



# RIPE FOR CHANGE

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**RETHINKING CALIFORNIA'S FOOD ECONOMY**



**INTERNATIONAL SOCIETY FOR ECOLOGY AND CULTURE**



## ACKNOWLEDGEMENTS

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## INTRODUCTION

In recent decades, the efforts of countless individuals, organizations, and government agencies have been devoted to addressing the problems in California's food system. Though many small victories have been won, the overall picture continues to deteriorate. The food system remains heavily dependent on toxic agricultural chemicals, fossil fuels, and food crops with an extremely narrow genetic base. Irradiated and genetically engineered foods line the shelves of supermarkets, even though neither technology has been proven safe. The number of small and medium-sized farms continues to decline, and farmworkers are still impoverished, their working conditions abysmal. Giant corporations are consolidating their control over every segment of the food system, pushing out smaller producers, processors, and retailers. Despite a growing obesity epidemic, many Californians are unable to put enough food on the table.

Why has so little progress been made? One reason is that even though many people are aware of the food system's shortcomings, they are usually seen as a series of unrelated problems, each to be addressed individually. As a result, attempts to solve them are like a number of "band-aids" that treat symptoms, while ignoring the underlying illness.

This fragmented view makes common interests and goals all but impossible to discern: thus, farmers in the North appear to be competing not only with farmers in the South, but with farmworkers and consumers at home; the needs of the environment and the economy appear mutually exclusive; food can apparently be made healthier only by making it more expensive, and so on. The impression left is that there really *are* no solutions.

Solutions *can* be found, however, by stepping back to examine the California food system from a systemic perspective that reveals root causes common to virtually all its problems. Seeing the broad connections among the many crises we

face can be immensely empowering, and can reveal strategies that are solution-multipliers—simultaneously benefiting farmers, farmworkers, and consumers, protecting the environment and supporting the economy, improving the quality of food and lowering its cost.

In this report we argue that economic policies supporting globalization—encouraging ever more trade and transport of food—are a root issue that must be addressed in order for our food systems to be made healthy and sustainable. Most people do not prefer their food to be doused with toxic agrochemicals; they don't want to see rural economies gutted and small family farms eliminated; they don't ask that their food systems be unsustainable or incapable of providing food security for the poor; they haven't agreed that decisions about food should be made in the boardrooms of transnational corporations, rather than democratically. The public has asked for none of this, but this is what we are getting as globalization proceeds.



This analysis not only points to the common roots of many of the problems facing California's food system, but to a powerful systemic solution: *localization*. This means a shift in direction away from the global food system toward numerous smaller-scale food systems that are more localized, diverse, democratically accountable, and ecologically-based. It does not mean an overnight cessation of all trade but a gradual striking of a better balance between trade and local production, with people everywhere meeting as many of their food needs as close to home as possible. Localization does not mean protecting our own economies at the expense of people in the global South, nor does it imply ignoring the needs of those whose economies are currently trade-dependent.

In fact, though this report focuses on the prospects for localization in California, it should be understood that the same principles apply to every food economy, in the global North and South alike. In that sense, localization would ultimately benefit not only the majority of Californians, but food producers, consumers, small businesses, local economies, and communities across the US and around the world.

### A tour of the report

This report is intended as a resource for food and farming groups, social and environmental activists, students and teachers, policymakers, and the civic-minded public, and as a tool to help make California's rapidly growing local food movement more effective. The report includes a wide range of information, from case-studies and personal testimonies to charts, graphs, and data-rich appendices. Our aim is not to simply describe the problems in the food system, but to explain *why* those problems arise and how most of them can be alleviated by a shift toward the local.

We do not provide details on every commodity produced, marketed, or consumed in the state, nor do we offer exhaustive descriptions of every sector of the food economy. Instead, we hope to make clear the broad forces at work in California and how they affect every link in the food chain.

In Chapters 1–4, we review California's place in the global food system, from past to present. Chapter 1 is an overview of the historical growth of California's industrial food system. Chapter 2 gives a picture of the state's industrial agriculture; and Chapters 3 and 4 describe two important trends emerging from the globalization of California's food system: increased consolidation, and increased trade and transport.

Chapters 5–10 detail the consequences of California's globally-oriented food system, as well as the potential for local food to solve many of these problems: damage to our health (Chapter 5) and to the state's ecosystems (Chapter 6); food insecurity and hunger (Chapter 7); the breakdown of rural economies (Chapter 8); and the erosion of community (Chapter 9); and the destruction of local food systems beyond California (Chapter 10).

Chapter 11 takes a look at the current subsidies and policy supports for the global food system, revealing some of the real costs of "cheap" global food. Finally, Chapter 12 presents a variety of policy changes needed for a shift to the local, and strategies to help build the local food movement.

### The role of economic policy

If global economic policy is a root cause of many of the problems in California's food system, it is important to ask, "what is globalization?" It is certainly not what its promoters would have us think: a way of bringing us all together into a peaceful Global Village based on closer communication and more rapid transport, with increased trade portrayed as a way of creating interdependence, avoiding war, and eliminating global poverty.

The reality is very different. Far from a "rising tide that lifts all boats," globalization has exacerbated poverty and greatly widened the gap between rich and poor. Rather than bringing us together, trade deregulation is forcing people to compete more intensely with one another. The only winners in this system are global corporations, which can take advantage



Photo: Lisa M. Hamilton



of cheap labor, lax environmental laws, and loose health and safety regulations wherever they may be found, and can market an ever-larger range of commodities and services to an expanding pool of global consumers. As globalization breaks down local economies and communities—thereby adding to the tide of mass urbanization—corporations are also provided with dense concentrations of easy-to-reach consumers, as well as ready supplies of desperate workers.

Economic globalization is often spoken of as if it were inevitable, the result of “evolutionary” forces beyond people’s ability to slow or stop. This is simply untrue: globalization is largely the product of systematic government support, and the policy choices behind that support are no more evolutionary or inevitable than last year’s campaign promises. The current corporate-dominated global economy could never have taken shape, for example, without the “free trade” treaties signed by governments, nor the heavy subsidies every nation provides for its trade-oriented transport infrastructure. It would immediately falter without military expenditures to protect international investment and keep oil flowing from the Middle East, thereby enabling trucks, trains, ships, and airplanes to crisscross the globe with “efficiently” produced goods. Large and global corporations would never have supplanted smaller enterprises without huge government subsidies for export promotion, for industrial research and development, and for educational institutions that prepare children for life in a global, rather than their own local, economy. With economic accounting systematically ignoring the many environmental and social costs of policies that favor the global over the local, the public is left believing that globalization simply represents efficiency and “progress.”

Despite the rhetoric of “inevitability,” globalization represents a process of planned change. Our governments, working hand-in-hand with the biggest corporations in the world, are paving the way for a particular future, one that is westernized, homogenized, industrialized, dominated by huge transnational corporations, and ultimately unsustainable.

### Food in the global economy

Since food is something everyone, everywhere needs every day, it is a critically important lens through which to look at

economic globalization. An incredible diversity of local systems once provided people with foods suited to particular ecosystems, with their unique climates, soils, and other resources; today, those diverse systems are being amalgamated into a single global food system, a monoculture of heavily processed fast food, instant ramen, and microwaveable dinners. Once the linchpin of people’s connection to place, food is becoming just another commodity, one that economists

argue should be produced wherever is cheapest and most “efficient,” even if that means the other side of the world. Rather than a vehicle for cultural expression and nourishment for the hungry, food is becoming primarily an object of financial investment and speculation.

At its heart, the global food system is built on the 18<sup>th</sup> century economic theory of comparative advantage. The assumption is that if each region specializes in those foods it can produce more cheaply than any other region, and then imports all its other food needs from regions that can produce them more cheaply, everyone will be better off. In this economic abstraction, income and consumption levels are the only measure of human well-being. National boundaries and cultural traditions are ignored as irrelevant to the model, as are such “externalities” as wild nature, community, and the needs of future generations.

With the commodification of food, agriculture itself is changing, becoming an industry run by the universal standards of the modern factory, with little regard for local traditions or environmental conditions. When applied to farming, the global economic model is giving us food that is neither very flavorful nor nutritious, at the cost of depleted soil, poisoned air and water, and a destabilized global climate. It is destroying rural livelihoods and hollowing out communities in both North and South. Perhaps worst of all, people everywhere are being encouraged to rely on a single model of food production, one that is dangerously lacking in diversity, thereby jeopardizing long-term food security worldwide.

As local markets are destroyed and dependence on the global economy grows, the scale of the food system becomes larger at every point: farms are becoming ever larger monocultures, food miles are increasing exponentially, and the input suppliers, wholesalers, distributors, supermarket chains, and other agribusinesses that benefit from this world-spanning flow of foods are growing to gargantuan proportions.



## California in the global food economy

From the earliest European settlements in the region, California has been at the forefront of this process. Today, the state's computerized mega-farms provide billions of dollars in exports, helping make California's agricultural economy far larger than any other state's, and in fact larger than the second- and third-ranked states (Iowa and Texas) combined.<sup>1</sup> As this report shows, that economy does not benefit the majority of Californians, and the list of serious problems emanating from the food system is long. Nonetheless, with California's agribusinesses sitting atop the global food economy, other regions, states, and nations look to this state as a role model.

The broad systemic subsidies that have been so profitable for the state's agribusinesses are now being embraced by other countries. Their lower wages and looser regulations are enabling many of these regions to invade the markets for California-grown foods, and the state's export-based food economy is at risk. With trade-based subsidies smoothing the way, agribusinesses find it cheaper to obtain garlic from China, asparagus from Peru, and wine from Chile, South Africa, and Australia. One by one, California export producers are coming under pressure. To avoid losing their markets to agribusinesses elsewhere, growers are being forced to reduce costs—by exploiting labor more ruthlessly, by becoming still more large-scale, mechanized, and input-dependent, by extracting more subsidies from the public, and by externalizing more costs onto the environment and future generations. Welcome to the race to the bottom.

The problems facing California's food system are near a crisis point, but there is reason to be hopeful. Just as the inequities of the expanding global economy have led to a backlash in the form of huge protests in Seattle, Genoa, Prague, and wherever the architects of economic globalization meet, the problems of the global food system have given rise to a diverse worldwide movement for systems that are more just and sustainable. The influx of corporate fast food outlets into

Italy has spawned a Slow Food movement that has spread worldwide. In Bangalore, farmers dismantled the first Kentucky Fried Chicken outlet in India and eventually drove the corporation from the country. In the UK, a local food movement is rapidly taking hold, with the number of farmers' markets rising from zero in 1996 to 450 by 2003, with an estimated 15 million visits annually.<sup>2</sup> Here in the US, sales of organic food—a key indicator of people's desire for healthier, more sustainably-produced food—increased at least 20 percent a year during the 1990s,<sup>3</sup> reaching \$11 billion in 2002.<sup>4</sup> And when the US government chose Sacramento, California, as the site of its 2003 Ministerial and Expo to promote high-tech industrial agriculture to the rest of the world, thousands of protesters gathered to demonstrate their emphatic disapproval.

Importantly for California, this state which has been so long at the cutting edge of the global-industrial model is today a leader in the sustainable agriculture movement. Grassroots trends here and around the world are beginning to prove that another way is possible. If the systemic policy supports for the global food system were shifted, small-scale initiatives, many of them already underway, would grow and flourish.

Since California agriculture is the model that so many other regions emulate, positive change here is of immense significance. Shifts toward the local in California would reverberate throughout the rest of the world, helping to change policies that are equally disastrous everywhere.

The benefits of localization—healthier food, a cleaner environment, stronger communities and local economies, better food security—are not pipe dreams. On a small scale, grassroots steps toward the local in California and elsewhere have already proven to be effective “solution-multipliers.” With policy support at the local, state, and national level, these initiatives can thrive and spread, and lasting solutions to the problems of California's current food system will finally be at hand.



Photo: Alex Jensen





## CHAPTER 1:

# From Indigenous to Industrial: A Brief History of California Food Production

From the time of its earliest European settlements, California has been at the cutting edge of what is now the global food system: it has been a pioneer in everything from large-scale mechanized agriculture and long-distance trade to corporate farms and biotechnology, and much more. But before the arrival of European settlers in the 1700s, California exemplified precisely the opposite: food systems that were diverse, small scale, and local. Those indigenous food systems and the cultures that depended upon them were destroyed to make way for a “modern” culture and its commodity-based food system, just as land-based cultures in other parts of the world are being decimated today by the spread of the global economy. For this reason, the history of California agriculture sheds light not only on the evolution of the global food system, but on the parallels between colonialism and economic globalization.

### Indigenous California

When the first Spanish explorers arrived in what is now California, the region was already home to roughly 300,000 indigenous inhabitants, comprising hundreds of tribes spread throughout all of the region's major ecosystems.<sup>1</sup> Through location-specific adaptation, each of these groups evolved its own customs and rituals, as well as unique means of providing food, clothing, shelter, tools, and medicines from local resources. Most groups had a distinct language: it is estimated that 120 different languages were spoken in California, the majority of them “as mutually unintelligible as English and Chinese.”<sup>2</sup>

These populations provided for themselves primarily through hunting, gathering, and fishing, though some groups supplemented these practices with agriculture.<sup>3</sup> Making use of what

was available within its own ecological niche, each group was almost entirely self-sufficient.

This is not to say that trade was nonexistent. In fact, California's native inhabitants “loved to trade,” according to researcher and writer Malcolm Margolin:

*Extensive networks of trails and trade routes criss-crossed the entire state, north and south, east and west—trails that extended through Oregon and the Pacific Northwest, trails that crossed the Central Valley to the Sierras and beyond to the Great Basin. The California Indians viewed trading as an ancient, almost permanent part of their world.<sup>4</sup>*

The goods traded, however, tended to be luxuries, such as dyes or objects made from materials that were common locally but rare elsewhere. Food was not a traded commodity,



though it was often given to visitors and—in years of plenty—distributed to neighboring groups through elaborate feasts. When food was in short supply, conversely, people would visit other tribes, where they could expect to be treated to a feast in return. “In fact,” says Margolin, “the sharing of food and other resources was so successful and reliable that it was one of the major reasons why famine was totally unknown in Central California.”<sup>5</sup>

These myriad local food systems were successful on another level as well: they were sustainable. Indigenous people made their home in California for many thousands of years without undermining the ecosystems of which they were part.

### European conquest

In 1769, however, Franciscan monks from Spain began establishing Missions to “civilize” the indigenous population and convert them to Christianity. The method employed, in effect, was to imprison roughly 1,000 native people in each Mission, guarded by a detachment of soldiers. Those who attempted to escape were whipped and bound. Prevented from pursuing their traditional hunting and gathering practices, indigenous people were instead forced to tend the monks’ cattle and their fields of wheat and corn. A contemporary account likened the Missions to a cross between a monastery and a slave plantation.<sup>6</sup>

At the same time, thousands of square miles of California were being carved up through land grants and handed over as *ranchos*—the private property of elite Spanish, and later Mexican, settlers—whose huge cattle herds displaced the deer and elk that had provided food for many indigenous groups.

For the most part, however, Spanish and Mexican control of California left native populations relatively undisturbed beyond the reach of the nineteen Missions. But if indigenous ways of life could have withstood the Spanish Mission and *ranchero* systems, they could not withstand the later arrival of Anglo settlers, who poured into the region following its annexation by the US in 1848 and the discovery of gold that same year. The systematic annihilation of California’s indigenous populations in the decades that followed makes it one of the most brutal epochs in American history. Within 150 years, ways of life that had served people well for millennia had been effectively eradicated, destroyed in large measure by the elimination of their food sovereignty.

The European impact on California’s indigenous populations thus closely parallels the effect of conquest and colonialism on countless other indigenous cultures throughout the world. Significantly, the dismantling of local economies and food systems, the appropriation of labor and resources, and the erasing of local cultural identity are all features of today’s economic globalization as well.

### A different direction

What replaced the indigenous populations’ locally-adapted food systems? It’s no surprise that the food system that evolved was radically different from the mainly hunting-and-gathering systems of native Californians. But, importantly, it was also very different from what was developing in other parts of the US—particularly in the North and East, where tight-knit farming communities and largely local markets were the norm. In these places, farmers had a close working relationship with their land and neighbors, and grew most of their food on their own small farms.



A Coast Pomo woman gathering seeds.

Photo: Library of Congress, Edward S. Curtis Collection

The majority of farmers in California, by contrast, produced for export, not for local needs. From the early days of Spanish rule, California was sending cattle-hides, for example, to Boston shoe manufacturers, and by the mid-1800s was exporting wheat as far away as England.<sup>7</sup> Unlike farmers in other parts of the country, California farmers generally did not feed themselves directly from their farms, but grew specialized cash crops for sale, using the proceeds to buy food.<sup>8</sup>

Many California farm owners did not even live on their farms, preferring to send indigenous people, and later, immigrant laborers, to the fields. The wealthiest spent their summers in San Francisco and their winters in Europe. In the mid-19<sup>th</sup> century, author Stephen Powers depicted California farmers this way:

*I did not see ten honest, hard-fisted farmers in my whole journey. There are plenty of city-haunting old bachelors and libertines, who own great ranches and lease them; and there are enough crammers of wheat, crammers of beans, crammers of mulberries, crammers of anything that will make their fortune in a year or two, and permit them to go and live and die in ‘Frisco.’<sup>9</sup>*

In the 1940s, one California farmer described agriculture in the state as “a business. . . not a way of life.”<sup>10</sup> Still today, the



term “farmer,” with all its emotive connotations, is less commonly used in California than “grower.”

A related distinction between California and much of the rest of the country is that the farms and ranches here were quite large from the very beginning of European settlement. By the time the US annexed California in 1848, the 500 *ranchos* granted by the Spanish and Mexican governments covered more ground than Massachusetts, Delaware, and Rhode Island combined, averaging almost 19,000 acres each.<sup>11</sup> By contrast, lots granted to western settlers by the US Homestead Act of 1862 were just 160 acres each.

Even after the US took control of California, land ownership remained highly concentrated. In 1871, more than 8.5 million acres of land were owned by just 516 men, an average of nearly 17,000 acres each; in Fresno County, 48 people owned more than 79,000 acres each.<sup>12</sup>

One of the state's biggest land barons was William S. Chapman, a speculator and cattle baron who accumulated more than one million acres in California, including much of the best agricultural land in the state. Chapman eventually lost his holdings in an ill-advised investment scheme, with most of the land going to another speculator and rancher, Henry Miller.<sup>13</sup> In 1919, Miller's empire was so huge he claimed he could ride on horseback from Canada to Mexico and sleep every night on one of his own ranches.<sup>14</sup>

These huge estates were not used entirely for agriculture, but farms in California were generally large in scale and concentrated in ownership. The US census reveals that in 1860 the proportion of farms larger than 1,000 acres was higher in California than in any other state except Louisiana.<sup>15</sup> In fact, it is no coincidence that the only states in which farms approached the scale of California's in that year were in the South—the other notable exception to the model of small, locally-based farm economies—where agriculture was also based on exports, primarily cotton and tobacco.

By 1870, the Civil War had put an end to the South's plantation system, and California ranked supreme among large-farm states: it was home to more than twice as many 1,000-acre farms as any other state; 60 percent of its farms were larger than 100 acres in that year, compared with 22 percent for the country as a whole.<sup>16</sup> This pattern held firm in the years that followed: in 1939, a writer observed that “California is not a land of farms but a country of plantations and estates.”<sup>17</sup>

**California's large farms were a primary beneficiary of the huge government investment in a transcontinental railroad: they now had a pipeline to the nation's largest markets**

**3,000 miles away, and everything in between.**

There were some small farms in California, of course, and even some pockets of more “traditional” family farm communities, particularly in the Stockton area.<sup>18</sup> As in other parts of the West, settlers came by the thousands hoping to homestead and eventually own a small tract of land. But in California so much land was controlled by wealthy land barons and railroad companies that there was very little left for homesteaders. What's more, many land claims ultimately derived from the Spanish and Mexican land grants, and it was often unclear whether land was private or public. In many cases, people settled on and improved land only to find, after years of hard work, that the land actually “belonged” to someone else. According to early 20<sup>th</sup> century political writer Henry George:

*There is no state in the Union in which settlers in good faith have been so persecuted, so robbed, as in California. Men have grown rich, and men still make a regular business of blackmailing settlers upon public land, or of appropriating their homes, and this by power of the law and in the name of justice.*<sup>19</sup>

## Reaching distant markets

Why did California farmers focus on distant markets so early on, when settlers in other parts of the country were producing food mostly for themselves, their neighbors, and nearby markets? It is often claimed that California's mild climate and long growing season represented a comparative advantage so great that the state's farmers were bound to become major exporters to the rest of the nation, and later the world. The fact is, however, that California's climate saddled farmers with important *disadvantages* as well. Much of the state, and most of the Central Valley, is semi-arid, with no rain at all for roughly half the year. Without significant investments in mechanical pumps, water diversion schemes, and irrigation projects, most of California would be unsuited to large-scale export-oriented farming, particularly in products like rice, cotton, and vegetables.

Other factors more fully explain why California's earliest growers focused on production for distant markets. One is the close connection between export-led agriculture and large farms. If farmers are producing for export, systemic pressures lead to the production of single crops on a large scale. Conversely, when farms are large—as in early California—farmers have the ability to produce food and fiber in quantities far greater than local markets can absorb. In other words, growers with huge holdings need to export



their production if they are to extract as much profit as possible from them.

The enticement to export would have been particularly strong in California 150 years ago, when farms were not only huge, but the population, and hence the size of the local market, was very small. In 1850, for example, there were six cities east of the Mississippi with populations larger than the entire territory of California: Boston's population alone exceeded California's by nearly 50 percent, while New York City's was more than seven times as large.<sup>20</sup> Though California's population grew rapidly following the Gold Rush, it wouldn't surpass that of New York City until the 1940s.<sup>21</sup>

But reaching those cities required a sea voyage around the tip of South America, or overland routes that were similarly long and difficult. If California growers were to become major food exporters, they would need a far faster and more reliable transport infrastructure. As we will see in Chapter 4, this is a critical requirement for every participant in the global-industrial food system.

Help for those hoping to market California's products out-of-state was not long in coming. In 1862, the US government began providing massive subsidies for the building of a transcontinental railroad. By the time the rail link was completed in 1869, the subsidy amounted to almost four times as much as the US paid Russia for the entire territory of Alaska two years earlier.<sup>22</sup> Much of the subsidy was in the form of land, enabling the railroad corporations to accumulate vast quantities of the California land base: by 1919, in fact, Southern Pacific was the biggest single landowner in the state.<sup>23</sup>

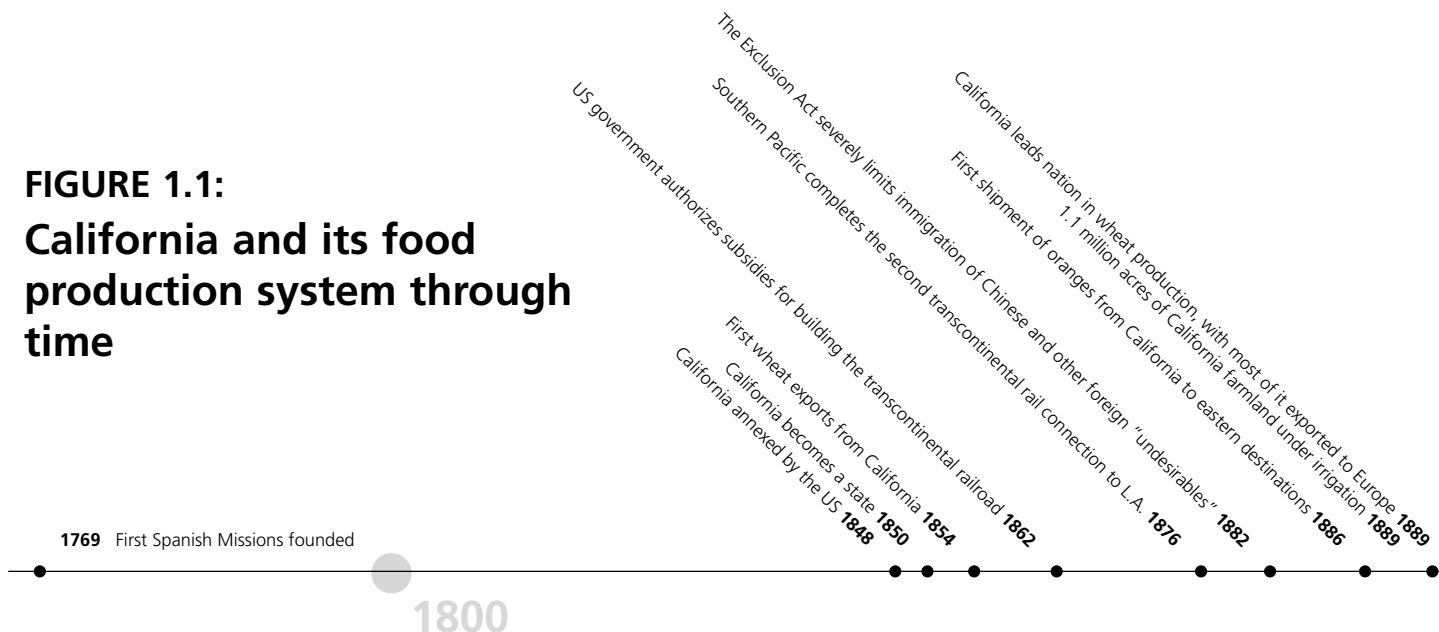
California's large farms were a primary beneficiary of this huge government investment: they now had a pipeline to the nation's largest markets 3,000 miles away, and everything in between. This subsidized transport infrastructure, and the Interstate Highway System that came later, enabled California growers to penetrate the market of virtually every other farmer in the United States.

### Labor shortages: immigration and mechanization

These factors—concentrated ownership of large-scale farms, an export-oriented agricultural economy, and substantial government support—gave California a huge push in the direction of industrial agriculture. Many of the trends of the years that followed, culminating with California agribusinesses becoming global leaders in their economic might, stem directly from these peculiarities of the state's early history. Figure 1.1 depicts some of the key developments in the industrialization of California agriculture.

Another factor driving the state toward industrial agriculture was the recurring shortage of labor. With the exception of the Mission system, California farms never relied on slave labor, unlike the export-based plantations of the pre-Civil War South. Nonetheless, the absentee owners of California's huge farms required an abundant supply of cheap labor if they were to maximize the financial return from their holdings.<sup>24</sup> That supply generally came from immigrants, first those who poured into the state during the Gold Rush, followed in time by Chinese, Japanese, Mexicans, and many others. Not all the immigrants were foreign-born: California's fields were filled with unemployed industrial

**FIGURE 1.1:**  
**California and its food  
production system through  
time**





workers from eastern cities during a depression in the 1890s and with displaced farmers from Texas, Oklahoma, and Arkansas during the 1930s Dust Bowl.

Thanks to this continual influx of immigrants, agricultural labor in California was often quite cheap. After the completion of the transcontinental railroad, Chinese workers, for example, were willing to work for almost nothing:

*Wages of \$1 per day or \$25 per month, and with extremely low costs for board, coupled with the employers' complete lack of responsibility toward the workers when not needed, made for a labor supply which was often considered cheaper than slave labor. The use of Chinese labor did not require capital investment, as did slaves, nor very much in the way of housing and equipment.<sup>25</sup>*

Despite the farm system's dependence on cheap labor, California has had an uneasy relationship with foreign immigrants. Growers welcomed the influx of laborers willing to work hard under poor conditions for very little pay, but Anglo workers often aimed their frustration with their own labor difficulties on those of different color, ethnicity, or national origin. Immigration patterns have therefore resembled a swinging pendulum, with active efforts to bring cheap labor into the country followed by attempts to seal the nation's borders to particular immigrant groups.<sup>26</sup>

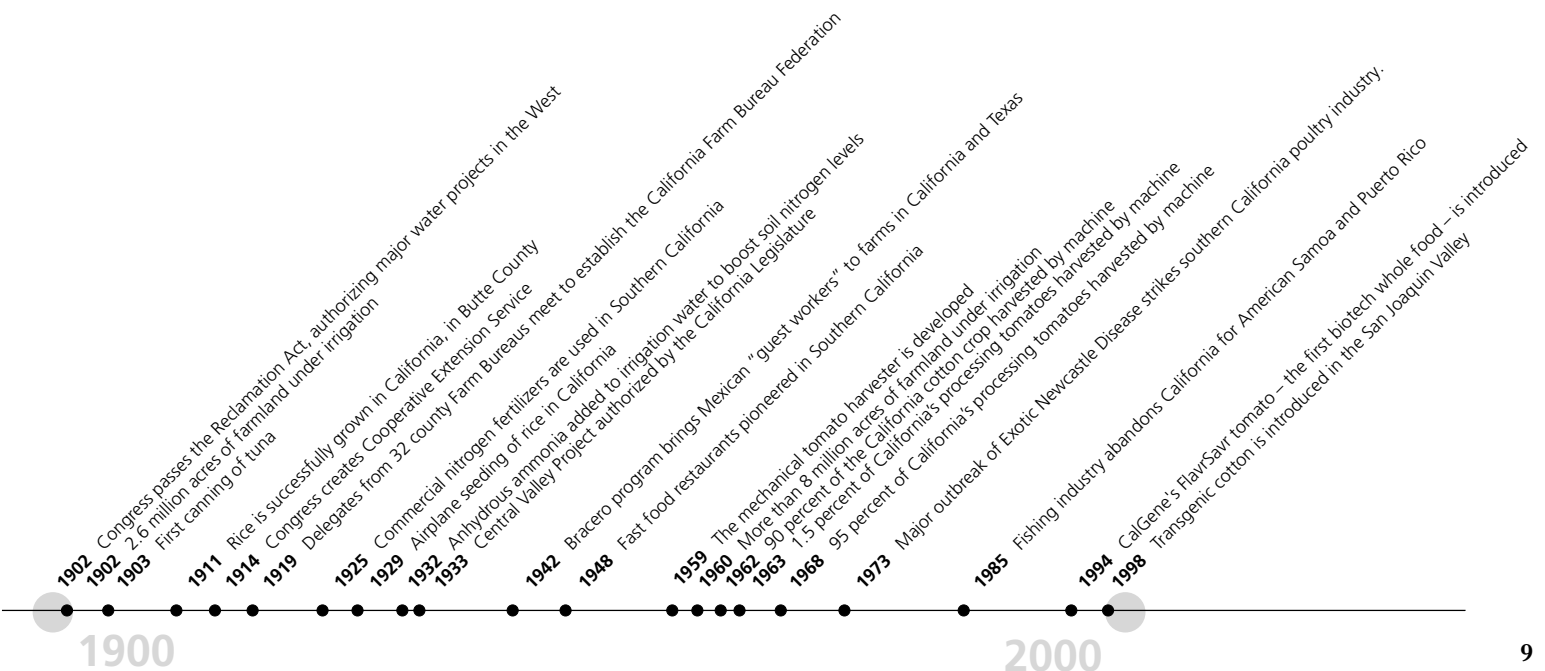
The recurring shortage of labor for California's huge farms has been an important impetus for the mechanization of the state's agriculture. Every new machine and every advance in farm technology (including herbicides, in particular) could potentially eliminate the need for hundreds or even thousands of agricultural workers. The threat of further mecha-

nization was also used by growers to keep workers from demanding higher wages and better working conditions and to undermine efforts to unionize farm workers.<sup>27</sup>

Mechanized planting and harvesting techniques were devised in the late 19<sup>th</sup> century and, partly because of the state's labor problems and its orientation towards large-scale agriculture, were embraced more quickly in California than in any other state. By 1910, the value of farm equipment per California farm was nearly 2.5 times the average for the rest of the nation.<sup>28</sup> By 1950, half of all farm machines in the United States were in use in California, and half of the state's crops were harvested mechanically. In the rest of the country, by contrast, only 10 percent of crops were being harvested by machine at that time.<sup>29</sup>

Irrigation needs and the development of specialty crops demanded other mechanical innovations, and the farm implement industry in the state thrived. California pioneered technologies such as grain combines, track-laying tractors, airplane seeders, and mechanized tomato and sugar beet harvesters. It is believed that the first use of electricity for irrigation pumping took place in the Central Valley just before 1900.<sup>30</sup>

California was the source of many biological innovations as well. But while pre-industrial farmers the world over have selected traits and created varieties tailored to particular soils and micro-climates, innovations in California have more often suited the needs of large-scale production and trade—such as fruit and vegetable varieties that can withstand mechanical harvesting and long-distance transport.<sup>31</sup> California has the dubious distinction of being home to the first whole food created through biotechnology, the Calgene





Flavr Savr tomato, introduced in 1994. Technologies such as these have often been subsidized by the public, through the participation of publicly-funded university researchers in their development (Chapter 11 further discusses the role of taxpayer-supported research in industrializing California's food system.)

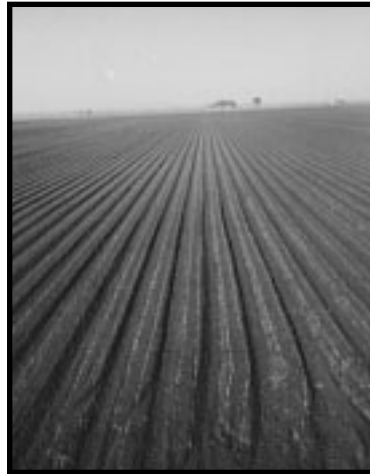
### Dependence on inputs

Because the global food system relies on large quantities of single crops from individual producers, California's early orientation toward exports helped lead the state's agricultural system down the road of monocultural production. Wheat and barley monocultures, for example, were widespread from the middle of the 19<sup>th</sup> century. Within a few decades, these industrial farming methods had overtaxed the land. It was reported that:

*monocrop grain farming, involving little use of crop rotation, fallowing, fertilizer, or deep plowing, mined the soil of nutrients and promoted the growth of weeds. Complaints that the land no longer yielded paying wheat crops became common from the 1890s.<sup>32</sup>*

Many growers switched from grains to fruit, but their monocultural practices continued. The first full shipment of fruit was exported in 1886, but early fruit growers also depleted the soil, and by the turn of the century many were forced to switch again, this time to sugar beet monocultures. This boom and bust-the-land cycle continued until the development of agricultural chemicals—including fertilizers, pesticides, fungicides, and herbicides—that could artificially boost and maintain output. Anhydrous ammonia, which now accounts for more than 35 percent of the nitrogen applied to US fields, was first used in California, where it was added to irrigation water in 1932. The chemical was first injected directly into the soil in 1942, also in California.<sup>33</sup>

In the years following the end of World War II, a number of pesticides with roots in chemical warfare research were widely introduced into California agriculture. These included the insecticide DDT, the herbicide 2, 4-D, and several new fungicides.<sup>34</sup> As Chapters 5 and 6 point out, this "solution" created far more problems than it solved.



Salinas field, 1939.

**California's early growers focused on the large-scale production of single crops for distant markets.**

Agrochemicals were not the only external input required to maximize production on California's large-scale landholdings: water was also a critical factor. With rain scarce or non-existent for much of the year, groundwater pumps, irrigation systems, and water diversion projects were needed to grow water-intensive export crops like rice and to keep orchards and hay fields green in the middle of the desert. By 1870, small diversion projects and rudimentary drill rigs and groundwater pumps enabled growers to irrigate 60,000 acres of farmland. The total grew quickly to 1.1 million acres by 1889, and more than doubled again by 1902. With massive projects to divert rivers and 80,000 pumps pumping groundwater, the irrigated acreage totaled 6.5 million acres by 1950.<sup>35</sup>

In the early stages of this process, individuals and private partnerships made the required investments, but government subsidies have played an increasing role, particularly in the years since World War II. The huge Central Valley Project, consisting of a series of massive dams, pumping stations and aqueducts to deliver water from northern California to the arid Central Valley, cost an estimated \$4 billion. Originally authorized under a federal Act that limited its benefits to small family farmers, the Project's benefits have instead flowed mainly to large agribusinesses (see Box 6.2).<sup>36</sup>

By the 1970s, water for more than half of the state's irrigated acreage was supplied by irrigation districts—public corporations run by local

landowners and empowered to distribute water from the Central Valley Project and other federal and state works. In addition, thousands of miles of major levees were built by the Army Corps of Engineers to channel the state's inland waterways, benefiting large-scale rice growers in particular.<sup>37</sup>

With its early lead on the road to industrial agriculture, California has been ahead of the pack ever since. For example, huge industrial feedlots—farm operations where animals are fattened for slaughter—were pioneered in California and Arizona in the 1950s. By 1953, more than 92 percent of the state's grain-fed cattle were in feedlots of 1,000 animals or more. Within a decade, the capacity of the state's feedlots had tripled, and almost 70 percent of the cattle on feed were in feedlots holding at least 10,000 animals.<sup>38</sup> In 1963, the average California feedlot had 6 times as many animals as a Texas feedlot, and almost 50 times as many as a feedlot in Iowa.<sup>39</sup>



## Serving it up: fast food

In addition to writing much of the blueprint for industrial agriculture, California also introduced “fast food,” now a commonplace feature of the industrial food system. In 2001, Americans spent over \$110 billion on fast food, more than they spent on computers, higher education, or new cars.<sup>40</sup>

The fast food craze began with drive-in restaurants, which first appeared in Southern California in the early 1940s. Two brothers, Richard and Maurice McDonald, created the nation's first truly fast food restaurant in San Bernardino in 1948. It was based on their revolutionary “Speedee Service System,” which aimed to increase speed, lower prices, and raise the volume of sales.

*The brothers eliminated almost two-thirds of the items on their old menu. They got rid of everything that had to be eaten with a knife, spoon, or fork. The only sandwiches now sold were hamburgers and cheeseburgers. The brothers got rid of their dishes and glassware, replacing them with paper cups, paper bags, and paper plates. They divided the food preparation into separate tasks performed by different workers. . . . For the first time, the guiding principles of a factory assembly line were applied to a commercial kitchen.<sup>41</sup>*

The McDonald brothers' restaurant was eventually taken over by Ray Kroc, whose use of franchising was a key element in the spread of the fast food model. The system was imitated by other California entrepreneurs, with Carl's Jr., Taco Bell and Jack in the Box among the state's contributions to the industry.

In many ways, fast food is the pinnacle of the global food system: it is corporate-controlled, standardized, mass-produced food produced at the lowest possible cost and served to the highest possible number of people. Its reliance on speed and standardization, which favors technology and profits over labor and food quality, is a form of “efficiency” much admired by profit-driven food corporations of every kind.

## Learning from the past

Beginning with the earliest European settlements, California's farms have been large and highly focused on

supplying distant markets. These factors have helped orient the state's agricultural system toward large-scale monocultural production, mechanization, a heavy reliance on fossil fuels, the use of external inputs and biotechnology, and dependence on cheap, easily exploited labor.

As the following chapters will show, these trends have been a boon for a handful of agribusiness corporations but have been very costly for California's environment, its rural communities, and the vast majority of its population. Large-scale industrial monocultures have damaged California's environment and eroded the food security of its inhabitants. The trade-based food system has been heavily subsidized by the public, which has paid for most or all of the transport, energy, water, and research infrastructures the entire system depends upon.

As these costs become increasingly clear, a grassroots movement to shift the food system toward more sustainable, localized, and diversified food systems is gaining momentum. The objective is not to remake

California's food system in the image of the indigenous cultures that inhabited this land 350 years ago. Even if this were desirable, a return to food systems based largely on indigenous practices would of course be impossible: the number of people living in California today is over 100 times more than when the first Spanish Missions were founded.

Nonetheless, California's indigenous cultures reveal some of the principles needed to create more just and sustainable food systems, including the importance of human scale, diversity, and local knowledge. As the following chapters will show, globalization is taking California's food system in exactly the opposite direction. Shifting course doesn't mean eliminating all trade; it simply involves giving production for local consumption a higher priority than production for export. It means allowing food systems across the state to reflect local resources, micro-climates, and needs, thereby bringing diversity back to the agricultural landscape. It means giving support to smaller, more diversified, and more ecologically-managed farms, instead of large input-dependent monocultures. Finally, it involves shifting the balance of power away from a few giant corporations, toward a multitude of smaller, independent farms and businesses.



