

# FRUITS OF PROGRESS

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## GROWING SUSTAINABLE FARMING AND FOOD SYSTEMS



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# Executive Summary

## FRUITS OF PROGRESS: GREENING THE FOOD SYSTEM

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A “green” transformation is sprouting in the food and agriculture industry. Growing numbers of farmers, food manufacturers, and distributors in many parts of the world are adopting environmental stewardship approaches and other methods to protect public health and natural resources. For a variety of economic, social, and environmental reasons, businesses are integrating ecological considerations into farming practices, food factory operations, and grocery shelves, just as individuals are addressing these concerns in their daily food selections. This report will demonstrate that this approach holds multi-faceted benefits for these businesses and for society.

Although organic and ecological farming budded during the late 1960s as a relatively small counter-culture movement in the United States and Europe, it has grown and changed dramatically since then, blossoming globally into a multi-billion-dollar mainstream business. This ‘green’ sector in the food and agriculture industry (including producers, manufacturers, and distributors) is now expanding at an unprecedented rate.

These innovators are responding strategically to rising consumer demand for foods that are

produced in environmentally responsible or ‘natural’ ways. They are using environmental stewardship practices, and forging a new ‘state of the art’ in food systems, setting an important trend and leadership for the agriculture and food sector in the twenty-first century. Even large conventional foods corporations and venture capitalists are increasingly investing in the natural foods business, drawn by attractive market opportunities. This ‘green’ transition is spreading worldwide, with international implications for how foods are produced and marketed.

In this report, we’ve identified this remarkable growth of environmental stewardship in the food and agriculture industry as ‘greening the food system.’ ‘Green’ refers broadly to a range of approaches that are interpreted to be ‘sustainable,’ meaning methods that are environmentally sound as well as socially responsible and economically viable. The term “sustainable” farming may include certified organic practices, and also encompasses other ecological and integrated practices.

*Fruits of Progress* identifies the drivers behind the changes taking place, and some of the main elements and strategies for developing sustain-

able food and agriculture approaches. The report identifies salient common features of innovators involved in the green transformation, based largely on case studies. It shows how ecologically based practices can generate profits, while contributing to broader goals of sustainable development.

We also identify challenges and barriers to progress including lack of information, research and policy support for sustainable farming practices, and the growing concentration of the industry. We propose actions and identifying opportunities for continued growth of sustainable and organic food systems. The lessons and guidelines presented here are intended to be useful for decision-makers in the food and agriculture industry, and for policy-makers and government agencies that influence this industry. It is also relevant for economic analysts and consumers interested in food and farming issues.

## **GREEN GROWTH TRENDS**

Although this report does not focus on the organic sector alone, the organic market offers a good illustration of this fast-paced change. During the 1990s, the certified organic food market grew very rapidly, at an annual average rate of about 20 percent internationally, and 25 percent in the United States. The growth rate of the more mature conventional food industry during this same time was less than 5 percent per year. The total global retail sales of organic foods was estimated at \$21.5 billion in 2000 while sales in the U.S. organic market reached an estimated \$7.8 billion in 2000, a 20 percent increase over 1999 figures.

Europeans have experienced the highest growth rate of organic production and marketing in the world. At the same time, North American and Japanese organic markets are rapidly catching up, and organic markets are gaining ground in developing countries as well. The organic sector is being transformed from a very small niche segment and a movement of mostly small farmers, to a mainstream industry. Experts expect this dynamic growth to continue in the future, especially with the advent of national organic standards for the United States, overseen by the National Organic Program of the U.S. Department of Agriculture.

In addition to the organic approach, a growing number of agricultural producers and manufacturers are using diverse environmental stewardship practices, ranging from soil conservation methods to integrated pest and crop management and recycling of materials, in some areas and crops. The adoption of these practices and the expansion of markets for organic and sustainably produced foods are likely to continue, as consumer demand grows and ecological innovations spread globally.

## **MAIN LESSONS FROM EXPERIENCES**

We conducted case studies for this report on a group of diverse food and agriculture innovators that are developing sustainable and/or organic approaches. These are relatively well-known operations in the fruit and vegetable industry, based in the western United States - primarily California, where there has been remarkable progress in innovative ecological approaches to agriculture. These innovators in the case studies

**BOX 1****COMPELLING CAUSES BEHIND  
ADOPTING SUSTAINABLE  
APPROACHES**

We identified the following factors as important driving forces for implementing sustainable practices:

***Caring for the land.*** Pioneers in sustainable farming have deep concerns about land stewardship and environmental responsibility, and strive to maintain the health of soil and resources.

***Consumer demand for environmentally sound practices.*** Public opinion about food increasingly impacts farmers' choices.

***Competitive advantages.*** Innovators in the sustainable agriculture/food industry realize that they can gain competitive advantages and new business opportunities by going green.

***Cost reduction.*** Use of green practices often enables companies to reduce costs, risks, and liabilities of certain conventional practices, particularly from intensive chemical use.

***Concern about social responsibility.*** Companies wish to avoid adverse impacts on health, society, and resources; for them, social and ecological concerns are part of business success.

***Compliance with regulations.*** Laws affecting environmental conditions in agriculture have become more strict, inducing change.

are integrated operations; each does production, manufacturing, and/or marketing — and nearly all do business both domestically and internationally, so their influence extends widely.

These cases were chosen to represent a diversity of features, including different sizes and scales of production, within a general sustainable agriculture approach. Despite their differences, each case study shares important common features. The Western region of the U.S. was chosen as a focus of case studies due to limitations in the scope and resources of the project. Many additional cases and other regions could have been included in this report, since there is widespread progress in greening the food system.

Innovators in the greening process are on the cutting edge of contemporary agriculture. These case studies and other similar experiences in this mode share some common motivations and key ingredients (noted in Box 1 and Box 2) that enable progress in greening the food and agriculture sector.

The innovative producers are incorporating basic ecological principles, such as enhancement of diversity (of crops, varieties, soil biota, etc.), recycling and conservation of resources and nutrients, and reduction or elimination of chemical inputs. Most of the innovators in the case studies, and their contracted growers, are also using certified organic methods in at least part of their production, following private or government certification rules. (All U.S. organic crops will be certified under a national organic standard as of late 2002.)



**Leadership** with creativity, vision, commitment, and dedication to principles of sustainability and stewardship that can build team spirit and work hard for change.

**Commitment to sustainability** and the “triple bottom line” - upholding the three interlinked goals of economic profitability, social responsibility, and environmental soundness.

**Innovation and creativity** in ecologically sound and economically viable methods for production, processing, packaging, and marketing, to set new trends and try new approaches.

**Knowledge-intensity in management** of farming and food systems, entailing continual learning, and understanding of complex information beyond chemical inputs.

**Adaptability and diversity**, including adjustment of diverse methods to local ecological conditions, enhancing diversity in varieties and crops, diversifying marketing strategies.

**Gaining value from nature**, taking advantage of natural processes, such as biological functions and organic material, and conserving and recycling resources, to produce high quality.

**Doing more with less**, by enhancing resource efficiency, increasing recycling, and minimizing waste in the food system to increase productivity.

**Forming linkages and partnerships** among companies in the food system, including effective integration between production, processing, and marketing functions, and consumers.

All of these innovators are actively involved in acquiring new information, as well as providing information and services to other growers about sustainable and organic practices. At the same time, they are developing creative and integrated approaches to market their products and meet consumer demands. Some have chosen to scale-up significantly, which creates new challenges and opportunities, whereas others remain relatively small.

## PROMISING RESULTS

Green production and marketing strategies often result in multiple benefits and advantages for participating companies in both large and small scales. These methods generally help to mitigate and prevent risks or costs of heavy chemical use, and avoid erosion and degradation of resources. Likewise, they help lessen health risks by reducing chemical exposures and decreasing the chemicals present in the environment. Some innovative techniques make more efficient and effective use of natural processes, and others help to build the natural functions

and capacities of organic soils and the durability of productivity.

Sustainable methods also often pay off economically, and in these case studies, they have generally proven to be equally or more productive and profitable than conventional methods over time. In several cases, the annual growth rate of the company's total sales values has exceeded 20 percent in recent years. The overall rapid growth of the national and international organic market — exceeding 20 percent annual growth in the 1990s — is another indicator of economic promise, though growth rates may decrease and stabilize in time as the industry matures.

## OBSTACLES AND OPPORTUNITIES

Despite this optimistic outlook, there are major impediments to the continued growth of this green trend in the food and agriculture system. Though the adoption of organic and sustainable practices has expanded rapidly, the total acreage, value, and percentage of sustainably produced food is still very small compared to the values of conventional food and agriculture. Moreover, some of these innovative businesses and particularly small-scale farmers have faced major challenges and downturns from market competition and consolidation of the industry.

Certified organic products, for example, represent only about 2 percent to 3 percent of the total food market in the United States, and generally under 5 percent of market share in western European countries. Why? The report explains that the growth of sustainable and

organic systems is thwarted by influential economic, informational, technical, and political factors, as identified below in Box 3.

### BOX 3

#### MAIN BARRIERS TO EXPANSION OF SUSTAINABLE FOOD AND AGRICULTURE SYSTEMS

The main impediments identified in the study are:

**Lack of information**, research, and institutional support available to producers and other businesses about sustainable practices;

**Economic constraints**, such as added costs in transitioning from conventional to sustainable practices, coupled with low food prices and market competition that tend to discourage farmers from trying alternatives;

**Continued influence** of the chemical-intensive model of agriculture;

**Inconsistent policy support** including contradictory policies that support conventional farming approaches, and lack of policy incentives for sustainable practices.

**Equity challenges** in the organic industry, including growing market concentration by large-scale corporations, displacement of small-scale businesses, and narrowness in the scope of the organic market, i.e., limited organic food consumption by lower- and middle-income consumers due to higher prices.

**Misleading claims** about “green” practices by some operations which are actually making minimal modifications.

Still, the outlook is promising for expanding sustainable food and agriculture worldwide. Green approaches offer great opportunities for businesses and for society. However, many stakeholders must take action to overcome obstacles and to accelerate positive trends by increasing adoption of sustainable practices, market opportunities, distribution, relevant research and information access.

Food producers and distributors must realize that the public wants and needs “green” growth or sustainable practices in the food system. Policy-makers also must implement changes, giving greater policy support for sustainable agriculture. In particular, support is needed for sustainable approaches within the U.S. Farm Bill and related legislation. In the United States, decision-makers in the public and private sectors can also learn lessons from Europe about policies that encourage and reward the use of green approaches in farming and food marketing.

Decision-makers are urged to take the necessary actions to expand the sustainable food and agriculture industry, and to overcome the constraints and threats that are being confronted in this sector. Below in Box 4 are five important strategies that must be undertaken by policy-

|              |  |
|--------------|--|
| <b>BOX 4</b> | <b>RECOMMENDED STRATEGIES:</b> <ul style="list-style-type: none"><li>● <i>Increase adoption of sustainable farming policies and practices</i></li><li>● <i>Build markets and marketing opportunities in the green food system</i></li><li>● <i>Increase agroecology research and flow of information about sustainable methods</i></li><li>● <i>Prevent the use of environmentally harmful practices</i></li><li>● <i>Improve equity and distribution to enable all consumers to have greater access to sustainably produced foods, to protect survival of small farms, and to prevent extreme concentration in the market</i></li></ul> |
|--------------|--|

makers, consumers, and producers and other enterprises in the food system.

