most of the small, independent producers have already been forced out of business as other large corporations have decided to join the competition. However, the brutal competition typically does not last long. Once the number of surviving firms is reduced to a "manageable number," the individual competitors begin to search for legal means by which they can stabilize supplies and prices at levels that will be profitable for all. Beyond this point, competition for market share tends to be "quiet competition," through advertising, public relations, etc., designed to compete without destabilizing overall profitability.

The Industrialization of Organics

This process of industrialization, with variations, has held true for industries in the U.S. as diverse as automobiles, mail order catalogues, supermarkets, discount retailing, public universities, electronic information processing, poultry production, and hog production. Based on these and other examples, there is logical reason to believe that organic food production is in the early stages of industrialization.

The rapid growth in organic markets in the U.S. during the decade of the 1990s sent the signal to potential industrial suppliers that organic foods might be developed into a mass market. Prior to the 90s, organic foods were considered a niche market composed largely of those who were involved in, or at least sympathized with, the environmental counterculture movement of the 1960s. Rapid growth in organic markets during the 90s signaled that organic foods were gaining popularity among the general public, and that organic niche markets might be transformed into mass markets.

However, organic foods remained loosely defined, non-standardized products which were ill suited for mass merchandizing. No uniform definition or standards for organic products had been established - uniformity not being a requirement of niche markets. Several different states in the U.S. had established their own organic certification programs. And, different groups of organic farmers had established certification programs to facilitate trade among states and nations. But, the standards of certification organization were significantly different.

The United States Department of Agriculture (USDA) appointed a National Organic Standards Board (NOSB) in 1992, with representatives from various farmer groups and certification organizations, to assist the Secretary of Agriculture in developing national standards for materials to be used in organic production. In June 1994, the board made its recommendations to the Secretary. In February 1997, the USDA released a proposed set of rules that would have established national standards for organic products. After receiving more than a quarter-million public comments, the vast majority of which were negative, the rules were withdrawn for revision and future resubmission.

Most of the controversy surrounding proposed USDA standards centered on questions concerning use of municipal sewage sludge as organic fertilizer, eligibility of genetically modified organisms (GMOs), and use of ionized radiation for sterilization. Humane treatment of livestock and poultry also were controversial issues. Nearly all of the controversy seemed to stem from differences between agri-industry (food retailers, agribusiness firms, commodity organizations) and traditional organic farming organizations. Use of municipal sludge would have facilitated development of large-scale specialized organic production operations in urban fringe areas. GMOs were promoted as alternative organic means of pest control by the large biotech firms, such as Monsanto. Ionized radiation of foods presumable would extend shelf life and facilitate mass distribution through national supermarket chains. Livestock and poultry issues centered around permissibility of practices common in large-scale confinement feeding operations - livestock factories. There is little doubt that existing players in the industrial food system were seeking a set of organic standards that would allow industrialization of the production and distribution of organic foods.

A new set of proposed USDA rules for organics is to be released in the fall of 1999. The volume of negative comments from grass-roots organic farmers likely will force USDA to exclude sewage sludge, GMOs, and ionized radiation from the new proposed standards. There is less certainty that livestock and poultry produced in confinement will be deemed totally unacceptable. Canada is on much the same time table as the U.S. and introduced national standards for organic agriculture in the summer of 1999. The proposed Canadian standards exclude irradiation and GMOs. Presumably, differences between U.S. and Canadian organic standards would need to be resolved under the North American Free Trade Agreement (NAFTA). Regardless, the U.S. certification issue will not be resolved until sometime in 2000, at the earliest.

International standards for organic foods are evolving under the auspices of the United Nations by the Codex Alimentarius Commission - the body responsible for compiling standards, codes of practice, guidelines and recommendations to facilitate international trade. Codex apparently will set standards that will be enforced through the World Trade Organization under the General Agreement on Tariff and Trade. Multi-national agri-businesses, such as Monsanto and Novartis, may have even more influence in the international arena than in their respective home nations. European resistance reduces the likelihood that GMOs will be allowed under international standards, but other production practices needed for large-scale, industrial production are likely to find their way into international standards - if not immediately, almost certainly over time.