**Fast food is the pinnacle of the global food system: it is corporate-controlled, standardized, mass-produced food produced at the lowest possible cost and served to the highest possible number of people.**



## CHAPTER 2:

# Globalizing California Agriculture

**A**fter so many years at the cutting edge of industrial production, where is California's agricultural system today? Some will argue that it is a roaring success: the supermarket shelves are bursting with food, and the state's \$27 billion in annual farm production is higher than the next two states combined. Food exports, meanwhile, bring in \$6.5 billion each year. Numbers like these, the argument goes, show that the agricultural system is not only working, but working well.

However, the items in an upscale supermarket and the dollar value of California's farm production reveal relatively little about the food system's impact on the majority of people or the environment. A broader look, in fact, reveals a very troubling picture. California agriculture remains heavily tilted toward large farms. The number of farmers is declining, and corporate control of farmland is increasing. Monocultural practices remain prevalent, which means a continued reliance on external inputs toxic to the environment and human health. Beyond the farm, food is being sold through fewer, larger, and ever more centralized retail outlets, with unprecedented power over the entire food system. As these massive retailers vie for control with similarly large corporate processors and distributors, small enterprises in every sector of the food system are being squeezed out.

As for the powerhouse of California agribusiness, trade deregulation is stripping away the unique advantages California's producers once had in the global marketplace, putting the state in direct competition with countries where production costs are far lower. As a result, California's food export balloon may be about to burst.

The following pages outline the connections among the dominant trends in California's agriculture system today, but it should be noted that it is not possible to draw strict

boundaries around the state and describe only what happens within those lines. Globalization is increasingly making such boundaries irrelevant—even when they make sense—and therefore many features of California's food system extend to other states and nations, while many companies and forces originating outside California have a huge impact here.

### **On the farm: the big get bigger**

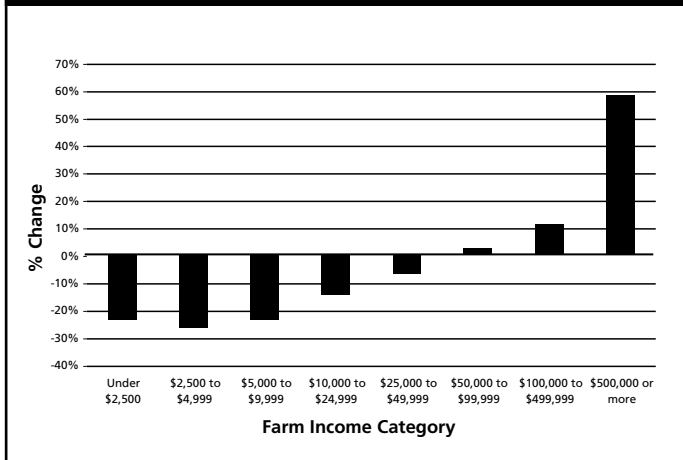
The industrialization of agriculture began earlier in California than in any other state and, at least partly for this reason, has proceeded farther than anywhere else in the world. But the process is by no means over. Global economic forces impel the state's production system to continually change—to become more industrialized, still larger in scale, and even more concentrated in ownership. As a result, the spread of the global food system is exposing California to many of the same wrenching dislocations endured by rural populations the world over.

In the global food economy, large quantities of single commodities need to be centrally collected, processed, and marketed. Such a system is only efficient if it is supplied by a small number of large monocultural farms, rather than a far greater number of small, diversified farms. Though California farms have always been large, the consolidation of farm own-





**FIGURE 2.1:**  
**Percent change in farm numbers by size: 1982 - 1997<sup>5</sup>**



ership is growing: between 1954 and 1997, average farm size increased 25 percent,<sup>1</sup> and the largest 1 percent of farms now control 46 percent of the state's farmland.<sup>2</sup> These two trends are associated with a decrease in the number of small and medium sized farms, which have difficulty surviving in a system that so heavily favors large producers. This is a nationwide trend—reflected in the fact that large commercial farms in the US net an average of \$149,300 annually while the average rural residence farm *loses* \$1,400 a year.<sup>3</sup>

In California, the total number of farms decreased by 10 percent between 1982 and 1997. That decline is significant but tells only part of the story. While the number of small farms, those with annual sales below \$50,000, consistently decreased, the number of farms with sales higher than that figure actually increased. In fact, the largest farms, those with annual sales over \$500,000, grew by more than 50 percent over the 15 year period.<sup>4</sup> In other words, smaller farms are being driven out, and their land and markets are being taken over by their larger competitors (see Figure 2.1).

### Old McDonald's factory farm

The consolidation of California's farm economy is even more dramatic than the rising acreage numbers indicate, since some of the "biggest" dairy, meat, and egg farms cover relatively little ground: on these industrial-style factory farms the closely confined animals don't graze or roam, and little if any of the feed is grown on the farm. For example, a 25,000 square foot, controlled-climate building can house 125,000 laying hens, each confined to 0.2 square feet of space.<sup>6</sup>

Thanks to the prevalence of these factory farms, the number of animals per farm is rapidly growing statewide, though it is commonly believed that the trend toward concentrated production peaked in the 1970s. A few examples illustrate the rapidity of change:

- Forty years ago, the typical California dairy farm had 63 cows. By 2001, the average had risen to 721, nearly twelve times as many.<sup>7</sup>
- Between 1982 and 1997, the number of beef cattle per farm increased 33 percent, dairy cows by 160 percent, and laying chickens by 117 percent.<sup>8</sup>
- Today, the average broiler (meat) chicken "farm" sells nearly one million birds annually.<sup>9</sup>
- By 2002, 80 percent of laying hens in California were found on "farms" with 100,000 or more birds.<sup>10</sup>
- Seventy percent of California's hogs are raised on farms of 5,000 or more.<sup>11</sup>

The concentration of animals in these conditions affects not only their welfare but also the environment and the health of Californians living nearby and downstream.

In dollar terms, dairy is California's largest agricultural sector. With \$4.6 billion in annual milk output,<sup>12</sup> California has surpassed Wisconsin to become the biggest dairy producer in the United States. California produces half of the nation's non-fat dry milk, 20 percent of its butter, and 28 percent of its cheese.<sup>13</sup> This growth has come about largely through the adoption of factory farm methods. At the forefront of this trend are Kern, Tulare, and Riverside counties, where dairy farms average 1,000 to 2,000 cows each. Plans are even afoot for a huge factory dairy project in the Mojave Desert. With 90,000 cows, it would be the largest dairy complex in the country.<sup>14</sup>



Photo: Jeff Vanuga, USDA Natural Resources Conservation Service



## Farm, Inc.

Along with the trend toward still larger farms and more concentrated ownership, there is a distinct trend in California toward corporate ownership. Although the majority of the state's farms are still owned by families or individuals, one in every 14 is owned by a corporation.<sup>15</sup> In many cases, these farms are controlled by vertically integrated agribusinesses that dominate other parts of the food chain as well.<sup>16</sup>

California already has a higher proportion of corporate farms and a smaller percentage of family farms than the national average, and the balance continues to shift toward the corporate: between 1982 and 1997, the number of family farms decreased by 13 percent, while the number of corporate-owned farms rose 8 percent.<sup>17</sup> Not surprisingly, California's corporate farms tend to be among the state's largest: corporate farms average roughly 1,000 acres in size—almost three times the state norm.<sup>18</sup> Corporate farms also account for almost half of all farms with a net income over \$500,000.<sup>19</sup>

The shift toward corporate farm ownership is troubling for a number of reasons. Though economic pressures can lead even family farmers to adopt abusive agricultural practices, those pressures are greatly magnified for corporate farms. Like corporations generally, corporate farms are driven by the quest for short-term profits, and in fact are legally bound to this goal by state constitutions, corporate codes, and other legal mechanisms. As a result, a corporation is far less likely than a family farmer to be concerned with the so-called “non-economic” values of the farm—the needs of wildlife, the long-term health of the soil, the quality of farm workers' lives, the farm's role in the neighboring farm community, or the viability of the farm's ecosystem several generations into the future. Corporations are also more successful at extracting subsidies, both direct and indirect, from the public: corporate farms in California receive twice as much in government subsidies as the average California farm.<sup>20</sup>

Because of the heavy social and environmental impacts of corporate farms, citizens in several states have pressed their governments to limit their spread. Nebraska and South Dakota have anti-corporate farming rules written into their constitutions, while Iowa, Kansas, Missouri, Minnesota, Oklahoma, North Dakota, and Wisconsin have statutes restricting corporate involvement in agriculture. Kansas also

allows counties to vote on whether to oppose corporate farming, and over 20 have done so, as have several localities in Pennsylvania. In fact, this is one of the few areas in which corporations have been successfully challenged in their “rights” as persons under the law.

## Continued reliance on chemical inputs

The methods employed on California's large-scale monocultural farms are highly unsustainable. Rather than working with nature's cycles, industrial production requires the use of manufactured inputs. Perhaps the most damaging of these inputs are the heavy chemical applications required to keep pests at bay in highly unnatural monocultures and to artificially supply nutrients to growing plants. Though it will take generations to know the full impacts of these practices on the health of people and the environment, the known consequences are already severe (see Chapters 5 and 6).

The use of agrochemicals, especially herbicides, also reduces the need for human labor; this is a major reason so few people remain on the land in California. The same is true of mechanized production methods, which today means replacing human and animal power with equipment run on fossil fuels. In 2000 alone, California farmers spent \$574 million on petroleum products,<sup>21</sup> inputs whose real costs are highly subsidized and externalized (see Chapter 6).

The need to continually adopt new farm technologies is one of the chief reasons farmers are on a “technological treadmill” that leads nowhere but to greater indebtedness, and siphons farm income into the coffers of equipment manufacturers. In 1997, the average California farm expenditure on machinery and equipment was \$69,590.<sup>22</sup> Today that figure is even higher: the cost of farm inputs, including machinery, increased 15 percent between 1997 and 2001.<sup>23</sup> In recent years, farm technology has become increasingly high-tech and even more costly, with such innovations as biotechnology and the use of Global Positioning System (GPS) satellites and Geographic Information Systems (GIS) technology for “precision” agriculture. As ever, California is at the forefront of these trends.

Despite their ongoing reliance on farm technology to replace farmworkers, California's growers are still dependent on cheap labor. The average wage for farm laborers in the state is under \$6/hour, a rate that leaves a full-time wage

**Trade deregulation is stripping away the unique advantages California's producers once had in the global marketplace, putting the state in direct competition with countries where production costs are far lower. As a result, California's food export balloon may be about to burst.**



earner with one dependent at the poverty line.<sup>24</sup> Nonetheless, labor costs are a major sticking point for the profits of California agribusinesses, which increasingly must compete with countries where the price of labor is far less. As a result, the globalization of food is exerting heavy downward pressure on farmworker wages, not just in California but throughout the North. Chapter 8 describes the plight of California's farmworkers in greater depth.

### California fisheries in the global economy

The fishing industry represents an important part of California's food production system, and it too has been affected by globalizing forces. California fisheries include squid, Dungeness crab, sea urchins, Chinook salmon, swordfish, sardines, lobster, tuna, and rockfish.<sup>25</sup> But the industry is on a steep downward slope, in part because of the deregulation of trade. In the 1970s, for instance, the state's tuna canning industry was among the largest and most profitable in the world, with tuna representing roughly half the state's landings. In 1985 the industry abandoned California for American Samoa and Puerto Rico, which have lower labor costs and less stringent environmental regulations.<sup>26</sup>

Even more important, the factory-like technologies that have been applied to fishing are putting unsustainable pressure on ocean ecosystems. These techniques extract tremendous quantities of fish, often in non-targeted ways that damage breeding grounds and harm marine mammals (see Chapter 6). As with industrial farming, this trend is supported by government subsidies, with many nations attempting to increase the global competitiveness of their own fishing industries by making their fleets still more "efficient."

Aquaculture, or fish farming, is increasingly promoted as a solution to both collapsed fisheries and world hunger. But these industrial aquatic feedlots require intensive inputs of feed, fertilizer, and antibiotics, and have harmed local communities and ecosystems.<sup>27</sup>

With stocks of more valuable species collapsing, the catch of smaller and economically less valuable fish like sardines and squid is increasing; as a result, California's fisherpeople are earning less money per pound caught.<sup>28</sup> Squid are exported primarily to China and sardines exported to Australia and Japan to feed farmed tuna and bait longlines.<sup>29</sup>

While these small fish are less valuable in dollar terms, they are important parts of the marine ecosystem: they feed many other species, and when they are overfished, the entire food chain is affected.

The increased global trade in fish has meant, among other things, that California's fishing industry no longer supplies the demands of the state's residents: in 2000, only 12 percent of fish consumed in the state were caught in California. At the same time, almost 75 percent of California's catch is exported to other countries; since most of the exported fish are less valuable species, the state spends over ten times as much on imports as it receives from exports.<sup>30</sup>



Photo: C. Ortiz Rojas/NOAA

### Food production tomorrow

The enormous scale and centralized nature of the global food system has significant implications. In order to be "efficient" and profitable, the huge distributors and supermarket chains that dominate the system cannot make purchases from a great number of small, diversified farms; instead they must be supplied by farms producing massive amounts of single commodities. In this

way, the architecture of the global food system is driving farms to become larger and more monocultural, thus increasingly dependent on fossil fuels, chemical inputs, and biotechnology.

As with so many other aspects of the global food system, California has been at the forefront of these trends. As we will see, these have had devastating consequences for the environment and for the vast majority of the state's residents. Nonetheless, California agriculture continues to be "showcased" as a successful model to be emulated by other regions, particularly the countries of the South.<sup>31</sup>

Fortunately, there are better agricultural alternatives—those that are smaller in scale, more diversified and ecologically sound, and more supportive of equitable economies and nurturing of local communities. As the problems of industrial production for global markets become more apparent, clear alternatives are emerging through the sustainable agriculture movement in California. Regrettably, government support for this movement is still a tiny fraction of what is supplied to "conventional" agriculture. What's more, policies promoting the globalization of food inherently undermine any effort to improve the sustainability of the state's agricultural system. A shift in direction is sorely needed.



## CHAPTER 3:

# Consolidating the Food Supply Chain

**T**he global economy is affecting more than just food production: other components of California's food system, from processing and shipping to wholesaling and retailing, are also feeling the impact. With the "rules of the game" rewritten to favor the largest firms, small businesses in every sector of the food economy are being consumed by the largest, and control is being consolidated within a handful of huge corporations. Although these trends are occurring worldwide, corporate concentration in the food system is happening more rapidly in California than anywhere else on the continent.<sup>1</sup>

The consolidation of businesses across one level in the food chain is called *horizontal integration*, as when two shippers or seed companies merge or a retailer acquires another retailer (see Box 3.1 for an example of horizontal integration in foodservice). One of its impacts is a reduction in market alternatives. For producers, this has serious implications: if a farmer rejects the price offered by what might be the only wholesaler left in her region, she may be unable to sell her product at all. Market alternatives for consumers are also diminishing, as supermarket chains and superstores come to eliminate other regional food marketing options.

Another result of horizontal integration is the increased transport of food. With local buyers for raw farm products disappearing, food must be shipped to large centralized buyers, often great distances away. For example, more than two-thirds of California beef cattle are shipped out of state for feeding and slaughter.<sup>2</sup>

The globalization of food is also encouraging another form of consolidation, *vertical integration*, in which firms assimilate

other links of the food chain into their operations, such as a meat packer that acquires grain handling facilities, feedlots, or businesses that market directly to retailers.<sup>3</sup> This trend has proceeded so far that it is now common for large marketers to grow and ship their own products and to sell directly to retailers, absorbing the functions of traditional wholesalers and brokerage firms into their own operations, and thereby increasing their power in the food supply chain.<sup>4</sup>

One of the most striking examples of vertical integration is ConAgra Foods Inc., which controls a large portion of the market in everything from farm inputs to highly processed TV dinners (see Box 3.2). Another company, Del Monte, boasts that: "Del Monte Fresh Produce Company truly does it all! We grow, pack, ship and distribute our products ourselves."<sup>5</sup>

The increase in horizontal and vertical integration, achieved primarily through mergers and acquisitions, raises a host of anti-trust concerns. Among other things, these highly consolidated middlemen are in a position to exert tremendous con-

**Concentration leads to an overall increase in retail food prices, since the effect of increased market power overshadows any cost-efficiencies.**



trol over prices—both those paid to producers and those charged to consumers. This eliminates competition and results in a type of oligopoly that makes it virtually impossible for smaller businesses to survive or for new enterprises to gain a foothold. The net result is decreased returns for farmers, relatively higher prices for consumers at the checkout line, and record profits for the food system's corporate middlemen.<sup>6</sup>

Numerous complaints by producers have challenged the legality of this highly integrated system. But these legitimate concerns have mostly been disregarded, not only by the corporations in power but in many cases by Justice Department anti-trust officials as well. This is because it is assumed that globalization has changed the standards by which illegal monopoly power is measured: within the global economy, it is argued, firms *must* be huge to survive. If smaller firms are continually absorbed by larger ones, this is attributed to the infallible hand of the free market, working to eliminate less “efficient” businesses. This view, however, completely ignores the “hand” of these same corporations in rewriting the rules of the global economy in such a way that larger scale is constantly demanded.

### Consolidation in food retail

Many of the changes in the food supply chain have been accelerated by the rapid consolidation of the retail sector (see Box 3.3). The top five supermarket corporations in the

United States (Kroger, Albertsons, Wal-Mart, Safeway, and Ahold USA) increased their control of the market from 24 percent of retail sales in 1997 to 42 percent in 2000.

In California, where 93 percent of food is sold through supermarkets,<sup>7</sup> control of food retail is even more concentrated. The top three supermarket chains (Safeway, Kroger, and Albertsons) control 47 percent of the market in

Northern California and 63 percent in Southern California.<sup>8</sup> (Appendix 1 profiles California's top three supermarket companies.) Thanks to economic globalization, the consolidation trend is not confined to the United States: economists anticipate that six or fewer corporations will soon dominate food retailing worldwide.<sup>9</sup>

The degree to which this process is occurring has been largely hidden from public view, in part because the dominant companies often keep the original

names on stores they acquire. Most shoppers at Smith's, Fred Meyer, Quality Food Centers, Ralph's/Food 4 Less, City Market, Kessel, PriceRite, and PayLess stores are unlikely to know that these markets are all owned by the largest US retailer, Kroger. Nor are the customers of the chains Stop and Shop, Bi-Lo, Tops, and Giant likely to be aware that these stores are owned by Netherlands-based Royal Ahold, which operates retail food outlets around the world.<sup>10</sup>

Though retailing has already become highly concentrated, the process is by no means over. The industry journal *Progressive Grocer* points out that in the future, “the number



Photo: Katy Mamen

## BOX 3.1: Horizontal integration profile: Sysco

In 1969, Zero Foods of Houston, Texas, merged with eight regional foodservice distributors to become Sysco. Since then, Sysco has expanded significantly, purchasing approximately 70 other companies (or divisions of companies)<sup>33</sup> to become the largest company in the foodservice distribution industry in North America. Sysco has 145 distribution centers throughout North America and delivers more than a quarter million different items of food and other related products to some 420,000 restaurants, hospitals, schools, prisons, hotels, military bases, and other facilities throughout the continent.<sup>34</sup>

Sysco reported sales of \$26.1 billion and net earnings of \$778.3 million in 2003, representing about 13 percent of the food service industry total and dwarfing its two chief competitors, U.S. Food Service, and Performance Food Group.<sup>35</sup> Sysco has a strong presence in California, including 17 distribution centers. In recent years, Sysco acquired several California-based businesses: Newport Meat Company of Irvine (one of the largest distributors of meat and seafood in Southern California), FreshPoint of Southern California, Lee Ray-Tarantino Company, Royal Foods Company, and the foodservice operations of Smart & Final.<sup>36</sup>



of mega mergers is expected to be limited . . . primarily because there are not many large companies left to buy. But watch out as the mega-chains gobble up small and mid-sized independents as fill-ins to solidify their market share and increase their buying power.”<sup>11</sup>

As consolidation in this sector has grown, the largest retailers have gained immense leverage, not only over the retail sector, but over other parts of the food system as well. Producers, suppliers, processors, and wholesalers are all being forced to consolidate further in the hope of matching the retailers’ economic clout.<sup>12</sup> In this way, the global food system requires and rewards larger scale at every level.

For example, the retailers’ control of so much of the market enables them to command low prices and volume discounts from suppliers.<sup>13</sup> This allows them to undercut smaller retail competitors, which cannot demand similarly low prices from suppliers. Powerful retail chains have also begun to mandate that suppliers pay for product placement in stores. It is estimated that roughly 50 to 75 percent of the total net profit of large supermarkets comes from these fees, which include slotting fees, display and presentation fees, failure fees, and “pay-to-stay” fees.<sup>14</sup>

These fees can be large: getting bagged lettuce on supermarket shelves, for example, can cost a supplier \$10-20,000 for small retail accounts, \$500,000 for a division of a multiregional chain, and up to \$2 million for a large multiregional chain.<sup>15</sup> These

huge fees keep smaller suppliers out: if they cannot afford to pay the charges, they are left without access to markets.

The dominant position of the supermarket chains is forcing suppliers to consolidate or risk losing still more power to the retailers.<sup>16</sup> This, too, has the effect of driving out the smallest firms. One study found that large retailers obtain 85 to 97 percent of their total purchases from their top four suppliers, leaving little of the market for smaller businesses.<sup>17</sup>

### Growth run amok

Consolidation is taking place throughout California’s, and the nation’s, food system, whittling down the number of companies and focusing control in the hands of the ever larger companies that remain. Consider these examples:

- By 1998, the four biggest wholesalers accounted for 21 percent of the \$147 billion US industry; the sector has become still more consolidated, with 26 mergers and acquisitions recorded between 1997 and 2000 alone.<sup>18</sup>
- The top 20 “food manufacturers” are now responsible for more than half of the nation’s processing, twice their share in 1954.<sup>19</sup>
- One company, Tyson Foods, is responsible for one-fourth of all US chicken sales.<sup>20</sup>
- Two companies in California, Dole and Fresh Express, control two-thirds of the country’s bagged salad market.<sup>21</sup>

## BOX 3.2: Vertical integration profile: ConAgra

Together, ConAgra’s four divisions—Agricultural Products, Food Ingredients (including seasonings, flavorings, and grain), Meat Processing, and Packaged Foods—encompass nearly all aspects of food production, processing, and distribution. Producing everything from herbicides to frozen dinners, ConAgra is a dominating presence throughout the food system, a strategy that netted the company \$19.8 billion in sales in 2003.<sup>37</sup>

As ConAgra’s website proclaims, “It’s time to eat . . . it’s time for ConAgra Foods!” Indeed, it would be difficult for most consumers to avoid ConAgra at mealtime. The company produces a myriad of highly processed products for every meal of the day. Giving an illusion of choice in the supermarket, many of their brands even overlap: the “competing” margarines Blue Bonnet, Parkay, Move Over Butter, and Fleischmann’s are all produced by ConAgra.<sup>38</sup>

ConAgra’s influence over the food system is global in scope. For instance, ConAgra Foods promotes, through manufacturing and marketing, the use of pesticides and synthetic fertilizers on four continents. ConAgra markets these agrochemicals in the United States, Argentina, Bolivia, Canada, Chile, Ecuador, France, Mexico, Peru, South Africa, Taiwan, and the United Kingdom.<sup>39</sup>

In 2003, ConAgra was the nation’s third-largest food company after Kraft Foods and Nestle USA.<sup>40</sup> Although ConAgra revenues have declined since most of its meat processing division was sold, the company remains one of the dominant food production and marketing agribusinesses in the US.<sup>41</sup>



## BOX 3.3: Wal-Mart

Photo: ISEC



Wal-Mart, with 3,400 US stores and counting, is the largest grocery retailer in the world—in fact the largest *company* in the world when measured by annual revenues. Wal-Mart already operates in 11 countries<sup>42</sup> and recently purchased some of the leading supermarket chains in Britain and Germany. Fiscal year profits for 2003 were reported at an astonishing \$8 billion.

Globally, the threat posed by Wal-Mart is so great to other retailers that even the largest are being forced to merge or expand in order to cope.<sup>43</sup> Thus, France's Carrefour and Promodes recently merged in direct response to Wal-Mart's global presence, becoming second only to the American giant among global retailers.

Wal-Mart's massive presence is helping drive change throughout the retail sector and beyond:

- The Food Marketing Institute estimates that Wal-Mart has helped push the median grocery store size from 40,500 square feet up to 52,400 square feet in just two years.<sup>44</sup> Wal-Mart Supercenters range from 180,000 to 225,000 square feet.
- Whenever one of its stores opens in a community, many smaller independent shops are forced to close. Studies in the US have shown that five years after the opening of a new Wal-Mart, stores within a 20-mile radius have lost an average of 19 percent in retail sales.<sup>45</sup>
- Despite employing more than 962,000 "associates" across the US, making it the largest private employer in the country, the opening of stores like Wal-Mart results in a net loss of jobs.<sup>46</sup>
- Wal-Mart and other large grocery outlets tend to locate outside of town centers, undermining the vitality of urban cores and forcing customers to drive greater distances to shop.

- Wal-Mart's "everyday low prices" come at the expense of other businesses within the food economy. The slotting fees and low prices demanded of suppliers ripple down through the food system, ultimately putting pressure on the prices received by farmers and the wages received by workers at every level.

Wal-Mart has had a significant impact on California's economy: the state is home to 133 Wal-Mart discount stores and 30 SAM'S CLUB stores. Wal-Mart's plans for expansion in California include the development of 40 Supercenters, bringing the company's food retail division into the state for the first time. Non-unionized Wal-Mart offers lower wages and fewer benefits than the state's unionized supermarkets, which are attempting to trim their own labor costs to make themselves more competitive. This was the main reason behind a strike by some 70,000 grocery store workers at 859 supermarkets in Southern California that began in October 2003.<sup>47</sup> In response to accusations from unions that the companies were slashing benefits, "the grocery companies countered they were no longer willing to absorb all the costs involved in maintaining health care benefits, saying they face pressure from Wal-Mart, Costco and other supermarket operators that don't pay as much toward employee benefits."<sup>48</sup>

Superstores such as Wal-Mart are a growing concern for communities around the world, and many municipalities are taking a stand. California towns like Martinez and Oakland have established laws regulating the size and scope of retail outlets. A recent Contra Costa County ordinance prohibited retailers with footprints in excess of 90,000 square feet from dedicating more than 4,500 square feet of retail space to groceries and other nontaxable items. The law would, in effect, prevent superstores from opening full-line grocery stores and help stem the loss of neighborhood stores and local jobs. In the words of Contra Costa citizen Liz Perlman: "they just shouldn't have a supercenter that's the size of 15 football fields."<sup>49</sup> Fearing such a precedent in a state where it has major plans for expansion, Wal-Mart organized to get a measure on the March 2004 ballot in the hope of overturning the ordinance. The company spent over \$1 million on the referendum, and succeeded in eliminating the law from the books.<sup>50</sup>



- Just four companies control peach canning in California,<sup>22</sup> down from 37 in 1960.<sup>23</sup>
- The number of cattle slaughter facilities in California dropped from 52 in 1972 to just 10 in 1997.<sup>24</sup>
- The top 20 fruit and vegetable shippers account for 59 percent of retail sales in the US.<sup>25</sup>
- Even producer cooperatives are being forced to “get big or get out.” The cooperative Sunkist now controls more than half of citrus output. Blue Diamond, another co-op, dominates the almond industry and Sunmaid the raisin industry.<sup>26</sup>
- In California, retail consolidation drove a group of produce companies—including Teixeira Farms, PacFresh Produce, Gold Coast Packing, A&A Farming, Byrd Farms, and Church Brothers—to form one large company, FreshKist Produce. This massive new conglomerate expects to ship an estimated 15 to 20 million cartons of California produce to global destinations each year.<sup>27</sup>

Horizontal and vertical integration, strategic alliances, food system clusters—to read the food industry news is to get a crash course in strategies for achieving ever larger scale. These trends have now even begun to take over the organics sector (see Box 3.4). The scaling up has become a positive feedback loop—a process of growth run amok. Far from a problematic glitch in the system, however, this trend is an unavoidable outcome of economic globalization, with the scale of the global economy requiring firms to become huge if they are to compete globally. “What you are seeing,” said Robert Fraley, co-president of Monsanto’s agricultural division, is “a consolidation of the entire food chain.”<sup>28</sup> This admission should have warranted a visit from Justice Department and Federal Trade Commission anti-trust lawyers; but in the era of economic globalization government policymakers not only turn a blind eye to runaway growth, they systematically encourage it.

### Who gains?

Industry proponents argue that this consolidated industry structure is more “efficient.” But the efficiencies claimed involve little more than passing costs from the dominant cor-

porations onto the rest of society, including smaller producers, smaller marketers, and the public. The intensely centralized food system requires so much transport, for example, that it could not survive without heavily subsidized transport infrastructure, or petroleum products at prices reflecting only a small fraction of their true costs.



Photo: Katy Mamen

**The largest retailers have gained immense leverage, not only over the retail sector, but over other parts of the food system as well. Producers, suppliers, processors, and wholesalers are all being forced to consolidate further in the hope of matching the retailers’ economic clout.**

A full accounting would reveal that this industry structure is efficient only in terms of maximizing the profits of a few corporations. If measured in different terms—for example the most efficient use of natural resources—it is clear that the global food economy is in fact highly wasteful. The Organization for Competitive Markets (OCM), a group highly critical of the current state of the food system, views “the current consolidation of agriculture as market failure resulting in misallocation of resources and the destruction of rural economies and culture.”<sup>29</sup>

Consumers, too, have been negatively affected by these trends. As the food system falls under the control of fewer and larger corporations, food is subject to higher applications of chemicals, it is transported farther, processed more, and sits in trucks and on supermarket shelves longer—all of which compromise the taste and nutritional value of food. Even when regarded through the narrow lens of food prices, the benefits for consumers are hard to discern. Food prices have risen only marginally slower than the overall inflation rate,<sup>30</sup> and in fact, researchers

have found that concentration leads to an overall *increase* in retail food prices, since the effect of increased market power overshadows any cost-efficiencies.<sup>31</sup> What’s more, consolidation of the food supply means that the public has even less access to information about how and where its food is produced.

Farmers dependent on this system shoulder an especially heavy burden. They have no control over the price of the inputs their industrial methods require, nor over the price offered for the one or two commodities they produce. The monopoly power of buyer corporations not only enables them to squeeze farmers with low farmgate prices; the contracts they offer often stipulate equipment upgrades the farmers must pay for themselves (particularly common in the





## BOX 3.4: Industrial organics

Photo: Alex Jensen



Organic food has become a booming business: in the last decade, sales grew roughly 20 percent annually, and organic acreage gained considerable ground. Although organic products still account for less than 2 percent of US food

sales, and organically certified land is only 0.3 percent of the nation's farmland, the demand for organic food shows no sign of slowing.<sup>51</sup>

California produces more than half the country's organic produce, with more certified organic crop acreage than the rest of the states combined (California ranks fourth overall if organic pastureland is included).<sup>52</sup> In 2001, California had slightly more than 1,000 certified organic farms, up 12 percent from the previous year.<sup>53</sup>

At first blush, the meteoric rise of organic food seems an undeniably positive trend. Farming organically, without toxic pesticides or chemical fertilizers, is an essential ingredient in more sustainable food systems: it is better for consumers, farmers, farmworkers, and the planet. But a closer look at the growth of the organic sector reveals many of the same problems that plague the broader food system.

Organic food is now traded as an international commodity by the same multinational corporations that dominate conventional agriculture.<sup>54</sup> Today many of the big supermarket chains, including Wal-Mart and Kroger, stock organic produce and processed foods, signaling that organic food has reached the mainstream. In the process, it has moved further from its original emphasis on human scale, community, and strong ties between producers and consumers.

Today's organic market is dominated by companies like Horizon Dairy, "the Microsoft of organic milk," a \$127 million corporation that controls 70 percent of the organic milk retail market.<sup>55</sup> Horizon is owned by Dean Foods, which was recently bought by Suiza, the largest US dairy manufacturer and distributor. California-based Muir Glen Organics is owned by Cascadian Farm, another leading organic brand, which is a subsidiary of giant food conglomerate General Mills. In other words, the same huge agribusinesses that dominate the rest of the food chain are taking over the lucrative organic market as well. And the production, distribution, and marketing of these corpora-

tions' organic product lines, from lettuce to TV dinners, is facilitated by the same transport and energy infrastructures that subsidize other industrial foods, with the same built-in ecological, social, and economic impacts.

California has jumped aboard the industrial organic train. Today five giant farms control half of the state's \$400 million organic produce market.<sup>56</sup> Surging organic sales in recent years have not led to greater numbers of organic farms so much as increased return per acre and the expansion of existing farms.<sup>57</sup> The average size of certified organic farms in California more than tripled between 1985 and 1992;<sup>58</sup> California Certified Organic Farmers (CCOF), the state's leading organic certifier, has registered growers with farms totalling more than 15,000 acres.<sup>59</sup>

The certification process itself plays a role in the increasingly unlevel playing field in organic farming. The National Organic Standards put in place by the USDA in 2002 make no allowance for location-specific diversity, instead imposing a one-size-fits-all scheme on the entire country, largely to give US organic exports a consistent label. One result is regulations that are often inappropriate and prohibitively expensive for small-scale organic farmers. A more sustainable and democratic model for organic standards would limit farm size, incorporate social and labor considerations, address the humane treatment of animals, and encourage locally adapted, flexible certification schemes.<sup>60</sup>

Has the organic food movement taken a wrong turn? A rift is growing between the effects of today's consolidating organic industry and the original intentions of the organic movement to build a food system with ecological and social integrity. Organic is more than just chemical-free farming, it is an integral element of a healthier, more equitable and sustainable society.

A shift toward organic food remains an important part of building a sustainable food future, but organic at the expense of local fails to address the more systemic problems in the food system. Putting the "local" back in organic would inherently limit the scale of producers and marketers and make it impossible for huge centralized agribusinesses to dominate the entire organic market. Redirecting subsidies away from the needs of industrial food production, and instead toward incentives, research, and opportunities that help diverse small-scale local organic farmers thrive, would be a big step in the right direction.



poultry industry), while any risk of loss falls on the farmer, not the corporate buyer. As a consequence of this “efficient” food system, many farmers receive less for their production than it costs them to produce it. These farmers are told that the only way they can turn a profit is to increase their scale of operation in order to become—what else?—more “efficient.”

The cost of efficiency can also be high for communities whose economic livelihoods depend on providing labor for this concentrated system. Globalization allows companies to scour the world for the biggest subsidies and the lowest costs, and communities unable or unwilling to provide them can easily have the “economic rug” pulled out from under them. For instance, the closure of a Heinz ketchup and tomato paste plant in Tracy in 1997 improved the company’s economic bottom line but meant layoffs for the plant’s 460 full-time and 200 seasonal employees. As part of a “capital invest-

ment” plan designed to save the company \$170 million over five years, Del Monte has closed numerous California processing plants since 1999, including fruit processing facilities in San Jose and Stockton and a tomato processing facility in Woodland.

Jeff Boese, president of the California League of Food Processors, makes the usual claim that all these trends represent progress: “we produce more processed foods than we ever have today with less than half of the factories [we had] 15 years ago.”<sup>32</sup> Yet the benefits of this and other restructuring in the food industry have only accrued to a small handful of corporations and their shareholders. The centralized control and power of middlemen in the food system leverages decision-making power and economic resources away from both producers and consumers. It is this distancing of producers and consumers that is at the crux of many of today’s social and ecological crises.



## CHAPTER 4:

# Expanding Transport and Trade

**T**he global food system is full of externalities, costs that are left out of the economic accounting, thereby making the whole system appear far more “efficient” than it really is. Among these, transport is one of the most conspicuous.

From the point of view of big corporations in the food system, it makes sense for massive farms to produce commodities in huge monocultures, and it makes sense for those raw commodities to be amassed centrally, distributed to huge centralized processors and manufacturers, then redistributed to massive retailers. It also makes sense for consumers to drive to a few centralized retail mega-stores to purchase heavily-processed foods that have been advertised to them as “cheap” and “convenient.” In the end, food from this system will have traveled thousands of miles even when it could have been grown next door—even if it *was* grown next door—and consumers will have collectively traveled millions of additional miles to shop.

According to its proponents, this system is efficient. But it is hard to imagine how a system that systematically increases the distance between producer and consumer, thereby leading to excessive and wasteful transport of food, can be anything but *inefficient*.

California, a bellwether for many of the destructive trends stemming from the globalization of food, is exporting more food than ever before, while at the same time relying on imports to feed its own population. It is exporting many food products, while simultaneously *importing* the identical foods. It is shipping raw foods to other states and countries for processing and then re-importing them for in-state consumption. At a time when wars are being fought over oil and the global climate is changing because of fossil fuel combustion, California is adding needless food miles to products its residents need every day.

**California is exporting more food than ever before, while at the same time relying on imports to feed its own population.**

### Food miles

“Food miles” is a term given to the distance food travels from the point of production to its ultimate consumer. In a more localized food economy, food miles may include the distance from a farm to the farmers’ market, and from there to the consumer’s home. In the global food economy, it regularly involves transport from the farm to storage, grading, and sorting facilities, to processing and manufacturing plants, to wholesalers, retailers, and finally to consumers. The distances involved continue to grow, with individual food items crossing international borders, sometimes back and forth, before arriving at the point of purchase.

The movement of global food after it leaves the farm is often so complex that it is all but impossible to know with any certainty just how far it has traveled. For example, someone in Oakland who buys a bottle of Heinz organic ketchup may rightly suspect that the tomatoes were grown in California, reasonably close to home. However, they are unlikely to know that those California-grown tomatoes were shipped to Ontario, Canada to be processed and bottled before returning to retail shelves in Oakland,<sup>1</sup> a round trip of 5,000 miles.

The difficulty of tracking food miles is compounded by the fact that no government agency or research institution compiles comprehensive figures on food miles, while the corporations dominating the food chain consider statistics on food transport “proprietary information” that can be kept hidden



from the public (see Box 4.1). However, enough data are available to know that food miles are considerable and rising.