All actors in the food system can work together on these strategies, and must act now in order to build a truly sustainable food and agriculture industry. The great promise and full potential of this “green” sector can only be realized if barriers and constraints are boldly addressed and overcome.

# 5

## CHALLENGES AND ACTIONS TO EXPAND PROGRESS

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### BARRIERS TO PROGRESS

The story is not all rosy. In spite of the remarkable progress and promising efforts described in previous chapters, there are major barriers to the development of sustainable approaches in the agriculture and food industry. A small minority of the nation's growers has made a serious transition to truly sustainable farming practices. Total acreage, value, and percentage of food produced by sustainable practices are still small compared to the value of conventional food production.

For example, although the organic food market has very high growth rates (averaging about 20% in recent years)—that far exceed the conventional food market's growth — its value is still only about 2 percent to 3 percent of the total food market in the United States. Furthermore, although many growers are adopting reduced-risk and integrated pest management methods that prove to be effective and economical, some studies indicate an increase in total pesticide use in recent years (e.g., GAO, 2001; Liebman, 1997). Many mainstream businesses remain reluctant to change the status quo, and some companies currently using sustainable practices have run into hurdles. Conventional

chemical-intensive agriculture still dominates the landscape.

Why, when sustainable agriculture seems so promising, is the transition still limited? This chapter summarizes influential barriers to the adoption and spread of sustainable agriculture, clarifying major economic, political, and technological impediments and challenges, which were identified in the case studies and by other experts interviewed in this field. (*See Appendix 1.*)

**1. Economic Barriers and Risks Perceived by Growers.** In general, decision-makers in the farming business logically perceive economic factors as priorities. They must be concerned about their economic situation to ensure survival of their enterprise. Conventional farmers may be reluctant to adopt ecological innovations because they perceive that the economic risks and uncertainties are too high. In particular, they tend to worry about greater labor costs for non-chemical pest control methods, possible losses from pests, and potential sacrifices in crop quality or yields.

Many growers have recently faced serious economic challenges from international competitors, particularly from foreign grow-

ers who are exporting low-cost food products to the US. These kinds of pressures aggravate risks and aversion to change by many conventional enterprises.

Growers also face pressures to fulfill marketing standards, government regulations, and food quality and quantity demands from food buyers and packers. Marketing requirements often emphasize cosmetic attributes of food, obligating growers to follow conventional practices to produce uniform results. These marketing standards often prevent farmers from trying alternative practices that they fear might jeopardize their ability to fulfill requirements (Ikerd, 2000).

In many areas, growers also have strong peer pressure from other growers and neighbors to conform to the conventional status quo. For example, farmers are pressured to eliminate all grasses and vegetation in the farm. If they allow natural vegetation to grow between crop rows, and/or plant cover crops, they may be criticized for being messy or lazy by neighbors, though this criticism is unfounded.

Given these economic and social pressures and constraints, fears of economic risk from change are understandable, especially if growers have little previous experience using ecological methods. However, some fears about farming alternatives are inaccurate or exaggerated, due partly to a lack of information on the practices and actual costs and benefits of sustainable and organic agriculture.

Growers who have already made a transition to sustainable and/or organic production generally report satisfaction with the results, as illustrated by the cases in this report. They sometimes face new economic challenges, shifts in costs, and difficulties in finding reliable markets during the transitional years. These initial transition costs are often overcome after two to four years, as growers gain new skills (case study interviews; NAS 1989; SARE, 2000; Corselius, 2001). Beyond this, however, many organic and sustainable growers still face broader economic pressures from market competition, and depression of food prices (Buck et al., 1997). Some also report occasional gaps in the crop supply from contracted growers to fulfill market demand, leading some companies to expand their own production areas. Although organic growers have generally reaped benefits from growing consumer demand, the organic market demand fluctuates for some products, and the organic market could become saturated, some believe.

There are also economic barriers to the expansion of the organic sector from the consumer perspective. Higher prices for organic foods (or for other food marketed with an eco-label) can be a barrier for many consumers who are unable or unwilling to pay extra premiums for food. Although recent consumer surveys show increasing consumer interest in and willingness to pay for organic foods in the United States (reaching 47 percent of consumers, according to Hartmann Group, 2000), a large portion of the population will nevertheless not buy

organic foods because of the expense. Most consumers in the U.S. expect to buy cheap food, even though the low prices do not reflect the actual full production costs, and conventional food prices have been kept artificially low through subsidies. (See number 4 below.) Many consumers are unaware of the impacts of their food spending habits and choices on food production and the environment, although their awareness appears to be growing.

- 2. Continuing Chemical Dependence.** The continued dependence of the majority of farmers on chemical-based approaches to pest and soil management, and on crop advisers who promote this approach, is a constraint to the spread of sustainable agriculture (Interviews, 1999). Most conventional farmers have become increasingly dependent on agrochemicals over the last four decades, because these chemicals have worked rapidly to control pests and/or boost yields, and because they have been aggressively and widely marketed by their manufacturers and by many pest control advisers. Though there has been growing public recognition and scientific documentation of unexpected high costs and health risks from use of many types of pesticides (NRC, 2000), the chemical-dependent approach has predominated. A combination of factors therefore makes it difficult for producers to alleviate their dependence on chemicals.

In recent years, the pesticide industry has become increasingly involved in research and development of agricultural biotechnology, including genetically modified organisms

(GMOs). Growing sales and applications of certain biotechnology innovations in agriculture have created controversy worldwide, and present dilemmas for sustainable and organic agriculture, which are addressed only briefly here. Biotechnology manufacturers, and some farmers and scientists believe that biotechnology offers significant benefits for agriculture, enabling productivity increases and other improvements. Others, including many consumers and scientists, point out that some GMO technologies have ecological and health risks and potentially adverse impacts for farmers and society (see e.g., [www.biotech-info.net](http://www.biotech-info.net); [www.ucsusa.org](http://www.ucsusa.org); [www.purefood.org](http://www.purefood.org); [pewagbiotech.org](http://pewagbiotech.org); [www.rafi.org](http://www.rafi.org)). Moreover, some GMOs, such as herbicide-resistant crops, have been developed to purposefully increase the use of certain proprietary herbicides. Although certain GMOs such as *Bt* corn and *Bt* soybeans can potentially help growers reduce standard pesticide sprays, scientists do not fully understand the ecological impacts these *Bt* varieties and *Bt* pollen in the environment. Growing numbers of scientists, consumers groups, food retail companies, and some government leaders, particularly in Europe, have recognized that there is still limited knowledge of the long-term impacts of GMOs. (See Benbrook, 2000; Ervin and Batie, 2000; ESRC, 1999; and websites noted above).

Some farmers and analysts are also concerned that the proprietary nature of GMOs increases the manufacturer's control of production and decreases options for farmers, exacerbating farmer dependency on uniform

technologies. Public agencies in most European countries have been more cautious and concerned about GMOs than their American counterparts. These concerns are reflected in restrictions on the sales of GMOs by both retail food companies and government agencies in Europe. In the United States, the development and use of GMOs continues in spite of controversy. However, USDA's national organic standards, in full effect in late 2002, do not allow the use of GMOs in certified organic foods. This regulatory situation as well as public concern over GMOs can potentially increase growth of organic farming and markets.

### 3. Information and Institutional Constraints.

Another constraint is the lack of appropriate information, research, and institutional support, by government agencies and by other organizations, for development of sustainable agriculture. Although growing numbers of organizations are becoming involved in sustainable agriculture including organic farming, and a great deal of relevant literature has been published, there are still significant information gaps and institutional weaknesses (Lipson, 1997; Walz, 1999; Sooby, 2001; interviews with growers and other case study representatives, 1999).

Growers and other experts in the field lament a lack of support, research, and information for sustainable agriculture from universities (interviews in case studies and experts noted in Appendix 1). Although universities throughout the United States and abroad have large agriculture departments,

numerous research programs, scientists, and extension agents, most of these resources and activities focus on conventional agriculture, and highly specialized disciplines, rarely using systems approaches.

In addition, agricultural research programs and scientists in most American universities have concentrated mainly on chemical forms of pest control, giving relatively little attention to alternative integrated and biologically based pest management methods (Perkins, 1982; Lipson, 1999; Sooby, 2001). Likewise, university and state extension services have usually given relatively little attention to sustainable and organic approaches in their work with farmers (case study interviews, 1999). The reward system for university scientists and extensionists has tended to discourage the multi-disciplinary and integrated systems research approaches preferred in sustainable agriculture. It has also tended to discourage researchers from working with growers (particularly organic growers) on farms. Usually, innovative growers must therefore find independent advisors or alternative information sources.

In recent years, some universities have made some notable changes by establishing programs dedicated to sustainable agriculture, such as SAREP in the University of California and the Leopold Center in Iowa State University. Non-profit organizations such as Appropriate Technology Transfer for Rural Areas (ATTRA), the Organic Farming Research Foundation, the Rodale Institute, and the Ecological Farming Association.

Together, these kinds of programs have increased research and development activities in this field. Such programs have slowly increased the acceptance of sustainable agriculture in university systems, while helping to provide critical information to farmers. However, these programs and the scientists working in them have experienced funding limitations. Additionally, the programs and agroecological principles are often poorly integrated with mainstream agriculture departments.

Federal government agencies with mandates to work on agriculture and natural resources also exhibit institutional weaknesses in this field. For example, the USDA, as well as many state agriculture and environment departments, are relatively weak in their programs and resources dedicated to sustainable forms of agriculture, according to analysts, scientists, and farmers (Youngberg et al., 1993; Schaller, 1993; interviewees in Appendix 1). For example, organic agriculture research projects received less than 0.1 percent of the total research funding from USDA over a decade of total research funding (Lipson, 1999). Land grant universities have devoted only 0.02 percent (151 acres) of their total research land area for organic experiments (Sooby, 2001).

Recently, some changes have been made by these agencies. USDA, for example, has recently increased its resources and programs in organic and sustainable agriculture. The Sustainable Agriculture Research and Education (SARE) program of USDA is an example

of an effective program that supports sustainable farming systems, including some organic research; and SARE is gaining increasing attention within USDA. Yet these efforts are not fully mainstreamed into the parent institution, and they receive minimal funding relative to other programs.

The inadequate distribution of information about sustainable agriculture has contributed to myths and misunderstandings. For example, largely due to misinformation or ignorance, many people (including farmers) believe that environmental stewardship interests and agriculture production interests are inevitably in conflict or oppose each other, though experience proves otherwise. Conventional agribusinesses often do not have sufficient knowledge about the potential profitability of environmentally sound farming practices. This lack of information can exacerbate tensions or perpetuate myths.

- 4. Policy Constraints.** Agricultural policies have also presented roadblocks to sustainable agriculture, historically and currently. Over the past four decades, many federal agriculture policies strongly supported and subsidized conventional chemical-intensive agriculture technologies and practices, and impeded farmers from trying alternatives (Young, 1989; Schaller, 1993; Youngberg et al., 1993). Federal programs established in farm bills over 20 years have favored conventional crop production systems using uniform monocultural chemically dependent practices.

For example, the commodity programs of USDA, which existed for over two decades,



provided subsidies only for monocultural production of cotton, corn, and other grains, but not for vegetables and fruits (Young, 1989). The 1985 Farm Bill prohibited farmers from rotating crops if they wished to qualify for funding. This obligation to practice monoculture restricts flexibility, thwarts adaptation to local conditions, increases potential for weeds, pests, and diseases, and has contributed to heavy pesticide use. Federal and state water policies also have contributed to unsustainable water use patterns by providing subsidies or greatly discounted rates for intensive water use in agriculture (Reisner, 1993).