Government standards are promoted by economists as a means of reducing the cost of market transactions between buyers and sellers - thus improving market efficiency. This claim is valid. However, uniform grades and standards reduce transactions' costs far more for the large industrial producer than for the small niche marketer. Because of smaller volume of sales, and typically, geographic proximity, small niche marketers are better able to communicate directly with their customers, and thus, benefit less from being able to use the *market shorthand* of standardized grades. Government standards provide their greatest benefits to large-scale producers with large numbers of geographically dispersed customers supplied through multi-level marketing channels. Thus, establishment of government grades and standards helps create a competitive advantage for large-scale, industrial producers.

Organic production cannot become fully industrialized until there are uniform national and international standards that will accommodate large-scale, specialized, centrally controlled methods of production. Such standards could conceivably evolve in the private sector, as in the case of automobiles, computers, consumer electronics, and other industrial goods and services. But, government sanctioned standards make the process far easier. Once standards are in place, a combination of corporate advertising and government "information" can be focused on convincing consumers that the only true "organic" products are those which carry the appropriate government label.

Some private entrepreneurs have seen potential profitability in mass merchandizing organic foods, with or without organic standards. Owners of specialty organic food stores, Whole Foods and Wild Oats being the most notable, have expanded beyond their traditional niche marketing role to become mass merchandisers of organic foods. They expanded by building new retail facilities and buying existing organic and natural foods stores from others. Today, Whole Foods operates under at least five different names, in addition to its own, and Wild Oats operates markets under at least thirteen different store names. These organic chains are attempting to gain economic efficiencies through large-scale procurement and distribution by establishing their own standards for major suppliers. Whole Foods, Wild Oats, and the national supermarket chains now control nearly all significant mass market outlets for organic foods in the U.S.

With respect to the industrialization process, the organic chains and supermarkets have identified a potential mass market and have achieved some degree of standardization through private buying specifications negotiated with a relatively small number of large-scale suppliers. Significant market consolidation of the specialty chains has been achieved by Whole Food and Wild Oats. The next major step in industrialization may be initiated by the large supermarket chains. Supermarkets have been experimenting with organic merchandizing for some time. *Supermarket News* reports that national chains "Kroger and Safeway are doing the best job with organics, and some of the individual Shop and Stop stores are doing a phenomenal job." (1999, p. 40). If the major supermarkets decide they have a future in organics, the battle will be on for increasing market share.

The national supermarkets could be joined by food discount chains, such as Walmart, in initiating a round of cut-throat price competition -- which to date has not been seen in organic markets. Walmart is notorious for driving out

competition by cutting prices. Supermarkets will not mount a major national advertising and promotion campaign for organic foods, until they have a strategy for ensuring that each dollar spent for organic doesn't mean a dollar less spent for non-organic foods in their stores. Thus, they will attempt first to gain market share from the specialty chains. They may force the specialty chains out of business through price cutting, or may buy them out if pricing them out becomes too expensive.

Under either scenario, price cutting at the retail level will force prices paid to organic producers to the lowest possible levels. Organic producers will be forced to specialize, standardize, and centralize their production systems in order to achieve economies of scale and reduce costs to levels necessary for survival. Many smaller, independent organic producers will be forced out of business by reoccurring production surpluses and chronically depressed prices. Organic consumers may benefit from lower prices, at least initially, but they will no longer have choices among products produced under alternative "organic-like" production methods. Standard organic methods will reflect the least cost means of meeting minimum government standards.

Ultimately, mass markets for organic foods will be controlled by a few large corporate retailers and will be supplied by a few large corporate producers. Supplies will be restricted in order to stabilize prices at levels high enough to yield acceptable returns to corporate investors. Only then will stability and profitability return to organic mass markets. Organics will have become industrialized.