### Food transport in California

The quantity of food transported into and out of California is immense. In 1998, for instance, \$124 billion worth of food was traded in, out, and through California,<sup>2</sup> and the trend continues upward. As Table 4.1 illustrates, the value of food transported in the state is projected to increase by more than 250 percent as the global food economy expands, and to lead all other goods by 2020.<sup>3</sup>

Today, most food transported out of California is sent by truck, including 93 percent of fruit and vegetable shipments, representing half a million truckloads each year.<sup>4</sup> It is estimated that only 43 percent of vegetable output stays within the state. A little less than half of the remainder is shipped overseas and the rest is distributed across the US, with three of the top four destination states east of the Mississippi.<sup>5</sup> Similar transport patterns are observed for other foods. Of particular concern, the transport of live animals averages 1,149 miles per shipment, with obvious implications for animal welfare.<sup>6</sup>

Increasing amounts of food are also shipped into and out of California by air<sup>7</sup>—a practice that adds considerably to greenhouse gas emissions. Transporting the same weight by plane emits almost 6 times as much CO<sub>2</sub> as transport by road, nearly 30 times as much as by rail, and over 40 times as much as by ship.<sup>8</sup> More than 44,000 tons of California-produced food are transported by air to other states each year,<sup>9</sup> while additional quantities are flown overseas. Similarly, California imports significant amounts of food by air, including herbs from France, papaya and pineapples from Hawaii, and citrus fruits from Spain.<sup>10</sup>

**TABLE 4.1:**

**Top five commodities shipped to, from, and within California by all modes: 1998 and 2020<sup>11</sup>**

COMMODITY	TONS (million)	
	1998	2020
Crude petroleum/natural gas	375	420
Petroleum/coal products	132	289
Nonmetallic minerals	129	286
Chemicals/allied products	101	206
<b>Food/kindred products</b>	<b>90</b>	<b>125</b>

**FIGURE 4.1:**  
**Truck flows for international products traded via California<sup>23</sup>**





**TABLE 4.2:**  
**California's agricultural exports,**  
**2001<sup>21</sup>**

Rank	Commodity	Export Value (\$ million)	Main destinations (% of exports)
1	Almonds	685.6	EU (50%), Japan (11%), India (9%)
2	Cotton	604.5	South Korea (17%), Japan (15%), Indonesia (12%)
3	Wine	470.9	EU (61%), Canada (16%), Japan (10%)
4	Table grapes	394.5	Canada (27%), China/Hong Kong (20%), Malaysia (9%)
5	Dairy	322.1	Central/South America (55%), Pacific Rim (33%)
6	Oranges	297.5	Canada (24%), Japan (22%), China/Hong Kong (20%)
7	Processed tomatoes	211.7	Canada (49%), Mexico (11%), EU (9%)
8	Walnuts	179.1	EU (49%), Japan (20%), Canada (9%)
9	Rice	166.4	Japan (59%), Turkey (11%), Uzbekistan (6%)
10	Beef and products	154.8	Japan (46%), South Korea (25%), China/Hong Kong (13%)

Agriculture is second only to computers and electronics among state industries reliant on foreign trade.<sup>14</sup> Close to one-fifth<sup>15</sup> of California's agricultural products, worth \$6.5 billion,<sup>16</sup> are now exported abroad. This is more than is exported by most countries, including major exporters such as Australia and Canada.<sup>17</sup>

Not surprisingly, California is the leading food exporting state in the US: almost half of all the nation's foreign exports of vegetable and fruit products come from California fields. There are 24 commodities for which California is responsible for over 85 percent of total US exports, and twelve for

which it accounts for 100 percent.<sup>18</sup> California's principal export markets for agricultural products are East Asia (especially Japan and China),<sup>19</sup> the European Union, Canada, and Mexico.<sup>20</sup> Table 4.2 shows California's top 10 export products and their main destinations.

Much of this trade in food makes little sense, except to the agribusinesses that profit from it. For example, a large portion of California's exports are to countries that either produce (often for export) the same commodities they are importing or to countries that could obtain the same product much closer to home. Some examples drawn from Table 4.2 include:

- *Almonds*: The EU is the leading recipient of California almonds, yet 4 of the 5 top almond-producing (and exporting) countries—Greece, Italy, Spain, and Turkey—are all current or prospective EU members.
- *Cotton*: China is the world's largest producer of cotton, yet Japan imports cotton from California, adding an extra 4,000 miles of transport.
- *Grapes*: Twenty percent of California's table grapes are destined for China, yet China is by far the world's largest producer of table grapes.
- *Oranges*: China is also the world's third largest citrus producer, yet it annually imports \$60 million worth of California oranges.
- *Processed tomatoes*: Half of all exports of California processed tomatoes are destined for Canada, yet the US imports \$36 million worth of Canadian processed tomatoes yearly. Canada is the United States' top foreign source of processed tomatoes.<sup>22</sup>

In addition to logging food miles overseas, California exports travel great distances before they even leave US soil, as food is shipped by truck and train all over the country before being exported. Figure 4.1 depicts the truck transport flows of goods traded internationally via California, indicating the significant transport burden on the US road system from goods destined for overseas markets. Half of the exports of California's farm products leave the country via other states, while approximately half of farm products exiting from California ports originate in other states. Exports through the Port of Oakland, for example, include poultry from Arkansas, beef from Montana, and cotton from the South.

### The Golden State: a net food importer

Given the abundant amount of food California produces and exports, it would be reasonable to suppose that the state is largely self-sufficient in food. This is, in fact, what our political leaders would have us believe for the US as a whole. In the



words of Agriculture Secretary Ann Veneman: “Year in and year out we produce far more than we need to fully meet the demand here at home, so we naturally turn to the foreign markets.”<sup>24</sup> But in truth even California—the nation’s biggest food producer by far—must import food to feed its residents.

Since the global economy systematically encourages so much transport, it is difficult to pin down the degree to which California is currently food self-reliant. The California tomatoes transported to Heinz’s ketchup processing plant in Canada, for example, appear on the ledger as both an export of raw food and an import of processed food. Grain from the Midwest is imported for California’s feedlots, then most of the fattened cows are sent out of state for slaughtering, only to be re-imported, both for home consumption and export.

Nonetheless, it is clear that California does not come close to meeting its own food requirements. Even while 43 percent of California’s raw farm tonnage is exported out of the state, 59 percent of the state’s demand for raw farm products is brought in from elsewhere.<sup>25</sup> When processed foods are included, California relies on out-of-state food for 40 percent of its total needs.<sup>26</sup> In total, 66.8 million tons of raw and processed food come into the state, and 36.5 million tons are sent to other states and countries. This means that despite California’s reputation as an agricultural export powerhouse, the state is a net food importer.

Not only is California relying on out-of-state food to feed its residents, an increasing proportion comes from other countries. The amount of overseas food imports coming into California ports has been growing steadily, rising 75 percent between 1992 and 2002 alone.<sup>27</sup> This trend is not unique to California: the US as a whole is increasingly dependent on imported food, which reached 8.8 percent of the total consumed in 2000.<sup>28</sup> As Table 4.3 shows, the proportion of staple foods being imported is rising across the board. As California has typically been the main supplier of many of these commodities for the US, this is another indication of the eroding market for California exports.

### Redundant trade

As a result of the globalization of the food economy, food simply travels farther and farther. Even though California still supplies much of the American diet, a great deal of its production is exported to foreign countries rather than serving needs much closer to home. At the same time, demand for foods consumed in the US is being met by producers even more distant than California. This relationship holds true for staple foods of which California is a leading producer, as well as for tropical foods that the state cannot produce.

Even worse is purely *redundant trade*, the simultaneous import and export of the same foods (see Figure 4.2). Thus, while California is by far the leading exporter of fresh fruits and vegetables in the country, the state is a net *importer* of fresh vegetables. If present trends continue, it will also be a net

**TABLE 4.3:**  
**Import share of US-consumed food—selected items<sup>29</sup>**

Selected items	Import share	
	1980 (%)	2000 (%)
Beef	8.7	11.0
Pork	3.3	5.2
Lamb	9.4	35.6
Fish and shellfish	45.3	68.3
Dairy products	1.7	2.7
Fruits—fresh and frozen	5.8	21.8
Citrus	2.1	11.5
Avocados	1.6	26.0
Grapes	12.6	44.3
Melons	10.5	25.7
Fruit juices	11.6	31.6
Olives, processed	21.0	75.0
Tree nuts	25.5	38.5
Vegetables—fresh and frozen	5.9	14.0
Asparagus	10.8	59.0
Tomatoes	22.8	31.9
Potatoes	1.0	14.0
Olive oil <sup>30</sup>	96.6	104.4
Spices	4.8	13.9
Wheat	0.3	8.7
Rice	0.3	9.6
Barley	3.3	17.0
Confectionery products	2.4	11.1
Malt beverages	2.6	9.9



importer of fruit within a few years.<sup>31</sup> Similarly, the majority of beef consumed in California comes from Midwestern states, even though beef is California's 10<sup>th</sup> most valuable agricultural export.

Redundant trade is emblematic of the way trade for trade's sake is promoted within the global economy. Despite the needless transport, as well as pollution, greenhouse gas emissions, and wasted fossil fuels, that result, redundant trade is not an anomaly but an inescapable consequence of the logic of globalization. It is also on the increase, not only in the US, but the world over. Here are a few examples of products that effectively cross paths in opposite directions:

- *Brussels sprouts*: While California brussels sprouts are being trucked throughout the year to Detroit to be shipped to Canada, we import similar quantities of Belgian brussels sprouts via Detroit, and Mexican brussels sprouts via San Diego.
- *Cherries*: Canada is the second most important destination for California cherries, yet each year the US imports \$19 million worth of Canadian cherries. California ports also receive shipments of cherries from Chile, Italy, Eastern Europe, Germany, and Washington state *during* cherry season here, including some imported by air.
- *Pistachios*: The New York City port alone exports \$70,000 worth of California pistachios to Italy each year and imports \$50,000 worth of Italian pistachios.<sup>32</sup> Despite sending 50 percent of California's harvest abroad, the US imports pistachios from countries such as Turkey, Iran, Lebanon, Canada, Afghanistan, France, United Arab Emirates, and Pakistan.
- *Almonds*: In one year, the New York City port exported \$431,000 worth of California almonds to Italy and imported \$397,000 worth of Italian almonds. Two-thirds of the California almond harvest is exported—such a large quantity that California accounts for 75 percent of the world almond supply<sup>33</sup>—yet California ports *receive* almonds from Turkey, Germany, and China.<sup>34</sup>

Superfluous trade is now commonplace around the world and across all commodity groups. Still, promoters of the global economy claim that the system improves “efficiency.” But as former World Bank economist Herman Daly has sardonically pointed out, redundant trade reveals the stunning *inefficiency*



**FIGURE 4.2:**  
**Direct international**  
**trade at California**  
**ports**

in thousands of dollars

of the global food economy: “Americans import Danish sugar cookies, and Danes import American sugar cookies. Exchanging recipes would surely be more efficient.”<sup>35</sup>

### Why are we importing and exporting more?

At the national level, agricultural imports and exports are both increasing rapidly (see Figure 4.3). In 2001, the US exported \$58 billion and imported \$44 billion worth of food increases of 25 percent and 57 percent, respectively, from just 8 years earlier.<sup>36</sup>

What accounts for this explosion in food trade? Most explanations assume that consumers are driving the trend. Some argue that rising ethnic diversity is the cause, with immigrant demand for familiar foods from their countries of origin leading to increased imports.<sup>38</sup> Although this may explain relatively small amounts of imported niche products, it does nothing to explain the skyrocketing imports of such common foods as cheese, apples, garlic, or strawberries.<sup>39</sup> Others claim that rising consumer incomes are the cause.<sup>40</sup> Again,



this may account for added imports of expensive exotic fruits from South America or caviar from Russia, but says nothing about everyday staple foods. Still others point to the lower price of overseas produce.<sup>41</sup> This comes closer to the mark, but it is not consumers that are demanding these imports. In fact, 75 percent of American consumers prefer that their food be grown within the US.<sup>42</sup>

Ultimately, the rising tide of food imports stems not from a penchant for foreign foods or an overwhelming demand for off-season produce, but from trade liberalization policies and a vast system of subsidies and supports that artificially lower the price of global food. These policies make it easy for huge food corporations to obtain food wherever it can be produced most “cheaply” regardless of the human or environmental exploitation involved, or the extent to which other costs are externalized, and to sell it wherever it will bring the highest price. If apple juice is cheaper in Hungary or Chile or China, that is where the juice on California’s supermarket shelves will come from, even if it could have come from apple orchards in California.

One need only look at the spikes in food trade following the enactment of “free trade” treaties to see how crucial government policies are in promoting more trade. The North American Free Trade Agreement (NAFTA), for instance, has led to huge increases in US food trade with Canada and

Mexico: US imports from these countries increased 105 percent and exports increased 73 percent since the agreement was implemented in 1994.<sup>43</sup> As an example of redundant trade under NAFTA, Figure 4.4 shows the movement of processed tomatoes at individual border crossings in North

America. Since few policymakers question the premise that trade is always good and that more trade is even better, they largely ignore the destructive implications of these trends.

### The impact of trade on California agriculture

Like ever-larger scale and ever-farther transport, increased specialization is an inevitable product of the globalized food economy. Today, California’s farms produce 350 different products, more than 75 of them grown on a “major commercial scale.”<sup>44</sup> Yet the state’s farm acreage is highly specialized regionally, with many thousands of contiguous acres devoted to single crops. As global trade presses forward, it is likely that farmers growing many of California’s commodities will not be able

to compete with cheaper production from overseas, and the range of products grown in the state will narrow.

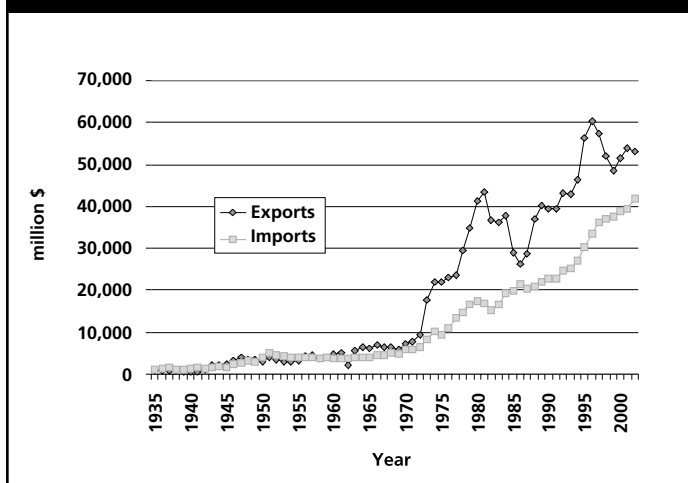
The pressure for California’s agricultural sector to become less diverse is already being felt. With transport costs subsidized and externalized, other producing nations, most of them in the South where labor costs are far lower and environmental laws less strict, are exporting their food into markets that California once dominated. Farmers in California are already plowing under crops or pulling up vines because of stagnating prices on the global market (see Box 4.2).

Some proponents of increased food trade claim that foreign imports are not a problem for California growers because they occur primarily in the off-season here; in fact, the argument goes, imports *benefit* California agriculture by creating a year-round demand for fresh produce. This claim is largely unfounded. While it is true that some products (for example peaches, nectarines, and grapes) are mostly imported during California’s off-season, many others are imported throughout the year. Imports of strawberries, for example, are highest during prime strawberry season in California.<sup>45</sup> Other imported products are harvested in California year-round, including broccoli, carrots, celery, lemons, lettuce, tomatoes, and oranges.<sup>46</sup> What’s more, many are being imported from colder climates, for example tomatoes, carrots, and broccoli from Canada.<sup>47</sup>



**Despite California’s reputation as an agricultural export powerhouse, the state is a net food importer.**

**FIGURE 4.3:**  
**US trade in agricultural products<sup>37</sup>**







## BOX 4.1: Lack of access in the information age

*“It is revealing that the same corporate globalists who eagerly promote the free movement of goods and money, which tends to undermine community self-determination and self-reliance, are adamantly opposed to the free movement and sharing of information and knowledge that has the potential to increase self-determination and self-reliance.”<sup>48</sup> —International Forum on Globalization*

One of the most alarming impacts of the rise of corporate power is the erosion of the public's access to information. Most of us, however, probably feel the opposite—that we are deluged with far more information than we can possibly process. On a daily basis we hear about floods in Bangladesh, the political maneuverings of candidates for public office, train wrecks in Ohio, the latest fashions from Milan, violence in the Middle East, the exploits of professional athletes, and the day's Dow Jones Industrial Average. The Internet in particular seems like a bottomless pit of information. It is often difficult to separate the wheat from the chaff, but there certainly seems to be no shortage of information.

There is a shortage, however. One problem is corporate control of the mainstream media and the selective filtering of much of the news and information the public receives. Just five media conglomerates (Viacom, Disney, AOL Time Warner, NewsCorp, and NBC/GE) control the big four networks, most cable channels, and vast holdings in radio, publishing, movie studios, music, internet, and other business sectors.<sup>49</sup>

Although people are beginning to understand the dangers of such tight control over the media, there are other implications to the growth of large corporations and the deregulation of trade. With vertically- and horizontally integrated corporations dominating ever-larger segments of the economy, it has become increasingly difficult, even for the government, to obtain access to certain kinds of information. Some data are no longer being collected, and some of the data that do exist are tightly held in private hands. Information on food transport is a case in point.

Accurate data on food transport and trade can be essential to everything from ensuring a secure food supply to monitoring the spread of food-borne illness, from documenting trends in energy consumption to assessing the full costs of food. Yet transportation data are not collected in a coordinated manner, and some important basic information about food is no longer available.

While it is relatively straightforward to find out how much of a given farm product is imported to, or exported from, the US, this basic trade information is not collected at the state level. For instance, even though the vast majority of food is transported around the country by truck, the US trucking sector is, with the exception of safety issues, completely

deregulated. As a result, trucking companies are not obliged to divulge information on their movements or cargo.

There are other difficulties as well. In the past, state-to-state and international transport of food could be measured by tracking data from terminal markets—facilities where food wholesalers, brokers, and distributors are grouped together to supply regional retail outlets. Today, most integrated retail chains now have their own distribution centers and centralized buying offices and are not required to report data on their transport or trade of food. In 1998, the Agricultural Marketing Service of the USDA ceased collection of arrival data at terminal markets because of “money constraints and lack of cooperation from distribution centers,” according to an analyst at the USDA. “We as a government agency had limited success” obtaining relevant data, she acknowledged.<sup>50</sup> Similar gaps appear throughout the pages of government databases. Even the most reliable sources on food transport in the US, such as the Census Bureau and the Department of Transportation Commodity Flow Survey database, are full of gaps due in large part to their reliance on voluntary reporting.

Large corporations have their reasons for withholding data from the public. So few corporations control so much of the food economy that making information available about a given sector can be tantamount to exposing the internal workings of a single corporation. For example, Census of Agriculture statistics on the number of laying hens on large farms are “withheld to avoid disclosing data for individual farms.”

While data collection available to the public is being cut back because of “money constraints,” some information is still available for a price. For example, the Port Import Export Reporting Service (PIERS) offers a:

*comprehensive database of timely, accurate, import and export information on the cargoes moving through ports in the U.S., Mexico, Latin America, and Asia. PIERS collects data from over 25,000 bills of lading every day—then translates the raw data into the kind of meaningful intelligence that companies around the world use.*

The price for details on the import of one commodity to California in one year is \$6,180. If you want the data organized into Excel report format, make that \$8,220. This may be “meaningful intelligence” that the public can use, but it's not information the public can afford.

Corporate concentration and deregulation have led to a situation in which the public is increasingly left in the dark. With corporate cooperation a “voluntary” matter, it becomes very difficult indeed to gather all the information needed to challenge the interests of large food corporations.



The rising amount of food exported from other countries may in fact harm California growers dependent on the global food system, but it would be pointless to blame farmers in China, Chile, New Zealand, or any other nation: they, like California farmers, are only following the blueprint drawn up for them by the architects of globalization, which insists they specialize their food production for export. The solution is not to manipulate the system to protect California's export-dependent growers at the expense of farmers in other countries, but to change the system more fundamentally, so that it promotes diversified, small-scale production for local markets everywhere.

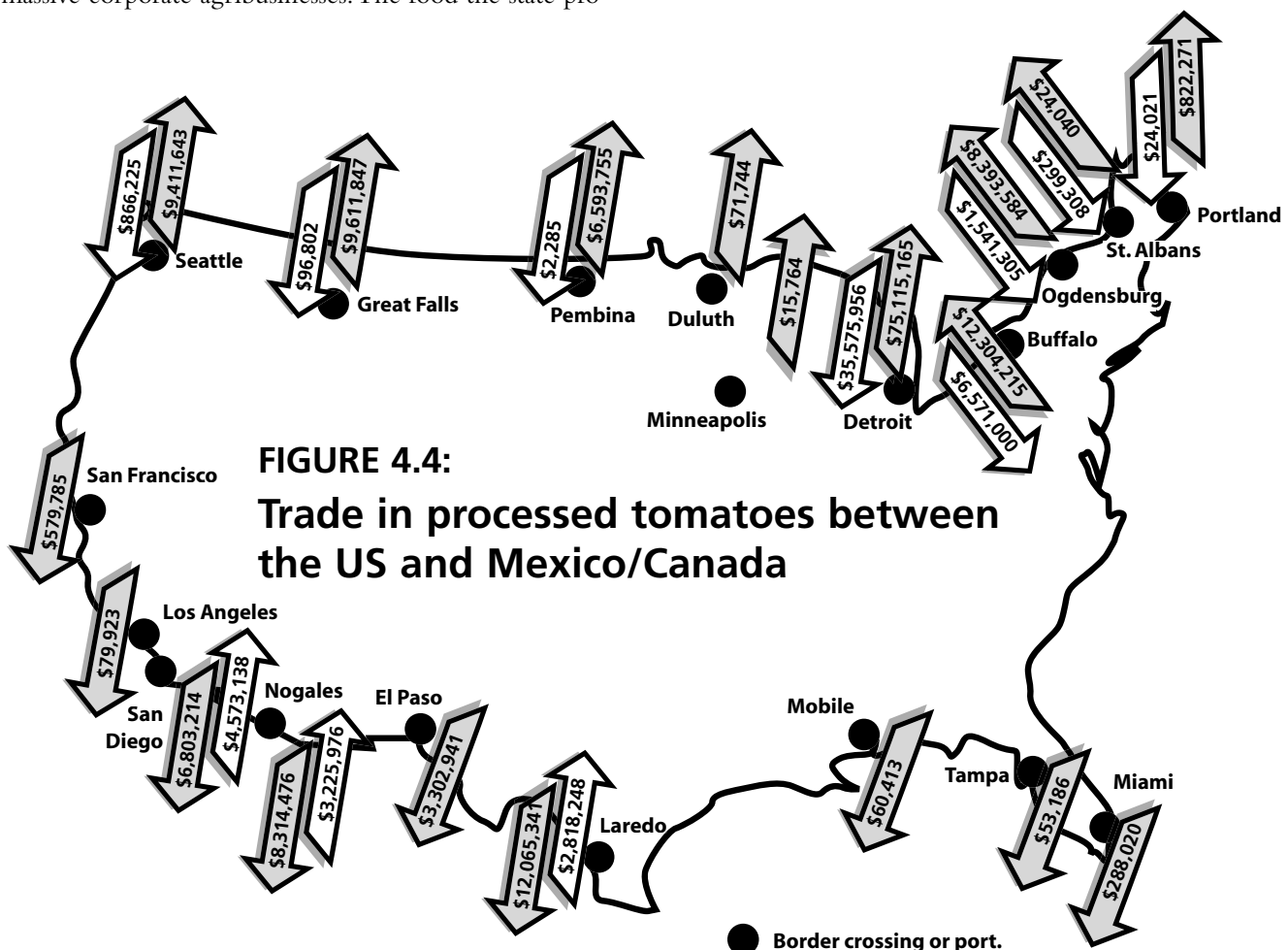
### The future of the food system

The optimistic econometric numbers that describe California's food system today mask serious problems. By tailoring its food system to the needs of the global economy, California has paid a high price. The state's farms are decreasing in number and increasing in size; they are becoming more specialized and less sustainable, and more focused on exports. To the detriment of a multitude of small farms and businesses, the food supply chain has grown in length and complexity and is increasingly under the control of a handful of massive corporate agribusinesses. The food the state pro-

duces, as well as the food it consumes, is being transported ever greater distances, often needlessly.

If policies supporting and subsidizing trade liberalization continue apace, California can expect to see still more of its agricultural markets eroded, and the state's consumers will find that their food is produced farther and farther from home. In hopes of making ends meet, farmers will come under stronger pressure to convert their fields, orchards, and vineyards to the commodity-of-the-moment in order to fetch a decent price from global markets, while much of the remaining agricultural land will be turned into housing developments and strip malls.

California, like most regions in the world, is capable of supplying the vast majority of its food needs from small, diversified local farms. Not only would this cut down on food miles, conserve fossil fuels, and reduce pollution and greenhouse gas emissions, it would also provide fresher, healthier food at a lower price, improve food security, and build a food economy that benefits people rather than corporations. It is not too late to redirect the food economy away from the global and toward the local.





## BOX 4.2: Trade liberalization hurts California commodity farmers

Research by Food First

In response to the “severe cost-price squeeze” that California farmers are experiencing, the California Farm Bureau Federation (CFBF) declared a state of “farm crisis” and initiated a task force to address root causes of the hurting farm economy and to make recommendations. The task force’s April 2001 report, “Crisis on the Farm,” reports:

*The state’s apricot growers have been hurt by a sharp increase in dried apricots from Turkey and a flood of canned apricots from South Africa . . . Last year 11,000 tons of apricots were lost due to the tri-valley bankruptcy. US buyers are purchasing larger volumes from overseas . . . Since the 2000 growing season an estimated 1,000–2,000 acres of California pears, representing about 20,000 tons, have been removed in an effort to deal with falling prices . . . Fresh market prices dropped to nearly one-third of normal. South African canned pears are entering the United States at \$2 per case below US prices. Labor is a big component in the cost of marketing pears on and off the farm. South Africa’s wage rates are substantially lower.<sup>51</sup>*

Similar stories can be told for other California commodities. In the 2003 clingstone peach season, growers pulled out over 1,700 acres of trees (equivalent to about 30,000 tons of fruit) in response to oversupply created by surging foreign imports from Greece, Spain, and other countries.<sup>52</sup> With only four major peach canneries left (Del Monte, Pacific Coast Producers, Signature Fruit Co., and California Fruit and Tomato Kitchens), it is becoming more difficult for growers to obtain contracts.<sup>53</sup> While two decades ago California was annually exporting 1.5 million cases of cling peaches to Europe, state farmers only exported 30,000 cases in 2000.<sup>54</sup> California Canning Peach Association President Ron Martella is not optimistic about the future of the cling peach industry:

*I really believe that this cling peach industry is in a war. . . . Our current battles include imports, uncontracted fruit, rapidly rising production costs, and mergers and acquisitions of retailers and distributors that our processors sell to. Essentially, because of these four issues, we are in a battle for survival.<sup>55</sup>*

Meanwhile, imports from below the border are threatening California’s avocado growers. From 1996 to 2000, US exports of avocados (five-sixths from California) declined from 9,400 tons to 3,300 tons. During the same period,

imports from Chile and Mexico rose from 14,600 tons to 52,200 tons.<sup>56</sup> While California’s export value of avocados was \$12.7 million in 1995,<sup>57</sup> in 2001, it was just \$2.1 million.<sup>58</sup> When adjusted for inflation, this represents a real decline in export value of 85.8 percent.

Because California farmers cannot compete with foreign producers who face lower labor costs and less stringent regulation, they are being displaced in both their domestic market and abroad. This is causing the bankruptcy of California farmers and is prompting agribusiness to relocate outside of California. For instance, in July 2000, Tri-Valley growers, a food processor owned by 500 California farmers, filed for bankruptcy.<sup>59</sup> Meanwhile, “unacceptable” returns prompted Dole to lay off 1,600 workers in the San Joaquin Valley and to exit the deciduous fruit business in California.<sup>60</sup> Third generation Central Valley raisin farmer Mike Jerkovitz is also a case in point. Low prices have forced Jerkovitz to place his property for sale. While it costs Jerkovitz \$900 to produce a ton of raisins, he was only offered \$350 per ton in 2002. Just four years earlier, he was receiving \$1,100 a ton.<sup>61</sup>

Foreign competition is not the only factor which has driven down the prices that California growers receive. Consolidation and concentration of sales outlets have also placed a downward pressure on prices. For instance, while 15 years ago there were 900 apple buyers, now only a dozen purchase eighty-five percent of the nation’s crop.<sup>62</sup>

California grower Tory Torosian doesn’t blame the packinghouses for the low prices, citing retail consolidation and fewer grocery store chains. “Even when supply is down, there is no incentive for prices to go up,” he says. “We’ve been kicked in the teeth by the traditional industry and are subject to a market over which we have no control.”<sup>63</sup>

Trade liberalization has not had a uniform effect on all California commodities. NAFTA, for example, has had a positive effect on the U.S. trade balance for processed tomatoes and strawberries. NAFTA eliminated both Mexico’s 20 percent tariff on strawberries and Canada’s 6.61 cents per kilogram tariff on fresh strawberries, causing exports to these two nations to soar.<sup>64</sup> The impact this has had on farmers in Canada and Mexico, of course, is another issue.



## CHAPTER 5:

# Health and the Food System

California may be the birthplace of fast food, but the health problems arising from the state's food system go well beyond the sugar and fat content of a McDonald's Happy Meal. The globalized food system is polluting the air Californians breathe and the water they drink. It is contaminating their food with a wide array of dangerous chemicals and exposing them to the effects of potentially hazardous technologies. Meanwhile, the nutritional content of food is declining, and food-borne illnesses are on the rise. A shift to the local would simultaneously address all of these concerns.

### Factory food

Most of the health problems associated with global food stem from its tendency to treat food as an industrial product. When food is produced on a massive scale in factory-like conditions, lowering the cost of any of the "parts" that go into a given food product can increase corporate profits tremendously, even if the food that results is less nutritious or less safe to eat.

For huge cattle feedlots and industrial dairy operations, a major cost is the feed that must be provided to the confined animals. By incorporating cheap protein sources such as chicken litter (including chicken feces) and bone meal from dead livestock that have been boiled down and ground up, a few cents can be pared off the cost of feed. When tens of thousands of animals are involved, this can translate into hundreds of thousands of dollars in additional profits.

As most people by now know, the result of this particular industrial efficiency was the appearance of bovine spongiform encephalopathy (BSE), also known as Mad Cow Disease. This disease, which first appeared in the UK in 1985,

has now been discovered in the US, in a cow sent to a slaughterhouse in Washington in December 2003. (According to some reports, the cow was a "downer" cow, one so sick and weak that it had to be dragged to the slaughterhouse. Using such unhealthy animals as food for human consumption represents still another risky feature of the industrial food assembly line.)

A disease that ultimately kills livestock is bad enough: BSE killed 175,000 cows in Britain before the government ordered the killing of an additional 2.5 million animals in an attempt to eliminate the disease. But BSE has the ability to cross the species barrier to affect humans, in the form of the deadly Creutzfeldt-Jakob disease (CJD). It is likely that another innovation of the global food system, the "mechanical separation" of meat, played a role in spreading the disease to humans. The process extracts minute amounts of meat from bones by forcing it through a sieve under high pressure, resulting in a paste-like product, a legal ingredient in various cooked meat products, that may include spinal cord tissue from infected cows.<sup>1</sup> As of the end of 2003, no cases of CJD linked to Mad Cow Disease had yet been reported in the US.



Mad Cow Disease is a headline-grabber, but the crowded and unnatural conditions in factory farms and feedlots are inherently unhealthy for animals and make it easy for any infectious disease to spread rapidly. One example of this is the 1971 California outbreak of Exotic Newcastle Disease (END), a contagious and fatal virus affecting poultry. This outbreak prompted the killing of nearly 12 million birds on more than 1,300 farms over a period of three years and cost California taxpayers \$56 million in eradication costs.<sup>2</sup>

When END broke out in California again in 2002, local, state, and national authorities declared a state of emergency, quarantined six counties, and ordered the killing of huge numbers of hens, including a million on one farm in San Bernardino County. Numerous countries banned imports of California poultry products, fearing a further spread of the disease.

Conditions in large-scale poultry operations are ideal for the spread of illnesses like END, admits Dr. Travis Cigainero, corporate veterinarian for Pilgrim's Pride, the country's second largest processing poultry producer: "If you're an exotic disease like Newcastle, you just died and went to heaven. There's no doubt that the evolution of the industry . . . made it more vulnerable to catastrophic diseases."<sup>3</sup>

To prevent such outbreaks, antibiotics are routinely used to keep infectious diseases from taking hold. In fact, three-quarters of all antibiotics used in the US are given to livestock, both to prevent disease and promote growth.<sup>4</sup> This prolific use of antibiotics is leading to resistant strains of pathogens and reducing the effectiveness of antibiotics for human use. The Centers for Disease Control and Prevention and the World Health Organization have called for a moratorium on most uses of antibiotics in agriculture, yet factory farm operators have lobbied against the move. Nonetheless, the tide is beginning to turn: growing awareness of the health impacts of antibiotic use on animals (thanks in part to the work of factory farm activists and scathing indictments of industrial livestock-rearing practices in such recent books as *Fatal Harvest* and *Fast Food Nation*) has led McDonald's to require its chicken suppliers to refrain from antibiotic use.<sup>5</sup>

## Food-borne illnesses

Meat packing plants and other processing facilities also squeeze extra profits out of their operations by literally speeding up the assembly line, shortcutting safety procedures, and minimizing time "wasted" in testing food. In the process, food contamination becomes more likely, at the same time

that corporate lobbyists have succeeded in cutting back on government oversight of meat-packing operations.

Despite claims of improved food safety from agribusiness corporations, *salmonella*-related illnesses in the US have doubled in the last two decades, and similar increases are reported for illnesses from *E. coli* 0157, *campylobacter*, and *listeria* bacteria.<sup>6</sup> California is no exception: the total number of confirmed and suspected food poisoning cases in the state has nearly tripled since 1989.<sup>7</sup>

**The total number of confirmed and suspected food poisoning cases in California has nearly tripled since 1989.**

As the scale and speed of industrial meat packing operations increase, bacterial contamination is resulting in massive recalls of meat. The largest recall in the nation's history occurred in October 2002, after 44 people became ill and seven died in a *listeria* outbreak, leading to the recall of 27.4 million pounds of processed sandwich meats from a subsidiary of Pilgrim's Pride. Just three months earlier, 19 million pounds of beef were recalled after 16 people were stricken by *E. coli* traced to a ConAgra meatpacking plant in Colorado<sup>8</sup> (see Box 5.1 for other recent food contamination incidents).

Consolidation in production and processing has greatly widened the range of food-borne disease outbreaks. In the past it was common for illnesses to affect a small group of people at a time, for example from undercooked meat at a backyard barbecue. The global scale of today's food system means that people in widely scattered places can be sickened from one incident: the *listeria* outbreak described above, for example, affected people in 8 states.<sup>9</sup>

What's more, the reluctance of agribusiness to share information on where their foods are distributed can compound health problems. When ConAgra's meat packing plant in Colorado was linked to the 2002 *E. coli* 0157 outbreak, the corporation ignored requests from California health officials to reveal where in the state 50 tons of the tainted meat had been distributed. According to an official with the health agency, "this blatant disregard for a request from a public health agency is unacceptable and may have jeopardized the health of [California] citizens."<sup>10</sup>

The complex route traveled by food in the global system raises other risks of contamination by food-borne pathogens. After leaving the farm, food passes through countless hands and undergoes multiple procedures in industrial-scale processing, any one of which is a possible source of contamination.<sup>11</sup> Food imported from overseas is particularly problematic: the Food and Drug Administration reports that less than



2 percent of imported produce is inspected, yet a significantly greater proportion of imported produce tested positive for disease-causing bacteria (4.4 percent) than domestic samples (1.3 percent).<sup>12</sup> In addition, the plastic wraps used to package many processed foods create anaerobic environments that increase the potential for pathogen growth, including botulism, *salmonella*, and *listeria*.<sup>13</sup>

### Food additives

While most people shudder at the thought of adulterating cattle feed with chicken feces or dead animal parts, the manufactured food we eat is subject to similar cost-cutting economies. Processed foods and even “fresh” produce are variously treated with hormones, dyes, bleaches, waxes, antioxidants, preservatives, chemical flavors, buffers, alkalizers, acidifiers, deodorants, moisteners, drying agents, expanders, modifiers, emulsifiers, stabilizers, thickeners, clarifiers, disinfectants, defoliants, fungicides, neutralizers, anticaking and antifoaming agents, hydrolyzers, hydrogenators, antibiotics, and other treatments. The goal is to extend shelf life and make food seem fresh, flavorful, and appealing despite its origins in a handful of bland hybrids from which most of the original flavor and color has been destroyed during processing and manufacturing. Consumers are rarely aware of the presence of many of these additives, and information about their impacts is not readily available to them.<sup>14</sup>

In addition, food supplied through global distribution channels relies heavily on packaging to facilitate long-distance transport and lengthy storage. Plastic bottles and food wrappers often contain chemicals such as phthalates and bisphenol A, which leach into food during storage and can be absorbed by humans after ingestion.<sup>15</sup> These chemicals are reproductive and developmental toxins, are endocrine disruptors, and lead

to many of the same problems as pesticide exposure.<sup>16</sup> Bisphenol A is of particular concern since it has been linked with aneuploidy (chromosomal dysfunction during cell division), the leading identified cause of miscarriages and birth defects such as Down Syndrome.<sup>17</sup>

### Chemical agriculture in California

In the global food system, hazardous cost-cutting practices start on the farm. Chemical inputs like herbicides, insecticides, and fungicides are endemic to California’s large-scale agriculture system. When applied to fields and crops, agrochemicals tend to leave residues in food, with serious implications for human health. These chemicals have been linked to a variety of health problems, including cancer, neurological damage, reproductive disorders, and gastrointestinal ailments.<sup>18</sup>

A recent study found that processed grain products (such as bread and pasta) are often highly contaminated with organophosphates, a family of chemicals accounting for 70 percent of the insecticides applied in the US.<sup>19</sup> Apples, peaches, grapes, and pears are also commonly contaminated; unsafe levels of organophosphates have even been found in a number of commercial baby foods.<sup>20</sup>

Meat from the global food system is of particular concern, since the pesticides used to grow animal feed end up concentrating (or bioaccumulating) in the fat of meat we eat. Four of the major crops used in animal feed—corn, soybeans, cottonseed, and wheat—account for 80 percent of the pesticides used in the US.<sup>21</sup>

Though pesticide residues in food are of grave concern, those at greatest risk from them are the farmworkers who apply them (see Box 5.2). According to a UN study, 20,000 to

**LOOKING GOOD? Decades of agribusiness and supermarket advertising have persuaded people that fruits and vegetables must conform to narrow standards of size, shape, and color. Accordingly, consumers often select produce based on these characteristics rather than flavor and nutrition. Many consumers are now so disconnected from agricultural reality that heirloom varieties of unusual shape or color are not considered to be real foods at all.**

**A range of chemicals are needlessly being added to our food to maintain the appearance of freshness and uniformity in foods transported long-distance. For example, sulfites are added to dried fruit and wine in order to maintain color. Brominated oils, which cause damage to vital organs, are used to preserve the appearance of freshness in fruit juices. Potatoes are treated with pesticides after harvest in order to prevent the natural, harmless spotting that may occur on their skin, and maleic hydrazide is applied to prevent sprouting during long-distance transport. More and more, real freshness is being substituted by chemical window dressing. Local food systems circumvent the need for many of these additives and provide real quality and freshness.**



40,000 farmworkers worldwide die each year from pesticide exposure.<sup>22</sup> Another study estimates that 10,000 to 20,000 US farmworkers suffer from pesticide-related illnesses each year, probably a serious underestimate due to underreporting.<sup>23</sup>

As corporate agribusinesses seek cheaper sources for the food they sell, more and more of it is coming from countries where pesticide regulations are weaker than in the US. Even as we enact laws to protect the health of our families and of farmworkers here at home, the health of unseen workers on the other side of the world is being compromised as the global food system spreads.

The application of industrial chemicals is not limited to crops and livestock. Now that subsidized fleets of offshore fishing vessels are depleting the ocean's fish stocks, aquaculture, the industrial "farming" of fish in artificial environments, is becoming more and more common. Unfortunately, aquaculture technology can lead to higher levels of chemicals in our fish. Because of the manufactured fishmeal they are fed, for example, the average farmed salmon steak contains almost 10 times more toxic PCBs than wild salmon steaks.<sup>24</sup> And since the high densities of farmed fish increase the risk

of disease, antibiotics are routinely used.<sup>25</sup> Pesticides are also regularly applied to control problems such as sea lice and algae blooms.