Moreover, America's food policy and commodity programs are largely dominated by measures to keep retail food prices low—sometimes known as the “cheap food” policy. These policies perpetuate the continued perception by farmers that chemical-intensive methods are necessary to meet market demands (Youngberg et al., 1993). In addition, common marketing standards, mentioned above, are set partly by regulatory agencies and partly by food buyers and distributors, and tend to thwart innovation by farmers.

Some agricultural policies and programs have been recently changed or rescinded, after studies proved that high costs, inefficiencies, and/or risks in resource use resulted. But the enforcement of such conventional policies for many years has ingrained certain habits, expectations, and outcomes that have been difficult to modify. Though some state and federal agencies have recently established

policies that support sustainable agriculture and resource management programs, as described in Chapter 1, these programs and policies have minimal funding and little influence in relation to the support for mainstream policies.

Although numerous pesticide regulations exist on paper, designed to protect health and the environment and to reduce risks and costs to farmers, policy implementation has been weak and often uncoordinated for many of those laws, according to some policy analysts and policy makers (*see list in Appendix 1*). For example, the Food Quality Protection Act was passed in 1996 with the intention of restricting pesticides that pose significant health risks, but the implementation process has been thwarted by lack of resources, by opposition from special interest groups, and by scientific complexities in the reassessment of the pesticides.

**5. Equity and Consolidation Challenges.** The growth of the sustainable and organic agriculture and food sector is characterized by several inequities or imbalances, in terms of increasing concentration in the organic market, limited geographical distribution and a narrow consumer base for organic produce, and farmworker issues explained below. Inequities also exist in conventional agriculture, but they present special challenges to sustainable agriculture proponents since the concept of sustainability is meant to include equity and justice.

In recent years, organic food production and markets have become consolidated and concentrated among a small number of large

companies, as mentioned in Chapter 1 (Buck et al., 1997; Dmitri and Richmond, 2000; Ikerd, 2000; Myers and Rorie, 2000; White, 2000a, and 2000b; Lipson, 2000). The consolidation trend is following the pattern in the conventional agriculture industry (Heffernan, 1999; Hendrickson, 2000), and is therefore perceived by some to be inevitable for organic foods as well. Several of the case studies (e.g., Small Planet Foods and Natural Selection Foods) have grown from small family farms to very large companies, and some have benefited from the mainstreaming of organic foods. The managers in these cases generally view this change as an appropriate and dynamic transformation.

Small Planet Foods has gone to the point of merging with a major transnational food corporation, as noted previously. The directors of Small Planet Foods see this merger as an opportunity to improve efficiency and lower the price of organic production, to get more organic produce into mass supermarkets, and to influence mainstream corporations to embrace organic farming. Some retailers and business analysts also feel that large-scale production and mass marketing is a positive trend, spreading organic and natural food more widely in society, and possibly bringing organic food prices down for consumers.

On the other hand, this trend toward consolidation and take-overs by large corporations creates controversies and adverse impacts among smaller-scale businesses and raises concerns about inequities in the food

system. Many small-scale businesses in organic farming, including pioneers, have been unable to compete effectively as large businesses have moved in, and many have been purchased or become bankrupt. Due to ethical, economic, and other reasons, many people generally oppose the increasing buy-outs and concentration by large-scale corporations in organic agriculture, believing that small-scale operations are preferable and necessary for sustainability and for fairness in the marketplace. Some are concerned not about the size increase alone, but rather, that corporations will alter organic farming to fit an industrial, standardized, input-intensive model that is neither diverse, integrated, nor genuinely organic (Ikerd, 2000; OFRF SCOAR conference, January 2001, Asilomar, CA). Similarly, there is a concern that current consolidation and industrialization changes in the organic industry are eliminating the philosophy and values behind an alternative ecological agriculture system.

The future of small-scale, truly organic operations may be jeopardized in the United States, given these market forces and industrialization trends (Ikerd, 2000; OFRF SCOAR conference, January 2001). Some smaller growers may be able to remain economically competitive in niche markets if they have unique marketing strategies, work in cooperative groups, or if they gain appropriate protection from government agencies or trade associations.

In addition to market inequities, the organic foods market has a relatively uneven

geographical spread. Retail outlets and distribution channels are concentrated mainly in large cities in coastal states in the eastern and western United States, and in a few major cities in other regions. The distribution and consumption of organic foods is much less prevalent (or even non-existent) in rural regions and in smaller cities. Although this geographical distribution has expanded recently as supermarkets begin selling more organic foods, significant gaps remain.

Studies also indicate that the consumer base of organic and ecolabeled food is still relatively narrow. Organic consumers are primarily middle-to-high-income and people who have higher levels of education (*Natural Foods Merchandiser* reports; Hartman, 1997-98). Lower-income groups and ethnic minorities tend to be less likely to purchase organic products, in part because of higher prices, lack of access to marketplaces where organics are sold, and/or lack of education and knowledge about organic food. Consequently, many consumers perceive organic and sustainably produced foods as “yuppie” or exclusively for high- and middle-income people. This reputation could potentially be changed if organic food were made accessible to more people through the expansion of direct farmer-to-consumer marketing channels such as farmers’ markets, and through changes in targeted marketing and pricing strategies.

In another example of inequity, farmworkers’ rights and labor conditions have sometimes been overlooked in organic and sustainable farming, just as in the con-

ventional agriculture industry, according to experts in this field. Although the companies featured in this report have measures and programs aimed to protect worker rights, health, and safety, as noted in the profiles, these aspects have sometimes been given minimal attention by other green growers and food companies. Continued diligence is needed to protect the rights and health of workers as key aspects of ensuring social responsibility and sustainability.

Overcoming and mitigating these imbalances is both a challenge to and a valuable opportunity for the sustainable/organic agriculture industry. Progressive enterprises are already taking steps to address these issues, showing how the meaning of sustainability can be expanded to include social responsibility.

**6. Misleading Green Claims.** Some companies have used green environmental claims or adopted ecological and sustainable terminology, as a public relations strategy, while actually still using conventional approaches. These enterprises may use this “greenwashing” tactic as an attempt to paint a favorable image to consumers or local communities. However, when these superficial assertions are not accompanied by actual significant changes in practices, they are deceptive and can be challenged by consumers or organizations. These misleading claims can also be detrimental to overall greening trend in the food system, and can impair the integrity of those who are pursuing genuine sustainable approaches in the food system.

## REFLECTIONS AND RECOMMENDED ACTIONS TO BUILD FUTURE OPPORTUNITIES

Experiences in sustainable agriculture by a growing number of growers and food businesses reveal promising results. The innovators responsible for these inspiring changes are responding to growing consumer demands for food produced in environmentally sound ways. Companies pursuing a direction of sustainable food production and agriculture systems are likely to continue profiting and flourishing, leading the trend and performing on the cutting edge.

These examples show that it is possible to simultaneously fulfill interests of environmental and social responsibility, as well as economic profitability. Even though the cases have variations in their pace, specific styles, and extent of adopting green sustainable methods, this diversity is to be expected among the innovators. Overall, these companies are forging a new sustainable direction in our food system, and developing a new promising business paradigm which includes values that go beyond profit as the exclusive bottom line.

This transition is global, opening up trade opportunities around the world and contributing to the wider distribution of organic and natural foods to diverse consumers. This story of green transition in the food system shows great prospects for future expansion. Undoubtedly, consumers and public organizations will continue to show interest in ecologically responsible production practices and protection of health, as well as affordable and good quality, safe food. Food retailers are likewise responding to this

ever-growing demand. Government agencies are also increasing implementation of environmental regulations. This means that food and agriculture companies would be wise to make appropriate changes now in order to respond positively to these trends in the future.

Yet, major obstacles still must be overcome to achieve a broad transition to sustainable agriculture. The great promise and full potential of this sector can only be realized if the barriers are boldly addressed and overcome, and if new alliances and changes are developed. Both the public and private sectors must take concerted actions, explained below, by increasing: (1) wider adoption of sustainable agriculture innovations and policies, (2) marketing opportunities, (3) information access, (4) prevention of environmentally harmful practices, and (5) wider distribution of sustainably produced foods.

**1. Increase adoption of sustainable farming practices and policies.** This is one of the most important and critical challenges. This requires reducing farmer risks (and risk perceptions) in using alternatives to conventional methods. Recommended responses to this challenge are the following:

*Public sector:* Increase incentives through subsidies, grants, and educational programs to support the adoption of conservation measures and other sustainable practices by producers, including support to the proposed conservation legislation in the Farm Bill of 2002. One possibility is to require farmers to use sustainable practices in order to receive farm payments or loans. Increase regulations and law enforcement to prevent and penalize

the use of environmentally harmful agricultural practices.

*Private sector:* Increase investments in testing and adopting sustainable practices, particularly natural resource conservation, pollution prevention, pesticide risk/use reduction.

*Consumers:* Increase purchase and consumption of foods that are produced sustainably or organically, and urge groceries and markets to sell more of these foods.

- 2. Increase stable market opportunities in the green food system**, ensuring that new as well as established companies are assured of markets for sustainably produced goods. Recommendations include:

*Public Sector:* Increase incentives, grants, or loans to protect and encourage small businesses and new entrepreneurs in the organic and sustainable foods business, and help them gain access to capital for this purpose.

*Private Sector:* Increase investments in activities and enterprises for marketing, distribution, and sales of sustainably produced foods; and encourage private banks to finance growers' investments in developing sustainable practices, giving attention to meeting financial needs of small businesses who are making a transition. To gain access to green market opportunities, smaller businesses need to use creative ideas, including collaborating with other growers by forming strategic marketing alliances and cooperatives, and direct niche marketing.

*Consumers:* Advocate for greater choice and access to sustainably produced foods in supermarkets and other stores, and raise market demand by increasing purchases of these foods.

- 3. Increase agroecology research and the flow of practical information** for growers, and ensure more widely spread and easier access to information on sustainable practices and agroecology. Recommendations include:

*Public sector:* Increase investments in agroecology research and information diffusion to growers and food companies, and increase information flow on sustainable agriculture from universities, extension systems, and other institutions.

*Private Sector:* Invest in on-farm research and documentation of results from sustainable methods, and increase the exchange and sharing of information among farmers and businesses, through farmer-to-farmer discussions and other information media. Experience shows the importance of acquiring and tracking new information continuously.

*Consumers:* Facilitate and build the exchange of information on the meaning of sustainable agriculture among consumers, and urge public agencies and private companies to be transparent and expose full information about agricultural practices.

- 4. Prevent the use of environmentally harmful practices in agriculture**

*Public sector:* Strengthen and coordinate law enforcement measures to prevent the use of

environmentally harmful methods; and cease contradictory policies that subsidize or support unsustainable practices.

*Private sector:* Increase corporate accountability to ensure sustainability and green practices, recognizing that this can improve the bottom line of business, and can add value for marketing; and ensure legitimacy of environmental claims.

*Consumers:* Call for corporate responsibility by food producers; buy from those who are responsible.

5. **Improve equity and distribution in the sustainable agriculture/food sector**, to ensure that consumers have greater choice and access to such products, to protect survival of small farms, and prevent extreme market concentration. This requires:

*Public Sector:* Increase education and marketing programs (e.g., through USDA) to expand distribution and access to sustainably produced foods by all consumers in all income levels, e.g., in schools, hospitals, other institutions and workplaces. Establish supportive policies or subsidies to ensure equitable opportunities for small businesses, and apply strict regulations to prevent oligopoly or monopoly of markets by particular corporations in the food system.