An Alternative Road to the Future

At present, most organic farms are still small, and most organic farmers are still making their living through niche markets. They sell their products direct to their customers, through Community Supported Agriculture associations (CSAs), farmers' markets, roadside stands, etc., relying on their personal reputation rather than organic certification to ensure product integrity. As indicated previously, the specialty chains and supermarkets buy nearly all of their organic produce from a handful of large organic suppliers.

A 1998 survey conducted by the Organic Farming Research Foundation found that 87 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. Only 14 percent of 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 U.S. farms in general. However, the proportion of full time organic farmers is far larger for organic farms, and organic farms are less than half as large in acreage as their conventional neighbors.

Small, diversified farms cannot compete economically in a fully industrialized agriculture. 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 U.S. 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.

However, small farmers do not have to become a part of the industrialized food system. Organic farmers, in particular, already have niche markets, which they can quite likely retain and expand, if they continue to capitalize on the value of their uniqueness. They can't compete by being the lowest cost producers, at least not in terms of dollars and cents, but they can compete in catering to the unique tastes and preferences of consumers.

Current preferences of many organic consumers are not based solely on the restricted list of materials that may be used in organic production. To them, organic is as much a philosophy of life as a physical characteristic of the foods they eat. They want products produced by nature's principles of production - produced in harmony with nature. They believe in diversity as a fundamental principle of nature. They will pay premium prices to support farmers with integrated crops and livestock enterprises that capture solar energy, recycle waste, and regenerate the soil to ensure food and farming opportunities for future generations. They believe in living in harmony with other people - in

paying a price for food that will support farm families rather than simply buying whatever is cheapest or most convenient. Healthy food, a healthy natural environment, caring communities, and a strong society are important in their philosophy of life.

Organic farmers can join with other small farmers in developing an alternative food system that can coexist with, and someday displace, the global industrial food system. Independent organic farmers may not be able to compete in producing “certified organic” products and may well lose the battles to keep things such as municipal sewage, irradiated foods, confinement livestock, and even GMOs, from being certified organic. But, they can still compete for profitable, promising niche markets.

The single battle that they can least afford to lose is the one regarding organic food labeling. The initial USDA proposed rules asked for opinions regarding prohibitions of labeling of foods with names that might be confused with organic - such as low-input, antibiotic and hormone free, and sustainable. The intent of such restrictions might be to avoid confusion, but the impact would be to make “organic” the sole domain of industrial producers. If independent organic food producers are to survive and prosper, they must be able to produce, label, and market their products using ecologically sound methods that differ from the standards of industrial organics.

Sustainable agriculture offers the best hope for the future success of 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 system of agriculture production ultimately must be organic systems -- although all organic systems certainly are not sustainable.

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. A system lacking in any one of the three simply is not sustainable. Organic production methods address the ecological dimension of sustainability. The challenge of economic viability must be met through efficient resource management and effectively marketing to customers who most value ecologically sound and socially responsible production. The final dimension, social responsibility, includes social justice and social equity. Social equity and justice are fundamentally incompatible with industrialization. Sustainable organic producers will have their greatest economic advantage in marketing to the growing number of socially and ecologically conscious customers.

Sustainability relates to a goal or purpose - not to a specific set of 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, sustainability cannot be specialized. Finally, since sustainability cannot be standardized or specialized, it cannot be centrally controlled, and thus, cannot be industrialized.

Sustainable organic farmers must develop a non-industrial food system that is compatible with the principles of sustainability. This alternative system may continue to rely on direct marketing through current 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. Without such actions, a global system of “industrialized organics” likely will emerge - dominated by multinational corporations, motivated solely by profits and growth.

Sustainable organic production will require more intensive management than is required of industrial production. Sustainable producers must put more of themselves into their operation if they expect to prosper with less land and less capital. But first, organic producers must approach the new challenge with a non-industrial mindset. They must realize that industrial organic production is no more sustainable than is chemically dependent conventional

production. They must move beyond organic as a means of production to see organic as a philosophy for sustainable living.

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