### Breathing and drinking toxins

Industrial agriculture not only affects the health of Californians through the food we eat, but also through the air we breathe. It is no secret that California is the nation's smoggiest state: babies exposed to California's air will reach the EPA's limit for acceptable exposure to toxic air contaminants in less than a month; by age eighteen, they will have exceeded the lifetime acceptable exposure level for cancer several times over.<sup>26</sup> What is less well-known is the central role the global food system has in polluting the air. While the blame for much of the smog in California is given to vehicles (a significant proportion of which are container trucks transporting food and farming-related items), three-quarters of air pollution actually comes from off-road mobile sources, such as farm equipment. In fact, many people will be surprised to know that since 2001 the San Joaquin Valley, not Los Angeles, has been home to the nation's dirtiest air.<sup>27</sup>

## BOX 5.1: Contamination and the industrial food system

- More than 90 percent of US chickens are raised on factory farms where they eat their own fecal matter. The USDA detected *E. coli* in more than 90 percent of chicken carcasses tested.<sup>70</sup>
- A Consumer Reports sampling of fish taken from several US markets, including Santa Cruz and San Jose, found "almost 40 percent of the fish tested in the "beginning to spoil" range, and an additional 25 percent of the samples with bacterial counts that exceeded the upper limits of our test method."<sup>71</sup>
- In 2002, milk products from Berkeley Farms of Hayward, which provides milk to Berkeley Farms, Ralph's, Sysco, Smart & Final, and Albertsons, among others, were recalled because they contained penicillin, which can initiate a "severe allergic reaction."<sup>72</sup>
- SoBe Green Tea and SoBe Energy products were recalled in December 2002 because they were contaminated with dextromethorphan, which is commonly found in over-the-counter cold and cough medications, and may cause "serious health risks." These products originated in Connecticut, but were distributed in 11 states, including California.<sup>73</sup>
- Susie brand cantaloupe, imported from Mexico during May 2002, was recalled because of its association with an outbreak of *salmonella poona* infections in California, several other states, and Canada. At least 54 cases were investigated nationwide as being linked to this particular fruit. *salmonella poona* can cause serious and fatal infections in young children or the elderly, and fever, diarrhea, nausea, vomiting, and abdominal pain in healthy individuals.<sup>74</sup>
- A nationwide outbreak of salmonellosis in 1994 afflicted approximately 224,000 people. It was traced to a shipment of Schwan's ice cream that was contaminated by *salmonella* when it was shipped in a tanker truck trailer that had been previously used to carry unpasteurized, liquid eggs.<sup>75</sup>
- Outbreaks of Hepatitis A that sickened hundreds in Tennessee, North Carolina, Georgia, and Pennsylvania, and killed three people in 2003, were traced to shipments of scallions from Mexico, shipped via California.<sup>76</sup>



Industrial agriculture is responsible for much of California's particulate air pollution—airborne soot and dust—which is a major contributor to asthma and other respiratory illnesses. The state suffers 9,300 deaths from air pollution each year, as well as 16,000 hospital visits and 600,000 asthma attacks.<sup>28</sup> Currently, 2.2 million Californians suffer from asthma, the number one cause of hospitalization for children in the state. In California's leading agricultural county, Fresno, the childhood asthma rate is three times the national average.<sup>29</sup>

Pesticide drift from sprays, dusts, and fumigants can travel for miles, causing both air pollution and health impacts ranging from acute poisonings to chronic disease. More than 90 percent of the pesticides used in California each year are prone to drift, and recent data suggest that hundreds of thousands of Californians—not just farmworkers and farmers, but also urban and suburban residents—face high exposure from pesticide applications.<sup>30</sup>

## BOX 5.2: Farmworkers' health

Despite the dependence of California agribusiness on farmworkers, one of the most frequently overlooked impacts of industrial agriculture is on farmworker health and safety. Farm-related health problems include injuries, pesticide-related illnesses, skin and respiratory conditions, musculo-skeletal and soft-tissue disorders, reproductive health problems, bladder and kidney disorders, and eye and ear problems.<sup>77</sup> Thanks in large part to the high degree of mechanization, agriculture is now the nation's most dangerous industry. The rate of on-the-job fatalities stands at 35 per 100,000 compared to the national average of 5 per 100,000. The state of California alone accounts for more than one-fourth of all disabling injuries among hired farmworkers in the US.<sup>78</sup>

Illnesses related to pesticide exposure are a particularly severe problem. From 1997 to 2000, a yearly average of 475 cases were reported statewide;<sup>79</sup> but one study estimates that 80 percent of pesticide illnesses go unreported.<sup>80</sup> Reporting rates are low in part because less than one farmworker in ten receives any medical benefits, leaving the majority unlikely to seek medical attention. What's more, most farmworkers are working illegally and risk deportation if they seek public health assistance.

Exposure to pesticides occurs primarily through drift during application and through skin contact with pesticide residues on crops. Exposure to organophosphate nerve toxins is of particular concern. Among other impacts, these pesticides can severely damage the nervous system, and even low-level exposure can affect fetal and childhood development.<sup>81</sup> Not surprisingly, the pesticides to which they are exposed leave California's farmworkers with a 59 to 70 percent greater likelihood of developing cancer.<sup>82</sup>

Violations of safety regulations were involved in about half of reported cases of pesticide poisoning. Almost half of farmworkers receive no pesticide training.<sup>83</sup> Low rates of

literacy and English comprehension rates render warning labels largely useless. Even if pesticide labels were consistently posted and read, farmworkers may be unable to take the necessary precautions.

In addition to these occupational hazards, farmworkers often face unsanitary working and housing conditions, which make communicable diseases a problem. Ironically, farmworkers have the highest rate of malnutrition of any sub-population in the country, despite the key role they play supplying the nation with food.<sup>84</sup> Unfortunately, the food system in California is built around a disposable labor force: production is paramount and the health and well-being of farmworkers an afterthought.

While higher safety standards for farmworkers are clearly needed, strengthening local food systems would systematically reduce the pressures that lead to the rampant use of agrochemicals, one of the most serious sources of farmworker illness. More importantly, strengthening rural economies *globally* would help improve life in the countries from which most workers in California's toxic fields have emigrated. For hundreds of years beginning with the era of conquest and colonialism, the cultural traditions and economies of rural communities in the South have been undermined, their resources stolen. Globalization, a continuation of that process, is making it ever more difficult for people to remain in their own communities, in large measure by destroying small-scale agriculture. As a result, millions of farmers and rural laborers are being pulled into the South's exploding urban centers, while thousands more are choosing to emigrate—legally or not—to richer countries in search of employment. California's immigrant farmworkers endure many hardships, and improving their lives should be a high priority. But steps should also be taken to better the lives of people in the rural communities of the South. Localizing food systems, globally, can help do both.



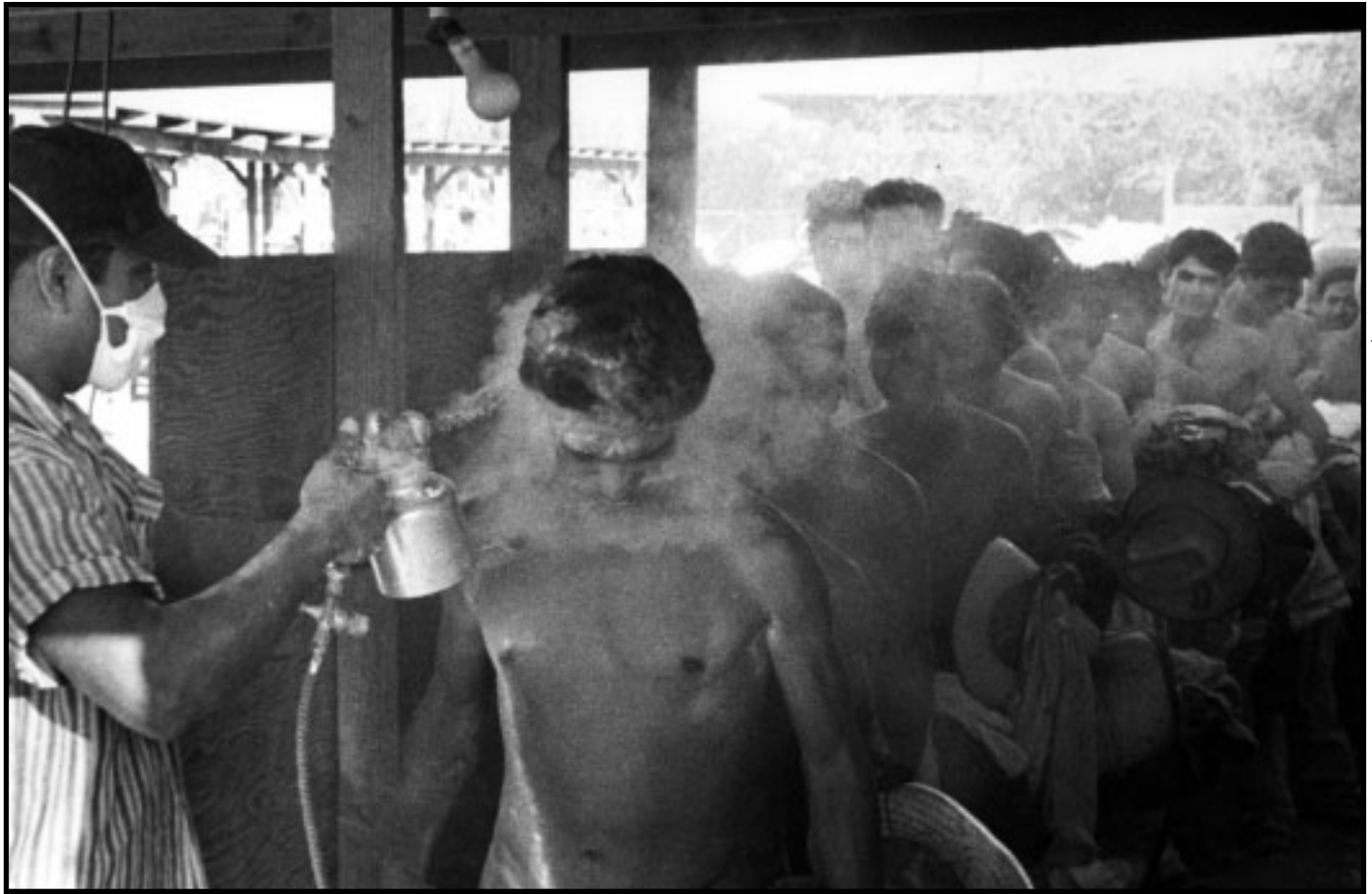


Photo: Leonard Nadel/Smithsonian Institution, NMAH

Bracero farmworkers in California being deloused with DDT, 1956.

California's citizens are also affected by water pollution resulting from animal waste, hormones, and agrochemicals released into the state's rivers, streams, and groundwater by industrial farms. Effluent from huge dairy farms is a particularly serious problem: one study found that manure from dairy farms threatens the drinking water of 65 percent of Californians.<sup>31</sup>

Well contamination is another widespread health hazard, particularly in rural areas: 75 pesticides or their breakdown products have been discovered in wells in more than three-quarters of California's counties. The most widely detected pesticide, Dibromochloropropane (DBCP), is one of the most potent carcinogens known and has been banned in the US for 20 years. Still it was found in one-third of the wells tested, most often in concentrations exceeding the maximum levels established under the Safe Drinking Water Act. As a result, it is estimated that more than 875,000 people in California are at risk of exposure to DBCP, of which 211,000 could be at an even higher risk of cancer; it will cost millions of dollars to make Central Valley water supplies

safe again.<sup>32</sup> The herbicide Atrazine, the fourth most commonly detected pesticide in California wells, has been linked to breast and ovarian cancer.<sup>33</sup>

### Toxic fertilizers

Small-scale diversified farms that include both crops and livestock typically use animal manure to maintain soil fertility. On large industrial farms, by contrast, synthetic fertilizers are commonly used instead. This practice not only damages the soil, it has human health impacts as well. Commercial fertilizers generally consist of only a few key nutrients (in particular nitrogen, potassium, and phosphorus) while other nutrients important to food crops and our health are depleted in the soil—and consequently in the plants we eat, which ultimately affects our body chemistry. Numerous studies, including those by the UK Medical Research Council and the US Department of Agriculture, have shown that the nutrient levels in food crops and meats have declined between 50 and 75 percent since the beginning of the Green Revolution, when the use of synthetic fertilizers exploded.<sup>35</sup>



**"A dark powder from two Oregon steel mills is poured from rail cars into the top of silos attached to Bay Zinc Co. under a federal permit to store hazardous waste. The powder, a toxic byproduct of the steel-making process, is taken out of the bottom of the silos as a raw material for fertilizer. 'When it goes into our silo, it's a hazardous waste,' said Bay Zinc President Dick Camp. 'When it comes out of the silo, it's no longer regulated. The exact same material. Don't ask me why. That's the wisdom of the EPA.'"<sup>34</sup>**

Perhaps worse is what passes as "fertilizer" in the global food system. Under the guise of "recycling" chemicals, toxic waste from a variety of industries is being sold to fertilizer companies and farms, and is ultimately spread on fields. Between 1990 and 1995, over 270 million pounds of toxic waste were shipped to farms and fertilizer companies around the US. California received more of that waste than any other state, 38 million pounds. Of that amount, 24 million pounds came from the electronics industry, and consisted of copper compounds, ammonia, hydrochloric acid, and other chemicals.<sup>36</sup> Preliminary results of a 1997 study by the California Department of Food and Agriculture showed that roughly 10 percent of fertilizers sold in the state contained enough lead, arsenic, or cadmium to warrant carrying cancer warning labels.<sup>37</sup>

### Whistling in the dark

Despite reassurances from agribusiness corporations, it is virtually impossible to know the full health impacts of all the industrial chemicals in our food and in the environment. To the extent these chemicals are tested, they are studied in isolation, with little regard for the effects they may have in the multiple combinations to which people are routinely exposed. A study in the journal *Science* revealed that some endocrine-disrupting pesticides are up to 1,600 times more powerful when combined with other pesticides than they are alone.<sup>38</sup> The 80,000 chemicals, including pesticides, currently marketed in the US are completely untested for such synergistic effects. What's more, as Peter Montague of the Environmental Research

## BOX 5.3: Food irradiation

Tracy Lerman, Public Citizen

Food irradiation exposes food to high doses of ionizing radiation in order to kill bacteria, destroy pests, and extend shelf life. The US Food and Drug Administration (FDA) has approved most of the food in the US diet for irradiation, including meat, wheat, fruits, vegetables, spices, eggs, and juice. Food irradiation is promoted as a "food safety" technology but in fact it poses troubling health and environmental risks. Over the 20-year course of legalizing food irradiation, the FDA has ignored a growing body of evidence suggesting that irradiated foods may not be safe for consumption.<sup>85</sup> Irradiation has raised concerns among consumers because the process destroys essential nutrients and creates known toxins and carcinogens in food as well as chemicals with unknown effects on human health.<sup>86</sup>

In 2002, the USDA approved irradiation as a treatment for destroying invasive insects on produce imported into the US. Those insects are considered "barriers to trade" by the World Trade Organization because they limit trade of agricultural products with certain countries. Additionally, irradiation dramatically extends the shelf life of produce, allowing it to be shipped long distances over extended periods of time. Thus irradiation will further facilitate the influx of cheap imports into the US, as transnational

agribusiness corporations set up operations in countries that have the fewest labor and environmental regulations.

The flood of imports facilitated by free trade policies and technologies like irradiation threatens the economic viability of California agriculture. For example, imports of Mexican tomatoes, California's 9<sup>th</sup> ranked agricultural commodity, increased by 60 percent since the passage of the North American Free Trade Agreement (NAFTA) in 1994. Irradiation could shift production of other perishable commodities grown in California, such as strawberries or oranges, outside the US.

Small farmers in other countries also lose out. The agribusiness and irradiation industries are looking to Brazil, the Philippines, and other countries to create large industrialized farms that grow cash crops, such as mangoes, to be irradiated and shipped to wealthy nations.

Irradiation is a critical piece of the centralized, globalized food system envisioned by agribusiness leaders. Indeed, USDA officials have stated that this vision cannot happen without irradiation. California can help create an alternative vision by rejecting irradiated food, for the sake of our health, our farmers, and our planet.



Foundation points out, even testing 10 percent of those chemicals in unique combinations of 3 is beyond the ability of the most advanced scientific laboratories:

*How many combinations of three chemicals can you make out of 80,000 chemicals? The answer is 85 billion. Let's assume we could test one million different combinations each year—surely a preposterous overestimate of human scientific capacity. It would then take 85,000 years to complete the tests. In other words, [a] rational program based on the very best science will NEVER protect wildlife, humans or the environment from damage.<sup>39</sup>*

## Desperately seeking technofixes

The many health problems described above are directly linked to the architecture of the global food system, and realistic steps to prevent those problems must include reducing the system's ever-expanding scale. Needless to say, no such strategy is being considered by either government or industry. Instead, technological band-aids are layered one on top of the other in an attempt to limit damage, even while the trend toward larger scale accelerates. Two such techno-fixes—genetic engineering and irradiation—are worth looking at more closely.

Proponents of genetic engineering argue that the technology, as applied to food, poses no risk to humans. The Food and Drug Administration agrees, based on research conducted by the biotech industry itself, and has decided not even to undertake any studies monitoring the long-term health impacts of genetically engineered (GE) food.<sup>40</sup> Yet countless independent scientific studies do in fact suggest that GE food may have significant adverse effects on human health, including the introduction of new allergens into the food supply, a reduction in the effectiveness of antibiotics, and the activation of toxic chemicals in plants.<sup>41</sup> For example:

- In 2000, the GE corn trademarked as StarLink was inadvertently introduced into the food supply; an investigation concluded that 28 people who had eaten tainted corn products had experienced “apparent allergic reactions.”<sup>42</sup>
- Research at UK's John Innes Centre confirms that the viral promoter used in the genetic modification of most plants can facilitate abnormal genetic recombinations, leading to serious disruptions of body chemistry or to the generation of new and hazardous chemicals. Additionally, it is thought that parts of these viruses could recombine into novel and more dangerous viruses.<sup>43</sup>
- A study in the medical journal *The Lancet* showed that GE potatoes, and possibly other GE foods, can affect the gas-

trointestinal tract. A lectin produced by the potatoes stimulated growth of the mucosa in the GI tract of mice.<sup>44</sup>

- A new generation of genetically engineered “pharm” crops, designed to supply pharmaceuticals, risks transferring drugs from the host plant to wild species or other food crops, effectively “dosing” otherwise healthy segments of the public with powerful drugs.<sup>45</sup>

Because so little is known about the long-term impacts of GE foods on human health, the Royal Society of Canada issued a report declaring that the presumption of no increased risk is “scientifically unjustifiable.” Thousands of other scientists from around the world are calling for adherence to the precautionary principle with respect to GE technology.<sup>46</sup> Yet, despite the many risks, agribusiness hopes to unleash these untested technologies in California on a broad scale (see Box 6.4. See also Chapter 6 for ecological effects of GE technology).

Another techno-fix is food irradiation, a process that kills pathogens in food (see Box 5.3). Food can be irradiated using one of three methods: gamma rays from radioactive materials, electron beams, or x-rays. The US Department of Energy originally sponsored food irradiation to create a favorable image of nuclear power and to dispose of radioactive waste. But nuclear food irradiation poses the risk of accidents in the transport, use, and disposal of nuclear materials and has already con-

taminated the environment. For example, radioactive water escaped from a food irradiation facility in Georgia in 1988, leaving taxpayers with \$47 million in cleanup costs.<sup>47</sup>

Although electron beam irradiation is now being hailed by the food industry as a safe alternative to gamma ray technology, the effect on food is the same. According to Public Citizen's Critical Mass Energy Project:

*Food irradiated by either process is deficient in vitamins and other nutrients, has caused serious health problems in laboratory animals, tastes and smells worse, is bereft of beneficial microorganisms that keep botulism and other potential deadly maladies at bay, may contain carcinogens and mysterious chemical compounds, and in the case of meat may still be tainted with feces, urine, pus and vomit resulting from filthy slaughter-house practices.<sup>48</sup>*

Along with killing insects that are “barriers to trade” in fruits and vegetables (see Box 5.3), those slaughter-house practices are among the main problems this techno-fix is meant to address. Inadequately inspected meat packing



plants that cut corners in order to speed up processing are relying on irradiation as a magic bullet to “clean up” contaminated food just before it is shipped. Meanwhile irradiation helps create stronger, radiation-resistant bacteria that will continue to contaminate the food supply under large-scale meat production.<sup>49</sup>

Irradiating food for the benefit of global food traders and industrial meat-processors is likely to have health costs that will be borne by the public. According to Dr. Samuel Epstein, Professor Emeritus at the University of Illinois, “the Food and Drug Administration (FDA) and the US Department of Agriculture (USDA) have ignored the strong evidence on the cancer and genetic risks of irradiated food,” in allowing this potentially hazardous techno-fix to be

implemented.<sup>50</sup> California is one of 13 test market states for irradiated foods,<sup>51</sup> and many of the products on supermarket shelves are already being subjected to irradiation.

### Fast, convenient, and unhealthy

Thanks in large part to the popularity of fast food, Americans are eating higher-fat diets, including record consumption of meat and 50 percent more added fats and oils than in the 1950s.<sup>52</sup> Half of household expenditures for food are now spent on eating out, primarily at fast food restaurants, compared with 25 to 30 percent of expenditures in the 1970s.

The rise of the fast food culture in the US has corresponded with a rapidly escalating obesity rate, which has

## BOX 5.4: Making it work: From farm to school

Photo: Tyler/Center for Ecoliteracy



The much maligned school hot lunch, served up in mysterious globs from steam tables or prepackaged in foil trays and shipped across the country, may soon become an endangered species. Driven by concerns about nutrition, childhood obesity, environmental education, and the plight of small-scale farmers, Farm to School programs—

which bring farm-fresh produce into school lunches and curricula—have been springing up all over California and indeed the entire country.

Many California school districts have begun setting more rigorous nutrition standards for their school lunch programs, banning fast food vendors and soft drink vending machines. The Los Angeles school district, as part of a sweeping ban on junk food on school campuses, is urging schools to provide more fresh fruits and vegetables for lunch, and will require all high schools in the district to have salad bars within two years and all elementary schools within six years.<sup>87</sup>

But the benefits of Farm to School programs go well beyond providing healthy meals. Visits to local farms where the fruits and vegetables are grown help students understand where their food really comes from. In the long run, they are more likely to make better food choices and convince their families to do so if they become aware that fresh, local, seasonal food is both tastier and better for their

health and their communities. In addition to the benefits for kids, local farmers get a market for their produce, and the school district's money stays in the community.<sup>88</sup>

The University of California's Sustainable Agriculture and Research Education Program (SAREP) has been monitoring a pilot Farm to School program at Cesar Chavez elementary school in Davis. The researchers found that 88 percent of students chose the salad bar over the standard school lunch in the 2001/2002 school year. These students consumed an average of 3.6 servings of fruits and vegetables, while students eating the hot lunch consumed less than one serving. They also found that “students choosing the salad bar are reported . . . to be more engaged with different types of food; to be learning more about different foods and nutrition; to be exercising more independence in their choices of foods; and to be “calmer and more social” during the lunch break.”<sup>89</sup>

Even the federal government is getting involved. The Department of Defense, which oddly enough provides much of the food for school lunches, began the DoD Fresh program in 1995 to allow districts to obtain locally-grown fresh produce for school lunches. The program now operates in 39 states with an annual budget of \$25 million.<sup>90</sup> And the Farm to Cafeteria Projects Act, a bill recently introduced to the US House and Senate, would provide school districts and non-profits with grants to implement farm to cafeteria programs, benefiting both small farms and students alike.<sup>91</sup>



roughly doubled over the last 20 years. Today, nearly one-third of all American adults are obese,<sup>53</sup> and more than half of California's adult population is considered overweight or obese.<sup>54</sup> Obesity, the second leading cause of preventable death in the country,<sup>55</sup> increases the risk of 30 serious health conditions, including diabetes, heart disease, cancer, and stroke.<sup>56</sup> In California as in most of the United States, obesity is particularly prevalent among men, African-Americans and Latinos, and adults with low levels of education.<sup>57</sup>

The global food system has taken the fast food diet everywhere, and it is now being blamed for obesity epidemics the world over: "... the problem of excess consumption has spread to every corner of the globe, except for pockets of Africa. The United States, in other words, no longer enjoys a competitive advantage when it comes to corpulence."<sup>58</sup>

A trend closely related to fast food is the rise of "convenience" foods, food meant to be consumed with little or no preparation, whether at home or away. In order to minimize or eliminate cooking time, these foods are highly processed, heavily packaged, and include a great many additives, all of which compromise the nutritional value of the food. Many are designed to be eaten on the run or while "multi-tasking." New lines of "meals-on-a-stick," for example, are being targeted at web-surfing teenagers, who keep one hand on the computer mouse, leaving only one hand free for eating.

Though the obesity problem is reaching crisis proportions, a new generation of corporate-backed "consumer freedom" organizations is urging us to believe that "there are no good or bad foods," and that proponents of healthy eating are nothing more than scaremongers trying to take away our freedom to eat what we want.<sup>59</sup> This argument, of course, completely ignores the fact that food corporations have no qualms whatsoever about telling people what to eat: almost all food advertised in the mainstream media is fast food and convenience food of dubious nutritional value.

Meanwhile, these foods have also become firmly established in our schools, ensuring Californians that their children will have an early indoctrination into unhealthy eating habits. A recent Public Health Institute study found that in more than two-thirds of the California school districts surveyed, up to 70 percent of food sold in school was fast food such as pizza, hamburgers, french fries, and cookies. Corporate fast food

chains such as Taco Bell and Pizza Hut were in more than half of the schools surveyed.<sup>60</sup> It is now also commonplace for under-funded schools to sign contracts with multinational soft drink corporations to sell their products in exchange for cash payments.<sup>61</sup> These contracts often include exclusivity rights prohibiting schools from selling other beverages, including healthier alternatives such as juices.

Fast food and convenience foods are intimately connected to the global food system. Not only are they largely in corporate hands, they exemplify the system's need to homogenize tastes and market the same products everywhere, regardless of local traditions or nearby resources.

There is another connection as well. In the US, a change in the structure of the farm subsidy system in the early 1970s—coinciding with the beginning of the most recent obesity epidemic—began systematically promoting overproduction of global commodities, particularly corn, wheat, soybeans, and cotton (see Chapter 11). Overproduction has led to a downward spiral in prices, helping to keep the cost of raw ingredients for processed foods low, at taxpayer expense. This has

been a valuable hidden subsidy to the major food processors, manufacturers, and fast food chains. Cattle and chicken, for example, can be fattened up on highly subsidized grains, soybeans, and cottonseed, artificially lowering the cost of the burgers, chicken "nuggets," and other products served at fast food outlets. Corn sweeteners, which have taken the place of cane sugar in most fast foods, are also cheap thanks to public subsidies and find their way into everything from ice cream and breakfast cereals to Slurpees and Big Gulps.

The government subsidies have not only fattened the bottom lines of food corporations, they have fattened much of the public as well. As writer Michael Pollan points out,

*When the raw materials for food become so abundant and cheap, the clever strategy for a food company is not necessarily to lower prices—to do that would only lower its revenues. It makes much more sense to compete for the consumer's dollar by increasing portion sizes. . . . So McDonald's tempts us by taking a 600-calorie meal and jacking it up to 1,550 calories.<sup>62</sup>*

Pollan also argues that these heavily subsidized commodities promote the creation of ever more highly processed foods:



Photo: Katy Mamen

**In most California school districts, up to 70 percent of the food sold in the cafeteria is pizza, hamburgers, french fries, cookies and other fast foods.**



*The game is in figuring out how to transform a penny's worth of corn and additives into a \$3 bag of ginkgo biloba-fortified brain function enhancing puffs, or a dime's worth of milk and sweeteners into Swerve, a sugary new 'milk based' soft drink to be sold in schools.<sup>63</sup>*

In this way, food corporations are not meeting the demands of consumers, as is often argued; consumers are instead meeting the demands of food corporations, to the detriment of their own health.

### Fresh and healthy local foods

Most of the health hazards associated with the industrial model of food production can be alleviated by shifting toward smaller-scale, more localized food economies. This means abandoning the notion that food producers can continually embrace factory-style methods and other “economies of scale” without compromising the health of the public and the environment.

One reason that large scale can lead to added health risks is that responsibility becomes so diffused. In the global food economy, producers are distant from consumers and largely anonymous to them. Shoppers in a modern supermarket may find products labelled Holly Ridge Bakery or Knots Berry Farm, but there is no “bakery” and there is no “farm”: these are merely ConAgra brands with names carefully chosen to disguise the factory nature of the food. The shareholders and corporate managers of ConAgra's food empire have virtually no connection with those who consume its products, seeing them largely as demographic groups to be targeted in order to maximize profits.

In more localized food economies the distance between producers and consumers is greatly reduced, and the layers of corporate anonymity disappear. Consumers are far more likely to know what producers are doing to the land, adding to their animals' feed, or putting in the food they produce. Producers, meanwhile, are far more likely to know their customers and less likely to take shortcuts to improve their financial return at the risk of their neighbors' health.

A shift to the local would reduce other health hazards. Many Californians have turned to organic foods with the understanding that these products are free of toxic agrochemical residues and that their production is far less harmful to the environment, farmworkers, and downstream communities. Although not every small farm uses organic methods, the nature of more localized food economies makes the transition to organic both more likely and easier to accomplish. This is because farmers serving local markets—and particularly those selling directly to consumers—have an incentive to diversify

their production, since their customers need more than one or two monocrops. Diversified farms, in turn, are far easier to manage organically than monocultures, with rotations, companion planting, biological controls, and human labor taking the place of pesticides. Diversification enables farmers to integrate livestock and crop production: rather than a source of water and air pollution, animal manure becomes a valuable asset, replacing synthetic fertilizers.

Shifting to smaller-scale, more ecological food systems would have other benefits for human well-being. One study, for example, showed that the odor from factory farms has detrimental effects on the mood of nearby residents, including increased anger, depression, and tension.<sup>64</sup> Other studies have indicated a correlation between aggression and exposure to pesticides.<sup>65</sup>

At the same time, the compatibility of local food systems with organic methods can make food more nutritious. Numerous studies have shown that organic produce contains higher levels of vitamins and minerals than conventional crops.<sup>66</sup> This makes sense, as organic production leads to healthier, more nutrient-rich soil.<sup>67</sup> Sustainably farmed vegetables have also been shown to have higher levels of antioxidants<sup>68</sup> and consistently lower levels of pesticide residues.<sup>69</sup>

Local food systems not only encourage diversified farms, they promote diversity within the crops grown. Farmers can select varieties that suit the particular conditions of their farm and those that maximize flavor and nutrition, rather than transportability, shelf-life, and the homogenized tastes of global markets. For that reason, farmers' markets and community-supported agriculture farms often boast a wide range of local heirloom varieties unavailable in the supermarket. Initiatives to get local food into institutional meal programs are also an important way to get local food to the community (see Box 5.4).

Local food that reaches the consumer through direct marketing is likely to be far fresher than distantly produced global food; it is therefore healthier, since the nutritional content of food is lost over time. Since fresh local food is not destined to be transported to supermarkets thousands of miles away, it has little need for preservatives and other additives. The amount of processing required is also reduced, and any processing needed is usually smaller in scale, reducing the risks of contamination associated with large-scale industrial methods. Ultimately, local food means safer, healthier food.



## CHAPTER 6:

# The Ecology of California's Food System

For years now, efforts have been made by environmental groups, public agencies, and farmers themselves to reduce the high ecological costs of industrial agriculture in California. But as long as the state's farm economy remains focused on distant markets, real progress on this front will be limited. A continued commitment to the global food system means that California's agricultural land will remain dominated by monocultural, industrial-style farms. Dependence on external inputs—large-scale equipment, fossil fuels, hybrid and genetically engineered seeds, irrigation water, pesticides, and chemical fertilizers—will continue. The costs of this dependency for California's environment have already been immense and will only increase.

### Chemical inputs

In the four decades since Rachel Carson's *Silent Spring* first appeared, the hazards of pesticides have become increasingly well documented. Many people assume that because of heightened awareness and stringent regulation, our farms and the foods they produce depend less and less on those dangerous inputs. That assumption is wrong, particularly in California.

Growers in the state apply 97,500 tons of pesticide active ingredients annually, including 32,000 tons of the most toxic pesticides.<sup>1</sup> California is far more pesticide-dependent than the rest of the country: approximately 25 percent of farm pesticide use in the United States occurs in California,<sup>2</sup> where per-acre use is almost *ten times* the national average.<sup>3</sup>

Meanwhile, we are importing more food from countries where pesticide use is less controlled. As US environmental regulations become more stringent, chemical companies have taken to dumping banned pesticides overseas instead. From 1997 to 2000, an average of 45 tons of pesticide products per hour were shipped out of US ports, a 15 percent increase over the rate from 1992 to 1996. Pesticides that are banned or severely restricted in the US were exported at a rate of 22 tons per day, along with 16 tons per day of pesticides that were never even registered or evaluated by the EPA. These are likely to be low estimates due to improper documentation.<sup>4</sup>

A high proportion of these toxic pesticides are destined for the global South. In effect, we are following former World



**"Every time I see a chemical farm magazine I understand their motivation. These guys would really just like to sell as many chemicals as they can. They create all kinds of reasons for NPK and the 'Cide sisters' (Herbicide, Pesticide, and Fungicide). My organic soil conditioning manuals rebuff these practices and I draw great comfort from them. . . . I can't think of a more satisfying life [than organic farming]. I think of all the years that Dad subjected himself to chemical overspray and I thank a few bold authors (Fred Magdoff, Robert Parnes, and William R. Jackson) for freeing me from the chemical mindset. I have studied a little psychology looking for the reason farmers cannot cut loose and go organic. It appears to be a thing called 'Paradigm Paralysis.' Whenever you try to think in a new way the old map just keeps popping up in front. The change is too frightening."**<sup>6</sup>

*Arne Anderson, with his wife Noelle, is a fourth-generation almond grower in Hilmar, California.*

Bank economist Lawrence Summers' infamous advice to relocate our most toxic industries, and the environmental damage they cause, to the "less developed" world. But ultimately, many of these banned or restricted pesticides return to the US, carried as residues on imported foods.<sup>5</sup>

The environmental costs of pesticides are by now familiar: not only can they kill exposed wildlife outright, they cause reproductive and developmental damage and physical deformities, and can reduce or eliminate critical habitats and food supplies.<sup>7</sup> For example, very low levels of the herbicide Atrazine have been linked by researchers at UC Berkeley to sexual deformities in frogs, a finding that may help explain

the worldwide decline in amphibian populations.<sup>8</sup> More than 62,000 pounds of Atrazine were used in California in 2001.<sup>9</sup>

Another example involves the impact on birds: an estimated 10 percent of birds exposed to pesticides die, while those that survive exhibit chronic symptoms such as weight loss and increased susceptibility to predation.<sup>10</sup> In California, the pesticides Diazinon (used on almonds and stonefruits) and Carbofuran (used on alfalfa, grapes, and rice) are responsible for most documented bird kills. Carbofuran alone kills an estimated 17 birds for every 5 acres treated with the chemical.<sup>11</sup> It was sprayed on over 258,000 acres of California farmland in 2000—in the process killing some 877,000 birds.<sup>12</sup>

## BOX 6.1: Sterilizing the Sacramento River

Most of us are not directly aware of agrochemical impacts on wildlife, which often take the form of increased rates of deformities and reproductive problems, declining wildlife densities, and diminished levels of biodiversity. Dry statistics about these chronic effects can also numb us to just how lethal these chemicals really are. Far more revealing is the harm done in particular places, by particular chemicals. In July 1991, for example, a train derailed outside Dunsmuir, California, spilling 19,000 gallons of metam sodium—a soil fumigant—into the Sacramento River.<sup>61</sup> In water, metam sodium breaks down quickly into several byproducts, one of which is a gas similar to methyl isocyanate, the chemical that caused the 1984 disaster in Bhopal, India.

The contaminant moved steadily downriver and by the next morning had annihilated wildlife along 42 miles of the Sacramento River. According to the California Department of Fish and Game, "Virtually all of the plants

and animals in the river were killed instantly: fish, algae, plankton, insects, and other organisms. It literally sterilized the stream."

One would expect that serious questions would be raised about a food system that routinely requires such dangerous chemicals. But the Metam-Sodium Task Force empowered to look into the calamity kept its focus so narrow that after two years of study its main recommendation was that the EPA "require the use of the signal word 'Danger' on all labels of products containing metam-sodium" above certain concentrations. The EPA agreed and, for the agrochemical industry, it was back to business as usual.

In 1991, the year of the Sacramento River disaster, California farmers applied 4.8 million pounds of metam sodium to their fields. By 2001, the amount used had risen more than 130 percent, to more than 11 million pounds.<sup>62</sup> And it is just one of scores of similarly toxic pesticides applied to California fields, day in and day out.





California waters commonly contain concentrations of pesticides that are lethal to fish, aquatic plants, and zooplankton, or that can stress fish populations by affecting reproduction and reducing food supplies. Pesticides are heavily implicated in the declining health of the San Francisco Bay-Delta, where fish and zooplankton populations have plummeted over the past 25 years.<sup>13</sup> In addition to such chronic impacts, the widespread use of farm chemicals can result in acute disasters that severely impact the environment (see Box 6.1).

Certainly there is still more to learn about the environmental impacts of pesticides but what we know already should be sufficient for us to begin to phase them out immediately. Yet this will be derided as an “unrealistic” option, and so it tends to be if we remain committed to a globalized, trade-based food system. That system depends upon a scale of production and degree of centralization that only monocultures can provide. But as Michael Pollan writes:

*Nothing else in agriculture is so poorly fitted to the way nature seems to work. Very simply, a vast field of identical plants will always be exquisitely vulnerable to insects, weeds, and disease—to all the vicissitudes of nature. Monoculture is at the root of virtually every problem that bedevils the modern farmer, and from which virtually every agricultural product is designed to deliver him.*<sup>14</sup>

### Stripping the soil

Soil, the living skin of the Earth, makes agriculture possible. Yet California soils are being rapidly degraded by practices that systematically deplete organic matter and diminish soil quality: monocropping without rotation, excessive tillage, massive applications of agrochemicals, and the use of large-scale farm equipment. The natural rate of soil formation in California is thought to be as slow as one inch every 2,000 years, yet the state loses as much as an inch of topsoil every 25 years—an alarming 80 times more quickly than it can be restored.<sup>15</sup>

Degraded soils lead to further erosion, compaction, loss of nutrients, and lower yields. As a result, farmers are led onto an endless treadmill of chemical inputs, which are poor substitutes for the rich organic matter in healthy soils.<sup>16</sup> California growers spread 4 million tons of synthetic fertilizer every year,<sup>17</sup> including 19,000 tons of toxic waste.<sup>18</sup> Much of this ends up as pollution, since 30 to 80 percent of the nitrogen in fertilizers is not taken up by crops but instead

lost directly to the environment, where it contaminates water, food, and the atmosphere.<sup>19</sup>

It is ironic that much of this artificial fertilizer would be unnecessary if industrial agriculture did not find it more “efficient” to separate livestock onto factory farms, instead of integrating them within diversified farms where their manure can be used as fertilizer. Thus, while some California farmers are dousing their fields with chemical fertilizers and toxic waste, others are trying to dispose of their share of the 27.5 million tons of manure that California dairy cows produce annually.<sup>20</sup>



Photo: Tim McCabe, USDA

**California is far more pesticide-dependent than the rest of the country: per-acre use here is almost ten times the national average**

### Squandering our water resources

Water is one of California's most precious resources, and industrial agriculture is highly wasteful in its use. This is not only exacerbating conflicts between the needs of farmers, urban dwellers, and wildlife, it is undermining the basis for agriculture itself: salinization, the result of inappropriate irrigation in California's arid climates,

permanently damages soil. Over 8 million acres of California's cropland are irrigated,<sup>21</sup> and roughly half of that area, primarily in the western San Joaquin Valley, is affected by salinization.<sup>22</sup> Not surprisingly, the biggest farms are the most dependent on irrigation water: 93 percent of irrigated acreage is on farms larger than 500 acres.<sup>23</sup> Large-scale farms also negatively affect water quality by polluting waterways with pesticides, fertilizers, sediment, and livestock waste (see Box 6.2).