*Private Sector:* Develop and invest in new market channels, and increase sales of sustainably produced food to consumers at all income levels as well as to public institutions such as schools and hospitals. Develop

strategies to protect opportunities and competitiveness of small businesses, such as forming cooperatives and alliances and/or other support systems.

*Consumers:* Help increase consumer knowledge and consumption of sustainably produced foods by supporting farmers' markets, community supported agriculture (CSAs), school programs, and exchanges of information between consumer groups in different regions.

In sum, policy changes, educational programs, and strong proactive efforts by the private sector, public agencies, and consumers are needed to spread the use of "green" approaches, and to support this transformation to sustainable agriculture. All of the above urgent strategies are summarized in Table 5. All actors in the food system, from businesses to consumers, must understand that sustainable practices have advantages for them individually and for the broader society and economy.

Promising results are on the horizon, particularly if these kinds of actions are undertaken. Implementing such transformations widely throughout the economy poses a difficult challenge for the food and agriculture industry and for public sector agencies. Yet the experiences documented in this report show that people and companies working hard and using innovative approaches can be successful and truly make a difference, achieving extraordinary economic, ecological, and social goals. The expansion of these efforts in sustainable agriculture and "green" business in the food industry can create valuable opportunities in the years to come.

TABLE 5. RECOMMENDED ACTIONS FOR EXPANDING SUSTAINABLE FOOD SYSTEMS

| Purpose   | Private Sector  | Public Agencies   | Consumers/Citizens  |
|---|---|---|---|
| 1. Increase <b>adoption</b> of sustainable farming practices  | Increase investments in sustainable practices, particularly resource conservation and pollution prevention  | Expand incentives, grants, and education programs to support the adoption of sustainable & organic practices; support the Conservation Security Act of the 2002 Farm Bill   | Increase consumption, knowledge, and purchases of food produced with sustainable and organic methods, and request grocers to sell more of this kind of food       |
| 2. Build markets and <b>marketing opportunities</b> in "green" food system  | Increase marketing, distribution, sales and promotion of sustainably-produced foods; link with the natural food business  | Enhance incentives and/or grants programs to protect & encourage small businesses/entrepreneurs in the organic, sustainable & natural food business   | Expand market demand by increasing purchases of food grown sustainably; advocate for greater choice and access to this food in grocery stores                     |
| 3. Expand agroecology research and flow of <b>to information</b> about sustainable methods  | Invest in on-farm research and documentation of results on sustainable methods; and increase exchange of information among farmers on the info                                  | Increase public funding to research and information-diffusion on sustainable methods, by major agencies, especially in USDA, EPA, FDA   | Facilitate and build the exchange and diffusion of information on the meaning of sustainable and organic agriculture among consumers                              |
| 4. <b>Prevent environmentally harmful</b> practices   | Increase corporate accountability for sustainability and green practices, recognizing that this can improve the bottom line   | Strengthen law enforcement to stop environmentally harmful methods  | Call for corporate responsibility by food producers; buy from those who are responsible.  |
| 5. Improve equity and <b>distribution</b> to enable all consumers to have greater access to sustainably produced food products; and to prevent extreme market concentration | Develop new markets and increase distribution to all consumers, and to public institutions such as schools and hospitals; develop support for small businesses, form alliances. | Through education and subsidy programs (eg., in USDA), expand access to sustainably-produced foods by all consumers in all income levels; apply regulations to prevent market monopoly; build opportunities for small businesses. | Increase purchase of sustainably produced foods, and support farmers markets, school programs, and consumer education about sustainable farming and food systems. |

# PART II: CASE STUDIES

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## PROFILES OF INNOVATORS

### INTRODUCTION TO THE PROFILES

This section consists of brief profiles from the case studies that were undertaken for this report. These summaries provide highlights of the selected innovators who are involved in greening the food system. As noted in Part I, these twelve cases have been selected to represent a *diversity* of products, approaches, and scales of integrated agriculture and food operations. In general, they are committed to a sustainable path. They all are achieving progress by effectively applying ecologically and socially responsible and economically viable practices in crop production, processing, and marketing. They are based in the Western region of the United States, primarily in California, as a geographical focus.

These diverse cases were chosen partly to show the ways in which agriculture and food marketing can be sustainable and successful in many crops and contexts. In spite of distinctions, these cases share some important common features that have been described in this report. Although some of the cases may seem to be further “ahead” than others in terms of achieving truly green and sustainable approaches, they are not being evaluated or judged in that way. Rather,

variations are logically expected and respected among innovators.

The group of cases profiled here is not intended as a complete or inclusive account of all companies involved in developing sustainable green approaches in the food system. Many additional cases could have been included, since there are numerous others involved in this transformation throughout the United States and the world.<sup>1</sup> However, resource constraints and geographical scope limited the study to these few, to provide illustrations of broader green trends in this sector. We appreciate the collaboration of the following innovators for their participation in this study.

*Del Cabo  
Durst Growers  
Fetzer Vineyards  
Frog’s Leap  
Full Belly Farm  
Lagier Ranches*

*Lodi Woodbridge  
Winegrape Commission  
Lundberg Family Farms  
Natural Selection Foods  
Robert Mondavi Winery  
Sherman Thomas Ranch  
Small Planet Foods*

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*Dairy operations have not been included in the examples, due to lack of resources, and more difficulty to make comparisons with crops. Nevertheless, there are also growing numbers of dairy operations that are using “green” and organic practices.*



## *Del Cabo*

Jacobs Farm/Del Cabo offers a unique model of cooperative organic farming in one country in partnership with management and marketing operations in another, where most of the product is sold.

The company was founded in 1986 by Larry Jacobs and Sandy Belin of Jacobs Farm, a 150-acre family farm in Pescadero, California. A visit to Mexico inspired Jacobs and Belin to help seed a cooperative of farmers there in San Jose del Cabo. Following Jacobs and Belin's vision, the members began growing organic produce and, through Jacobs Farm's marketing and distribution efforts, exported and sold it in the United States during the winter months where those crops were not available as seasonal produce.

From an initial group of eight farmers, the cooperative grew to more than 141 in 1998 and by 2001 had a total of 250 farms, many smaller than five acres. Growing high-quality crops—primarily tomatoes and basil—using certified organic methods and exporting them to United States consumers hungry for fresh flavor in the winter months proved to be a winning strategy. Del Cabo's progressive social mission and organic appeal also created marketing advantages in niche markets.

The company's social mission of building income opportunities for small farmers in poor regions, in addition to using environmentally sound farming methods, was fundamental to achieving this vision.

"Del Cabo was established with the objective of assisting small farmers to improve their economic well-being by teaching them organic agricultural techniques, how to produce specialty crops, and how to administer an organization that would allow them to take advantage of niche export markets in the winter," Jacobs says.

The success of Del Cabo for growers and management alike required more than good intentions. Because members of the cooperative had little experience with either the types of crops Jacobs wanted or the specific methods required for organic certification, the company has conducted a great deal of on-farm training and education. It has taken time to disseminate information on and bring farmers around to the techniques of soil building, composting, use of cover crops, crop rotation, and judicious use of approved inputs. Continued monoculture of tomato crops even under organic certification led to problems with pests and disease that had to be managed carefully.

At the same time, both the cooperative members and Del Cabo's founders and partners in the United States learned by doing, and by making conscious and creative decisions to "turn obstacles into opportunities," in Jacobs' words. Rapid growth wasn't the problem—at times, in the early years, production exceeded the company's ability to distribute. In the 1990s, the company grew at about 20 percent each year, in keeping with the impressive growth of the still-young natural and organic market.

Challenges lay in managing transport of the product, packaging, saturation of the basil market, increased competition, export regulations, and high local labor costs in the Del Cabo region. By creating systems to share risk and guarantee prices for cooperative members each season, Del Cabo has been able to grow and thrive even through some years of torrential rains or hurricanes. The company has expanded its production of a broad diversity of herbs, which have become an increasingly important part of its current business.

The family farmers who make up the cooperative and grow produce for the company earned an average annual income of more than US\$20,000 in 2001, compared to \$3,000 at the company's start in 1986 (Runsten, personal communication, 2001). This certainly appears to fulfill the objective of Del Cabo's founders to create income opportunities in a developing region. At the same time, the overall business has prospered economically, and their continued adherence to organic standards has ensured environmental integrity.

Del Cabo's experience offers valuable lessons about the achievement of remarkable accomplishments through innovation, perseverance, and creative ability to create unique market opportunities while holding to fundamental principles. By giving serious attention to social, environmental, and financial concerns, Del Cabo offers a model for sustainable development and alternative agriculture and food production.

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*Information sources for this case study included interviews with Larry Jacobs, John Graham, David Runsten and other staff and growers in Cabo Mexico, and Diana Friedman, 1989, "The Del Cabo Project," Whole Earth Review, Spring. David Runsten's collaboration is greatly appreciated.*



## *Durst Growers*

**D**urst Organic Growers, located in Yolo County, California, illustrates a well-established diversified organic operation that has been recognized by colleagues for leadership and integrity in this field. On their their fourth-generation 550-acre farm, Jim and Deborah Durst organically grow a variety of crops which they sell as fresh produce. Their certified organic produce includes fresh market tomatoes (on about 70 acres), mixed melons, winter squash, summer squash, asparagus, and about half of their acreage is planted in alfalfa hay that is grown for organic dairy feed.

For several decades, Jim Durst's father and grandfather farmed row crops conventionally and also grazed sheep on this farm. After Jim Durst became involved in the operation, he was interested in reducing or avoiding the use of chemicals, so he started farming organically in the early 1980s, beginning with organic wheat. But he faced significant marketing challenges selling the wheat at a premium, due to low demand for organic grains at the time, so they began to convert some of their acreage to vegetables. The company improved its skills in organic farming, and became successful in producing organic vegetables as well as alfalfa. By 1991, they had fully transformed the farm into a certified organic operation.

Central to the Dursts' farming practices is building soil fertility and balancing insect ecology. Jim Durst says he focuses on improving soil conditions "to create a healthy environment for the organisms that

help our crops..." Jim believes in the principle: "feed the soil, and the soil will feed the plants." One of the main practices that they have used since the 1980s is cover crops, which have given them multiple benefits, such as adding "biomass to the soil... improved soil structure, water permeability, and a healthy soil fauna." They also use crop rotation and other methods to avoid soil disturbance and compaction.

The Dursts take steps to create what they call "a healthy work environment" for people who work on the farm. They have several full-time employees, and they also hire more than 80 workers during the harvest periods. To these seasonal employees, they also offer a retirement plan and provide worker training opportunities. The employees are engaged in multiple aspects of the farm work, gaining skills in many jobs. The Dursts believe it is useful for the individual employees and for the entire team to have a better understanding of how the whole farm works in order to improve judgement and versatility.

The Dursts market their vegetables under the brand name Hungry Hollow to wholesale and retail outlets in the San Francisco Bay area and to many cities in the United States and in Canada. Starting about two years ago, they began using an agent called "Organic Harvest Network" which helps them market and promote their fresh produce nationwide to wholesalers and retailers. The Dursts also partner with several other growers in their area whose produce they buy and market under the Hungry Hollow label. The volume of produce that they buy

from these growers varies year by year, depending on market conditions and quality of produce. The Dursts want to ensure their buyers the best quality products, and work with their growers to try to achieve this result.