California's offshore environment is suffering as well. Today, most commercial fish stocks—not only in California but worldwide—are either overfished or on the brink of becoming so.<sup>24</sup> Furthermore, the quality of the world's fisheries is declining, as measured by the average trophic level, or position on the food chain, of the catch. As trawlers and driftnets scour the ocean, fish are being over-harvested from higher trophic levels, and fisherpeople are forced to catch more fish from lower down on the food chain, with devastating effects on the entire marine ecosystem.<sup>25</sup>

California's fisheries are no longer healthy. The state's catch, which peaked in 1976 at 900 million pounds,<sup>26</sup> shrank to 395 million by 2002.<sup>27</sup> The catch of more valuable fish, including many species of groundfish, has been declining since the early 1990s. In response, the US Secretary of Commerce declared a



## BOX 6.2: California's water crisis

Photo: Tim McCabe, USDA



Agriculture is not only California's biggest water consumer, it is the state's biggest water polluter, threatening the very resource that is its lifeblood. In fact, the bounty of California agriculture is a fragile one, propped up by massive irrigation projects that subsidize the large-scale production of water-intensive export crops. How can a sustainable, clean supply of water in California be ensured for generations to come? Local, diverse food systems offer an important solution.

Rainfall and surface water are distributed very unevenly in California, but massive efforts to collect and channel water have led to agricultural and settlement patterns that ignore naturally available water resources. As a result, about 75 percent of the demand for water is south of Sacramento,<sup>63</sup> even though more than 70 percent of the annual runoff occurs in the northern part of the state.

From its earliest farming days, Californians have used irrigation to provide water for the state's parched areas. Early efforts to pump groundwater for agriculture were later supplemented by huge federal and state water schemes like the Central Valley Project and California State Water Project, which today supply about half of the San Joaquin Valley's water and over 90 percent of the Imperial Valley's water.<sup>64</sup>

With more than 8 million acres of irrigated farmland<sup>65</sup>—an area roughly the combined size of Massachusetts and Connecticut—agriculture currently consumes 80 percent of the pumped water in the state.<sup>66</sup> Nearly all of California's cropland is irrigated—86 percent—as is much of its forage and pasture land.<sup>67</sup> Partly because subsidies make water seem “cheap,” enormous amounts of it are wasted through inefficient irrigation, seepage, and evapora-

tion. In fact, more than half of US irrigation water never reaches crops but vanishes due to preventable losses during pumping and transport.<sup>68</sup> With prime farmland converting to other uses, agriculture has expanded to marginal soils, where irrigation water is used even less efficiently.

### Ecological impacts

To provide the vast quantities of water used in agriculture, the state's surface and groundwater resources are already being used beyond regeneration capacity. Although 70 percent of the state's agricultural water comes from surface water, groundwater is an important additional source.<sup>69</sup> But those groundwater reserves are being rapidly depleted. In the San Joaquin Valley, the water table has dropped nearly 10 meters in some places in the last 50 years,<sup>70</sup> the land surface has settled 30 feet in some places,<sup>71</sup> and crop yields have been reduced due to salt build-up. Waterlogging is also a problem: the Bureau of Reclamation recently agreed to pay more than \$100 million to landowners in the Central Valley to stop farming roughly 34,000 acres because of severe water drainage problems.<sup>72</sup>

Pesticides from industrial agriculture have also contaminated both surface and groundwater. According to the EPA's 2002 list of impaired water bodies, over 600 miles of rivers and streams in the Central Valley are so polluted by pesticides that they are unsafe for fishing, swimming, or drinking.<sup>73</sup> The use of pesticides known to contaminate groundwater increased 17 percent in California between 1991 and 1998,<sup>74</sup> and nearly 11,000 assessed groundwater acres have been found to be contaminated.<sup>75</sup>

In the summer dry season many California rivers are severely contaminated by irrigation runoff, and pesticide pulses often coincide with fish spawning periods.<sup>76</sup> Selenium is mobilized by irrigation and leaches into waterways, affecting water birds and other wildlife.<sup>77</sup> Nutrient loading from fertilizers causes eutrophication of rivers, lakes, and oceans, affecting aquatic life and human health.

Farm runoff also contaminates drinking water for millions of Californians, with pesticides, pathogens, nitrates, and salts detected in drinking water sources for at least 46 of the state's 58 counties.<sup>78</sup> Roughly a quarter of Californians drink water from systems that are contaminated by nitrates at levels that exceed government health standards.<sup>79</sup>



Livestock waste from concentrated animal feeding operations (CAFOs), or factory farms, causes significant water and air pollution. California's large dairy farms generate 27 million tons of cow manure each year,<sup>80</sup> with farms in the Central Valley alone producing as much waste as a city of 21 million people.<sup>81</sup> As a result of manure waste from California dairy farms, hundreds of square miles of aquifers, rivers, and streams have been contaminated, and 22 groundwater basins and 15 areas of waterways are classified as impaired or significantly polluted.<sup>82</sup> Dairy manure also contributes to fishery depletion, since these waterways are crucial spawning and feeding grounds. Unfortunately, the situation is rapidly worsening: there was a 75 percent increase in the number of dairy cattle in the San Joaquin Valley in 2002 alone.<sup>83</sup>

### Subsidizing water waste

It takes a lot of water to grow food in monocultures, especially in an arid climate. Of course, some foods are more water-intensive than others; producing a pound of animal protein requires on average about 100 times more water than a pound of vegetable protein.<sup>84</sup> To produce just one egg using industrial methods takes an estimated 63 gallons of water.<sup>85</sup>

Much of California's water supplies large scale, industrial farms that produce cotton, alfalfa, and rice. Alfalfa stands out as the biggest water consumer, using 20 percent of California's developed water supply.<sup>86</sup> This thirsty crop covers more of California's farmland than any other, with much of it grown in the state's parched southern deserts using inefficient irrigation techniques like flooding. Seventy percent of the alfalfa crop goes to feed California's dairy cows. In fact, it is estimated that 7,000 gallons of water go into keeping a single cow alive for a day.<sup>87</sup> Scaling back alfalfa production and instead supporting local, small-scale, pasture-raised meat and dairy could yield tremendous water savings.

Using precious irrigation water for crops like forage alfalfa and rice is only possible thanks to generous taxpayer subsidies estimated at \$236 million each year,<sup>88</sup> with alfalfa receiving the largest portion, \$70 million annually.<sup>89</sup> California's biggest agricultural sector, the dairy industry, is thus heavily subsidized through alfalfa water use.

The 1902 National Reclamation Act, which delivered irrigation water to small farmers in the West, imposed a 160-acre limit to ensure that the water would only be used by family farmers. But the Bureau of Reclamation never adequately enforced the acreage limitation, which large corporate farms easily circumvented with elaborate leasing schemes and other legal ploys.<sup>90</sup> In 1977 a Bureau study found that in the Westlands Water District of the San Joaquin Valley (the largest single beneficiary of subsidized water from the \$4 billion Central Valley Project), 99 percent of the land was farmed in operations greater than 160 acres, with an average farm size of 2,249 acres.<sup>91</sup> In 1982, the 160-acre limitation was changed to 960 acres with the passage of the Reclamation Reform Act, but even this limit has yet to be strictly enforced.

Today California farmers pay the government between \$2 and \$20 per acre-foot of irrigation water—as little as 10 percent of the water's full cost if priced to cover construction, operation, and maintenance of the projects that deliver it.<sup>92</sup> Decades of artificially cheap water in California have discouraged efficient water use, guaranteed polluted water resources, and encouraged farmers to continue growing water-hungry crops,<sup>93</sup> creating an unsustainable situation that will increasingly force difficult policy decisions around food production, urban water use, and ecosystem protection.

### Local food saves water

Small scale, diverse local agriculture conserves water by emphasizing crops that are suited to regional climates, and by employing water-saving farming practices that may be difficult or impossible in massive-scale monocultures. Integrated farming systems also recycle manure as fertilizer and tend to use fewer chemicals; soil structure and water-retention are enhanced, and there are fewer wastes that can compromise water quality.

Local food systems save water in the post-production stages of processing and packaging, which can be highly water-intensive as well. At each link in the food chain, operating at a smaller, local scale allows for greater innovation and the implementation of water-conserving approaches such as water recycling, efficient irrigation, and improved processing technologies.



commercial fishery failure, and in 2000 Congress established the Groundfish Disaster Relief Program.<sup>28</sup>

While overfishing is a prime cause of the ecological damage done to California's fisheries, large-scale agriculture is having an impact as well. Industrial farming harms fisheries through water diversion, pollution, and other habitat degradation. Other pressures emanating from the global economy, including hydropower projects and deforestation, are damaging fresh-water fisheries in particular. Salmon and steelhead populations are down more than 90 percent from their historic levels, hit hard by California water policy decisions of the past half-century.<sup>29</sup> The decline of Chinook salmon has been dramatic, with California losing 75 percent of its commercial salmon fishing boats in the past 10 years (see Box 6.3).<sup>30</sup>

## Destabilizing ecosystems

Besides wearing out the resource base with abusive, toxic, and ultimately unsustainable production methods, large-scale monocultures further destabilize ecosystems by eliminating biodiversity, both within the crops grown and in the wild. While agrochemicals damage wildlife populations directly, expansive monocultures eliminate wildlife habitat and displace native crop varieties. A German study revealed that industrial farming is that nation's leading contributor to the loss of biodiversity, with more than 500 plant species endangered or extinct due to agriculture.<sup>31</sup>

California agriculture, too, has had a profoundly negative impact on biodiversity. Much wild habitat, for example, has

## BOX 6.3: Globalization and Salmon Nation

Victor Menotti, International Forum on Globalization



Although California is a place filled with contrast and irony, none may be so tragically stark as the story of how the industrialization of agriculture has all but destroyed what is

perhaps the most important source of protein in our local food system: salmon.

Salmon have been the most important of our local fisheries, providing a vital source of sustenance for Native Californians, as well as early settlers who told of streams swollen with so many fish that they could be caught by hand. Salmon were also the basis of the region's oldest industry, feeding a vibrant, small-scale commercial fishing fleet that was the economic anchor of northern California's coastal communities. Aside from serving human nutritional needs, at least 137 additional species feed on salmon. California's forests are fed nitrogen by salmon returning from the ocean to the very streams where they were born, only to reproduce before dying, decomposing, and starting the circle of life once again.

But the salmon's life cycle is being interrupted. Five of the six species found in the Pacific are endangered. The salmon's slide toward extinction is a deliberate policy choice driven largely by industrial agriculture and logging corporations serving globalized markets.

The ugly truth is that California's industrial farming is sacrificing our salmon stocks to grow export crops. Contrary to conventional wisdom, the depletion of local salmon stocks is not due to overfishing by greedy fishermen but to the destruction of fish habitat that is vital to the species' survival. The logging of forests, damming of rivers, and diversion of water for irrigation has left salmon with nowhere to eat, grow, or reproduce. Water that used to flow freely into rivers and streams to provide salmon habitat has been sprayed on fields of cotton, rice, almonds, and other water-intensive crops.

For example, farming continues to divert water from California's Klamath River (which holds some 15 percent of the state's salmon stocks, according to the Institute for Fisheries Resources), to grow crops in water-scarce regions. In 2001, the Secretary of the Interior decided to support the demands of farming interests to withhold water from the Klamath River below levels mandated by the Endangered Species Act and instead divert water for irrigation. The result was predictable and inevitable: the death of more than 34,000 adult salmon and steelhead. Salmon fishermen were so mad they shipped a cargo load of dead salmon to Washington, DC and dumped them at the Department of Interior's doorstep.

Salmon don't just need water, they need cold water. Intensive logging in riparian zones and along steep hillsides sends soil sliding into stream beds, causing heavy siltation. The loss of shade trees exposes streams to direct sunlight, increasing water temperatures and decreasing the



been displaced by large contiguous crop fields and wetland draining and compromised by agrochemical runoff. Thanks in large part to industrial agriculture, more than 99 percent of the Sacramento Valley's original native grasslands have been lost, along with 95 percent of its wetlands and 88 percent of its riparian areas.<sup>32</sup> Overall, Central Valley river systems and the San Francisco Bay-Delta have been severely damaged, losing 98 percent of their original riparian habitat, 95 percent of spawning habitat, and 95 percent of delta tidal wetlands.<sup>33</sup>

All across the state, chemical-intensive farming is also eliminating habitat for a wide range of beneficial insects, including native pollinators, which provide an essential service to

farming as domesticated honeybee populations decline.<sup>34</sup> Imported exotic pests and diseases also threaten native biodiversity, a problem that has worsened with increased food transport and trade.

It is not only wild biodiversity that is disappearing. The UN Food and Agriculture Organization (FAO) reports that at least 75 percent of the planet's agricultural biodiversity has already been lost.<sup>35</sup> Each year, genetic diversity in crops decreases by another 2 percent worldwide, and the number of livestock breeds decreases by 5 percent.<sup>36</sup> Wheat, rice, and corn—now the three most abundant plants on Earth—provide 60 percent of human food.<sup>37</sup> Of the crop varieties that were grown a century ago, 90 percent are no longer commercially produced.<sup>38</sup>

likelihood that salmon will reproduce. Clearcutting in California forests increased with the introduction of “free trade” agreements like NAFTA in the 1990s. Sierra Pacific Industries, the state's largest private landowner and largest purchaser of public timber, increased clearcutting by almost 2,500 percent.

As wild salmon stocks dwindle, “salmon farms” are sprawling across temperate coastal zones worldwide to cash in on growing demand. Industrial aquaculture requires building enormous “pens” on the coast to hold the growing fish, then applying antibiotics and fungicides to prevent the spread of disease. An unregulated industry in many places, salmon farms are destroying precious coastal habitats and displacing traditional fishing communities.

Moreover, an overabundance of farmed salmon is now flooding the global market, sending salmon prices to record lows. Cheap imports of farmed salmon from Chile, British Columbia, Norway, and Scotland are being “dumped” in the US markets, leaving California salmon fishing communities in a crisis.

### Reclaiming Salmon Nation

Saving salmon makes up a big part of the growing movement to rebuild local food systems in California. Some people view salmon as a cultural symbol around which we can identify as a distinct region with a unique natural bounty, calling it Salmon Nation (which includes northern California and the greater Pacific Coast watersheds where

salmon exist). Fishing, farming, forest, and indigenous communities are uniting to restore salmon stocks by protecting forest habitat, raising water levels in streams and rivers, removing dams and other barriers to salmon's migratory paths, and controlling the discharge of pollutants into waterways and marine habitat.

At the same time, the forces of globalization must also be kept in check so as not to undermine the recovery of local fishing communities. That means increasing existing tariff and quota barriers on imports of farmed salmon, and educating consumers about the impacts of different kinds of salmon in the marketplace.

Re-localizing production and consumption cycles is one of the most important steps toward social and ecological sustainability. A first step toward that end is to de-globalize trade in natural resources such as farm, fish, and forest products. This “de-linking” agenda can be advanced by insisting that social and ecological costs are included in the price of a product. At the same time, environmentalists must support the efforts of natural resource-based communities that are uniting worldwide to change the rules of international trade in order to protect rural livelihoods and the natural systems upon which they depend. Some call it “protecting the local, globally.”

As the world's seventh largest economy, what happens here in California will inevitably have global implications. So let the global revolution start here at home.



If the use of genetically modified seeds becomes more widespread, agricultural diversity will decline even further, with the food supply increasingly dependent upon patented genes. Genetic engineering poses other threats to the natural environment. GE crops have been shown to cross-pollinate with non-GE crops and with wild relatives, threatening the creation of “super-weeds.” Some GE crops modified to contain their own pesticides have also been shown to kill “non-target” insects, such as the monarch butterfly. The release of crops that are genetically engineered with *Bacillus thuringiensis* (Bt), a non-chemical pesticide used by both organic and conventional farmers, could lead to pest resistance to Bt and seriously threaten organic farming in the US. These are particularly looming threats in California (see Box 6.4).

Most commercial hybrid and genetically engineered varieties are designed to meet the demands of the industrial food system: they are suited for mechanical harvesting, long-distance transport, long shelf-life, visual uniformity, and supermarket appeal; few if any are designed to be hardy without the application of agrochemicals.

What’s more, their narrowed genetic base makes crops increasingly vulnerable to pest outbreaks, which fuels the need for new—and increasingly toxic—pesticides.

The spread of GE seeds has already led to an *increase* in pesticide use. Part of the reason is that many GE crops are modified for resistance to certain herbicides, which leads to broader-scale applications and eventually the need for ever more chemicals as weeds develop resistance. Thus, the 550 million acres of GE corn, soybeans, and cotton planted in the US since 1996 have led to an increase of 50 million pounds in pesticide use.<sup>39</sup>

Despite the agribusiness hype, genetic engineering emanates from the corporate drive for profit, not from the noble goal of reducing pesticide use or feeding the global population. So far, the majority of commercial GE seeds have been designed to work hand-in-hand with pesticides marketed by the same corporations that control the seeds. The so-called “Terminator” gene, designed by Monsanto to eliminate the possibility of seed-saving by making seeds sterile, is a clear indication that corporate profit, not humanitarian concerns, are at the root of this risky technology.<sup>40</sup>

## Speeding up the global treadmill

California’s farmers are beginning to face difficult choices. Other regions, particularly in the global South, are not only catching up with California in subsidizing their transport and energy infrastructures, they have labor costs that are a small fraction of the wages paid to food industry workers in the state (even though these are hardly livable wages). California will face another disadvantage in the global food economy: though they are not consistently enforced, environmental laws are more stringent here than in many other parts of the world, leading to a relatively higher cost of producing, processing, and transporting food in California.

For California to remain competitive in global markets, its farms will face pressure to become larger and more specialized and to further sacrifice the environment in the name of economic success. This is already happening, as illustrated by the ongoing story of methyl bromide, a potent and highly toxic soil fumigant widely used in California for strawberries, tomatoes, grapes, and a variety of

other crops. Methyl bromide is not only a known carcinogen, it is also a powerful destroyer of the Earth’s ozone layer. For this reason, the Montreal Protocol, an international agreement signed by the US, calls on the industrialized world to phase out its use by 2005, and the developing world ten years after that.

California’s agribusinesses have been fighting hard against implementation of the Protocol. The California Farm Bureau Federation (CFBF) is calling on Congress to renegotiate the treaty, arguing that the “continued use of methyl bromide [is] necessary to provide consumers with a safe and reliable food supply.”<sup>41</sup> The real reason has little to do with “safe and reliable food,” and everything to do with production costs and trade.<sup>42</sup> The CFBF points out that:

*China and other developing nations, such as Chile and Mexico, would have access to methyl bromide until 2015, while the US would face a phase-out deadline of Jan. 1, 2005. Many of these developing nations are major competitors with U.S. producers in specialty crop markets such as tomatoes, peppers and strawberries, to name a few.*<sup>43</sup>

By pitting producers everywhere in the world against each other, globalization continually pressures countries to drop their



Photo: David F. Warren, USDA

Central Valley pea harvest.

**For California to remain competitive, its farms will face pressure to become larger and more specialized.**



## BOX 6.4: Genetic engineering looming in California

Renata Brillinger, Californians for GE-Free Agriculture

Photo: Scott Bauer, USDA ARS



Through the spring of 2003, California agriculture remained virtually free of genetic engineering (GE), with the notable exception of cotton used to produce fiber, animal feed, and cottonseed oil. However, since the early 1990s there have been more than 1,500 field trials of many other GE crops, and the biotech industry is making plans to commercialize GE rice, wheat,

strawberries, lettuce, wine grapes, walnuts, and other fresh produce, grains, and nuts grown in this state.

As the largest agricultural producer in the United States, California is being targeted as the next commercial breeding ground for GE crops. California is also the largest organic fruit and vegetable state, producing more than 50 percent of the country's organic produce. Through pollen drift, seed contamination, and mixing during processing, GE crops can spread their DNA to other crops and plants. Once released into the environment, GE crop contamination cannot be recalled. Genetic contamination by GE crops threatens not only the market niche of conventional and organic farmers who currently choose not to grow GE crops but also the potential for a systemic shift to organic production in the future.

While industry secrecy and lack of government oversight and regulation make it almost impossible for the public to get information about the incursion of GE crops into California, the crops presently in the pipeline include Bayer's herbicide-tolerant rice; Ventria Bioscience's pharmaceutical rice (with human genes); and Monsanto's herbicide-tolerant strawberries, lettuce, and rice.

Herbicide-tolerant rice and wheat are at most imminent risk of widespread introduction: both are expected on the market

as early as the 2005 growing season. While wheat is grown in relatively small amounts in this state, California produces 23 percent of the country's rice. Half of California's rice is exported, most of it destined for countries with strict anti-GE regulations (Japan, Korea, and Turkey).

Commercialization of GE rice in California could have devastating impacts on the industry. Representatives from the Bayer Corporation have stated that the company wants regulatory authority to conduct airplane seeding of its Liberty Link herbicide-tolerant rice in the Central Valley. If this occurs, it will be impossible to California's non-GE rice from being contaminated. Such contamination will threaten California's sizable organic rice sector, and will risk the economic future of California's non-GE rice growers. Several major rice growers and millers in California have expressed opposition to the introduction of GE rice because it will weaken confidence in all California rice, threatening their access to both domestic and export markets. Glufosinate, the acutely toxic herbicide applied to Liberty Link rice and other GE crops, threatens both wild ecosystems and human health through residues in food and drinking water.<sup>94</sup>

A coalition of ecological farming, environmental, and consumer groups has formed Californians for GE-Free Agriculture to oppose genetically engineered agriculture in California. This group is currently working to educate consumers about the threats of GE foods and to encourage them to reject these foods in the marketplace. Future outreach will inform farmers and processors about the problems with GE technologies, with the aim of slowing producer demand for GE seeds. Californians for GE-Free Agriculture advocates an economically and ecologically sustainable agricultural model, one that benefits California producers, consumers, and residents.

To learn more about this campaign, contact *Californians for GE-Free Agriculture* at [www.calgeefree.org](http://www.calgeefree.org).

environmental standards to the lowest level anywhere. This is the infamous "race to the bottom," in which the biggest losers are the environment and all who depend upon it.

It remains to be seen whether agribusiness interests will force a renegotiation of the Montreal Protocol or gain exemptions for specific crops; meanwhile alternatives to the use of

methyl bromide are being desperately sought. Unfortunately, there is as yet little discussion of a shift to smaller-scale and more localized food economies in which chemicals like this would be unnecessary. The EPA, for example, is looking for a "cost effective, technically viable alternative to methyl bromide" that is less damaging to the ozone layer. The options so far are several other highly toxic fumigants, including



methyl iodide, telon (a known human carcinogen), and metam sodium, the same chemical that devastated the Sacramento River (see Box 6.1).<sup>44</sup> Clearly, a more fundamental rethinking of the problems of industrial agriculture is needed.

### A well-oiled machine

Many of the ecological costs of global food stem from its heavy dependence on energy. Partly because pesticides and synthetic fertilizers are petroleum-based, industrial agriculture consumes huge amounts of fossil fuels. In 2000, California farmers used \$1.7 billion worth of pesticides and fertilizers, \$574 million worth of other petroleum products, and almost \$600 million worth of electricity, not counting the fuel needed to transport their products.<sup>45</sup>

Beyond the farm, global food requires enormous amounts of fossil fuels, electricity, and other resources for processing, packaging, refrigeration, storage, and transport, as well as for constructing all the infrastructure that industrial production and global trade require. In fact, most of the energy consumed by the food system is not used by farmers, but by processors, manufacturers, shippers, wholesalers, and retailers, to convert raw farm products into meals on the kitchen

table.<sup>46</sup> For example, it takes twice as much energy just to package a can of corn as it does to produce the corn itself.<sup>47</sup>

Because it is so transport- and energy-intensive, the food system is a major contributor to global warming. Overall, roughly 10 to 20 percent of US energy consumption and a corresponding proportion of carbon dioxide emissions are attributable to the food system (see Box 6.5).<sup>48</sup> In fact, the industrial food system uses so much energy that it has been described as “a black box for converting fossil fuel energy into edible food energy.”<sup>49</sup> It is not a very efficient converter of energy, either: it takes an estimated 7 to 10 units of fossil fuel energy to produce 1 unit of food energy in the US.<sup>50</sup>

Increased transport adds substantially to global food’s energy addiction. Since 1961, the tonnage of food shipped between nations has grown twice as fast as the global population.<sup>51</sup> With local food economies being displaced everywhere by the global food system, food miles are skyrocketing. An average food item in the US now travels 25 percent farther than in 1980.<sup>52</sup>

### Other ecological impacts

The increase in food transport, packaging, and processing demanded by the globalization of food has significant and

## BOX 6.5: Climate change

The global food system contributes significantly to climate change. Besides the CO<sub>2</sub> released from fossil fuel use, agriculture adds to the atmospheric carbon stock through forest clearing and the release of soil carbon through cultivation.<sup>95</sup> All told, the food system is one of the single largest sources of greenhouse gases, contributing an estimated third of the world’s emissions.<sup>96</sup> Yet most climate change policy overlooks trends in the food system that are actually increasing those emissions.

Californians emit a substantial portion of the world’s greenhouse gases, including over 400 million tons of CO<sub>2</sub> each year.<sup>97</sup> The state’s food system both contributes to climate change and is vulnerable to its impacts. The consequences of global warming for California farmers may include:<sup>98</sup>

- hotter and drier California summers, with reduced stream flow intensifying the competing demands for water;

- lower yields or crop failure due to heat stress, pest or disease infestations, and reduced water storage;
- lower profitability of water-intensive crops like alfalfa, cotton, and grapes;
- increased vulnerability of perennial crops like fruit, nuts, and grapes, because it can take years to bring more suitable cultivars into production to adapt to shifting conditions;
- declining fisheries due to increased water temperatures and salinity.

Localization would reduce fossil fuel consumption and CO<sub>2</sub> emissions at every level of the food system—from production to distribution and marketing. While industrial farming gradually reduces soil carbon by releasing it into the atmosphere and adding to global warming, smaller-scale and more ecological practices allow carbon to build up in the soil, which acts as a carbon sink. Storing carbon in turn can offer California farmers improved yields, decreased erosion, and improved water retention.<sup>99</sup>





## BOX 6.6: Making it work: The Straus Family Creamery

Photo: Lisa M. Hamilton



The Straus family has been farming for over 60 years. The farm was started in 1941 by Bill Straus in Marshall, near Tomales Bay in West Marin County. Although the farm has not always been organic, the Strauses have consistently been in the vanguard of

local environmentalism. They supported the creation of Point Reyes National Seashore, and Bill's wife Ellen helped found the Marin Agricultural Land Trust, which has been instrumental in preventing development and suburban sprawl in West Marin.

In 1993, their son Albert transformed the family farm into the first organic dairy west of the Mississippi. As his sister Vivien explains, "The farm wasn't financially viable in the long run on the path we were taking. We needed to find a solution, and transitioning to organic made sense in that it resonated with our current practices and beliefs as long-time environmentalists." The Strauses needed to find a way to set their milk apart from the majority of low-priced conventional milk on the shelf, and going organic was part of the answer.

The other element that sets Straus milk apart is the fact that their dairy products come from their own small creamery. Albert founded Straus Creamery in 1994, and the family has been bottling their own milk ever since, as well as making butter, cheeses, yogurt, and ice cream. These two changes have helped save the Strauses from the economic squeeze that has destroyed countless small dairy farms nationwide. People are willing to pay a higher price for their top quality milk, and the business has been increasingly successful.

The 270 Straus cows graze on 660 acres from spring through fall. In the rainy season, the cows are kept in an

open barn to protect the soil from erosion and to protect the cows' health. The dairy grows 50 to 60 percent of the feed it needs, with the remainder coming from as close to home as possible. The cow manure is used on the fields after being processed in a methane digester; the family plans to use the methane to provide power to their dairy and new creamery building. To keep the cows healthy, they are provided with ample space, open air, clean bedding, and low stress; any sick cows are treated with aspirin or homeopathic remedies, if necessary, rather than antibiotics.

The bulk of Straus' income comes from sales of milk, which is pasteurized but not homogenized, and bottled in glass containers. Using the old-fashioned bottles—which are made from recycled glass and reused an average of 7 times—reduces packaging waste, improves the taste of the milk, and sets Straus milk apart from other brands.

Despite getting a premium price for their milk and making value-added products themselves, the Strauses still have to milk a relatively large number of cows in order to make their operation economically viable. The size of their dairy and creamery is small relative to the state's conventional operations, but it is large enough to require high-tech milking machines and other expensive equipment, and a large acreage for grazing and growing hay. After resisting plastic packaging for years, the dairy recently began selling some of the milk in plastic bottles, citing financial pressures and the need to boost milk sales in order to survive. Today Straus products are sold in 18 states.

With family dairies going out of business at a rapid rate, Straus is an inspiring example of how it is possible to carve out a niche for family farmers that is more economically and ecologically sustainable, even alongside today's global food system. If small producers were no longer forced to compete on an uneven playing field, farmers even smaller in scale and more local would be able to survive.

widespread ecological repercussions. Besides contributing to climate change, the food system's gluttonous energy consumption disrupts ecosystems and communities through air and water pollution, in addition to the upstream impacts of extraction, refining, oil spills, and power generation. Waging war to secure oil resources also has devastating ecological and human costs.

Building transport infrastructure—airports, shipping terminals, railway facilities, roads, and parking lots—often requires deforestation, wetland draining, and other habitat destruction. Giant, highly centralized supermarkets require the expansion of roads and highways and then require consumers to travel longer distances to reach them, adding still more to the ecological toll.



The manufacture of paper, metal, and plastic food packaging consumes vast amounts of resources and adds to air and water pollution. Their use, in turn, adds mountains of excessive garbage to the waste stream: about a third of the solid waste in US landfills is food packaging.<sup>53</sup> Each year Californians generate roughly 22 million tons of packaging, burdening landfills and adding to the pressure to build waste incinerators.<sup>54</sup>

## Ecological benefits of localizing

How can the ecological costs of producing and distributing food in California be minimized? There is no shortage of information on more ecological and sustainable agricultural practices. Small- to medium-scale, diversified organic agriculture, for example, is clearly less harmful for the environment than the chemical dependencies of industrial monocultures (see Boxes 6.6, 8.3, and 9.2 for a few examples). Yet even many of those who see the benefits of a more ecological agriculture fail to recognize how difficult it will be to change course if we remain committed to a globalized food system and all it implies.

The pressure to continue the use of methyl bromide in California reveals some of the political and economic forces that keep the current model in place. As important as it is to continue demonstrating the merits of sustainable agriculture, it has become even more important to tackle those forces, since they prevent ecological practices from becoming the foundation of our food systems.

As we have seen, the global food system systematically leads agriculture in the direction of larger farms, monocultural production, and reliance on damaging inputs. A shift towards the local can help reverse this unsustainable trend. When a farmer's production is geared to local consumption, there are strong incentives to diversify: local markets lend themselves to smaller quantities of many different food products, unlike the global economy's demand for large quantities of single commodities.

At the same time, diversified farms are less suited to the energy-intensive equipment needed by large farms and monocultures. They have much less need for the agrochemicals that monocultures require, which makes organic production more feasible. Wild biodiversity can again thrive within and on the margins of fields. Without distant markets to rely

on, there is little economic advantage to factory farming, allowing livestock and crop production to become integrated, thereby closing resource loops, reducing waste and pollution, and improving animal welfare.

When farmers produce primarily for local markets, they can let local conditions, rather than supermarket chains or corporate contracts, determine what they grow. Locally-adapted varieties can replace the uniform hybrids and genetically engineered varieties that now dominate fields, and local foods, adapted to local resources, microclimates and tastes, can begin to displace the homogenized monoculture of corporate processed food. In California, that could mean, among other things, growing drought-resistant crop varieties instead of irrigating the desert to grow rice for export.

Once the systemic forces supporting the industrial system are removed, there are few technical barriers to converting to sustainable models of food production. Despite a political and economic climate that has been difficult for small farms, exciting work is being carried out, in the US and abroad, to restore ecologically-

friendly farming systems. For example, the Wild Farm Alliance promotes farms that benefit wild nature by providing wildlife corridors and habitat through crop diversification, planting of hedgerows, and interspersing fields with land returned to forest or wild ecosystems.<sup>55</sup>

## Reducing energy use

Local food systems reduce the distance from farmer to consumer, thereby offering dramatic energy savings and associated ecological benefits. A study in England calculated the CO<sub>2</sub> emissions of a traditional Sunday meal made from imported versus locally-grown ingredients and found that the imported meal would produce 650 times more CO<sub>2</sub>.<sup>56</sup> In Iowa, another study showed that local food traveled an average of 45 miles, compared with an estimated 1,550 food miles from global food sources.<sup>57</sup>

Closer to home, a San Francisco farmers' market calculated the average number of food miles traveled by its produce, and compared those distances with produce arriving at a Chicago terminal market (primarily from the continental United States), where brokers and wholesalers typically purchase produce. Produce from the terminal market traveled



Photo: Clint Chamberlin

**In Iowa, local food traveled an average of 45 miles, compared with an estimated 1,550 food miles from global food sources.**



from 7 to 20 times farther than from the farmers’ market (see Table 6.1).<sup>58</sup>

Another study looked at the impact of changing the highly centralized distribution system for foods grown and consumed in California, which is now hauled from farms to centralized warehouses and distribution centers before being delivered to retail outlets. Computer modeling revealed that direct shipment of fruits and vegetables from county of production to county of consumption would reduce fuel consumption by 25 percent.<sup>60</sup> Still closer links between producers and consumers would have an even more dramatic impact.

Local food systems offer other ecological benefits. Local foods are more often consumed fresh, and therefore need far less packaging, processing, and refrigeration, which can translate into impressive energy and resource savings. With lower energy requirements for food production and processing, local food systems make renewable energy sources like wind, water, and solar power more practical, as well as alternative fuels like biodiesel.

**TABLE 6.1:**  
**San Francisco farmers’ market vs. terminal market food miles<sup>59</sup>**

	Chicago (terminal market)	San Francisco (farmers’ market)
Apples	1,555 miles	105 miles
Tomatoes	1,369 miles	117 miles
Grapes	2,143 miles	151 miles
Beans	766 miles	101 miles
Peaches	1,674 miles	184 miles
Winter squash	781 miles	98 miles
Greens	889 miles	99 miles
Lettuce	2,055 miles	102 miles



## CHAPTER 7:

# Food Insecurity and Hunger

Even among those who recognize the shortcomings of the global food system, many support it because they believe it is the only means of providing enough food for the world's growing population. On the surface, this seems logical. Industrial agriculture in the US, for example, is apparently so productive that 1 percent of the population can not only meet much of the country's need, but export large quantities elsewhere. What's more, the global food system's emphasis on trade and transport means that people everywhere have access to the entire planet's food supply, not just what their own region can produce.

But on closer examination, the global food system does no better at alleviating hunger or providing long-term food security<sup>1</sup> than it does at maintaining the health of people and the environment. Once food becomes a global commodity controlled by corporations driven by profit and growth, it becomes economically "rational" for luxury foods to be grown on the best land in countries of the South, then shipped thousands of miles and marketed to wealthy areas in the richest countries.

Globalization leads to profound disparities in both wealth and food security not only globally, but within regions, including within industrialized countries. As a result, an estimated 842 million people are undernourished worldwide, 10 million of them in the industrialized world, even though enough food is produced to adequately feed everyone on the planet.<sup>2</sup>

If food security were the product of high-tech agriculture and access to global markets, then California—a leader on both counts—would have better food security than almost any other place in the world. This is not the case. Today, over 5 million Californians are "food insecure," which means they must do without such basic needs as utilities and medical care in order to put food on the table. For at least 1.25 million of those, it also means going hungry.<sup>3</sup>

In fact, California ranks near the bottom in the US in providing food security for its residents: only 11 states do worse.<sup>4</sup> The two California counties with the worst food security, Fresno and Tulare, are among the country's leading food producers.<sup>5</sup> Clearly, something is wrong. This chapter examines some often-overlooked aspects of food security and their relationship to the global food system.



## Globalizing hunger

In economies like our own, where food must be purchased with cash, poverty is usually the most immediate cause of hunger. For this reason, state and federal programs aimed at the poor, such as welfare, food stamps, and school lunch programs, may seem like the most direct solution to the problem of hunger.<sup>6</sup>

But looking at the issue more broadly reveals how the global economy is worsening the hunger problem. For one, economic globalization continually removes people from the land and distances them from the sources of their food, making them more vulnerable to the economic vicissitudes that can lead to hunger. Particularly in the countries of the South, people are being pulled from rural villages into urban slums where they can no longer feed themselves and their families from their own production.<sup>7</sup>

In industrialized countries, those urbanizing forces have been felt far longer, leaving few poor people in a position to barter their labor for food or grow a portion of their own. Instead, their food needs must travel through many layers of corporate middlemen, each one extracting a profit.

Most of the food produced by this system is not really “cheap,” even if one ignores how heavily subsidized it is (see Chapter 11). Thus, a 5-ounce bag of Wise™ potato chips typically sells for \$1.49, which means consumers are paying nearly \$5 per pound for industrially-produced potatoes and oil, salt, and numerous additives; local organic potatoes, meanwhile, typically cost about one-fifth that at a farmers’ market. Similarly, the \$3.09 price tag on a 10-ounce box of Cheerios™ means that the contents (oats, corn sweetener, and chemical additives) also cost almost \$5 per pound. Organic oatmeal from a health food store, meanwhile, usually runs about 75 cents per pound.

Most fast foods and convenience foods are similarly expensive, especially considering their dubious nutritional value. Yet many people have little choice but to purchase these expensive manufactured foods rather than cheaper raw ingredients. In today’s competitive global economy, virtually everyone feels pressed for time, but for families on the lower rungs of the economic ladder it can take the efforts of two full-time wage-earners simply to put food on the table. With time—like food—reduced to a scarce commodity, nutritious home-

cooked meals can easily give way to fast food burgers eaten in the car or frozen TV dinners at home.

## Food deserts

This problem is even worse in the “food deserts” of poor urban neighborhoods, where there are few shops that stock anything but heavily processed “junk” foods. Food deserts result when supermarket chains “redline,” or abandon, inner cities in favor of more affluent suburbs and city neighborhoods. Studies show that higher income communities have

two to three times the number of supermarkets than do lower-income areas, and that neighborhoods that are predominately African-American or Latino are also less likely to have supermarkets than white neighborhoods.<sup>8</sup>

As supermarket chains invest in full-amenity, 24-hour, car-accessible megastores on the edges of town, the effect is to leave low-income urban residents—many of whom do not own a car—food insecure, without easy access to affordable and nutritious food. Residents of these “less prof-

itable” communities have little choice but to patronize fast food restaurants or convenience and liquor stores, notorious for selling highly processed foods at outrageously marked-up prices.

For example, the Northern California community of West Oakland, with 32,000 residents and a 60 percent unemployment rate, has only one supermarket but 40 liquor and convenience stores, only 3 of which provide foods that are suitable for making a nutritionally adequate meal. What’s more, the price of food in these stores is 30 to 100 percent higher than the price in grocery stores.<sup>9</sup> One result of this “food desert” effect is that half of the grocery dollars in West Oakland are spent outside the community, with transportation expenses and travel time added to the cost people must pay for nutritious food.

Heavy consumption of the poor quality foods most readily available in low-income neighborhoods is in turn exacerbating health problems, including diabetes, heart disease, stroke, certain cancers, high blood pressure, and obesity. A survey of California children found that nearly one-third were overweight or at-risk for becoming overweight, and that African-American, Latino, and Asian children were more likely than white children to suffer from this problem.<sup>10</sup>



California ranks near the bottom in the US in providing food security for its residents, with growing numbers of people relying on food banks like this one.

Photo: Ken Hammond, USDA



Some have argued that the solution to these problems is to close the “grocery gap” by providing incentives, at taxpayer expense, for supermarket chains to relocate in low-income, inner city areas. But rather than offering further subsidies to huge corporate chains, other options are available that create more jobs, retain more money in the local economy, provide better nutrition, and avoid many of the other problems associated with large supermarkets. A mix of food cooperatives, farmers’ markets, community supported agriculture (CSA) schemes, small locally-owned supermarkets, and even more creative solutions can address the grocery gap in ways that

not only improve nutrition in low-income areas but add to the economic vitality of the community (see Box 7.1).

### Threats to long-term food security: fossil fuel dependence

While rising hunger statistics are an indication that the global food system is a poor provider of food security today, its ability to provide an adequate food supply for the future is also in doubt. In part, this is because the food system is so heavily dependent on fossil fuels, which are not only being rapidly depleted but are subject to sudden disruption from

## BOX 7.1: Reclaiming food deserts: Beyond the supermarket solution



Photo: Alex Jensen

The problem of providing affordable, nutritious, accessible food to low-income communities is a serious one.

Advocacy approaches that aim to bring full-service supermarket chains into low-income communities may be addressing food access in the short term, but could be inadvertently undermining long-term food security as well as the broader local economy. A range of creative solutions that build community food security *and* give a meaningful boost to the local economy are already being explored in California. These include:

**Farmers’ markets:** The freshest, highest quality food is available at farmers’ markets, at prices that are competitive with those found in large supermarkets. Many farmers’ markets are already located in city or town centers and therefore are usually accessible by public transportation. The goal could include encouraging the setting up of markets within or adjacent to low-income neighborhoods, open daily rather than just one or two days a week.

Thanks to federal Farmers’ Market Nutrition Programs for Seniors and for Women, Infants, and Children, even those with very little income can obtain fresh, local foods at

farmers’ markets. The pedestrian traffic created by farmers’ markets also provides a boost to other local businesses, providing additional economic opportunities for low-income areas.

**Independent grocery stores:** Independently-owned grocery stores are also an important part of the solution, particularly if they are locally-owned, centrally-located, and dedicated to offering local, sustainably produced food at affordable prices. One of the most innovative ventures doing exactly that is San Francisco’s Rainbow Grocery, an independent, worker-owned and operated business, whose stated purpose is to “provide natural, organic food with a focus on vegetarian and environmentally health-conscious products at an affordable price.” Additionally, Rainbow Grocery has a commitment to “buying goods from local organic farmers, collectives, bakers, dairies and other local businesses whenever possible.”<sup>39</sup> In this way, the grocery is not only serving its customers, but, unlike large supermarket chains, adding to the economic viability of many other local businesses as well.

Another exciting venture is the People’s Grocery in West Oakland, the brainchild of three community activists. The group has begun selling local organic produce and bulk foods to low-income residents from their solar-powered community market in a van, thereby bringing healthy food directly to the community. The support of independent funding helps the group to lower the price of local organic food, making it more accessible to cash-strapped residents, and to run a program called “Collards ‘n’ Commerce,” in which students from West Oakland high schools study business and personal finance while working in one of five community gardens, then sell the food they



war, terrorism, or the decisions of oil companies and oil-producing nations.

Most people still tend to think of agriculture as a process in which plants turn sunlight into food for human consumption. But for global food this is no longer true: as one researcher has pointed out, “the main energy input into modern agriculture is not solar energy but industrial energy of different types, most of it derived from fossil fuels.”<sup>11</sup>

As described in Chapter 6, industrial agricultural needs vast amounts of fossil fuels to produce synthetic fertilizers and

pesticides, and to power irrigation pumps and heavy farm equipment. The rest of the global food system is equally dependent on fossil fuels—for processing, packaging, refrigerating, and transporting food and for bringing consumers to centralized retail markets. Only with artificially cheap oil, among other subsidies, can this system provide food that seems affordable to the majority. If oil supplies are disrupted, the entire system can be rapidly and radically affected.

Even if a sudden stop to the flow of oil can be avoided, the global food system’s addiction to fossil fuels will eventually jeopardize food security: as reserves are depleted, oil will

grow through the Mobile Market. Longer-term plans include a full-fledged grocery and street produce stand.<sup>40</sup>

**Direct farmer-consumer links:** Initiatives like community supported agriculture (CSA) and box schemes can work in low-income neighborhoods, just as in more affluent ones. One creative model is Farm Fresh Choice, which connects limited-income communities in south and west Berkeley with nearby farmers of color. Participating farmers drop off their produce at the Berkeley Farmers’ Market, where it is picked up, brought to local childcare centers and displayed so that families are able to shop while they are picking up their children.<sup>41</sup>

**Reviving corner stores:** Rather than create entirely new enterprises, this approach retrofits existing structures and spaces, for example some of the abundant liquor or convenience stores currently selling junk food, and uses them to address food security by instead specializing in nutritious, fresh food. A successful example of this approach is the School Market in Oakland’s Fruitvale district. In November of 2000, School Market opened its newly transformed store, moving away from the beer, wine, and snack foods typical of convenience stores to fresh produce and dairy products.<sup>42</sup>

**Urban farms and gardens:** The rapidly growing urban garden movement provides a means for people in cities, especially in low-income areas, to grow a significant portion of their own food. A 1996 survey of 38 cities across the US showed 6,020 reported community gardens, including school gardens that are part of a citywide program.<sup>43</sup> These gardens can produce prodigious amounts of food: according to Michael Ableman, whose own organic farm in Southern California is now surrounded by

encroaching urbanization, “in the US, urban farms produce 13 times more per acre than their rural counterparts.”<sup>44</sup> Urban gardens have a measurable impact on levels of nutrition. One study concluded that “access to community gardens is an important strategy for improving vegetable consumption, gaining control over the quality and variety of produce consumed. . . . [and] is related to an increased frequency of vegetable consumption and a decrease in dairy, sweets and sweet drink consumption.”<sup>45</sup>

Not only do urban gardens provide people with fresh, wholesome food, they offer a wide range of other benefits as well: they beautify neighborhoods and provide fresh air, green space, and opportunities for urban residents to dig their hands into the soil. For example, the San Francisco League of Urban Gardeners (SLUG) runs 100 neighborhood gardens, including the Alemany Youth Farm, the largest farm in San Francisco, built and maintained by 50 teenagers on what was once a garbage-filled lot. SLUG’s program also includes an “enterprise” component, which seeks ways to turn community gardening into jobs for neighborhood residents.<sup>46</sup>

Similarly, urban community farms make use of vacant land for urban farmers to grow food for direct marketing to the local community. A coalition of food security advocates called the West Oakland Food Project Collaborative has as one of its goals a community farm on every block (where land permits) in West Oakland. Two farms are already up and running, and two more are soon to be started. They are also working with the Yemen Grocery Association of West Oakland to market local produce to liquor stores in the area.<sup>47</sup>



become increasingly expensive, and the cost of industrial food will likely rise as well. The poor, as usual, will be the first to go hungry, but sooner or later everyone dependent on the global food system will be at risk.

The global system is also highly dependent on electricity, much of it produced by burning fossil fuels, and when electric power is disrupted, the impact on global food can be severe. Based as it is on the industrial model, much of the global food system operates like an assembly line, in which disruptions to any part can shut down the whole line. This is what happened in California's milk industry during the electricity blackouts of 2001. In Tulare, for example, where Land O' Lakes operates the largest milk processing plant in the US, dozens of refrigerated tanker trucks normally average six or seven daily roundtrips each to dairy farms across the state, hauling in milk 24 hours a day, every day. When the plant shut down during a 16-hour blackout, the entire fleet of trucks was backed up at the plant, unable to unload. With no way to get their milk to the processor, many farmers had no choice but to dump it.<sup>12</sup>

Electricity disruptions can have other repercussions for the food system. The artificial environments in which factory-farmed animals are housed, for example, require constant inputs of electricity for heating in winter and cooling in summer and to keep fresh air and water flowing to the closely caged animals. Even the relatively short electricity blackouts in 2001 were "a matter of life or death for birds at California poultry farms," according to the California Farm Bureau.<sup>13</sup>

### The instability of a centralized system

It is not just energy dependency that makes the global food system unstable. The food system is so centralized and the distances between producer, processor, and consumer so vast that anything from a truckers' strike to a disease outbreak halfway around the world can disrupt our food supply. In California in 2002, for example, a dockworkers' lockout resulted in vast amounts of food rotting at the ports, including 1.3 billion apples, 5 million pounds of onions, and nearly 8,000 tons of frozen meat.<sup>14</sup>

Centralization brings other risks as well. With large portions of the global food supply coming from a few relatively small areas, local problems can rapidly escalate into major impacts on food security. For instance, it was recently discovered that farms using irrigation water from the Colorado River were inadvertently contaminating their crops with perchlorate, the

main ingredient in rocket fuel, which had been dumped into the water by an upstream industry.<sup>15</sup> The chemical, which impairs thyroid functioning, was found in concentrations 30 times the limit the EPA currently considers safe. Since 80 percent of the nation's lettuce is grown in the Colorado River basin, the whole country's supply of lettuce was effectively threatened by pollution from a single factory.

Similarly, the huge factory farms that feed animal products into the global food system are more vulnerable to disease problems, like the outbreaks of Exotic Newcastle Disease that twice led to the slaughter of millions of hens in California. The appearance of Mad Cow Disease—another product of industrial agriculture—has had similar results (see Chapter 5).



Photo: Clint Chamberlin

Since September 11th, 2001, there has also been concern that the centralized nature of the global food system makes it an attractive target for terrorists. In fact, the federal government's "Operation Liberty Shield" earmarked millions of dollars to tighten security at the largest food processing and storage facilities, feedlots, and stockyards, and to monitor imported foods more closely, largely out of fears of bioterrorist attacks.<sup>16</sup> But with food coming into the US from 180 different countries and passing through the hands of countless producers, processors, shipping firms, inspectors, and cargo handlers, guaranteeing its safety is almost impossible.

Meanwhile, bioterrorism is not the only way the system is vulnerable to attack. The global food system relies on extensive infrastructures: superhighways, rail lines, shipping terminals, ports, energy installations, gas pipelines, fertilizer and pesticide plants, computerized distribution and tracking systems, irrigation networks, dams, and much more. As a result, there are literally thousands of points at which the global food system can be seriously disrupted.

### Eroding agricultural diversity

By erasing diversity at every level, the global food system poses threats to food security that are less dramatic but potentially more serious. With farmers here and around the world being driven from the land, knowledge about local ecosystems and diverse ways of growing food is being rapidly lost. In their place, a single globalized system—based everywhere on the same seeds, the same agrochemicals, the same farm equipment—is being imposed. As dependence on this one system grows and local knowledge of food production shrinks, long-term food security is being seriously compromised.





As part of this process, agricultural diversity itself is being eroded. Once, farmers planted crops and varieties that were well-suited to the particular conditions on their farm. Farmers were careful to save seeds from thriving plants, ensuring that, year after year, crops became better adapted to local conditions. In this way, agricultural diversity has expanded exponentially over the generations, creating thousands upon thousands of unique strains of food crops, each with subtly different characteristics, including resistance to diseases, pests, and drought, and suitability to varying microclimates and types and qualities of soil.

Since there is never certainty about growing conditions in any year, farmers also tended to diversify their farms as much as possible: even if one crop or variety failed, others were likely to thrive. For instance, in the Andes, the center of origin of the potato, indigenous farmers cultivated 3,000 different potato varieties,<sup>17</sup> a vast library that contained potential solutions to unknown future problems. In these localized food systems, systemic pressures act both to increase agricultural diversity and to protect long-term food security.<sup>18</sup>

Conversely, the global system promotes homogeneity: in the US, more than a million acres are planted in potatoes each year, and almost all of it is devoted to just 6 varieties. In eastern Washington alone, 115,000 acres are dedicated to a single variety, Russet Burbank, simply because that is the variety McDonald's, the largest buyer of potatoes in the world, insists upon for its French fries.<sup>19</sup> As McDonald's has become globalized, so has the Russet Burbank.

In this way, the global system leads to a constant elimination of diversity. Every major commodity has one or two equivalents of the Russet Burbank—globally marketed varieties that have crowded thousands of other varieties out of the fields. Of the cabbage varieties once grown in the US, 95 percent are gone. Corn? 91 percent lost. Peas? 94 percent. Tomatoes? 81 percent. Globally, approximately 75 percent of agricultural diversity has been lost in the last century.<sup>20</sup>

Unfortunately, California provides no exception to this global rule. Despite the fact that a great number of different commodities are produced in the state, overall genetic diversity remains low and whole regions are given over to huge monocultures of a single variety. For example, 95 percent of California's half-million acres of rice is confined to the Sacramento Valley,<sup>21</sup> and roughly half of that is planted in a single variety (Calrose M-202).<sup>22</sup>

How important is the loss of agricultural diversity to food security? Consider what happened to Ireland in the 1840s. The food system had become very dependent not only on one food crop, the potato, but on just one variety, known as the Lumper. When a blight struck the Lumper it spread rapidly, destroying the entire potato crop almost overnight. According to author Michael Pollan,

*The potato famine was the worst catastrophe to befall Europe since the Black Death of 1348. Ireland's population was literally decimated: one in every eight Irishmen—a million people—died of starvation in three years; thousands others went blind or insane. . . . Contemporary accounts of the potato famine read like visions of Hell . . .*<sup>23</sup>

**Today, over 5 million Californians are "food insecure," which means they must do without such basic needs as utilities and medical care in order to put food on the table. For at least 1.25 million of those, it also means going hungry.**

Even at the height of the famine, however, corn was still being exported from Ireland to England. In an apt description of the workings of today's global food economy, Pollan writes that "corn was a commodity, determined to follow the money; since the potato eaters had no money to pay for corn, it sailed for a country that did."<sup>24</sup>

The rules have not changed. In 1984, at the height of a famine in Ethiopia, oilseed rape, linseed, and cottonseed were grown on prime agricultural land in that country and exported as feed for European livestock. Even staples such as meat, fruit, and vegetables were exported, while thousands of local people starved to death each day.<sup>25</sup> Similarly, in 2001, India exported 65 million tons of food grains to the US, which were used here as cattle feed. At the same time, cattle fodder was being imported from the US as food for millions of starving Indians.<sup>26</sup>

## Corporate control and food insecurity

The above examples are not anomalies but business as usual in the global food economy. In large measure, they are an inevitable consequence of treating food as a global commodity, to be produced at the lowest possible cost then marketed wherever it will fetch the highest price. When this model is applied to any product—rubber balls, fountain pens, plastic buckets—there can be serious environmental, health and social costs. But since food is something people everywhere require every day for their health and very survival, the impacts of turning food into a global commodity are greatly magnified. Corporate control of food not only means food deserts in inner-city neighborhoods, it means people starving on one side of the world because the food they need—



sometimes even the food that they have grown themselves—can be sold more profitably to people on the other side of the world.

Today, corporations have assumed control over large segments of the global food supply, including even organic foods (see Box 3.4). This concentration of corporate power has many implications, one of which is a dramatic increase in threats to food security—a connection that has received insufficient attention from advocates of healthy food systems. Instead critics of runaway corporate power are commonly accused of being “anti-capitalist,” “unrealistic,” or “impractical Luddites.” But the fact is that corporations are now in a position to make decisions, based largely on their own bottom lines and need for growth, that affect hundreds of millions of people. Dominated by short-term thinking that focuses heavily on today’s stock price and the next quarterly revenue report, corporations are structurally unsuited to making choices that respect the needs of future generations, much less the global environment. It is unlikely that many of the toxic agrochemicals or genetically-engineered seeds commonly used today would be on the market were it not for decisions made in corporate boardrooms.

In the long run, corporate control poses another threat to food security. Large food corporations have a fundamental need for homogeneity: they do best when as many people as possible are consuming identical foods. Long-term food security, on the other hand, requires diversity: diverse tastes and food preferences, large numbers of different food crops grown in different places, and as much diversity within those food crops as possible.

Homogeneity is a condition corporations create and defend with their considerable resources. This is not to suggest that corporate decision-makers intentionally seek to undermine people’s food security or exacerbate the problem of hunger. However, the “rules of the game” that govern corporate behavior make it all but impossible for them to do otherwise. For example, Seminis, the Mexico-based corporation that supplies 40 percent of the US seed market, recently eliminated 2,000 varieties of commercial seed—not to reduce the diversity of the global food supply but to streamline their operations.<sup>27</sup> Monsanto requires that the farmers who plant their genetically-engineered varieties refrain from seed-saving—not to promote hunger but to safeguard future profits.<sup>28</sup> These and many similar corporate decisions aren’t

made with the express goal of eroding food security, but their effect is precisely that.

## Homogenizing consumers

With corporations in control of the global food system, the number of staple foods on which people depend worldwide is being dramatically reduced. From Alabama to Zaire, diets are being homogenized as the global population comes to depend on the relatively few grains, legumes, and meats that are traded globally. In the process, traditional foods, many of them suited to specific microclimates, landscapes, and soils, are being abandoned entirely. With them go cultural traditions, knowledge, and identities, as people everywhere are turned into largely standardized global consumers.

To a large extent, dependence on local foods is eroded by the direct and hidden subsidies that make distantly produced goods seem cheaper, as when soy oil

imports flooded into India recently, displacing traditional oilseeds like mustard, sesame, and linseed almost overnight.<sup>29</sup> A range of psychological pressures is also having a deep impact, particularly in the global South. Idealized media and advertising images of the urbanized Western world can lead people to hunger for a “modern” lifestyle, including such foods as instant noodles, bottled soft drinks, and white bread. Though low in nutritional value, these foods are often considered “high class,” and many people are eagerly trading in their wholesome, traditional foods for them.

Though tastes have already been homogenized to a significant extent in places like California, corporate food advertisers still compete to create loyalties to particular brands. Children have become the prime target, partly because of the huge influence they wield over family food and beverage decisions, a so-called “nag factor” that affects an estimated 72 percent of purchases.<sup>30</sup> What’s more, food marketers know that if they can influence a two-year-old, they may have a customer for the next 70 years. Thus the recent Kid Power Food and Beverage Marketing Conference featured workshops such as “Targeting Soft Drinks to Kids” and “From Supermarkets to Soccer Fields: Kids’ Wants, Moms’ Behaviors.”<sup>31</sup> At the 2002 Convenience Food Conference, a workshop entitled “Adding Fun to Convenience: The Way to a Child’s Heart,” explained to marketers how to move packaged foods “up the funtiniuum” to attract the “increasingly lucrative” children’s market.<sup>32</sup>



Photo: Katy Mamen



Children in the US are not only an attractive market for food corporations, they are also a captive audience for their advertising: American children spend more time watching television than on any other daily activity except sleeping. In a year, the typical child will see 10,000 commercials. One study showed that of 19 commercials per hour, 11 were for food, exposing children to an average of one food commercial every five minutes.<sup>33</sup>

Researchers have found that food advertising does have a significant influence on children's food choices.<sup>34</sup> And needless to say, advertisers are not encouraging children to eat fresh, healthy, locally grown foods. Over 40 percent of the ads are for candy, soft drinks, chocolate syrup/powder, chips, cakes, cookies, and pastries. Another 11 percent are for fast food restaurants.<sup>35</sup> According to consumer advocate Peggy Charren, "98 percent of the food advertising is for products children don't have to eat, nonnutritive things. Now in fact they are designing foods that would never be on the market if it were not for television and its ability to sell them."<sup>36</sup>



Photo: Ken Hammond, USDA

In this sense, television advertising is a tool for homogenizing tastes: the point is to convince millions of people to want something—anything—that can be produced and marketed on a large scale. This is very useful for food corporations, whose efficiencies depend on a high proportion of the public expecting, for example, the kind of French fry that can only be made from a Russet Burbank potato.

These powerful forces not only erode the diversity that long-term food security requires, they also deepen the plight of poor people struggling to provide adequate nutrition for their families. Heavily advertised foods are among the poorest value for the money, but children are being taught to prefer them—and nag their parents for them—by corporate marketers.

### Local food and food security

The notion of food security has been interpreted in many different ways. The US government believes it involves protecting the global food system from bioterrorism. Many social justice advocates emphasize poor people's access to food. Others argue that people must not only have adequate nutritious food, but that food for immigrants in particular should be culturally appropriate. Still others focus on the food system's capacity to provide sufficient food—for rich and poor alike—into the foreseeable future.

Regardless of the definition chosen, it is clear that the global food system is a poor provider of real food security: it is too centralized and overly concentrated in the hands of profit-driven corporations; it is highly dependent on fossil fuels and other unsustainable inputs; it rests upon a genetic base that is far too narrow, and at the same time creates artificial scarcity by homogenizing people's tastes and food preferences; and it

systematically pulls farmers off the land, thereby eliminating the knowledge on which a diverse and sustainable food supply depends.

The policies and subsidies that promote economic globalization inevitably erode food security. Small producers and processors are driven out of business, thereby making local, fresh, and healthy food more expensive. This puts it out of the reach of the poorest among us, who have little recourse but to depend on heavily subsidized, highly processed, distantly produced, and ultimately unhealthy food. But because the globalized food system is so vulnerable to breakdown in so many ways, shoppers in even the best-stocked

supermarket in today's wealthiest neighborhoods may not find sufficient food tomorrow.

Localization addresses all of these problems. As later chapters will show, a shift in direction toward more diverse, localized food systems would create jobs and help alleviate poverty, while making fresh, healthy food more affordable. It would take control of food back from corporations and return it to communities of local producers and consumers. It would add stability to food systems everywhere by reducing their dependence on fossil fuels, reversing the decline in agricultural biodiversity, decentralizing the production of food, and increasing the number of food producers.

A wide-ranging movement for food security, one with a growing understanding of the importance of local food, is already underway in California.<sup>37</sup> Furthermore, Californians have implemented a host of initiatives and structures to improve food security in the state.<sup>38</sup> But since local food systems simply cannot thrive when political and economic supports are fundamentally aligned behind the large and global, real progress will hinge not only on efforts to renew local economies but on parallel efforts to resist globalization.



## CHAPTER 8:

# The Food System and California's Rural Economies

While California's commitment to the global food system has been costly for everyone but a handful of dominant agribusinesses, a few sectors of the public are paying an even higher price than everyone else. Farmers and farmworkers have already made great sacrifices to put California agribusiness at the top of the global economic order, but the economic pressure on them is likely to become even heavier in the future. This is because the "high" cost of labor in the state, especially in comparison with the so-called developing world, is seen as the primary "impediment to competitiveness" for California agriculture.<sup>1</sup>

### Farmworkers

Few among California's populace are treated as badly by the global food system as the state's agricultural workforce. The California counties most deeply committed to the global food system are today among the poorest in the state, and even in the country. Unemployment in the Central Valley is high, with rates that hover around 15 percent or more, nearly triple the state average.<sup>2</sup> Those with jobs in the agricultural sector get wages barely above, and sometimes below, the minimum. Work is so irregular that almost three workers shared one year-round-equivalent job in 2001.<sup>3</sup>

An estimated 50 to 90 percent of the agricultural workers in those counties are undocumented immigrants. According to reporter John McChesney, these workers are heavily exploited:

*Despite farm labor laws, workers are still subject to sub-minimum wages and dangerous working conditions. Whole towns are virtual labor camps aptly described as 'California's Appalachia.' The region is home to a multi-generational under-*

*class of low-skilled, poorly educated workers and their families. But unlike immigrants of the past, these workers show no sign of being absorbed into an economic track that will improve their lives.<sup>4</sup>*

Some of the highest rates of welfare dependency in California are in these agricultural counties. In 1999, 20 to 30 percent of Central Valley residents lived in households with incomes below the poverty level, and 15 to 20 percent received welfare payments.<sup>5</sup> The economic burden on Tulare County, California's second largest in agricultural sales, became so heavy that the county began paying welfare recipients roughly \$1,600 per family to relocate. As one woman and her family left for Arkansas under the program, she said, "It just seems like it'll be a whole lot better there. . . . Anywhere is better than here."<sup>6</sup> The costs of social services for these people, or for relocating them, comes out of the pockets of taxpayers, like so many other economic "externalities" of the global food system. Meanwhile, the main beneficiaries of migrant laborers in California are large agribusinesses—a fact that has long been recognized by small farmers.<sup>7</sup>



It is often argued that no matter how badly treated or underpaid immigrant workers are, they are better off here than in Mexico, Guatemala, Laos, or other parts of the global South. Undeniably, the situation in the rural parts of those countries is often abysmal. But it is important to acknowledge that those conditions are to a large extent products of the same global system that is so exploitive of farmworkers and other immigrant laborers here in California.

As pointed out in Chapter 7, globalization is systematically undermining the economic vitality of rural communities, creating huge masses of newly-urbanized people with little hope of a better life in their home country. In fact, many of the immigrants who toil in California's fields are farmers pulled from the land in the "developing" parts of the world by the global food system. (Ironically, these workers often tend or harvest crops that will be marketed in their country of origin, thereby displacing still *more* small farmers.)

Many of these dispossessed people are willing to risk all they have for the chance to land a job in the US—*any* job, including those most US citizens would reject because they are too backbreaking, too dangerous, or too poorly paid. That these jobs may offer better prospects than anything in the countries left behind does not make those jobs any better; it merely underscores how destructive have been the economic and psychological impacts of the spread of the global economy.

The solution is not to try stemming the tide of immigrants, legal or otherwise, by sealing our borders. A far more just and equitable solution is to reverse the policies that are destroying livelihoods in rural communities around the world, and that are thereby creating a flood of impoverished people with few prospects at home. For this reason, localization is not a solution for California alone but for economies worldwide.

## Farmers

Globalization has been cruel to farmers all over the world; despite California's seeming success in the global food economy, most of the state's farmers are undergoing difficulties similar to those experienced by farmers in the global South. As the entire food chain has become consolidated, competition has dwindled, leaving industrial farmers with little leverage over the agribusinesses that supply their off-farm inputs. At the same time, the agribusinesses that buy California's farm commodities

can easily obtain them from other producers, many of them in countries where costs are far lower, thus setting an ever lower ceiling for farmgate prices. Caught between suppliers' monopolies and buyers' monopsonies, farmers are trapped in what the California Farm Bureau Federation calls a "severe cost-price squeeze."

As a result, those hooked to global markets typically keep only a small and shrinking fraction of what consumers pay for food. In 1990, American farmers were left with only 9 cents out of every food dollar spent, with marketers and



Photo: David Bacon

**Many of the immigrants who toil in California's fields are farmers pulled from the land in the "developing" parts of the world by the global food system.**

## California farmworkers at a glance<sup>8</sup>

- 95 percent of farmworkers are born outside the United States; 91 percent of those are from Mexico, up from 82 percent in 1990.
- Only 58 percent have legal work status.
- Four-fifths of farmworkers are men; the average age is 33.
- Nearly all communicate in Spanish; less than 10 percent speak or read English fluently.
- 80 percent hold two or more jobs per year.
- The average farmworker only manages to find work 45 percent of the year.
- 90 percent of farmworkers work in fruit, nut, and vegetable production.
- The average hourly wage is \$5.69.
- Three-quarters of farmworkers earn less than \$10,000 a year.
- Fewer than 10 percent receive some form of health benefits.



input suppliers taking the rest.<sup>10</sup> Since then farmers have been squeezed even harder: by 2000 the prices they receive had dropped 7 percent, while their costs had risen 19 percent.<sup>11</sup> Marketing, transportation, and storage alone increased 33 percent between 1997 and 2001.<sup>12</sup> This is, in large part, why many farmers do not earn back their cost of production and why so many are being driven into bankruptcy. The average income on family farms is now negative, with off-farm jobs making up the difference: in effect, these farmers are *paying* to supply food to the market.

For the most part, the only farmers linked to the global food system who prosper are those that are very large and highly capitalized. This is not only because they receive a disproportionate share of government subsidies (see Chapter 11), but also because they can afford the latest technologies, most of which are geared toward large landholdings and factory-style operations. As the earliest adopters of these technologies, large farms often capture any new profits until enough smaller farms are forced to catch up with the technological treadmill, which raises yields globally and sends prices down fur-

## BOX 8.1: Wine in the global economy

Photo: David Bacon



Few agricultural commodities are as strongly associated with California as wine, an industry that brings to mind idealized images of “the good life.” On a more mundane level, wine is considered a vital part of the state’s economy, ranking third among California’s agricultural exports.<sup>45</sup> But like other commodities destined for the global food system, wine is responsible for a number of serious problems, some of which are described below:

- **Volatility of global markets:** Wine is the object of intense speculative investment, leaving the industry susceptible to extreme cycles of boom and bust. For example, demand for California wine grew steadily through the 1990s, and growers hoping to cash in on potentially enormous profits rapidly expanded their acreage or switched to wine grapes from other crops. In Lake County, farmers pulled up pear orchards and replaced them with grapes. Corporate wineries acquired large tracts of undeveloped hillsides in Sonoma and Napa counties, planting them in high-end varieties.<sup>46</sup> Wealthy “hobby” vintners landscaped their homes with cabernet and chardonnay vines, while upscale housing developments were built with vineyards as front lawns.<sup>47</sup> In total, 193,000 acres of wine vineyards were added between 1991 and 2001, increasing the total acreage by 63 percent.<sup>48</sup> “People acted like there was no tomorrow, as if demand would just continue to increase,” claimed

the president of the Allied Grape Growers, a trade organization based in Fresno.<sup>49</sup>

However, global demand did peak, at the same time that competition from Chile, South Africa, and Australia was growing rapidly. Prices paid to growers dropped in 2001 and 2002 everywhere except North Coast counties.<sup>50</sup> Some growers have gone bankrupt, others have sold their land to housing developers, and still others have begun converting their vineyards back to other crops. According to the California Association of Wine Grape Growers, 70,000 acres of raisin, wine, and table grapes were plowed under from mid-2002 to mid-2003 in the Central Valley alone.<sup>51</sup>

- **Low farmgate prices:** In 2002 the retail value of California’s huge wine production was estimated at \$14 billion.<sup>52</sup> However, the value of the grapes that went into those wines was only \$1.66 billion,<sup>53</sup> meaning that nearly 90 percent of the public’s wine dollar went to vintners, distributors, and retailers. Prices for Central Valley grapes were so low in 2002 that growers picketed a Gallo facility in Fresno, complaining that the \$65/ton the company was offering barely covered the cost of picking the grapes.<sup>54</sup>
- **Widening the rich-poor gap:** At the same time that Central Valley grape producers were being offered less than their cost of production, growers of high-end varieties in the Napa and Sonoma valleys were raking in stunning profits: Napa cabernet sauvignon grapes, for example, were going for \$3,700 per ton.<sup>55</sup> In this way, grape-growing in California is a dramatically segmented industry, with a relative handful of wealthy individuals and corporations in control of the best wine-producing land and the biggest revenues, while the vast majority of growers are finding it difficult to remain solvent.



ther. As they drop, margins for all farmers become slimmer and slimmer, and ratcheting up production—“getting big or getting out”—is seen as the key to survival. For example, the huge volume of eggs produced by factory farm operations caused the California farmgate price of eggs to drop by one-third between 1996 and 2000.<sup>13</sup> The lower price effectively made it impossible for small egg producers to turn a profit.

The pressure on industrial farmers to produce single commodities in large quantities also encourages them to adopt practices that increase the susceptibility of their crops to pests

and disease. For example, the monocultural farming of garlic in central California has led to widespread infestations of white rot (sclerotia), in large part brought on by a lack of crop rotation. White rot can last more than 40 years in a field, and areas where the disease has been found are being put out of garlic production altogether. Forced to move to less productive plots, farmers' incomes have declined.<sup>14</sup>

In the end, only a handful of California's 88,000 farms are prospering within the global economy. Profits are highly concentrated: the largest 1 percent of farms (each earning in excess

- **Industry consolidation:** As in other parts of the food system, big players are dominant. The nation's three largest wine producers, E&J Gallo, Canandaigua, and The Wine Group, account for more than 60 percent of the volume of US wine;<sup>56</sup> Gallo alone is responsible for 55 percent of California's wine exports.<sup>57</sup> These giants are gobbling up smaller competitors, giving them more clout with the huge corporations, like Wal-Mart and Costco, that dominate food retailing. The conglomerate Constellation Brands owns not only Canandaigua (the country's second largest wine producer) but also Franciscan Estates, Almaden, Cribari, Inglenook, Paul Masson, Taylor California Cellars, Nathanson Creek, Dunnewood, and 42 others.<sup>58</sup>

Distributors are also consolidating, adding to the difficulties of mid-size wineries, which, unlike small “boutique” wineries that sell directly to the tourist trade, rely on distributors to get their products to the public. “In 1975 there were 45 wine wholesalers in California. Today there are three left,” says Carolyn Martini of the Louis M. Martini winery. “The middle category we are in makes it impossible to get distribution worked out.” This, Martini says, was the main reason her family sold out to Gallo in 2002.<sup>59</sup>

- **Control by global corporations:** As consolidation proceeds, it is no longer possible to describe many of the state's biggest wineries as “California businesses.” Napa-based Beringer, for example, was purchased in 2000 by Australian brewer Foster's, which now sells more wine than beer. British company Allied Domecq owns not only Clos du Bois in Napa but wineries in New Zealand, Argentina, and Spain. The world's largest alcoholic beverage company, British-based Diageo, owns Sterling Vineyards and Beaulieu, both in Napa. And

Canandaigua, based in Rochester, New York, is buying up more than just California wineries: “We will look around the world,” said the CEO of parent corporation Constellation Brands. “An Australian acquisition, maybe, or Italian or Spanish.”<sup>60</sup>

- **Pesticide use:** Over 22.7 million pounds of pesticides were used on California wine vineyards in 2001. Among these were numerous “bad actor” chemicals: the fumigants methyl bromide, metam sodium, and 1,3-dichloropropene; the herbicides norflurazon, paraquat dichloride, simazine, and diuron; the insecticides propargite, carbaryl, carbofuran, fenamiphos, and ziram; and the fungicides mancozeb and myclobutanil.<sup>61</sup> Not only do these chemicals pose a hazard to the environment, they put vineyard workers at a significant risk of sickness from pesticide use. A UC Berkeley study estimated that of the pesticide illnesses related to commercial agriculture in California, one-third are linked with grape production.<sup>62</sup>
- **Other environmental costs:** Non-organic vineyards are classic monocultures, on which little lives but the vines. In the boom years of the 1990s, substantial amounts of diverse wildlands were plowed under to make way for grape vines. Even now, with the boom turned to bust, Guenoc Winery has proposed an expansion project on the border between Lake and Napa counties that would replace 6,480 acres of woodlands and chaparral with vineyards. Wine grapes also put a strain on scarce water resources. According to one report on Mendocino County water districts, “vineyard expansion in Redwood Valley [is] ‘nearly totally’ responsible for a 39 percent increase” in water use, adding another threat to the region's fisheries.<sup>63</sup>



of \$5 million per year) capture 38 percent of total agricultural revenue, and the largest 7 percent (each with over \$1 million in sales) account for 75 percent. Meanwhile the smallest 50 percent capture less than 1 percent of the total.<sup>15</sup>

For the vast majority of California farmers—particularly small and medium-sized farms—survival in the face of the increasing globalization of food is less and less likely (see Box 8.1 for an example of some of the impacts of dependency on commodity crops). Nonetheless, citizens are often misled into thinking that farmers are greedy, demanding more support even though subsidies are already so high. The truth is that taxpayers are subsidizing large farms at the expense of smaller farms, the environment, and Californians in general (see Chapter 11).

### Rural economies

Since farmers and farmworkers are often the linchpins of rural economies, it is not surprising that entire counties in California's agricultural heartland are so devastated. As the global food system ruthlessly eliminates small farms and replaces agricultural workers with technology, the local businesses that once supplied the needs of farmers and farmworkers are disappearing as well. The expenditures that farmers do make are quickly shunted into the bank accounts of distant corporations and their shareholders. "In the past," observed UC Davis researcher Gail Feenstra,

*the predominant system of family businesses would generate 'multiplier effects' of three or four, meaning for example, that farm sales of \$100 would lead to additional purchases from various local businesses of another \$300, thus greatly enhancing economic activity in the community. Now, large, non-local corporations employ community members as wage earners, piece rate workers or contract farmers as cheaply as possible and allocate the 'profits' to a return on management and capital, usually taking them from the community to be reinvested in the global food system.<sup>16</sup>*

This is the "leaky bucket" effect, where the wealth created by agriculture flows out of the local community, leaving farm-

ers, farmworkers, and small businesses impoverished and widening the gap between rich and poor.

Although this trend is accelerating as the global food economy spreads, it is not a new phenomenon: in 1937, a sociologist observed that farm income had been dropping steadily, even though equipment manufacturers were enjoying record profits. He concluded that:

*The invention of the machine and . . . [its] exploitation by monopolistic corporations may be considered as one very effective means by which a nonagricultural economic group cuts out for itself a juicy slice of agricultural income. In this sense farm equipment manufacturers and the large oil companies are engaged in the process of agricultural production, without having to take nearly so many risks as does the farmer.<sup>17</sup>*

The global food economy and the corporations that dominate it do leave behind some money in rural areas for job creation, as their supporters are quick to claim. But the jobs created are mostly low-paying and dead-end: exploitive farm work for undocumented immigrants, dangerous and underpaid work at meat-packing plants, minimum wage jobs at fast food restaurants, and cashier and stockroom positions at big box retailers. Many of these jobs actually represent a net loss for the community: a study by the National Retail Planning Forum in England found that each new mega-supermarket store entering a community resulted in the net drain of 276 jobs from the local community.<sup>18</sup> While conditions here in the US are different, the trends are similar in both countries.

### Widening California's income gap

As small independent businesses are put out of business by huge, transnational corporations, people are left with fewer and fewer work opportunities outside the corporate world. Within that realm, people at the top are paid extremely well, while the vast majority are forced to compete, sometimes with workers on the other side of the world, for the little that trickles down. A 2000 study showed that, on average, CEOs of big US corporations earned 531 times as much as

**WIDENING THE GAP:** Rather than the promised "rising tide that lifts all boats," globalization has actually exacerbated inequality and helped create real global poverty. In the US, analyst George Draffan reports that the top 500 industrial corporations "control over two-thirds of the business resources, employ two-thirds of the industrial workers, account for 60 percent of the sales, and collect over 70 percent of the profits."<sup>19</sup> Whereas the world economy grows by 2 to 3 percent per year, transnational corporations grow by 8 to 10 percent. Today 1 percent of the US population owns 60 percent of the stock and 40 percent of the total wealth.<sup>20</sup>





their hourly employees, a gulf far greater than in any other industrialized country.<sup>21</sup> This is just one symptom of a rich-poor income disparity that has widened in recent years. Thus, the after-tax income of the poorest fifth of American households remained virtually constant over the last two decades, while the income of the richest fifth more than doubled.<sup>22</sup> This is a particularly acute problem in California, where the gap between rich and poor is wider than anywhere else in the country. Even the economic “boom” of the 1990s was a period of *declining* incomes for the poor in California, according to the Economic Policy Institute:

*In contrast to most of the nation, the wages of low- and median-wage workers declined, median family income stagnated, and the unemployment rate increased. At the same time, income inequality in California continued to grow at one of the fastest rates in the country, and the state had one of the largest increases in its poverty rate.*<sup>23</sup>

### **An economy built for corporations**

Rather than the state as a whole, the primary beneficiary of California's food system is a handful of large agribusiness corporations, which take a bite out of every plate of global food eaten in the state. Of the roughly \$65 billion spent on food purchases by California's consumers, restaurants, and institutions in 2000, the lion's share—some \$51 billion—went to marketers and distributors, while \$5 billion went to still other corporations—those that supply the state's farmers with fertilizers, pesticides, seeds, petroleum products, electricity, and other inputs. After expenses, all California farmers put together took home about one-tenth the amount marketers and distributors did. Farmworkers took home even less.<sup>24</sup>

As inequitable as these numbers are, they will likely worsen so long as the global food system is allowed to expand. With food being marketed longer distances, a greater share of the money is siphoned into transport, processing, and distribution. In the last 10 years alone, for example, food marketing costs increased 57 percent.<sup>25</sup>

In this context it is important to recognize that most of the California-produced food consumed in the state is actually a product of the global food system: it is produced in vast monocultures, shipped to centralized processing and manufacturing facilities, and trucked again to centralized distributors and retail supermarket chains. Along the way it accumulates hundreds or even thousands of “food miles,” and at each step it is tightly controlled by corporate food agribusinesses. By the time it reaches its final destination, the distinction

between “California” food and “imported” food has lost most of its meaning.