The Dursts also participated for several years in a research project with the Sustainable Farming Systems (SAFS) project at the University of California at Davis. In this project, Jim Durst cooperated closely with scientists who analyzed several kinds of farming systems, and did detailed on-farm measurements of crop yields, soil quality, economic returns, and overall sustainability. The project team of scientists and growers met fairly often to share knowledge about the results, hold field days, and also distribute the findings to the agriculture community in Yolo county and beyond. Durst and others involved in this project feel that this kind of research and information-exchange from the on-farm experiments are very useful for growers, and also helps to spread positive change over time.

The Durst Growers have chosen a path of slow and steady growth in their business. They deliberately have not expanded their own land area, remaining at 550 acres, and they don't intend

to buy more land, since they prefer to remain solid and sustainable at the current size. However, they have also focused on improving the quality of their products and increasing the efficiency and extent of their marketing. The Durst Growers will continue to provide exemplary leadership for other growers in the area who are pursuing sustainable and organic methods.

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*Information sources for this case study included: Interviews with Jim and Deborah Durst; Dr. Stephen Temple, U.C. Davis; Organic Harvest website; and secondary sources, including summary in Western SARE, 2000, "Sustainable Agriculture... Continuing to Grow," Western Region Sustainable Agriculture Research and Education Program, with Sustainable Northwest, Portland, OR, pp. 44-45.*



## *Fetzer Vineyards*

**F**etzer Vineyards has been recognized as a leader in developing and implementing environmental innovations throughout its large-scale enterprise. Based in Mendocino county, about 80 percent of Fetzer's own vineyards are certified organic. The company encourages similar practices among its 300+ contract growers. In 1993, with its Bonterra brand, Fetzer was the first major American winery to develop a premium wine made from organically grown grapes.

Fetzer's environmental stewardship goes far beyond its vineyards to include notable achievements in ecologically sound building construction, a comprehensive recycling and resource conservation program, and an emphasis on human values in the workplace. Under the leadership of CEO Paul Dolan, the company is committed to three inter-linked goals of economics, ecology, and equity that they call the "triple bottom line." Fetzer's staff has created an "E3 Team" to coordinate and help implement these triple goals that guide their sustainable business practices. Fetzer's mission statement reads: "We are an environmentally and socially conscious grower, producer, and marketer of wines of the highest quality and value. Working together in harmony and with respect for the human spirit, we are committed to sharing information about the enjoyment of wine and food in a lifestyle of moderation and responsibility."

Founded by the Fetzer family in 1968, the winery and vineyards are located in a fertile valley at the base of the coastal range foothills of Mendocino County in northern California. The company was sold to the

Kentucky-based Brown Foreman Corporation in 1992. Today, Fetzer farms about 700 acres of land, and contracts with approximately 300 growers. About 80 percent of the company's land is certified organic, with more in transition from conventional to organic. The company employs about 300 people. Fetzer sells about 3 million cases of wine per year in all 50 states and in 25 other countries. Sales of the Bonterra brand constitute about 3 percent of Fetzer's total sales volume and have been growing at a fast rate in recent years.

Fetzer's commitment to organic and environmental practices began in earnest in the mid-1980s, when the company established a five-acre vegetable and herb teaching garden for culinary classes and for catered events and visitors. The garden's manager, Michael Maltas, applied his knowledge of biodynamic and organic farming practices. Positive results in the garden led vineyard managers to begin incorporating organic practices in the vineyards. They continually expanded the vineyard area under organic methods, and convinced by growing successful outcomes, they soon became certified by CCOF. They use diverse cover crops and compost as key practices to build soil health which Fetzer views as a critical basis of a healthy and productive organic system.

At the same time, Fetzer began a dynamic recycling program that has grown over time. Each year, the company recycles at least 70 tons of corrugated cardboard, 75 cubic yards of paper board, 500 tons of glass, 740 gallons of oil, and 392 cubic yards of wooden pallets, according to their web site. In addi-

tion, 12 cubic yards of cork and 10,000 tons of grape pomace are composted each year. The company has reduced its discarded materials by 93 percent between 1990 and 1997, eliminating dumping of 1,580 cubic yards of landfill. Fetzer has won Waste Reduction Awards of the Year from the Waste Management Board of California's Environmental Protection Agency. In 1997, Fetzer was given a special Waste Reduction honor, acknowledged as one of the ten best recycling companies in California.

CEO Paul Dolan, inspired by Paul Hawken's *The Ecology of Commerce*, began looking for more ways that the company could address global ecological issues. During the mid 1990s, they initiated construction of ecologically sound winery offices using recycled building materials, enhanced energy and resource conservation, and other "green" building practices. Fetzer's winemaking, storage, bottling, and labeling practices also use ecologically innovative methods. The company also recycles and reuses water from the winery. Water treatment ponds with electric aeration mechanisms, and a unique state-of-the-art biological treatment pond uses natural vegetation, in which cattails form a natural filtration mat in the water. The system reduces energy input for the aeration system while effectively treating water through the natural microbial activity of plant and water bacteria. Also, in late 1999, Fetzer began using "green" energy utility services based on renewable energy sources.

Fetzer also promotes a management style that is relatively non-hierarchical, informal, open, and supportive of staff. Dolan places a premium on good communication and information flow. All employees in the company are encouraged to set their personal job performance goals in relation to the company's "ecological, economic, and equity" mission. Vineyard managers stress that management of information



and knowledge is more important for organic production than for conventional farming, particularly for monitoring and evaluating variations in climate conditions, soils, pests and diseases, and for adjusting practices to localized needs.

Fetzer's challenges have included garnering the interest, enthusiasm, and support of those who have not yet embraced environmental and social sustainability as a driving force of business. Although the company's volume of Bonterra wine is growing rapidly, organic wine is still a minor percentage of the overall production. From growers to investors, many people still perceive organic or other ecological practices as high-risk. Dolan says he will continue to improve understanding about organic approaches through education. Fetzer's future goals include further reduction of energy use in transportation and winery operations, expansion of organic practices among their contracted growers, and strengthened staff training, diversity, and community involvement.

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*Information sources for this case study include: Interviews with Paul Dolan, Tom Piper, Scott Duncan, Mike Johnson, Bill Cascio and other staff from Fetzer; website information; discussions with green business collaborators; Kohn Properties staff. Images on pages 61, 63, and 75 are courtesy of the Wine Institute.*

## *Frog's Leap*

**F**rog's Leap, located in the heart of the Napa Valley in California, produces premium wines using ecological practices in grape-growing and winemaking. Although Frog's Leap is much smaller than some other companies in this report, it is notable as a pioneer in producing high quality wines from organically grown grapes, and for its unique niche and sustainability in the business. Frog's Leap currently farms about 200 acres of winegrapes and operates a winery in Rutherford.

Frog's Leap winery was started in 1981 by its CEO and winemaker John Williams, who initially purchased grapes from local growers to make wine. In the late 1980s, Frog's Leap acquired 15 acres of land and began growing grapes. Williams began trying ecological practices in this vineyard because it made common sense to him. While experimenting with various methods, he discovered that the organically grown grapes generally produced better flavor and a better quality wine, in his opinion. He continued to develop this organic approach, and his land was certified by CCOF in 1989. Through the 1990s, Frog's Leap expanded the area they own and farm, and continued to refine ecological methods that Williams believes are best for "healthy wine growing" and for making high quality wines.

Today Frog's Leap owns about 100 acres of certified organic land, and they contract with other growers in another 100 acres. About 75 percent of the total land they farm is certified organic, and the remaining acreage is farmed ecologically or in transition, but is

not certified. John Williams explains that the goal of the company is "to produce wines that deeply reflect the soils and climate from which they emanate." Frog's Leap also has a special reputation due to their sense of humor and fun spirit, reflected in their clever labels and amusing promotional activities.

Williams emphasizes the importance of healthy soil in his organic system. The company uses a variety of cover crops, which enhance the soil organic matter and microbial activity, improve soil structure and fertility, and can suppress weeds and attract beneficial insects. When leading tours, Williams shares his excitement about the natural qualities in the vineyard by encouraging visitors to "smell the soil" – which generates a complex aroma that is alive with organic life. Another unique feature of Frog's Leap's ecological approach is that a large majority of the land they farm is "dry farmed," meaning that it is rainfed, not irrigated. Frog's Leap also incorporates other basic principles of "recycle, reuse, and renew" in their vineyard operations.

The winery also uses natural principles in winemaking--using natural yeasts, minimizing handling, and avoiding unnecessary filtrations of the wine. Williams has begun experimenting with biodynamic farming principles, mainly in the landscaping and in their mixed vegetable, herb, and fruit garden that is attractively located in front of the winery. (This entails the integration of natural cycles, rhythms and special biological treatments, understanding and managing the farm as a complete living organism.)

Frog's Leap's production has remained steady in recent years, at about 50,000 cases per year, while the marketing range has broadened, and their profitability and product diversity have increased over time. The company has matured and grown internally by increasing infrastructure, work force, and its land ownership. Frog's Leap niche markets their wines mainly in fine restaurants and wine shops in California and in selected cities throughout the United States. The company also exports wine to Europe, Japan, and Canada. Although their exports represent only about 8 percent of total revenues, sales abroad have grown steadily.

Frog's Leap's label does not indicate that the wine is made from organically grown grapes, partly because a small portion of the grapes they process are from the non-certified land of their growers. Williams also believes that using the organic label currently does not generally give their wine a market advantage or a premium in the wine market. Some of their customers appreciate Frog's Leap's ecological orientation, but other customers care most about the fine quality or taste, and pay more for the wine based on that aspect alone. Yet Williams is convinced that the use of organic methods contributes directly to higher quality and flavors of their wine.

Frog's Leap has 30 full time employees and hires additional seasonal workers during harvest. Many of the employees have been with the company for over 10 years, and are committed to its values. Williams has helped to train and mentor several young

employees, including Mexican American workers, who have now developed professional expertise in winemaking and other skills.

Williams and other Frog's Leap staff are involved in supporting local environmental and educational activities in the community, such as providing field tours, seminars, and giving talks at conferences. The company's efforts can help increase growers' and the public's understanding of why and how to care for the soil and other resources, to create healthier vineyards and high quality products over the long term.

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*Information sources for this case study included interviews with John Williams, CEO, and Frank Leeds, farm manager; information from Amigo/Bob Cantisano, organic agriculture consultant; and Klinkenborg, Verlyn, 1995, "A Farming Revolution: Sustainable Agriculture," Natural Geographic, December, pp. 61-88.*





## *Full Belly Farm*

**N**estled in the Capay Valley of Northern California, Full Belly Farm is a well-established and successful organic farm that is known in the region for its innovative marketing and progressive employee relations, as well as for growing and marketing a very broad diversity of vegetables, fruits, nuts, and flowers all year round. Although this farm is smaller in scale -- 170 acres -- than many of the other cases in this report, it is highly productive and its gross revenues have grown steadily at a rate of 10 to 15 percent per year over the last decade. Full Belly harvests more than 80 kinds of organic crops and also maintains about 100 sheep (and a few other farm animals) that have very important functions in their integrated operation. The farm has a reputation as a mentor and supporter for other small-scale organic farmers.

Full Belly Farm was started in 1989 by four partners/owners, Andrew Brait, Paul Muller, Judith Redmond, and Dru Rivers. The land has been farmed organically since 1984, and is certified by CCOF. In addition to avoiding synthetic chemicals, they use cover crops that fix nitrogen and provide organic matter for the soil, apply compost, and plant habitat areas for beneficial insects. The sheep are a valuable part of the operation, managed in a rotational grazing pattern on the farm. They graze on crop residues and on cover crops, which enables mowing of the vegetation to create useful green manure that is incorporated directly into the soil. The farm also sells the wool and sheepskin.

The owners stress the value of biological diversity in the farm. Growing many crops and varieties help to prevent diseases and pests, and diverse cover crops and surrounding habitat also increase the health of the soil and the system. Having a broad diversity of crops, including heirloom varieties, also appeals to their customers. They also make sundried tomatoes that are sold in the summertime. Farming operations are continued year round, even through the winter, when they continue to produce vegetables such as greens and coles.

The farm has approximately 25 employees, most of whom are retained all year. This kind of year-long employment is unusual in a small farm, since most farms this size only have a very small handful of permanent employees and then hire temporary seasonal employees during harvests. Full Belly Farm also has an apprenticeship program, which helps build knowledge and capacities of young adults. Each year, they usually hire a small group of apprentices, who live on the farm with the owners and their families, and take part in the farm's unique community. Judith Redmond explains proudly that several of these apprentices and other employees have been inspired to continue farming as a career, and some former employees have recently started their own small farms in the area, with mentoring and support from the Full Belly owners.

Full Belly's products are sold mostly in California, but sometimes reach other states through their

wholesale distributors. The company has a diversified marketing strategy: Their products are marketed to retail stores and restaurants (accounting for about 33% of their gross revenues), wholesalers (about 20%), farmers' markets in the San Francisco Bay Area (also about 20%), and through an innovative form of marketing called Community Supported Agriculture (or CSA), which they began in 1992.

For their CSA, Full Belly prepares boxes of fresh produce every week that are distributed directly to 'subscribers' who are members, mostly in Davis, Sacramento, and the Bay Area. The program has achieved significant success, and members have increased steadily over time. Now, the Full Belly CSA accounts for more than 20 percent of their farm's total gross revenue, and they have 500 members. During the winter, Full Belly also includes fresh organic oranges in the CSA boxes that they purchase through an agreement with a neighboring farmer, since Full Belly does not grow oranges. Judith Redmond believes that the CSA system has special qualities, such as enabling consumers to directly connect with the farmers, and also because the customers

appreciate the local supply of very fresh seasonal food. However, Full Belly also continues to market more than half of its produce in other retail channels, since not everyone has access to or prefers the CSA system.

Full Belly Farm is actively involved in community educational events about sustainable and organic farming through school visits and tours for visitors. The farm also puts on an annual harvest festival for the community and other farmers, and the celebration usually attracts hundreds of people. The farm owners have also been active in political efforts related to developing policies to support sustainable and organic farming.

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*Information sources include: interview with Judith Redmond; Ecological Farming conference in Asilomar, CA 2000-2002; and other experts in sustainable/organic farming; website; and Community Alliance of Family Farmers.*



## *Lagier Ranches*

Lagier Ranches, located in Escalon, California, in San Joaquin County, has family roots going back to the late 1800s in the region. As a fourth generation farmer and entrepreneur, John Lagier has developed a new path in his family history: His recent experience illustrates a successful example of diversification, organic conversion, and innovation in manufacturing products and direct niche marketing.

Lagier's parents and grandparents historically farmed row crops and almond orchards using conventional methods, and also raised mules. John Lagier began farming in 1979, partly by leasing land from other family members, and he began a process of diversification and innovation that has continued up to the present day. He established vineyards and cherry orchards, and then in 1991, began to convert the 200 acres he farmed to organic methods. He adopted these changes partly due to health concerns that he and his wife had about use of chemicals, since both of them had experienced cancers. Given his dedication to change, the conversion was quite rapid, and all of the land he farmed became fully certified organic by 1997. Lagier Ranches currently produces a variety of organic berries, almonds, cherries, winegrapes, and a small area of citrus and exotic crops such as pawpaw. Their organic practices include the use of diverse cover crops, compost, foliar feeding, and minimum or no-tillage throughout the farm.

Lagier Ranches has developed diverse strategies for processing and marketing. The company does in-

house manufacturing of several added-value products in a commercial kitchen that Lagier recently established on the farm. They manufacture organic products that are made mostly from their own crops, including fruit spread, almond butter, almond snacks, and pies. They also purchase a few additional ingredients, such as evaporated cane juice and organic wheat, mostly from local businesses. Lagier explains that they originally started this manufacturing mainly because their berries are highly perishable, so they can avoid losses of fresh fruit by processing it. Although their manufactured products currently make up only about 15 percent of their total sales, developing this processing capacity adds value and is beneficial for their business.

The company's fresh produce is marketed to a variety of places, such as retailers (including local fruit stands), and wholesalers, who distribute in California and in other cities on the East Coast and the Midwest. They also retail their produce in several farmers' markets in the San Francisco Bay Area. Most of their manufactured products go to natural food grocery stores such as Whole Foods, and to other U.S. retailers or distributors who appreciate these products; a small amount is sold to a distributor in Japan. The almonds are hulled and shelled through a local processor, and they work with a cooperative of organic almond growers in Turlock for packing and selling them.

For Lagier Ranches, the organic conversion and diversification process has been relatively smooth,

even though there were some risks during the transition period due to yield losses. Once the acreage became certified and they began to earn a premium on the products, they have seen considerable economic and environmental advantages compared to the conventional systems. Lagier explains that the paradigm switch to organic required new learning and new information which he has gained largely through other growers who are open to sharing their knowledge.

The biggest production challenge they face is gophers, and they are using a variety of methods, including trapping and owl boxes, to control them. The depressed prices in the overall market situation recently has inevitably affected the operation, but not dramatically. Lagier stresses that organic growers like himself tend to be better off than conventional growers and food companies under current market conditions. The company contin-

ues to be committed to this way of farming, and dedicated to refining and growing their innovative marketing approaches in response to market conditions.

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*Information sources include: Interviews with John Lagier, founder, and Matt Devator, production manager, and Cindy Lashbrook; presentations at the Ecological Farming Conference in January 2002, Asilomar; "Partnerships for Sustaining California Agriculture" conference in Woodland, 2001; and company website.*



## *Lodi Woodbridge Winegrape Commission*

**T**he Lodi Woodbridge Winegrape Commission (LWWC) is an association of 650 grape growers in the Sacramento River Delta region of California. In all, the members of LWWC cultivate more than 70,000 acres, making the region a leading producer of winegrapes in California. LWWC is notable for its integrated farming program, in which many of its member growers participate. Through grower-based educational and outreach activities, the program is successfully implementing innovative pest management methods, reducing agro-chemical inputs by many growers in the region, and carrying out on-farm research and evaluation to assess the changes.

LWWC, formed in 1991 to serve the common interests of growers in the region. All growers in the region are required to be members of LWWC, and pay a tax of .35 percent of the value of their winegrape gross earnings per year to the commission. There are approximately 650 members with farms ranging from small family farms of five acres to ranches of 9,000 acres, with a median size of about 40 acres.

LWWC began an Integrated Pest Management (IPM) program in 1992. Based on the progress of that program, the Commission was awarded a three-year Biologically Integrated Farming Systems (BIFS) grant from the University of California in 1995. This allowed LWWC to develop its activities, including grower outreach, field implementation, and evaluation, operating on a model featuring grower-driven

efforts and collaborative relationships among farmers, scientists, and advisors. As that program generated positive results, the LWWC was awarded additional funding from EPA and other agencies to expand the outreach and impacts.

The IPM program is only one of the commission's activities and priorities, but interviewed growers say that the program has gained importance to them over time. The components of this program include understanding the ecology and dynamics of the crop, and of the pests and natural enemies; developing a monitoring program to assess levels of pests and their natural enemies; establishing an economic threshold for pests; and considering and determining the most appropriate strategies based on the consideration of economics, health, and environmental risks. Outreach activities, such as monthly breakfast meetings with growers, research seminars, and field workshops, helps information exchange and encourages communication among LWWC members.

The LWWC growers have had a range of reactions to the introduction of new integrated practices. Some have been enthusiastic adopters of the biologically integrated practices, and have become strong advocates of the program and educators to other growers. The LWWC members include some organic farmers as well, who have adopted all of the recommended practices, and gone beyond that. On the other hand, some have still been skeptical or resistant to change, especially if they are under economic pressure due to low prices. Nevertheless, growers

themselves say there have been significant overall changes in attitude toward these approaches, with more openness and support rather than skepticism.

A grower survey undertaken in 1999, based on self-reporting of 288 growers in LWWC, illustrates some of the results: 76 percent of growers said they reduced their per-acre rates of insecticides; 66 percent reduced their rate of herbicides when spraying for weeds; 46 percent use cover crops; 65 percent monitored for beneficial insects; among other things.

LWWC also undertakes marketing activities. While there has been discussion of creating an “eco-label” for regional wines that reflects the commission’s evolving ecological practices, the idea has been put on hold for now, since the commission’s work in this area is focused on monitoring practices and applying innovative self-assessment techniques for growers. Marketing efforts include advertising campaigns about Lodi growers and wine, participation in trade shows, industry conferences, media and press kits, public presentations, receptions, special events, membership in wine education associations, and networking services to link growers with market opportunities.

New grants and awards are allowing LWWC to grow the integrated farming program. They have dedicated considerable time and resources

to the expansion of their self-assessment program and workbook, which is used for monitoring progress in the adoption of integrated practices. The workbook has been popular among growers and is a model that has been adapted by other winegrowing groups in other regions. Those involved in this effort say they are proud that this program is serving the common economic interests of producers in the region. They also believe that other groups and agribusinesses can follow LWWC’s lead in developing biologically integrated approaches through collaborative action.

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*Information sources for the case study include: Ohmart, Cliff, 1998; Lodi Woodbridge Winegrape Commission’s Biologically Integrated Farming System for Winegrapes; LWWC; Lodi, CA, LWWC website; and interviews with Cliff Ohmart, Mark Chandler, Jeff Dlott, and UCSAREP staff.*



## Lundberg Family Farms

Lundberg Family Farms in Richvale, California produces numerous varieties of rice and rice-based products, and provides about 65 percent of the organic rice grown in the country. The family has been farming rice in California since the 1930s, when Albert and Frances Lundberg and their four children migrated west from Nebraska. Escaping from the “Dust Bowl,” they wanted to avoid the serious soil erosion problems they had experienced in the Midwest, and therefore became stewards of the land starting early in their California farming enterprise.

Lundberg Family Farms pioneered organic rice farming in 1969, and continued to develop and extend its ecological approaches over time. The Lundbergs also built a rice processing plant which they have expanded over the years. The company is now fully integrated -- including rice production, processing, packaging, contracting with growers, and marketing a variety of rice and rice-based products.

Four Lundberg brothers and their children currently farm approximately 3,200 acres. About half of their total acreage is organically certified by CCOF. The company currently has the nation’s largest brand of organic rice. The other half of the land is ‘Nutra Farmed’ -- a term coined and patented by the Lundbergs that refers to an integrated farming approach, using a minimum of chemical pesticides and fertilizers. The Lundberg brothers say that in both approaches -- organic and Nutra-Farming -- they are committed to ‘sustainable agriculture.’ For both,

they use ecologically-oriented practices including cover cropping, crop rotation, water conservation, straw incorporation (and not burning rice residues), and wildlife conservation. In organic fields, they add a few features, such as fallowing the land every 2 or 3 years, allowing it to rest and regenerate, and also using compost or other organic amendments.