Similarly, it is also a mistake to think of the corporations that operate within the state as “California businesses.” In today's global economy, free trade treaties have made it easier and economically advantageous for businesses to pull up stakes and relocate wherever they can find lower wage scales, looser health and safety standards, or less burdensome environmental regulations. This is the well-known “race to the bottom,” in which communities, states, and whole nations sacrifice their long-term well-being in a costly competition with one another for the favors of footloose corporations. As a result, many of the corporations benefiting from California's huge agricultural economy are actually based in other states and sometimes abroad.

**By 1990, American farmers were left with only 9 cents out of every food dollar spent, with marketers and input suppliers taking the rest.**

The Central Valley is joining many areas of the global South in providing a haven for agribusinesses. In this economically depressed region, corporations are unlikely to face vigorous demands for higher wages, calls for environmental responsibility, or tax payments commensurate with the benefits received. Thus in Tulare, where the county government is paying its unemployed welfare recipients to move away, you'll find a Land O'Lakes plant, a

Wal-Mart distribution center, a Frito-Lay plant, a Nestlé-Pillsbury joint venture, two Kraft Foods plants, and many others. For these corporations, economically depressed Tulare County has become as attractive as any Third World country.

### **Betting the farm**

We have argued that the global food system does not economically benefit the majority of Californians, but instead favors corporate agribusinesses and a small number of industrial-scale farmers. But even if the economic benefits of global food were generously spread through the state, there would be little likelihood that such beneficence would last. Although California's geography and climate—and, more importantly, generous subsidies and a head start in large-scale, export-led agriculture—have propelled it to the top of the global food system's ladder, its position there is shaky at best.

Global free trade is now forcing California producers to compete with farmers with similar natural advantages and subsidies but far cheaper labor costs. Not only is it unlikely that California can continue to supply so much of the world with its agricultural products, there is no guarantee its growers will be able to retain the 40 percent of the California market for raw farm products that they now enjoy.



## BOX 8.2: Farmland conversion in California



Each year, more than 44,000 acres of California farmland are swallowed by urban and industrial sprawl—roughly 120 acres a day.<sup>64</sup> Urban development often takes the best farm-

land and pushes agriculture onto marginal soils, leading to increased irrigation, fertilizer use, erosion, and pressure on wild ecosystems. By paving over farmland, sprawl threatens to permanently destroy the potential for many local food economies in California.

California's Central Valley is the most threatened farming region in the country, with the Coastal Valleys and Imperial Valley not far behind.<sup>65</sup> The Central Valley, which produces a quarter of the country's food,<sup>66</sup> is losing 15,000 acres of farmland each year to residential and commercial growth.<sup>67</sup> The population in this area is growing faster than any other region in California and is expected to triple from 5.4 million to 15.6 million people by the year 2040.<sup>68</sup>

Agricultural lands in the San Francisco Bay area and other urban areas of the state have also been hard hit. In the Bay Area, almost half a million acres of farmland and other open space are at risk of being paved over and suburbanized in the next 30 years, increasing the developed area by 66 percent or by more than 16 cities the size of San Francisco.<sup>69</sup>

Farmland conversion has many negative ripple effects throughout California's rural communities. "Ranchettes" carve up rural lands and drive up land values far beyond what farming can support. As farmers are displaced by rising land prices, farm communities lose their economic base and vitality, and farm supply centers and other businesses leave town.<sup>70</sup> Sprouting bedroom communities convert farmland to one-acre lots, placing tremendous pressure on land and resources through new infrastructure for water, sewage, schools, and roads.

Although population growth is at the core of urban growth and farmland conversion, it is important to point out that much of California's growth is coming at the expense of rural communities and economies, from Iowa

and Nebraska to Latin America and Asia, that are being decimated by the spreading global economy. Partly because California seems like such an attractive option for so many of these dispossessed people, the state's population, now over 35 million, is growing at a rapid pace, adding more than half a million people each year.<sup>71</sup> At this rate, the population is expected to reach 49 million by 2025.<sup>72</sup>

Poor land use planning exacerbates the problem, leading to sprawl rather than compact or infill development to accommodate the growing population. In California as around the world, the development model is intensely centralizing, with jobs and money heavily concentrated in metropolitan areas. To reach these urban centers, people are forced to commute long distances from regions that may have once supported farms. Much of the population growth in the Central Valley is made up of people who work in distant cities.

Protecting California's remaining agricultural lands calls for both specific and systemic policy changes. Regional land protection will require a mixture of effective land use policy, zoning regulations, urban planning, differential land tax assessment, land trusts, and conservation easements, as well as local activism. This is an innovative state and the seeds of many solutions are in place. In fact, California is home to the nation's first agricultural land trust, the Marin Agricultural Land Trust.<sup>73</sup>

More systemically, a shift in the policies that currently support economic globalization would halt the destruction of those rural economies and communities that are now feeding the growth of California's sprawling cities and suburbs. Efforts to improve the lives and livelihoods of immigrants need not be at the expense of efforts to improve the lives and livelihoods of people in other parts of the world.

Within California, support for small-scale agriculture for local markets is critical to preserving California's farmland: owner-operated farms with dependable, nearby markets are less vulnerable to the pressures of urban sprawl.<sup>74</sup> Keeping these farmers in business not only helps keep rural communities alive, it strengthens the farm belts around cities that are vital to the stability of local food economies, curtailing sprawl and providing urban residents with green space and abundant fresh food.



Already, garlic from China has cut deeply into California's market, even despite a 400 percent tariff on Chinese garlic imports imposed in 1993. Production in California—which previously had nearly the entire US market to itself—has been cut by one-third.<sup>26</sup> Vineyards in Northern California planted during the 1990s boom are now being ripped out, as cheaper Chilean producers have made deep inroads into the grape market, both in the US and abroad. Many of these Chilean grapes are actually being produced by large California producers, illustrating once again that agribusinesses, like corporations generally, have no allegiance to place.

The global food system has served to eliminate farmers deemed too “inefficient” in comparison with producers elsewhere. California growers committed to the global food system have few options. They can attempt to increase their yields by relying on genetic engineering or other risky technologies, increasing the scale of their operations still further, or applying even more agrochemicals to the land, or they can lower costs by replacing workers with technology and more ruthlessly exploiting the workers they retain. Still other farmers may be forced to abandon agriculture altogether and sell their land to developers (see Box 8.2). None of these choices is likely to contribute to the well-being of the majority. There is, however, an alternative, which involves making a commitment to diverse production for local markets.

### A landmark study

The push toward an increasingly globalized food system is responsible for a number of interrelated trends: larger scale farms and more monocropping; decreased reliance on human knowledge and skill alongside an increased dependency on agrochemicals, fossil fuels, and high technology; the bankrupting of small farmers and the gutting of rural economies; a widening separation between producers and consumers; and a rise in transport and food miles.

The impact of one of these trends—the increasing scale of farms—was meticulously documented in a landmark study that demonstrated immense differences between two rural communities similar in every regard except the size of surrounding farms. Since a shift to the local would support smaller farms, this study is worth looking at in some detail.

Walter Goldschmidt, working for the federal Bureau of Agricultural Economics, studied two farming communities in California's Central Valley and described his findings in *As You Sow: Three Studies in the Social Consequences of Agribusiness*, first published in 1947.

The two towns, Arvin and Dinuba, were chosen because they were so much alike. Both are in the Upper San Joaquin Valley—Arvin near the center of Kern County, and Dinuba roughly 100 miles north in Tulare County. They had similar population sizes, were about the same distance from small cities and major urban centers, and were each the economic and social hub for a surrounding region of farms. Climate, terrain, and soil were nearly identical, and the nearby farm economies—equally dependent on inputs of irrigation water, mechanization, and seasonal farm labor—produced roughly the same economic output.

The only structural difference between the two towns was that Arvin was surrounded by large farms (133 farms averaging almost 500 acres each), while Dinuba was surrounded by much smaller farms (722 farms averaging about 57 acres each).<sup>27</sup> The economic consequences of this single difference were immense. Among Goldschmidt's findings were these:

- The small-farm community (Dinuba) supported more than twice as many separate business establishments as the large-farm community (Arvin).<sup>28</sup>
- The volume of retail trade in the small-farm community was 73 percent greater than in the large-farm community.<sup>29</sup>
- For every \$100 value in agricultural production from surrounding farms, the small-farm community received \$171 in retail trade while the large-farm community received only \$103 in retail trade.<sup>30</sup>
- The small-farm economy supported 20 percent more local people per dollar volume of agricultural production than the large-farm economy.<sup>31</sup>
- Residents of the small-farm community had a better average standard of living than those in the community of large-scale farms.<sup>32</sup>
- Businesses in the large-farm community (Arvin) had “a low financial investment in the community, which results in a generally low interest in the affairs and the welfare of the community.” Goldschmidt cites one merchant who admitted: “the businessman in Arvin does not invest in his enterprise for permanence, but endeavors to make a “killing” and get out.”<sup>33</sup>

Those who resist the dogma that bigger is always better will find none of these findings surprising. Yet this study so clearly documented the social and economic costs of large-scale farms, and was potentially so damaging to the corporate agribusinesses that benefit from their spread, that a coordinated smear campaign was conducted against Goldschmidt and his colleagues even before the study was concluded.<sup>34</sup>



## BOX 8.3: Making it work: McGrath family farm

Photo: Doug Gosling



If you drove past the McGrath farm 20 years ago, you would have seen a vast sea of identical lettuce plants. Driving by today, you will see a patchwork of diverse crops. This change is symbolic of

the steps Phil McGrath has taken to survive and prosper, while other nearby farmers have been swept away.

Phil McGrath is a fifth-generation farmer in Ventura County, California's 10<sup>th</sup> largest agricultural county by value of production. The farm, located just 55 miles north of Los Angeles, has been in the McGrath family since 1871. The McGraths once marketed their produce through five different co-ops, which distributed the produce via global food channels. Up until the 1980s, Phil says, it was still possible for an independent family farmer to make a living from the land. There was still, in those years, a farm community.

The agricultural landscape of Ventura County has changed dramatically since then. During the 1980s and '90s the pressures of corporate agriculture and urban sprawl greatly intensified. All the co-ops that the McGraths belonged to went under. Many nearby farmers sold their land to developers or big agribusinesses or were replaced by contract farmers growing monocrops for companies like Dole and TNA. With most farms today focused on distant markets, Ventura County has become a major shipping point for agricultural products and has the largest refrigerated fruit terminal on the West Coast.

The McGrath farm has not been untouched by these pressures. Once surrounded by other farms, their land has become increasingly isolated. On one side is an airport, on another is the freeway, and down the road is an industrial park. Urban encroachment has significantly raised the cost of land. In 1992 the McGraths decided it was more profitable to rent the land than to farm it, and leased most of their acreage to a large firm.

Despite these changes, the family has kept 30 acres of their land to farm themselves. The smaller scale of operations

allowed Phil to diversify, to go organic, and to use direct marketing to sell his produce. On this small corner of the farm, he has turned to a way of farming that connects him more closely to the land and to the people who eat his food. Despite the overwhelming forces that have crushed so many surrounding farms, direct marketing has helped Phil to survive financially, take control of his own business, and stop working for the agribusiness that still rents much of his land.

Phil now markets all of his produce directly to restaurants, farmers' markets, and school-to-farm programs and from his own farm stand. He plans to start a CSA, and already has a member waiting list. The transition to organic direct marketing has made the farm financially viable.

Direct marketing has had a dramatic impact on Phil as well. He is much happier now that he knows the people who buy what he grows. They encourage him to keep farming and tell him how much they love his food. "All farmers should see the people who eat their produce," says Phil.

As farms around him continue to fold, Phil is focusing his efforts on sustaining the future of family farming. Over the past few years, 3,000 students have come through the farm on school tours. Phil is also planning a new "farm center," to engage the community more directly with the farm's activities. Visitors will be able to pick their own fruits and vegetables, participate in special events, pick up their CSA box, and take a farm tour.

The motivations behind Phil McGrath's activism are part personal history, part philosophy. Looking at the big picture, he emphasizes the importance of food security through local food systems, calling the export of local food and import of foreign food "crazy." Phil knows that small-scale farming is a constant struggle with no guarantee of success and has experienced first-hand how large agribusinesses can undermine family farms. But he has also learned how a return to local marketing can make farming both economically feasible and more fulfilling for the farmer. And that is what inspires him to continue.

Goldschmidt's priceless study and its conclusions were suppressed, and the Bureau of Agricultural Economics, under whose auspices the study was conducted, was dissolved.<sup>35</sup>

And for nearly 60 years, the same economic damage inflicted upon Arvin has been inflicted on people and rural economies throughout California.



## Going local

What might be the economic impacts of a shift to the local today? The exact effects are difficult to quantify, but as Walter Goldschmidt's studies nearly 60 years ago and numerous studies since have demonstrated, the benefits would be substantial and widespread (see Box 8.3 for one farmer's story).

Recently, a study commissioned by the state's Buy California Marketing Initiative examined the economic impact of a shift toward local food, looking at how increasing consumer purchases of in-state agricultural products would affect farm revenues, jobs, and overall economic activity. The predicted impacts were huge:

*For example, a 10% shift in annual purchases, or about \$85 dollars per year at the retail level, would generate \$848 million in increased revenues to farms and about \$728 million in spending in California by farms to meet the growth in demand.*

*These expenditures would recycle themselves to nearly \$1.38 billion in communities across the state. Furthermore, it would generate about 3,478 more jobs in the agricultural industry, and nearly 5,565 jobs in total due to the increased economic activity. The growth in business activity also would generate \$188 million in taxes for local and state governments.<sup>36</sup>*

A more substantial increase of 50 percent over current levels of local food purchases would add \$4.24 billion to farm income, add \$6.91 billion to overall economic activity, create over 17,000 jobs in agriculture, and more than 10,000 other jobs in the state. Nearly \$1 billion in tax revenue would be available for state and local government.<sup>37</sup>

Though its conclusions are valid, this study made no allowances for more direct links between farmers and consumers. If Californians purchased more of their California-grown food direct from farmers, rather than indirectly through supermarkets, the benefits for farmers and their

## BOX 8.4: Making it work: Steps toward sustainability in the Capay Valley



The Capay Valley in Yolo County is an agricultural region anchored by a strong contingent of small family farms. In an inspiring move, residents of the valley decided to take proactive steps to

halt the erosion of their agricultural economy and give the community a say in the region's future. Citizens engaged in a two-year community visioning process and developed a concrete Action Plan to achieve their goals.

The Action Plan addresses many of the disadvantages faced by small- and medium-scale family farmers and businesses and takes innovative steps to remedy the situation. As in many other regions, farmers in the Capay Valley have few options for local processing, which puts them at a disadvantage against larger farms which can more easily afford to ship their raw farm products over long distances to be processed. The Capay Valley Action Plan addresses these problems in a unique and community-oriented way. For example, to address the lack of a local slaughterhouse, plans are underway to establish a mobile meat-processing facility that could be shared by local farmers. In addition, renovations to the local community hall will include the construction of a certified organic community processing

kitchen, which will help small farms overcome a major obstacle to producing value-added products.

To create more demand for locally-produced and -processed foods, a local label is being designed and a marketing plan devised. Also on the drawing board is a marketplace/restaurant in Esparto, the valley's largest town, which would emphasize local foods. The marketplace will include a welcoming public space to host community events. Around the marketplace, the town's main street will be improved to attract more activity and vitality.

The Action Plan also devotes significant attention to less obvious and longer-term threats to the viability of a strong local food economy in the Capay Valley. Included in the Plan are strategies to keep farmland affordable, for example through the active promotion of conservation easements and facilitation of farm transfer from one generation to the next. The Plan also makes provisions to improve local transportation in accordance with community needs and desires, while maintaining the scenic and pastoral beauty of the Capay Valley. This is understood to be important not only to the local economy and tourism but to the quality of life of the valley's residents. Finally, extensive efforts are being made to engage the whole community in implementing the Plan, increasing its chances for success.



communities would be even greater. For example, corporate middlemen currently rake in at least 79 percent of the public's food budget annually.<sup>38</sup> If localization reduced the overall proportion of the food dollar going to marketing to 44 percent, the amount going to farmers could triple. This is not an impossible goal: in fact, 44 percent is the same proportion of the US food dollar that went to marketing in 1910.<sup>39</sup>

A recent survey of California farmers indicated that selling directly to consumers provided them with up to four times more net profit than marketing conventionally.<sup>40</sup> Farmers' markets are among the many direct marketing options that offer producers a better return on their labor and investment. A grape grower in California who sells his table grapes to the packinghouse can expect \$6 for a 19-pound box, well below the cost of production. Yet at the farmers' market, the same farmer gets a minimum of \$19 per box.<sup>41</sup> Of the US farmers selling at farmers' markets today, 97 percent say they could not survive without such direct marketing avenues.<sup>42</sup>

### Plugging the leaky bucket

In local food systems, farmers not only receive more for their production, they spend less on manufactured inputs. Since farms serving local markets are typically far more diversified than those serving global markets, the need for agrochemicals to protect monocrops from pests, disease, and weeds is greatly reduced, and can be eliminated entirely on organic farms. This is one reason why gross margins for organic farms average 15 percent higher than for chemical farms.<sup>43</sup> Chemical inputs alone cost California growers more than \$1.7 billion in 2000.<sup>44</sup>

Farms selling locally also tend to be far smaller than global farms. This, along with their crop diversification, makes them far less conducive to the use of large equipment and far more suited to human labor. As a result, much of the money now going to manufacturers and energy companies could

instead go to farmers and farmworkers. As the demand for farm labor increased, one could expect that both the number of farm jobs and their pay levels would increase. This trend would be reinforced by the renewed importance of local

knowledge and skills that are central features of local food systems. Farmworkers would be valued for their understanding of particular farms and local conditions and would likely be treated accordingly. Rather than serving as contract labor or piece workers, laborers would enjoy a greater degree of job security as well, since farmers would have both greater financial flexibility and the incentive to retain workers even in slow periods. This

would be facilitated by the greater degree of security felt by farmers themselves, as their fortunes became less tightly linked to events beyond their control: no longer would their incomes be decimated by a recession in Asia, for example, or a bumper crop in South America.

Consumers would reap benefits too. Not only would their food be fresher and healthier, it would cost less as well, especially if a portion of the subsidies now lavished on global food were instead shifted to local foods. Even without such support, prices at farmers' markets are competitive with, and often lower than, supermarket prices. Two surveys in the UK found prices at farmers' markets to be 10 to 18 percent lower than in supermarkets, with organic meat and poultry 37 percent more expensive at supermarkets, and organic vegetables costing 33 percent more.

With less of the public's food dollar funneled to distant corporations, entire local economies would be revitalized, as farmers' and farmworkers' incomes were re-spent locally. With daily farmers' markets year-round in larger towns, business centers would be enlivened, adding not only to economic activity but to quality of life as well. Ultimately, a shift toward the local would spread the benefits of California's food economy far more evenly, widely, and equitably.



Photo: Lisa M. Hamilton



## CHAPTER 9:

# Community and Social Cohesion

One of the cornerstones of healthy community is the understanding that we depend on our neighbors and that our neighbors depend on us. In today's global economy, however, almost all our needs come from anonymous producers via huge corporate middlemen. The distance separating us is growing, and feelings of mutual dependence are evaporating.

By severing direct economic links between people, globalization is reducing everyone to atomized “producers” or “consumers” with little sense of mutual dependence or responsibility. Purchasing food in the supermarket, for example, can leave us keenly aware of the price of strawberries or the color of apples, but utterly ignorant about the people who planted, nurtured, and harvested our food. As writer Art Gish points out, this ignorance even extends to people we see daily:

*There isn't much community inside a big supermarket. There, we shop as isolated individuals, each in our own private world. Gone are the relationships with the soil, the grower, and, for the most part, even the distributor. Do you know the name of the produce manager in your supermarket? Or anything about his or her family?*<sup>1</sup>

### Sidestepping responsibility

The disappearing sense of community can pose even more serious problems for workers: in California, large-scale growers have found they can insulate themselves from any real connection with the farmworkers they depend on, in part by hiring them through labor contractors. According to attorney Robert Perez, this allows growers to minimize their sense of responsibility:

*If there's an accident, if someone gets hurt, well, 'it's the labor contractor's responsibility.' If there are inhumane conditions, well, 'I don't know anything about that, that's not my job, not my concern. I hired a labor contractor to deal with that. Go talk to the labor contractor.'*<sup>2</sup>

The increasing scale of the global economy is making this sleight of hand easier and more commonplace. When workers that harvest tomatoes for the Taco Bell chain protested against their working conditions, a spokesperson for the Irvine, California-based corporation pointed out that the pickers actually work for a labor contractor, and that it was Taco Bell's policy not to “interfere” in the labor relations of other companies.<sup>3</sup>

In a similar fashion, employees of even the most rapacious corporations often work with a clear conscience, since the link between corporate activities and the suffering that results is often obscured by distance and opaque layers of responsibility. All of these forms of separation—physical, emotional, and intellectual—are antithetical to the sustenance of real community, and all are compounded by the structure of the global economy.



## A stake in the future

Another building block of community is the feeling among members that they have a voice in the decisions that determine the community's future. Globalization, however, is fundamentally eroding what remains of participatory democracy. The global economy is driven by speculative finance, not by the wishes of masses of people, and decision-making authority is being taken from local and even national hands and placed under the jurisdiction of unaccountable global institutions like the World Trade Organization. The result is an undermining of the sense of participation central to thriving communities.

Corporations today not only dominate the economy but the political process as well. Even in nominally democratic countries like the US, highly-paid corporate lobbyists and public relations professionals, hefty campaign contributions, and the rapidly spinning "revolving door" between government and industry ensure that the corporate agenda and public policy are one and the same (see Box 9.1).

This is certainly true in California, where the corporations that dominate the food chain wield a great deal of power. Though agriculture accounts for only 2 percent of California's \$1.3 trillion gross state product, agribusiness interests have a huge influence in the California legislature.<sup>4</sup> As one analyst has pointed out, "No elected official . . . would dare question those recurrent boasts that agriculture is the state's leading industry, even though that has not been true since before Pearl Harbor was bombed."<sup>5</sup>

Agribusiness interests spend considerable amounts of money attempting to influence government policy. Roughly \$1.5 million was funneled to the 2002 reelection campaign of former Governor Gray Davis,<sup>6</sup> and California's dairy industry alone has contributed more than \$700,000 to various state election campaigns over the last six years.<sup>7</sup> The California League of Food Processors (CLFP) is not only a powerful lobby in the state's legislature and regulatory agencies but at the federal level as well. CLFP led statewide initiatives opposing mandatory plastic package recycling and helped pass laws protecting processing facilities from nuisance complaints and exempting them from a state air quality program.<sup>8</sup>

By their nature, corporations are economic constructs concerned almost exclusively with profit and growth. Even if we want our governments to carefully protect the environment and human health, to uplift the poor and needy, to respect individual liberty and the rights of other cultures, it is

unlikely that these concerns will be given much more than lip service as long as for-profit corporations wield so much influence over government policy.

## Arvin and Dinuba

The sense of community also dissolves when the economy appears to serve only a privileged few rather than everyone. This is, in fact, what is happening in communities worldwide, as the spread of the global economy is accompanied by growing inequality between rich and poor. As described in Chapter 8, this problem is growing faster in California than anywhere else in the country.

**By severing direct economic links between people, globalization is reducing everyone to atomized 'producers' or 'consumers' with little sense of mutual dependence or responsibility.**

Sociologist Walter Goldschmidt's studies in the Central Valley, discussed in the preceding chapter, described how the increased scale of farms serves to widen the rich-poor gulf, with troubling implications for the sense of community. Goldschmidt found that the town of Arvin (characterized by large farms) had a very uneven distribution of wealth: at one end of the scale there was a small number of prosperous owners of huge farms; at the lower end was the majority, including a large number of impoverished itinerant farmworkers. The small-farm economy of Dinuba, on the other hand, supported a

much larger number of farmers, whose incomes were only moderately higher than those of the workers they hired.<sup>9</sup>

These economic differences translated into a deep divergence in the social lives of the two communities. Dinuba had higher scores than Arvin in every indicator of social vitality tested: it had more civic organizations, more newspapers, more public recreation centers and parks, even more schools and churches than Arvin. Participatory democracy was also stronger in Dinuba, where town decisions were often made through popular vote; in Arvin, county officials imposed most decisions from above, with little input from the public.<sup>10</sup> (Residents of Arvin were not unaware of their hometown's shortcomings: "Frankly," said a blunt minister, "this is the worst town I have ever seen."<sup>11</sup>)

Not surprisingly, commitment to the community differed widely between the two towns as well. The citizens of Dinuba were more involved in the life of the town and far more committed to its future than the residents of Arvin:

*Indeed, even the operators of large-scale farms frequently are absentees. . . . Their interest in the social life of the community is hardly greater than that of the laborer whose tenure is transitory. . . . Attitudes such as these are not conducive to stability*





## BOX 9.1: The political and social influence of Big Ag

Skip Spitzer, Pesticide Action Network North America

Concentration in agriculture has allowed the biggest agribusinesses to define and control much of the food system. While Big Ag's economic power alone is alarming, the extraordinary wealth amassed by agribusiness also affords far-reaching political and social influence.

### Politics, law, and policy

Big Ag supports political candidates and office holders to, in the words of one agrochemical trade association, “upgrade the Congress” and “improve access to Members.”<sup>23</sup> For example, when the EPA flagged molinate, a widely used rice herbicide, as a reproductive toxicant, neurotoxicant, and possible carcinogen in a draft risk assessment, the agrochemical industry called on California Congressman Richard Pombo. Pombo then requested that the EPA modify the assessment, with the goal of avoiding a listing of the chemical under California's Safe Drinking Water and Toxic Enforcement Act (Proposition 65).

Big Ag also:

- hires high-level employees from the public agencies that regulate it (providing insider know-how and friendly connections through which rules can be bent and loopholes exploited);
- uses trade associations, “hired guns,” and in-house specialists to lobby government decision-makers;
- distorts the voter initiative process through financial support for or against citizen measures.<sup>24</sup>

Agribusiness even influences policy by drafting laws. For example, in 2000 Representative Pombo introduced a House bill on pesticide regulation that was a nearly word-for-word duplicate of a 1999 draft written by an industry consulting firm.<sup>25</sup>

Even where corporations do not actively exert influence, holders of high office themselves frequently have investment and other ties to large corporations that predispose them to industry-friendly positions. For example, US Secretary of Agriculture Ann Veneman (formerly Secretary of the California Department of Food and Agriculture) was a Director of the biotech company Calgene (now owned by Monsanto) and served on the International Policy Council on Agriculture, Food and Trade, a group funded by Cargill, Nestlé, Kraft, and Archer Daniels Midland.<sup>26</sup>

### The media and public relations

Big Ag influences reporting on food and farming issues by providing press releases and “expert” sources, lobbying reporters, and threatening legal action. Its internal PR departments, PR firms, and “informational” organizations poll public opinion, develop strategy, promote messages, and even conduct surveillance.

For example, according to a leaked memo published by the Environmental Working Group in November 2003, a California-based lobbyist for the American Chemistry Council prepared a \$120,000 industry plan to thwart efforts to include the Precautionary Principle in California policy.<sup>27</sup> Tactics included public criticism of the Principle, an “information clearinghouse,” and intelligence gathering to obtain information about the Principle's supporters.<sup>28</sup>

### Science, research, and education

Agribusiness also funds research institutes and policy think tanks as a means of influencing public opinion and policy. For example, the American Council on Science and Health, a think tank receiving as much as 76 percent of its funding from large corporations<sup>29</sup> such as Dow Chemical, DuPont, and Monsanto,<sup>30</sup> promotes the idea that concerns about pesticides like DDT and Alar are “unfounded health scares.”<sup>31</sup>

Big Ag also works to influence public attitudes toward the industry by taking advantage of declining educational funding, particularly in elementary and secondary schools. According to the industry newsletter *Youth Markets Alert*, companies “want to get them started young.”<sup>32</sup> Agribusiness provides schools with educational materials, training, advice, teachers, presentations, exhibits, contests, and awards. For example, the industry-organized Biotechnology Institute,<sup>33</sup> whose mission is “to engage, excite and educate as many people as possible, particularly young people, about biotechnology,”<sup>34</sup> reaches high school students through its popular *Your World* magazine. The Institute also trains teachers at its annual leadership conference.

In its broadest sense, the impact of Big Ag on the food system includes not only its goods, services, and economic activities, but also the industry's social and political influence at the local, state, national, and international levels. A comprehensive transition to a sustainable, socially just, and democratic food system must address all of these dimensions.



*and the rich kind of rural community life which is properly associated with the traditional family farm.<sup>12</sup>*

These links between the conditions fostered by the global food system and the declining quality of community life are not mere artifacts of the mid-1940s, when Goldschmidt's study was conducted. A keen observer of these trends for six decades, Goldschmidt observed in 2002 that:

*What is happening to American agriculture is a great tragedy for our nation, on many fronts. I am . . . astonished at the rapidity of change since World War II. The degree to which big business dominates our food production and determines decisions on chemicals used is terrible. Even worse is the destruction of a whole class of people whose broad capabilities, industry and independence of action and spirit was a vital model for our culture. This is an irreplaceable human resource and its demise is going almost unnoticed.<sup>13</sup>*

Moreover, Goldschmidt's findings have been confirmed by many other studies over the years.<sup>14</sup> In 1983, for instance, researchers found that as farm size and absentee ownership rise, social conditions in rural communities worsen, including family incomes, poverty levels, education levels, and social and economic equality. They concluded that:

*Communities that are surrounded by farms that are larger than can be operated by a family unit have a bi-modal income distribution, with a few wealthy elites, a majority of poor laborers, and virtually no middle class. The absence of a middle class at the community level has a serious negative effect on both the quality and quantity of social and commercial service, public education, local governments, etc.<sup>15</sup>*

More recently, a 2002 study of three Midwestern states confirmed the relevance of the Goldschmidt hypothesis to the current relationship between the structure of agriculture and local socioeconomic conditions. The study concluded by saying: "this analysis has shown that areas with industrial agriculture possess poorer socioeconomic conditions, and if one expands this definition to include animal slaughter and meat processing the effect becomes even stronger."<sup>16</sup>

Unfortunately, the dominant food system in California today does not give rise to vibrant rural communities like Dinuba but to communities as economically stratified and socially stunted as Arvin.

## Independent stores vs. mega-supermarkets

Paralleling the trend toward fewer and larger farms, the global food system is giving us fewer and larger markets. Like Wal-Mart and other big-box stores, huge supermarkets are typically located outside town centers, drawing business away from downtowns and undermining their vitality. In fact,

supermarket chains commonly work with urban planners to redesign towns around their stores, draining downtown cores and funneling traffic to the urban fringe. Tax dollars often pay for the highways and access roads needed to bring customers to these mega-markets.

Car-dependent stores also eliminate pedestrian scale, a feature of downtown cores that leads to more personal, community-building encounters between people. What's more, mega markets eliminate jobs, destroying an estimated three positions for every two they create.<sup>17</sup> As business and jobs are drawn out of town centers across the US, most have become run-down districts featuring boarded-up storefronts, thrift stores and other marginal businesses, and very little vitality.

## Changing course

Since the global food economy is having a deleterious impact on social cohesion and community life, it follows that a shift in direction, toward smaller-scale farms and more direct links between producers and consumers, would benefit our communities. This conclusion is supported by studies of the impact of laws that limit the size of farms or prevent corporations from owning them. One such study showed that:

*Anti-corporate farming laws, such as Nebraska's Initiative 300, lead to fewer families in poverty, lower unemployment, and higher percentages of farmers receiving cash gains from farming. The research also indicated that, while low levels of agricultural industrialization tend to benefit rural communities, these same communities suffer when industrialization and consolidation begin to dominate a county's farm structure.<sup>18</sup>*

Along with these economic impacts, the study confirmed that states which place controls on corporate farming are more likely to score well in various measures of community well-being.

In California, however, the powerful agribusiness lobby has managed to prevent the adoption of similar policies to protect rural communities. A shift toward local food systems



Photo: Ken Hammond, USDA



## Box 9.2: Making it work: Farming with live power

Photo: Katy Mamen



For Steve and Gloria Decater, founders of Live Power Community Farm, using “live power” means farming at a scale that serves both the local environment and community. Located near Covelo in Mendocino County, the 40-acre farm grows a diverse array of organic and biodynamic crops by substituting the live power of draft horses and humans for fossil fuel energy.

“Draft horses are beautiful and quiet,” says Steve. “It’s a pleasure to work with them. Of course, they’re also slower, which affects the scale—they help keep the farm on a solar base rather than a fossil energy base. If we do look to expand production, we look to muscle power.”

Live Power’s small scale has many ecological advantages. Farming with horses instead of fossil fuel machinery reduces the impact on the land, saves energy, and lowers CO<sub>2</sub> emissions. It also produces a beneficial by-product: manure from the farm’s draft horses, cows, sheep, chickens, and pigs provides a rich fertilizer for the vegetable crops, building a healthy soil and reducing the need for off-farm inputs.

“With horses, the farm environment is more inviting to human involvement and community. The farm becomes a learning opportunity for other people,” notes Steve. In fact, education is an important part of Live Power’s mission: “to create a completely self-sufficient agricultural community where humans learn to feed the soil as much as the soil feeds them.” The farm offers an apprenticeship program and hosts a variety of workshops, field days, and educational visits for school children. In total, education provides a significant 25 percent of the farm’s income.

Operating on a small scale also makes it possible for Live Power Farm to market their produce exclusively through a community supported agriculture (CSA) scheme, furthering their commitment to community and education. More than 150 households in Mendocino County and the San Francisco Bay area share the harvest and receive a weekly supply of fresh vegetables in their CSA basket. “We need to create opportunities for people to build relationships with farmers,” says Steve. “A CSA opens the gate to that wider than standard marketing approaches. It has the potential to humanize economic processes.”

How does Live Power make it in today’s tough times for small farms? As Gloria explains, community is the key: “By keeping the farm rooted in community, we are fed by the community in a multitude of ways.” In other words, farming at a small scale keeps the local community and ecology well nourished, which in turn keeps the farm in business.

The Live Power community even helped the Decaters buy the farm, through a new arrangement called “shared equity ownership.” Donations from the CSA community and small foundations made it possible for a non-profit to purchase part of the land’s value through conservation easements, ensuring that the land will remain in organic production and active farming. The resale value is controlled so that the next farmers will also be able to pay for the land from its farming income. “We see farmland as a community resource,” says Steve. “It needs an individual steward, but we recognize the community’s stake in healthy land.”

Their vision for the future? A world with many small farms. “If you see how many families go in and out of supermarkets and realize that 150 households could provide for the operation of a small farm, and those farms would not be in competition with each other—that could support a lot of farms,” says Steve. “The ones buying food hold the key. It’s a tremendous role that people have and power they can exercise.”

In this time when so many are separated from their food source, he adds, it’s vital that we reestablish a connection. “People want to know where their food comes from, and people want to have an impact on agriculture, and that can only happen through community agriculture.”



would help reduce the scale of farms systemically, even without passage of specific laws restricting farm size.

By creating more direct links between producers and consumers, a shift to local food systems can help revitalize deteriorating communities in both cities and rural areas (see Box 9.2). Farmers' markets, for example, encourage face-to-face interactions between consumers and the people who grow their food,

fostering a deeper understanding of mutual interconnectedness and responsibility. In addition, farmers' markets typically create a festive environment in the heart of the community, enlivening rural and urban communities alike, and supporting other small businesses as well. The 20-year-old farmers' market in San Luis Obispo, for instance, is widely credited with revitalizing the town center. Shopping at a farmers' market can be one of the most joyful highlights of the week, especially for children.

## BOX 9.3: Making it work: Not your average grocery store

Photo: Nate Grundman



Shopping at a farmers market is a great way to get to know your local farmer, cheesemaker, baker, or fishmonger, and is an essential part of any sustainable food system. But there's still a place for the neighborhood grocery store.

Food retail giants continue to merge, consolidate and crush their weaker competitors and they have all but wiped out the mom-and-pop corner grocery. But a smattering of small, locally owned food retailers are prospering while providing a vital service to their communities and food systems.

The Sacramento Natural Foods Co-op offers one inspiring model for the future of food retail in California. A consumer-owned cooperative since 1973, the Co-op has the region's largest selection of local, organic, seasonal produce from small family farmers—most from within a 100-mile radius. A few years ago, the Co-op decided to offer only organic produce, since customers were buying almost exclusively organic rather than conventional fare. The Co-op also provides sustainably-raised meat and seafood from local producers; other foods like cheese, bread, and wine from local purveyors; and bulk foods to reduce packaging.

Buying directly from about 45 farms, the Co-op helps keep small local farms afloat, offering them another local market and a way to cut out several layers of middlemen. "We don't fight the farmer over price," explains general manager Paul Cultrera. "We ask, 'what price do you need to stay in business, and to stay sustainable?' It's a balancing act—if we cheat the farmer to give the customer more, then we won't keep the farmer in business and we all lose."

Building a partnership with the farmer, rather than a competitive or antagonistic relationship, is central to the Co-op's way of doing business, and as they see it, an important part of creating a viable, sustainable food system. It also means a lot more work. "It would be a lot simpler," says Cultrera, "if the produce manager could just place one phone call, to one wholesaler, with one invoice, and have one truck deliver the produce. It's very labor intensive to deal directly with many different farmers, and it takes a tremendous amount of work to identify the good ones and build relationships with them."

Ultimately, this hard work pays off for the customers, too—through fresh, high-quality food, and a sense of connection to the people who grew it. The Co-op labels all produce with information about the farmer, displays a map of the farms, and highlights local growers in its food tastings and cooking classes. As part of the Co-op's commitment to public education, its Community Learning Center offers hands-on classes, workshops, and lectures to discuss and encourage action around important food, health, and environmental issues. As Cultrera puts it, "We don't need certified farmers, we need certified customers."

The Sacramento Natural Foods Co-op is owned and run by the people who use it, and has grown to more than 8,000 members. Because the members are the owners, profit isn't siphoned off by outside interests, and economic benefits are kept within the community. And because the store is locally and cooperatively owned, people feel a loyalty and sense of ownership and involvement that ensures its success.

The cooperative structure encourages active member participation in making decisions and setting policies, and perhaps most importantly, helps cultivate stronger relationships within the community. "People know that we're not about making profit, but we're here to provide a service to the community," says Cultrera. "There's a sense of trust and integrity. We're here because the community wants us here."



Community supported agriculture (CSA) can support even closer connections between community members and local farms: not only do CSA programs let farmers and their customers meet face to face, many also encourage participation in workdays, tours, and social events on the farm. Both CSAs and farmers' markets remind shoppers and farmers of their mutual economic link, reinforcing the interdependent bonds that are the mark of healthy communities. Finally, independent retailers can have an important role to play not only in supporting small, local farms, but also raising consumer awareness (see Box 9.3).

### Reconnecting to the natural world

There is a growing body of evidence that people have a fundamental need for a connection to nature, which has been largely severed in the modern world. Local food systems can help reestablish that link, with benefits for both individuals and society as a whole.