Bryce Luncberg explains that the family farms in *both* organic and non-organic ways largely because they respond to diverse demands in the market. In other words, some customers want organically grown produce and will pay the higher price, whereas others do not want to pay the premium. Moreover, organic fields yield approximately half the amount of rice per acre as the Nutra Farmed fields. While the premium they receive for organic rice helps offset those lower yields, the organic systems usually entail higher costs from the fallow periods or other factors. This economic challenge is therefore another reason why they ‘Nutra-farm’ nearly half of their rice acreage with selective use of chemicals.

The Lundbergs have avoided using ‘middle men’ in the supply chain to the extent possible. They mill, process, and package their own rice. In recent years, they installed innovative grain coolers for the post-harvest handling process, which enabled them to significantly increase the milling yields. They produce both brown whole grain rice and white (milled) rice of about 12 varieties. They supply not only specialty brown rices and blends, but since the 1980s, they also process, package, and market a wide

variety of rice products, including hot brown rice cereal, rice cakes and crackers, dessert pudding, one-step entrees, risotto, rice syrup, and rice flour. Recently, they have also sold some barley, which is mainly used as a cover crop.

The Lundberg family emphasizes producing high quality wholesome products, and maintaining quality standards throughout the entire growing, storage, processing, and handling stages. They have sophisticated and complex storage facilities in order to keep all of the varieties separate and to ensure adequate moisture levels. The company has about 135 employees, most of whom work in the milling and marketing operations.

In addition to processing their own rice, the Lundbergs also buy rice from other growers who together cover about 4,500 acres in Northern California, increasing their capacity to process and sell more rice products. Approximately 25 contracted growers work with the family, ranging in scale from 10 acres to 1,500 acres; these are mostly certified organic. The Lundbergs work closely with their contracted growers to provide information and advice.

Lundberg rice products are sold throughout the U.S., and about 5-10% of their sales are to Canada and Japan. They have also begun to explore market opportunities in Europe. The company markets the products through wholesale companies to an extensive network of natural food businesses, specialty grocery stores, and a few mainstream supermarkets.

They receive a premium price for organic rice, which can be 50% to 80% higher than the price for conventional rice, but the current price for conventional rice is extremely low, so it is hard to make comparisons. Lundberg Family Farms' revenues have grown steadily over time, at a healthy rate of 5 to 8% per year. The family has generally preferred to grow the business by expanding the diversity of their rice-based products and contracting with additional growers, rather than buying more land.

The Lundberg family has continued and expanded the ecological philosophy that was seeded by their father and grandfather two generations ago, by using many practices that are aimed at building their "partnership with nature," and by responding to the social concerns of consumers and neighbors. The Lundberg family's experience also shows how an agricultural business can thrive and prosper by using sustainable methods of agriculture.

*Information sources include: Interviews with Bryce Lundberg, Lundberg website; analysis of Lundberg Family Farms in NAS, 1989; Alternative Agriculture, National Academy of Science book, and other news clips and experts in this field.*





## *Natural Selection Foods*

**N**atural Selection Foods (NSF) is one of the country's largest growers and processors of packaged specialty and organic salad mixes. NSF also grows and sells other produce, both conventional and organic. The company's organic brand is Earthbound Farm, which began in the mid-1980s as a two-acre organic farm in Carmel, California. Earthbound Farm was founded by Drew and Myra Goodman, who are now president and vice-president of Natural Selection Foods. They have unique story of transformation and remarkable growth.

The Goodmans moved to California from New York in the early 1980s to attend college. Although they did not have previous farming experience, they began raising raspberries and then mixed specialty greens in their backyard garden. They preferred to use organic methods from the start, because they wanted to avoid the use of chemicals. Early on, the couple invented a packaging innovation of bagging prewashed lettuces in plastic bags. The idea stemmed from their home use of convenient zip-top storage bags. Once they started marketing their specialty greens with this kind of package, the products became highly popular with retail buyers. Their business took off with leaps and bounds.

By 1988, the Goodmans employed several people to help them, and established partnerships with salad growers in Southern California. At the same time, they began marketing bagged salads to major mainstream supermarkets. They then bought a 32-

acre farm in Watsonville, California, where they planted about 20 varieties of lettuces and greens. In 1992, the company moved their processing and packaging operation to a large production facility in Watsonville. They also opened a farm stand in Carmel Valley. Soon after that, they introduced salad kits, with mixed lettuces, dressing and toppings all in one package.

In 1995, Earthbound Farm entered a partnership with Mission Ranches, a large group of farmers in the Salinas Valley, and formed Natural Selection Foods with 800 organically farmed acres. All of the elements of the operation grew in tandem with increased acreage. By 1998, NSF had 5,800 acres of owned and contracted certified organic farmland dedicated to their product, in California, Arizona, and Mexico. In 1999, NSF merged with Tanimura & Antle (T&A), the largest lettuce grower in the United States. T&A became a one-third partner in NSF and began converting 1,500 acres of farmland into organic production. Earthbound Farm remains the company's leading organic brand.

NSF farms more than 7,000 organic acres today, with more than 2,000 acres in the required three-year transition period from conventional agriculture to organic agriculture. They grow about 85 different fruits and vegetables.

All of Earthbound Farm products and processing are certified organic, and they've been able to adapt these methods to their growing scale of production.

The company's organic approach is described as "nourishing and replenishing soils, protecting water, and honoring the health of those who work the land and customers who will enjoy the harvest." Cover crops, mulch and composting, beneficial insects, careful crop selection, and other organic methods help maintain soil fertility and disease- and pest-resistant plants. Quality assurance and food safety are priorities for Earthbound Farm/NSF, from the farm to the processing facility. A Hazard Analysis Critical Control Point (HACCP) program focuses on employee training and state-of-the-art technologies to maintain safety and quality standards.

The Goodmans still maintain the Earthbound Farm produce stand on their original farm site, selling fresh-picked produce direct to consumers. They've also established an educational plot on the grounds to help children experience agriculture and learn about organic farming.

This transformation took place through innovation, growth, good timing, and strategic partnerships. While Earthbound Farm is undoubtedly a success story in terms of financial success and growth, the enterprise has not been without challenges. Assuring consistent supplies of organic crops, tackling farming problems, and hiring educated and experienced staff have required steady effort and creative strategies.



Myra and Drew Goodman credit their success in part to growing their business without training or preconceived ideas about the food industry, allowing them to explore and make decisions with a "beginner's mind."

Today, Earthbound Farm ranks as one of the largest organic foods brands in the world. Though some organic pioneers and consumers fear the "corporatization" of organic farming and hold up NSF as one example of this trend, the company feels it is fulfilling its mission of making organic foods widely available to many people.

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*Information sources for this case study include: Interviews with Myra and Drew Goodman, Mark Marino, and other staff members; company website; news articles; field tour of Earthbound farm as part of Ecofarm conference; presentation by Rick Antle, conference on Partnerships for Sustainable Agriculture, May 2001; and presentation by Myra and Drew Goodman, Ecofarm conference, Asilomar 2002.*

## Robert Mondavi Winery

**R**obert Mondavi Winery is the largest exporter of premium California wines, selling to 90 countries. Since its inception in 1965, the company, headquartered in California's Napa Valley, has upheld a land stewardship philosophy based on the convictions of founder Robert Mondavi. Mondavi's early interest in resource stewardship was shaped by the influence of his Italian parents, who instilled in him an appreciation for the land, natural home-grown food, fine wine made from natural processes, and culinary arts, which Mondavi describes in his book *Harvests of Joy*.

Robert Mondavi's winery-owned vineyards total approximately 5,300 acres and are spread throughout several regions of California. In addition, Mondavi buys large amounts of winegrapes from contracted growers throughout California. The company also has joint partnerships in several countries of the world, including Chile, Australia, and Italy, where they both co-own and contract fruit grown by external growers.

Building upon Robert Mondavi's philosophy, the winery developed and articulated a "natural" approach to wine production in the 1970s, with explicit goals of environmental protection, worker health, and enhanced wine quality. The term "natural" in the company's perspective means that they use ecologically-oriented practices at all stages, from soil preparation in the vineyard to bottling practices in the winery.

In the vineyards, for example, they use integrated ecological pest, crop, and soil management methods

with selective and minimized use of synthetic chemicals; watershed management; soil and habitat conservation; and minimal tillage. Vineyard managers combine various methods that they judge to be both environmentally and economically sound; they adapt practices to local ecological and climate conditions, rather than using prescribed standardized applications of inputs. Vineyard managers use cover crops and other soil conservation methods such as buffer crops, and they are actively involved in watershed stewardship projects with the community. The company is undertaking a large experiment on the management of wildlife, habitat, and other resources in their Central Coast vineyards. This unusual project entails cooperation with university scientists and state agencies to find potential compatibility between conservation interests and winegrape production.

In the winemaking process and winery operations, Mondavi's practices include the use of native yeast in the fermentation process, energy conservation, and water recycling. Their winemakers support a traditional European approach of bringing out the innate qualities of the grapes using natural ingredients, with minimal interference. In 1994, as part of its environmental efforts, Mondavi created a bottle design free of any metal seal on top. This innovation has been adopted throughout the industry. Mondavi also makes labels from recycled paper and prints them with soy-based inks; uses biodegradable soaps and heat for sterilization; maintains strict standards for use and disposal of oils and solvents.

Robert Mondavi's son Timothy is the winery's managing director today, leading the company's pursuit of natural methods. Tim Mondavi says he believes in continual learning, flexibility, and evolution of ideas as avenues to progress and excellence. According to Tom Mondavi and others in the company, winegrape growing using natural or ecological approaches and minimal chemicals has proven economical without jeopardizing the quality of the product. In fact, some of the company's vineyard production managers believe that this approach actually enhances wine quality and flavor.

The company's transition to these integrated and ecological vineyard practices has not always been easy, since it requires a significant change in attitudes, shifts in costs, and learning new techniques. In addition, convincing growers to consistently adopt Integrated Pest Management (IPM) and other ecological methods can be challenging and requires constant education. Mondavi's grower relations' managers provide information to growers and strongly encourage that contract growers use natural methods. Although Mondavi works with some organic farmers and embraces some organic methods, they have not yet converted to certified organic methods in their own vineyards, mainly due to economic challenges of weed control. Not all synthetic chemicals have been eliminated yet, though this is a goal of the company.



Robert Mondavi continues to explore new ways of developing environmentally friendly and economically competitive approaches. The company is very open and committed to sharing information with other businesses and the public about these issues and practices. They often hold seminars and educational events not only for their contracted growers, but also for the broader public. Robert Mondavi himself believes strongly in the open exchange of information. He has passed on a philosophy that "what is good for us is good for the industry..." and vice-versa, says DeWitt Garlock, growers relations manager. This form of honest communication and outreach can help broaden and sustain positive socio-economic and environmental outcomes for both current and future generations.

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*Information sources for this case study include: Interviews with Tim Mondavi, DeWitt Garlock Mitchell Klug, Dan Bosch, Dyson Dimarra, Clay Gregory, Genvieve Janssens, and other staff members; unpublished materials; Mondavi website; discussions with Napa County Resource Conservation District staff, NSWG members; and Robert Mondavi, 1998, *Harvest of Joy*, Harcourt Brace, New York.*

## *Sherman Thomas Ranch*

**S**herman Thomas Ranch has recently become recognized in Madera County, California, for its successful transition to biologically integrated and organic farming practices on a 700-acre farm of almonds, pistachios, prunes, and raisin grapes. Under the management of Mike Braga, the manager, the ranch began experimenting during the 1990s with integrated low-chemical-input practices. Since then, about 75 percent of the ranch has been converted to certified organic production. The company is also vertically integrated, operating a dehydrator for processing prunes and raisins, and running a retail produce store.

The ranch's history goes back to the 1930's when it was founded by Sherman Thomas and his family. For many decades, Sherman Thomas owned and conventionally farmed over 30,000 acres that included row crops such as cotton and alfalfa, and tree crops, and pastures for grazing cows, and also had a dairy. During Sherman Thomas' later years, the operation was scaled-down and much of the land was sold, and Mike Braga became the farm manager in 1990. When the elder Thomas passed away in 1995, the remaining 700-acre ranch was passed to the ownership of his son, Vernon Thomas, and is still managed and run by Mike Braga.

The company began to develop integrated pest management practices in the 1980s and early 1990s, and eliminated the use of organophosphate pesticides. During the 1990s, Sherman Thomas ranch became a participant in the Biologically Integrated Farming System (BIOS) program, which was coordi-

nated by the Community Alliance of Family Farmers, and the University of California Sustainable Agriculture Research and Education Program. The BIOS project consisted of on-farm experiments and demonstrations for cover cropping, composting, and reducing pesticide and fertilizer inputs in almond production. Braga was actively involved in trying out BIOS methods, working along with other growers, scientists, and farm advisors.

Since Braga was pleased with the results in the initial BIOS experimental fields on his farm, he continued to expand his land under these integrated practices. Braga became involved in a similar project in prunes, experimenting with biologically integrated methods, and became convinced that the methods paid off. Soon he went beyond that, to develop organic methods in all of his crops. Braga explained that once he had adopted the BIOS practices, "it was easy to eliminate chemicals...and to convert to organic." In fact, his conversion was relatively rapid. Currently, approximately 540 acres are organically certified by CCOF, and the rest is in transition. Braga uses diverse annual cover crops, compost amendments, and no-tillage farming. He emphasizes the use of good sanitation practices to avoid the spread of diseases and insects.

Braga says that he is pleased with the economic results of the organic approach. Although the yields are usually reduced by 25% compared to the conventional approach, they receive a premium (ranging from 25% to 100% higher) for the organic products and spend less on chemicals, so the returns balance

out to be similar to or better than conventional. The company has about 8 permanent employees and hires an additional crew of about 25 people during harvest. The organic conversion has not required adding more employees, but the staff has had to learn new approaches.

The company adds value by doing some of their own processing and direct marketing. They own a large dehydrator facility, which enables them to dry their own organic prunes and market the finished product to wholesalers. They dehydrate prunes and raisins for other growers, mainly for custom-order organic raisins for three other farms. However, their own raisin grapes are harvested in the field and allowed to sun-dry naturally in the vineyards. They sell their almonds and pistachios to a certified organic processing company in Fresno.

Sherman Thomas's retail store, called "Valley Pistachio Country Store," sells products that are mostly conventional and locally grown and are purchased largely from wholesalers. They have tried selling some of their own organic produce in the store, but sales have been slow in the Central Valley location, so they sell mostly conventional crops in this small store. They have better results marketing the organic products to areas where there is higher demand. About 75% of total sales is in the United States, and about 25% is exported to Europe.

Sherman Thomas's recent conversion and success in the organic business has become both "a curiosity" and a model for other growers in the county. Braga says that conventional growers frequently come by his farm to ask how to do this: "They often don't think it's possible...and they tend to fear the unknown." But Braga's experience has shown them that it is not only possible but also lucrative. Braga has become a supporter and communicator about organic farming, and is now the president of the local chapter of CCOF. According to a local extension farm advisor, Brent Holtz, "Braga's success has created a following...".

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*Information sources include interviews with Mike Braga, Brent Holtz, Cindy Lashbrook, and Lonnie Hendricks. Another source of information was an article in California Nuts Magazine, called "Batting Cleanup," 2002.*



## *Small Planet Foods*

**S**mall Planet Foods (SPF) is one of the largest organic processed foods companies in the United States. Now a subsidiary of General Mills, Small Planet Foods represents, for many, the mainstreaming, growth, and consolidation of the organic foods industry — which has generated mixed reactions in the organic sector.

Small Planet Foods' divisions or brands began as independent companies that each have long-time roots in the organic and natural foods community. They include Cascadian Farm, based in Sedro-Wooley, Washington, a processed and frozen-foods company founded by a pioneer organic farmer, Gene Kahn, currently CEO of Small Planet Foods; and Muir Glen, a California-based company specializing in processed organic tomato products.

Cascadian Farm was founded in 1972 on Gene Kahn's small farm of 22 acres in Washington state, still in operation today. Along with the young natural foods market, Cascadian Farm grew as a processed foods company through the 1970s and 1980s. By the 1990s, investors such as Welch Foods, Inc., and Shamrock Company, helped fuel the company's rapid expansion into mainstream markets. Muir Glen began in 1991 and today remains the industry's leading manufacturer of organic tomato products. In 1998, Small Planet Foods was formed as the umbrella company for both Cascadian Farm and Muir Glen. Fantastic Foods, a maker of processed vegetarian products based in California, was also part of SPF

for 3 years, but it was excluded from the partnership in 2000, since its products were not entirely organic.

Under USDA's national organic standards, scheduled for implementation by late 2002, organic processed foods must contain 95 percent certified organic ingredients in order to bear the "organic" label. To meet this requirement, Small Planet Foods currently contracts with about 50 growers who are mostly in the Pacific Northwest, and with 6 to 10 tomato growers in California for the Muir Glen products. These growers range from small organic growers of 10 acres, up to about 2,000-acre operations. Ingredients not grown domestically are sourced internationally; for example, organic sugar, and bananas are imported from Latin America.

As Small Planet Foods, these companies together produce and market approximately 200 processed products, including a wide range of frozen vegetables and frozen fruits, juice concentrates, convenient entrees, frozen desserts, canned tomato products, jams, and sauces. The company's sales grew at a high rate during the late 1990s, up to 20% per year. Annual sales reached \$90 million at the end of 2001, and marketing extends throughout the United States, and in Europe and Asia (for 10% of their sales). SPF's stated mission is "to create the world's preeminent organic food company by communicating a powerful vision of the relationship between diet, health, agriculture, and the environment." One of the company's main goals, according to Kahn, is "to

become the premier provider of natural and organic products, catching the growing wave of interest in natural foods and a natural way of life.”

The companies of Small Planet Foods do not own processing facilities; instead, they contract with about 30 plants. These facilities are also certified organic for processing and packaging methods. Most sales take place through distributors, who in turn sell SPF products to both natural foods and mainstream markets; only about 10 percent is sold directly to retailers. SPF’s marketing and packaging strategies position its products to be competitive in both conventional supermarkets and natural foods markets such as Whole Foods Market, and Wild Oats, which sell SPF’s brands. Cascadian Farms still runs a small road-side store next to their original 22-acre farm in the foothills of the Cascades.

In 2000, General Mills acquired Small Planet Foods — a noteworthy takeover of an organic business by a transnational food company that received lots of media attention. Since then, the company’s sales continue to grow at a fairly high rate of about 10% per year. At the same time, the company buyout has also been criticized, especially from smaller scale organic pioneers, for this ‘corporatization’ of the organic industry. The takeover has also generated questions about the sustainability and social responsibility of the situation, since many other organic businesses face difficulties to survive when trying to compete against such large compa-

nies. However, Gene Kahn and his staff, and others in the business, believe this ownership by General Mills enables SPF’s organic products to be marketed more economically and purchased by many more mainstream consumers throughout the United States and the world.

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*Information sources for this case study include: Interviews with Gene Kahn, Clark Driftmeir, Craig Weakley, Steven Crider, Lawrence Tsai, Lisa Bell, and other staff members; company website; news articles such as Deann Glamser, 1998, “Organic Growth,” Your Turn, Winter (trade magazine), and other news articles; and presentations by Craig Weakley at Ecological Farming conference and “Partnerships for Sustaining California Agriculture” conference.*





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# APPENDIX 1

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## PEOPLE INTERVIEWED AND CONSULTED FOR THE STUDY

Information for the case studies was obtained through structured interviews with the directors and staff of each company, and with external informants who are familiar with the cases. Questions were posed about: General characteristics of the case/company; Agricultural production practices; Reasons for and results of using “green” practices; Food processing practices; Marketing practices; Economics; Information sources and linkages in the supply chain; Barriers and challenges; Future plans and prospects.

Interviews were undertaken with directors and staff of 12 case studies, which included the following: Del Cabo, Durst Farms, Fetzer Vineyards, Frog’s Leap, Full Belly Farm, Lagier Ranches, Lodi Woodbridge Winegrape Commission, Lundberg Family Farms, Natural Selection Foods, Robert Mondavi Winery, Sherman Thomas Ranch, Small Planet Foods. (The names of interviewees are noted in footnotes to the profiles in Part II.) In most of the cases, the farms/sites of the companies were also visited for this analysis.

Additional experts and analysts were informally interviewed, consulted, or provided insights during oral presentations. They provided information about historical and policy aspects, perceptions of progress and challenges, and other issues related to sustainable agriculture, marketing, and food systems. These individuals include the following:

Michael Abelman, Fairview Gardens  
Miguel Altieri, U.C. Berkeley, Agroecology  
Rick Antle, Tanimura and Antle company  
Jill Auburn, SARE, U.S. Department of Agriculture

Walt Bentley, U.C. Extension, pest management specialist  
Jenny Broome, U.C. Sustainable Agriculture  
Research & Education Program  
Amigo Bob Cantisano, Organic consultant  
Stacey Clary, California Sustainable Agriculture Working  
Group  
Jeff Dlott, Realtoolbox consulting  
Volker Eisle, winegrape grower, Napa Valley  
Isao Fujimoto, California Institute of Rural Studies  
Catherine Greene, ERS, U.S. Department of Agriculture  
John Ikerd, University of Missouri  
Bruce Jennings, Policy expert, Sacramento, CA  
Desmond Jolly, Small Farm Center, U.C. Davis  
Fred Kirchenmann, Grower, and Leopold Center, Iowa  
State University  
Sibella Kraus, formerly Community Alliance of Family  
Farmers  
Bill Liebhardt, U.C. Davis  
Ralph Lightstone, policy expert, Sacramento, CA  
Mark Lipson, Organic Farming Research Foundation  
Craig McNamara, Sierra Orchards  
Monica Moore, Pesticide Action Network  
Bu Nygrens and Mary Jane Evans, Veritable Vegetables  
Stephen Pavich, Pavich Family Farms  
Peter Price, legal and policy expert/advocate  
Mark Ritchie, Institute for Agriculture Trade and Policy  
Walter Rob, Whole Foods  
Karen Ross, California Association of Winegrape Growers  
Bob Scowcroft, Organic Farming Research Foundation  
Sean Swezey, U.C. Santa Cruz  
Stephen Temple, U.C. Davis, Integrated Farming Program  
Alice Waters, Chez Panisse  
Warren Weber, Grower, Bolinas, CA  
Frank Zalom, U.C. Integrated Pest Management program