A number of initiatives to help prisoners, juvenile offenders, at-risk teenagers, and even torture victims are based on the beneficial, even therapeutic power of growing food: a close relationship with nature in combination with productive, nurturing, and practical work appears to be a highly effective form of therapy. For example, Catherine Sneed, founder and director of The Garden Project in San Francisco, established gardens for prison inmates on 12 acres outside the county jail, as well as other gardens in the impoverished neighborhoods from which many of the inmates come. One result of the project has been more than a 50 percent decline in recidivism rates among prisoners who worked in the gardens.<sup>19</sup> For those engaged in the Project, Sneed says:

*The work begins in a greenhouse with small plants that need constant nurturing. Each person cares for particular plants and learns, by watching them grow, the true nature of this life: growth, renewal, and perseverance. Somewhere during the time spent quietly working the earth, something happens and something changes. Witnessing the cycle of growth and renewal allows the prisoners to see their own potential for growth and change.<sup>20</sup>*

Following their release, many of the former inmates continue to improve their communities and their own lives through

their involvement with the Project, planting trees and clearing debris from vacant lots, for instance, and growing food that they donate to the homeless.

The Garden Project has relevance not just to prison populations but to urbanized people everywhere, most of whom are also fundamentally disconnected from natural processes. Global food, for example, is so heavily processed and layered in so much brightly colored plastic and cardboard that it is easy to believe, as many children do, that food comes not from farms and nature but from the supermarket itself. The growing dependence on strawberries in winter, apples in spring, and other distantly-produced, out-of-season foods adds to the illusion that neither we nor the foods we eat have any connection with nature's rhythms and cycles. Direct links between farmers and consumers, on the other hand, give us a clear sense of what grows locally and when, as well as the impacts of local conditions on each year's harvest.



Photo: Tyler/Center for EcoLiteracy

Our children are particularly vulnerable. Not only do they live in a world largely devoid of real community and connection to nature, they are heavily manipulated by mass marketers and advertisers, who teach them to feel insecure about their weight, their complexion, the sheen of their hair, and other aspects of their identity. Perhaps this is why suicide is now the third leading cause of teenage death in America<sup>21</sup> and why even very young children are being given drugs to counter depression. Between 1995 and 1999 alone, prescriptions for anti-depression drugs rose 151 percent for children in the 7 to 12 age group, and 580 percent for children 6 and under.<sup>22</sup>

The damage we are doing to our children suggests that our society and economy are moving in the wrong direction. The solution is not better drugs, better childcare centers, or better television programming. It involves instead a fundamental shift toward smaller, more human-scale communities, with decision-making in the hands of real people rather than distant unaccountable corporations and institutions, many of them with far less interest in our welfare than our potential to add to their economic growth. The solution also involves closer, more intimate contact with the natural world and its processes, reminding us that we, too, are part of its web.



## CHAPTER 10:

# The Global Impacts of California's Food System

California may have blazed the trail, but today every region in the world is being drawn into an industrialized, centralized, and globalized food system. Local food systems across the US and many parts of the world are being dismantled, locally-produced foods are disappearing, and small- and medium-sized producers and marketers are being driven out of business. In many parts of the world, California agribusinesses are exacerbating this downward spiral, as food exports from the state hasten the demise of local food systems thousands of miles away.

This is not to say that California is uniquely responsible. Globalization is forcing policymakers everywhere to look to distant markets to save their struggling economies. Around the world, in fact, one hears the same refrain: "our farmers cannot survive without better access to global markets." Looked at from a global perspective, this "solution" simply cannot help the vast majority. Because of the scale of production demanded by the global food system, it is a less-than-zero-sum game in which any farmer's success comes at the expense of taxpayers, consumers, and smaller farmers, both at home and in distant parts of the world.

The primary winners in this system are not farmers, farm-workers, small businesses, or the public, but huge corporate buyers and marketers, which are able to pick and choose the cheapest producers from among those that survive, furthering their narrow economic interests at the expense of people and nature. As the following examples show, the benefits accruing to California-based agribusinesses can come at a very high cost for communities and their economies in other regions.

### Case study: Iowa

One doesn't have to look far to see the impact of California's huge food exports. Across the US, local food systems have been devastated by a flood of imported food, much of it coming from the Golden State.

The Leopold Center for Sustainable Agriculture at Iowa State University has examined many of these impacts. One of their studies, *Food, Fuel, and Freeways*, documents the decline in agricultural diversity in Iowa.<sup>1</sup> In 1920, there were 34 products grown on a significant scale<sup>2</sup> on Iowa farms. These included grains (corn, oats, wheat, barley); fruits (apples, pears, cherries, plums, grapes, peaches, apricots, strawberries, raspberries, watermelon, currants); live-stock (horses, cattle, chickens, hogs, mules, sheep, turkeys); and a wide range of vegetables (including potatoes, tomatoes, and cabbage). Thus, Iowa's local food system was able to supply a large portion of the state's needs from within its own borders.



With 33 million acres of farmland, Iowa is still considered a major farm state. But the farms that remain have become highly specialized, and by 1997 the number of foods produced on Iowa's farms had shrunk dramatically: more than two-thirds had been eliminated from the list, including all the fruits and vegetables produced in 1920. With most of those fruits and many of the vegetables now coming from California instead of local farms, agriculture in Iowa has shifted to supplying a few commodities to the global food system, rather than a diverse range of products to local people.

Not surprisingly, the destruction of Iowa's largely local food system has been accompanied by a dramatic increase in food miles. Today, the total distance traveled by the ingredients in an Iowan's typical meal is more than 12,500 miles, with most of those ingredients coming from California. This is more than 10 times the distance traveled by the same ingredients if sourced locally.<sup>3</sup>

In Iowa—just as within California itself—a shift toward the local could greatly reduce fossil fuel use and greenhouse gas emissions. For every 10 percent of global food Iowans replace with food from an Iowa-based regional food system, up to 346,000 gallons of fuel would be saved and up to 7.9 million pounds of CO<sub>2</sub> emissions eliminated annually.<sup>4</sup>

### Case study: Mexico

A look at California's food trade with its nearest international neighbor, Mexico, shows how agricultural trade can threaten small farmers and local production at both ends of the transaction.

Mexico and California are among each other's major markets for fruit and vegetables. Trade liberalization, particularly through the North American Free Trade Agreement (NAFTA), was supposed to benefit Mexican producers, especially fruit and vegetable growers, by increasing their access to Canadian and US markets. That has not been the case. Food trade between the US and Mexico has certainly gone up, doubling in both directions since the introduction of NAFTA, but only the largest producers are benefiting from increased exports while the smallest are being harmed by increased imports.<sup>5</sup> In 2000, Mexico imported \$392 million worth of California food products, including dairy, cotton, fresh and processed vegetables, fruits, and nuts.<sup>6</sup>

Rather than helping Mexican producers, NAFTA has exacerbated the decline of Mexico's rural economies: for example,

since the treaty was implemented in 1994, the Mexican agricultural population has declined from 39 percent of the population to just 23 percent in 2000. Luis Tellez, who participated in NAFTA negotiations as subsecretary of agriculture under Mexican President Salinas, expressed the problem without a trace of irony when he said: "It's not that NAFTA failed, it's just that reality didn't turn out the way we planned it."<sup>7</sup>

The "reality" that confronts Mexican and Californian farmers today involves stiff competition with each other as trade barriers have come down. With corporate buyers free to purchase from the cheapest producer anywhere, farmers in both countries are being forced to bring costs down. In the process, farms on both sides of the border are becoming larger, more monocultural, input-dependent, and capital-intensive, while smaller farms are being eliminated.

For example, Mexico's largest export market for tomatoes prior to NAFTA was the US, but now the balance has reversed: today, Mexico has become one of the top export markets for US tomatoes, primarily from California.<sup>8</sup> This has proven very difficult for small tomato growers in Mexico, and many have been driven into bankruptcy.

Nonetheless, some of the largest tomato growers in Mexico have prospered. To see why this is, one need look no farther than the northern Mexican state of Sinaloa, where almost all large-scale tomato production occurs. Sinaloa is the most heavily subsidized agricultural state in Mexico, but those subsidies do not help small farmers: 80 percent of agricultural subsidies in Sinaloa go to the US-based multinational agribusiness Cargill.<sup>9</sup>

Another factor working against small farmers is that competition with big growers both at home and in California forces them continually to increase their use of expensive agrochemicals, seeds, and fertilizers, for which they have neither the capital nor the ability to secure loans. According to a US Agency for International Development (USAID) report:

*Under free trade, the large companies that use top-of-the-line technology and have committed to international standards of quality and safety have not only survived but thrived. However, the vast majority of these companies, in Mexico, are subsidiaries of international corporations such as Coca Cola, Nestlé, Kraft and many others.<sup>10</sup>*



### Case study: Japan

Events in Japan reveal how California's food exports not only erode local production for local needs elsewhere but eliminate diverse varieties from the fields. As recently as 1995, Japan was 85 percent self-sufficient in vegetables.<sup>11</sup> However, trade liberalization during the 1990s led to increased imports of fresh vegetables into Japan, especially tomatoes. In 1999, Japan lifted all remaining restrictions on US tomatoes, and imports from California grew from less than \$25,000 in 1999 to more than \$3.9 million in 2000—an increase of 155 times in just *one year*.<sup>12</sup>

This staggering growth was not the result of a sudden craving for California tomatoes on the part of Japanese consumers, but was instead related to the growth of American fast-food companies in Japan.<sup>13</sup> Like the Russet Burbank potato (see Chapter 7), imported tomatoes meet the particular needs of corporate fast food outlets, while local varieties do not. According to a US government source:

*While Japanese tomatoes tend to be softer, sweeter, and pinker . . . the US varieties are particularly suited for the sandwiches and salads served by the fast-food service industry.*<sup>14</sup>

This “victory” in the global arena for California's industrial tomato growers may be short-lived, however. Dole Fruit Company, a multinational food conglomerate nominally based in California, is developing a vertically integrated fruit and vegetable production, processing, and retailing system in Japan which will compete directly with imported products from California, Dole's supposed home state. Though this system is being portrayed in Japan as a way to create jobs and modernize the farming sector, its implications not only include the elimination of Japan's small farms but greater pressure on California's.

### Case study: Afghanistan

Television news footage of a barren Afghanistan makes it seem a place not only devastated by war but hardly capable of sustaining human life in the best of times. This is far from the reality: prior to the recent decades of war and drought, Afghanistan produced 86 percent of its own food, a far higher percentage than California today.<sup>15</sup>

Prominent in the agricultural richness of traditional Afghanistan are almonds, of which more than 60 different varieties are indigenous to the country. Almonds are also

among Afghanistan's most important cash crops, second only to opium poppy production in return per acre. Until recently, much of the almond crop was exported to its nearby neighbor, India.<sup>16</sup>

Today, however, 95 percent of the almonds in India come not from Afghanistan but from California. Part of the reason, of course, is that years of conflict and drought have cut

deeply into Afghanistan's production.

But another reason is that the US government is subsidizing the promotion of California almonds in India as part of a \$2.5 million Market Access Program (MAP) grant.<sup>17</sup>

As a result, the US finds itself working at cross-purposes: one hand is giving grants through USAID and various non-governmental organizations to wean Afghani farmers from growing poppies—much of which

ends up as heroin on America's city streets and rural back roads—while the other hand is subsidizing California growers to invade Afghanistan's traditional market for almonds, the export crop that best competes with poppies.

So far, promotion of California exports has been the more successful effort. India is now the US almond industry's second largest market, and exports of almonds to India reached a record level of \$70.5 million in 2000, up 76 percent from 1999. Meanwhile, Afghani farmers, who produced an estimated 3,400 metric tons of opium in 2002, were expected to produce an even larger amount in 2003.<sup>18</sup>

Needless to say, all of this represents a losing proposition, not only for Afghanistan, but for the vast majority of the American public, which pays for the subsidies and grants that both hands of the government are offering, as well as the crime and health costs of a growing heroin problem. The global population is paying another part of the cost: every pound of almonds India imports from California has traveled roughly 5,000 more miles than an equal amount imported from Afghanistan. This translates into wasted fossil fuel and needless greenhouse gas emissions.

### Local food, globally

Just as localization would benefit the vast majority of Californians, it offers the best prospects for people all over the world—producers and consumers, urban and rural, North and South. In fact, to be just, equitable, and sustainable, more localized food systems for California must go hand in hand with localization elsewhere.



Photo: Lisa M. Hamilton





There are many who believe that, for the global South in particular, increased access to markets in the North is the only route out of poverty. There is a fundamental flaw in this argument, however. If the countries of the South are to increase their food exports to the North, they will be competing not only with producers in the North, but increasingly with each other. In order to match the lowest global price for food commodities, they will be forced to continually “modernize” their agriculture or lose out to producers from other countries. Just as in California and the rest of the North, modernization means consolidating farms into larger, more monocultural units with a far greater dependency on inputs and technology than on human labor, knowledge, and skill. Ultimately, this means whittling down the number of people living on the land.

In 2003, 58 percent of the population in the global South still lived in rural, land-based communities.<sup>19</sup> To modernize agriculture in those countries means reducing the agricultural workforce—now roughly 1.27 billion people—to levels closer to the 1 percent found in the US. Even reducing the proportion involved in agriculture down to 10 percent means throwing nearly 800 million people out of work. Those millions will have nowhere to go but urban slums, where the food they need will come not from their own production but from shops selling, for the most part, global food. The only real beneficiaries of this shift are the corporations that dominate that food system.

The economic arguments that focus on GDP and the additional dollars flowing to the South in exchange for their agricultural commodities fail to acknowledge that those dollars will concentrate in very few hands, leaving the overwhelming majority of the population worse off, not better.

### Food sovereignty

A further problem with encouraging the South to engage in more food trade is that the nature of the global economy requires nations to specialize their food production in the handful of commodities they can produce most cheaply. This means, in effect, that every nation must abandon the goal of food sovereignty—the ability to feed its people from its own land—since only diversified production can meet that goal. Losing food sovereignty can have grave repercussions in the geo-political arena. Indian journalist Devinder Sharma points

out how vulnerable import-dependent countries are to blackmail by the countries that supply them with food: “those who control the world’s staple foods don’t need weapons.”<sup>20</sup> This point has not been lost on countries that already exert a great deal of control over the global food supply. Former US Attorney General Ramsey Clark argues that:

**The global economy requires nations to specialize their food production to the handful of commodities they can produce most cheaply. This means, in effect, that every nation must abandon the goal of food sovereignty — the ability to feed its people from its own land — since only diversified production can meet that goal.**

*Central to [US] foreign policy has been the active attempt to deprive governments and peoples of the independence that comes from self-sufficiency in the production of food. I’ve believed for many years that a country that can’t produce food for its own people can never really be free. . . . Egypt is a great example of this. It’s the second-largest U.S.-aid recipient in the world, after Israel. Can you imagine what sanctions would do to Cairo? You’ve got 12 million people living there, 10 million of them in real poverty. The city would be bedlam in ninety days. There would be rebellion in the streets.<sup>21</sup>*

In much of the world there is already a great deal of bedlam, in the form of ethnic violence and even terrorism. This conflict is compounded by the growing gap between rich and poor, as well as a rising sense of powerlessness as human-scale communities are dismantled and cultural and individual identity are undermined. Pulling people off the land so that agriculture can be “modernized” for the sake of global trade offers no solution to these problems, and in fact is likely to worsen them.

For much of the world, achieving a greater degree of food self-reliance is far more important than producing more commodities for export. Pursuing the latter course has meant borrowing billions of dollars from the World Bank and other lenders to build a trade-based transport and energy infrastructure, and then selling off agricultural production and natural resources to pay back the loans—as well as to pay for food.

Embracing local food systems would not only enable countries of the South to avoid unnecessary indebtedness, it would help them reverse the gutting of rural economies, lessen unemployment and conflict, enjoy greater food security, and have a cleaner environment. If the goal is to feed people and eliminate poverty rather than elevate econometric measures like GDP, localization offers the best prospects by far.



## CHAPTER 11:

# Propping Up the Global Food System

**I**t is often argued that globalization is the product of natural, evolutionary forces, putting it beyond people's ability to halt or redirect. What this view ignores, however, is the guiding hand of governments, aided by powerful corporations, in shaping today's global economy.

This chapter shows how the globalization of food, far from being an inevitable trend, stems from a wide range of government policies. These include subsidies for industrial food production and long distance transport that artificially lower the price of supposedly "cheap" global food; the trade treaties that open up every economy to penetration by transnational corporations; and regulatory regimes that systematically favor large operators at the expense of smaller ones. Since these all represent decisions made in our names by our governments—often using our tax dollars—they are no more "evolutionary" or irreversible than last year's campaign promises.

### **"Free trade" treaties**

Perhaps the policy realm with the most far-reaching impacts is that of international trade. Much more is involved, however, than just trade in goods, since everything from services and investments to intellectual property rights now comes under the umbrella of these agreements.

Free trade treaties are promoted as a cure-all for every conventional economic ailment that might beset a country: inadequate rates of growth, insufficient competitiveness, too much poverty, too little productivity, and so on. Almost completely neglected are the "side-effects" of this cure, from despoiled environments and loss of biodiversity, to joblessness, ruined rural communities, the erosion of cultural identity, and rising rates of conflict and violence. Also ignored is the loss of sovereignty, as nations sign away their right to protect citizens and the environment from predatory corporations.

Ironically, free trade policies undermine the economies of not only local and regional communities but even of the nation-states that so zealously promote them. The mobility of capital today means that the comparative advantage once enjoyed by states or regions has been usurped by transnational corporations, which are in the best position to take "unfair advantage" of free trade and the many hidden subsidies implicit in a publicly-financed industrial infrastructure.

Free trade has also furthered the concentration of political and economic power in huge transnational corporations. Today, the World Trade Organization (WTO) has become one of the most powerful institutions in the world, able to coerce sovereign nations, regions, and communities into overturning laws determined to be "barriers to trade." For example, European citizens prefer their beef to come from cows untreated with growth hormones but the WTO considers their wishes to be at odds with "sound science," and ordered Europe to accept hormone-treated beef from the US or suffer stiff economic sanctions. The desire of the vast majority of Europe's citizenry to avoid GE foods is likely to meet a similar fate.

Opposition to the WTO has surfaced from thousands of grassroots groups around the world, dealing sharp blows to the attempt to forge an Agreement on Agriculture within the WTO, in part by giving moral support to Southern nations that resist the formulas set out for them by the industrialized countries.



But the free trade mania is not easily stopped: the United States trade representative, Robert B. Zoellick, recently warned that “as WTO members ponder the future, the US will not wait: we will move towards free trade with can-do countries.”<sup>1</sup> Thus, the US has pushed for a multilateral agreement with the countries of the Americas (the Free Trade Area of the Americas), negotiated bilateral trade agreements with Chile and Singapore, and is working on agreements with regions such as Australia, Morocco, and southern Africa. Along with global trade agreements within the WTO, these bilateral and regional free trade agreements are paving the way for an ever more globalized food system (see Figure 11.1).

California agriculture is considered a prime beneficiary of lowered trade barriers: California now exports cherries to Australia, table grapes to South Korea, rice to Japan, and almonds to India.<sup>3</sup> But the scale of production needed to participate in the global food economy precludes the vast majority of small farmers. Like the entire global food system, “free trade” agreements systematically support the largest producers, marketers, and distributors, to the detriment of everyone else.

## Subsidies

Without subsidies, the global food that fills supermarket shelves in California would be far more expensive—and much of it would not be there at all. Yet most people are largely ignorant of the many ways their own tax dollars are doled out to support the global food system. Some may be aware of “farm subsidies,” but generally believe that these support struggling, small family farms. The reality is far different: the overwhelming majority of subsidies support the

largest, wealthiest farms and the global food economy’s dominant agribusinesses.

The question is not whether or not subsidies in the abstract are good or bad. We should more appropriately be asking what it is that is being subsidized. Today, huge subsidies support the further globalization of food, while almost no support is given to smaller scale, more ecological, sustainable, and localized food systems.

Taxpayer support for the global food system comes in a complex variety of forms:

- **Direct payments to farmers** (e.g. commodity programs, conservation programs, “disaster” relief)
- **Indirect subsidies** (e.g. price supports, export assistance, import barriers, tax breaks, input assistance, marketing campaigns)
- **Systemic subsidies** (e.g. research and development funding, energy and transport infrastructure investments, social services for poorly paid farm laborers and food service workers)

In the belief that the future of agriculture depends on trade, the overwhelming thrust of all these subsidies has been to facilitate the growth of exports, a disastrous policy for local, diversified food systems. For example, the biggest direct farm subsidies support large growers of a relatively small number of global commodities—corn, wheat, soybeans, rice, cotton, milk, beef, and a few others—giving farmers a strong incentive to produce those products (see Appendix 3). One result is to shrink the overall diversity of the food supply: commodity subsidies are available for cow’s milk but not goat’s milk; for corn, wheat, and barley, but not millet, quinoa, or amaranth.

Another effect is to subsidize exports. In 2001, for example, the US exported 53 percent of its wheat crop, 42 percent of its rice, 35 percent of its soybeans, 46 percent of its sorghum, and 45 percent of its cotton.<sup>4</sup> Producers of these crops are among the most heavily subsidized in the nation. In Montana, where 90 percent of the principal monocrop, wheat, is exported, direct government support made up 100 percent of overall farm income in 2000.<sup>5</sup> According to the WTO, total US export subsidies averaged \$6.3 billion per year between 1995 and 2000.<sup>6</sup>

Overall, the US spent more than \$114 billion on direct payments to farmers—for commodities, disaster relief,<sup>7</sup> and conservation programs—between 1995 and 2002.<sup>8</sup> Since almost all of these subsidies are based on acreage or amount of production, the largest farms grab most of the subsidies. In 2002, for example, the largest 10 percent of recipients received 71 percent of USDA subsidies.<sup>9</sup>

**FIGURE 11.1:**  
**Number of regional trade agreements (RTAs) worldwide<sup>2</sup>**

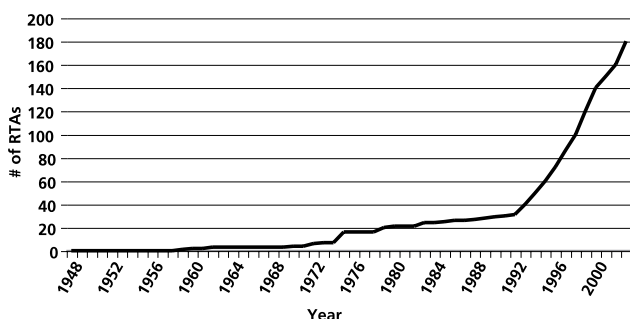




Photo: Stephen Johnson

Importantly, it is not just US or state-level subsidies that make global food seem cheap: since globalization is giving corporate marketers access to products from anywhere in the world, subsidies in other countries can lower the price of food in California. As described in Chapter 10, almost all Mexican tomato production is based in the northern state of Sinaloa, Mexico's biggest recipient of agricultural subsidies.<sup>10</sup> This means that when Californians purchase "cheap" winter tomatoes from south of the border, part of the real price was effectively paid for by Mexican citizens.

Globalization is forcing farmers to compete with farmers in ever more distant regions and countries, which means that subsidies to export producers almost anywhere lower the global ceiling for farmgate prices. Not only is this a death knell for many small farms, it artificially lowers the price of global food at the checkout counter, thereby undermining local—which means *unsubsidized*—agriculture worldwide.

### Direct payments to California agriculture

Although California is the nation's number one farm state, it ranked 11th in receipts of federal farm aid for the period 1995 to 2002, with California farmers receiving only 3.5 percent of total direct payments.<sup>11</sup> Nonetheless, the amount received during that period, more than \$4 billion, was substantial.

In California as in the nation as a whole, the biggest farms reaped the lion's share of these subsidies: the top 1 percent of

California recipients received 24 percent of the total from 1995 to 2002, with an average payment of \$2.3 million per recipient over that period.<sup>12</sup> Since 91 percent of California farms received *no* direct USDA payments at all, this means that less than 0.1 percent of California farms received nearly one-quarter of direct federal subsidies.

The biggest California beneficiaries of commodity payments are rice growers, who received more than \$1.5 billion between 1995 and 2002. Cotton growers were the second biggest recipients, receiving \$1.25 billion in the same period. Wheat (\$308 million), dairy (\$168 million), and corn (\$149 million) rounded out California's top five.<sup>13</sup> In all, the state's growers received almost \$3.5 billion in commodity subsidies between 1995 and 2002 and another \$500 million in other direct payments.

### The 2002 Farm Bill

Despite a verbal commitment by US leaders to cut back subsidies, the federal Farm Security and Rural Investment Act of 2002 ("Farm Bill") increases agriculture spending by 78 percent—or \$83 billion spread over 10 years—while increasing by two-thirds the subsidies for commodity program crops.<sup>14</sup>

Like previous Farm Bills, the 2002 legislation subsidizes agribusiness at the expense of small farms, the public, and the environment.<sup>15</sup> It provides a flood of taxpayer support that will go to the nation's biggest growers of wheat, rice, corn,



cotton, and soybeans and the biggest operators of livestock factory farms, while offering virtually nothing to small, diversified family farms. Large food manufacturers indirectly benefit from these subsidies, which significantly reduce the price they pay for food ingredients.

The law provides \$245 million annually for eight programs in California over the next six years.<sup>16</sup> As usual, California's dairy, cotton, and rice growers receive the most assistance.<sup>17</sup> Though fruit, tree-nut, and vegetable crops are not among the commodities that typically receive direct payments, California fruit and vegetable farmers have been asking for federal subsidies, citing competition from China for garlic and apples and Canada for tomatoes, for example.<sup>18</sup> Rewards for California apple growers included almost \$9 million in 2001–2002 through the Apple Market Loss Assistance Program to compensate for “unfair trade practices” and damage from disease,<sup>19</sup> while nearly \$500,000 was awarded to California and Florida tomato growers in 2001 to boost export markets.<sup>20</sup>

Though it is appealing to the public, the 2002 Farm Bill's \$12.9 billion for conservation spending is deceptive: much of that money merely subsidizes huge livestock factory farms by paying for solutions to their massive manure storage problems. The Environmental Quality Incentives Program (EQIP) has thus been transformed from a program that helps farmers protect drinking water into a multi-billion-dollar giveaway to a few industrial livestock companies, including California's biggest dairy operators.<sup>21</sup>

## Indirect subsidies

The billions of dollars in direct payments, most of it handed over to large, monocultural farms, are just one way our tax dollars support global food. Here are some others:

### Export subsidies

With export growth considered critical to the future of American agriculture, substantial funding is provided to promote US products overseas. Sometimes these subsidies dwarf the value of the products being promoted. From 1997 to 2000, for example, US taxpayers spent \$7.4 billion on export subsidy programs for milk products, while US dairy exports were only worth half that amount over the same period.<sup>22</sup> Similarly, US taxpayers spent \$7.7 billion on export subsidy programs for corn in 2000, yet US corn exports were only worth \$4.5 billion that year.<sup>23</sup>

### Marketing

Some of these indirect subsidies are devoted to export promotion. The US Market Access Program (MAP) devotes between \$150 and \$225 million each year promoting US products in foreign markets. California typically receives around 40 percent of MAP funding, which subsidizes more than 100 California companies through international consumer promotions, market research, technical assistance, and trade servicing.<sup>24</sup> From 1986 to 1993 alone, \$1.25 billion was spent promoting brand-name products like Sunkist oranges, Miller Beer, Campbell's Soup, McDonald's hamburgers, and M&M Mars candies, as well as California agribusinesses like Sunsweet prunes, Sun-Maid raisins, Blue Diamond almonds, Gallo wines, and Dole fruits.<sup>25</sup>



An aqueduct in the Central Valley.

Marketing support comes from state taxpayers as well. In 2002, California launched its “Buy California” initiative, which distributes \$79 million in state and federal grants to promote California agricultural products, both at home and in other states and nations.<sup>26</sup> Part of the initiative is designed to promote agricultural commodities internationally and strengthen California's trade position.<sup>27</sup>

Then-Governor Gray Davis launched the program saying, “It's time to remind the world that we have the best farms and ranches and produce, the best products on God's green earth.” The implication, of course, is that people worldwide should be “reminded” that imported food from California is better than anything they might produce locally.

### Input assistance

Input assistance for California agriculture includes water subsidies, farm credit, crop insurance, pest and disease control, emergency feed, and grazing fees. Irrigation subsidies make up about half of the total spent on input assistance, roughly \$236 million each year.<sup>28</sup> Alfalfa, which consumes almost 25 percent of California's irrigation water, receives the largest water subsidy, worth \$70 million annually.<sup>29</sup> Most of the alfalfa is fed to the state's dairy cows, effectively adding to the many other subsidies supporting that industry (see Box 6.2 for more on water subsidies).

Rice growers and other agricultural interests in the Sacramento River Valley also depend on water subsidies. They have recently been offered renewed 40-year water contracts by the federal government, for more than 2 million acre-feet of below-cost water from the Central Valley Project. Many of these farms are huge agribusinesses with millions of dollars in annual revenues.<sup>30</sup>



It is worth noting that the 1902 legislation allocating federal funds to irrigation projects in California intended that access to the water should be reserved for farms of 160 acres or less. This rule aimed at supporting small farms was eventually circumvented. One reason Walter Goldschmidt's studies in the 1940s were so controversial is that they provided a powerful argument for legislators wanting to retain and enforce the 160-acre limit. In the end, agribusiness interests prevailed, and today even the largest farms have access to subsidized water.

### Infrastructure subsidies

A huge but usually ignored form of government support for the global food economy—and for globalization generally—takes the form of public investments in the infrastructure upon which global trade depends.



### Long-distance highways

Since the global food system fundamentally depends on long-distance transport, there is a great need to constantly expand and modernize the transport infrastructure. In the “developing” world, building the infrastructure to support trade is the source of much of the massive debt weighing down Southern populations. But even in California, where it could be argued that the transport infrastructure is “over-developed,” additional investments in public funds are being devoted to it, ultimately for the benefit of the large businesses that dominate the global economy. The USDA puts it this way:

*Political boundaries no longer constrain the conduct of good business, and this includes agribusiness. Better, faster, more reliable communications and transportation systems facilitate businesses' abilities to produce, source, and sell in the locations that give them best advantage, even if that means operating in multiple locations around the world.<sup>31</sup>*

International trade is the most rapidly expanding component of freight transport in Southern California.<sup>32</sup> The Southern California Association of Governments estimates that freight transportation demand is expected to grow by 80 percent between 1995 and 2020, due largely to increased trade.<sup>33</sup>

Chapter 1 described the role of California's first subsidized long-distance transport infrastructure, the transcontinental railroad, in enabling the state's export-based growers to reach lucrative markets in the east. This, however, was just the beginning. Long-distance highways, airports, deep water ports, and additional rail links have all been built, largely at public expense, to facilitate the increasing flow of goods and people required by an ever more globalized economy.

One of the most important of these is the Interstate Highway System. Initiated by an act of Congress in 1956 (and championed by Secretary of Defense Charles Wilson, also President of General Motors), the 41,000-mile Interstate Highway System was described at the time as “the greatest public works program in the history of the world.”<sup>34</sup> Today, virtually all of the half-million truckloads of agricultural products leaving California each year travel on these Interstate highways.

Like the federal government, California has made heavy investments in highways, with an equally clear bias toward the needs of the global economy. In 1999, for example, the state spent \$7.5 billion on roads and highways;<sup>35</sup> state spending per lane-mile on local roads averaged about one-ninth of the amount spent on long-distance highways, despite the fact that almost half of the state's local roads and streets are in serious need of repair.<sup>36</sup>

### Air transport

Taxpayers have funded huge investments in the air transport infrastructure as well. The 2004 budget for the Federal Aviation Agency, whose duties include air traffic control, safety inspections, and airport improvement, is \$14 billion, including \$3.4 billion to build additional runways and improve existing facilities.<sup>37</sup>

Like investments in long-distance highways, subsidies for air transport disproportionately favor global rather than local trade. Business jets alone use about 20 percent of the capability of the nation's air traffic control systems and well over half of the FAA's control tower services.<sup>38</sup> Since the 1980s, some \$35 billion has been spent just to modernize the air traffic control system, with additional billions still to be spent.<sup>39</sup>

With trade liberalization, air cargo shipments are expanding at a rapid pace—so fast, in fact, that most of the shipping capacity of California's airports has already been used up. Subsidized expansion of California's air freight capacity is already underway. A \$9 billion growth plan for Los Angeles' LAX—the third-busiest air cargo facility in the world—has been proposed by Los Angeles mayor James K. Hahn.<sup>40</sup> Plans have also been floated to build additional air cargo facilities in San Francisco, San Diego, and Orange County.<sup>41</sup>

Other public subsidies support air transport. Though airports are not technically publicly owned, they pay no federal or state corporation taxes and are exempt from local property taxes; they receive federal grants for capital improvements



and can borrow at subsidized rates.<sup>42</sup> And while the gasoline a local farmer uses to get to the farmers' market is taxed, jet fuel is not.

## Ports

Most ports are considered self-supporting departments of the cities in which they are located, paid for not by taxes, but by fees for shipping services. Nonetheless, huge public subsidies are involved in their operation. For one, the prime waterfront real estate on which they are located is usually made available to them free of charge by local governments. The public also covers other expenses. For instance, the federal government is paying for more than half the \$252 million cost of dredging to allow for bigger cargo ships in the Port of Oakland.<sup>43</sup> Agribusiness imports and exports already account for 40 percent of the port's business.<sup>44</sup>

The public also pays for the rail and road links that make container shipping so cheap for the corporations that rely on them. Larry Keller, Executive Director for the Port of Los Angeles, acknowledges that he expects a publicly funded freeway expansion to meet the port's needs:

*Our next challenge is clearly the 710 Freeway. The projection is that in two years traffic will slow to 17 miles per hour, and that is unacceptable. So we're working at both the state and federal levels to mitigate this congestion.*<sup>45</sup>

In many cases, a small portion of the public—usually the poor—pays an additional cost for these transport infrastructures:

*The Port Authority of the city of Los Angeles is proposing to construct a 20-foot high wall—what some are calling a new Berlin Wall. This enormous structure would go across the street from the Dana Strand Housing Project, one of California's most impoverished neighborhoods, cutting off views of the water and clean air carried by sea breezes. The three-quarter mile wall is being built because the Los Angeles Port Authority wants to expand its multi-million dollar operation by creating a new six-lane diesel truck-way to speed up cargo leaving from the port.*<sup>46</sup>

The corporations that dominate the global economy reap immense benefits from these trade-based transport infrastructures. Along with fossil fuels and other forms of centralized energy, these subsidized infrastructures enable corporations to invade markets everywhere with distantly produced and seemingly "cheap" goods, while the real economic and environmental costs are passed on to the public.

## Research and development

Publicly funded agricultural research represents one of the best-hidden subsidies to agribusinesses in the global food economy. Much of this research takes place at land grant colleges, institutions that were formed specifically to strengthen and serve small farms and rural life. In fact, they have done just the opposite. Most of the meaningful research and teaching in the land grant system has been devoted to technological innovations, primarily machinery and chemical inputs, and now biotechnology. Thirty years ago, Jim Hightower and Susan DeMarco pointed out whom this research really helps:

It is the largest-scale growers, the farm machinery and chemical input companies and the processors who are the primary beneficiaries. Machinery companies such as John Deere, International Harvester, Massey-Ferguson, Allis-Chalmers and J.I. Case almost continually engage in cooperative research efforts at land grant colleges. These corporations contribute money and some of their own research personnel to help land grant scientists develop machinery. In return, they are able to incorporate technological advances in their own products. In some cases they actually receive exclusive licenses to manufacture and sell the products of tax-paid research.<sup>47</sup>

One of the clearest examples of this is the mechanical tomato harvester, developed in 1959 by researchers at University of California, Davis, and the tough-skinned "square" tomato designed to go with it. By slashing the need for farmworkers nearly in half, the machine reduced the cost of harvesting tomatoes by \$5–7 per ton, but the \$50,000 price tag meant that only the largest farms could use it profitably. Thousands of small tomato farms in California were driven out of business, with the number of tomato farms declining from 4,000 in the early 1960s to about 600 in 1973.<sup>48</sup>

Though the majority of university research is paid for by the federal government, industry is increasingly finding it cost-effective to fund research at universities, rather than in-house. Overall, industry's share of academic research funding amounts to about 7 percent per year, while the federal government covers 60 percent.<sup>49</sup>

More than any other industry, agribusiness is taking advantage of university researchers: at UC Davis, for example, industry's share of research funding reached 15 percent in 1999. This is not a recent trend, since California has long



been a leader in establishing university-industry research collaborations. Examples of this include several biotech agribusinesses: Novartis, which formed a \$25 million research alliance with UC Berkeley's plant and microbial biology department; Ceres, Inc., which supported biotech research at UCLA; and Calgene, a company formed by UC Davis faculty, which created the first whole biotech food, the Calgene Flav'r Savr tomato.<sup>50</sup>

Even though these and other agribusinesses pay for a portion of the research undertaken at the universities, their motives are not philanthropic. Research agreements usually give them priority in commercializing the results. In the end, these corporations are taking advantage of taxpayer-funded institutions to promote a particular form of agriculture, one in which they are among the dominant players. Meanwhile, even as Novartis and Ceres are pumping millions of dollars into biotech research, the budgets for small-scale sustainable agriculture research programs are being cut to the bone.

### Other subsidies

The effects of the globalization of food are so systemic that many of its subsidized costs are not obvious. Here are just a few:

- With increased international trade in food, it is becoming more difficult—and more important—to control pests and diseases that may accompany imported food. In 1999, the USDA Animal Plant Health and Inspection Service spent two-thirds of its \$652 million budget on exotic pests and diseases. The California Department of Food and Agriculture has an annual budget of about \$40 million for exotic plant pest programs and about \$4 million for animal pests.<sup>51</sup>
- The Environmental Protection Agency (EPA), the Food and Drug Administration (FDA), and other huge bureaucracies charged with safeguarding our food and the environment actually represent public subsidies to the global food system. These bureaucracies—some of them “captured” by the very industries they are supposed to regulate—could be scaled back dramatically if food systems were smaller in scale, and did not depend so utterly on toxic agrochemicals, food additives, genetic engineering, hormone- and antibiotic-dosed livestock, and assembly-line slaughterhouses and food processing plants.
- Like other big industries in the global economy, agribusiness interests work hard to avoid paying their fair share of

taxes. Their lobbying efforts recently succeeded in gaining the largest tax cuts for agriculture in 30 years. The 2001 Agricultural Tax Equity Package is valued at more than \$500 million over 10 years. California farmers and ranchers will realize millions in exemption from state sales and use taxes on propane, diesel fuel, and farm equipment.<sup>52</sup> This exemption thus favors California's most industrialized, energy-intensive farms.

- The global food system also depends on underpaid farmworkers and food service workers, most of whom get few, if any, benefits. When these workers get sick, injured, or pregnant, for example, it is the public that picks up the medical tab.

**The global food system greatly benefits from the regulatory regime that supposedly oversees it. Not only do regulations soothe public anxieties over issues like food safety, they also provide a government-sanctioned ceiling for corporate responsibility.**

### Regulations

Another way in which governments indirectly support the global food system at the expense of smaller, more localized systems is through health, safety, and environmental (HSE) regulations. Although big business complains loudly about government red tape, many regulations would be unneeded were it not for the scale at which large producers now operate. A study by the US Centers for Disease Control and Prevention, for instance, points out that outbreaks of food-borne disease are more likely today because of the trend toward fewer, bigger food production facilities and longer distance distribution.<sup>53</sup>

But rather than reducing the scale of our food systems, the usual response to food safety problems is to call for “techno-fixes” too expensive for small producers to implement. In the US, for example, the recent discovery of *E. coli* bacteria in some industrially produced fruit juices is likely to result in regulations requiring *all* juices to be pasteurized. The high cost of industrial pasteurizers would put hundreds of small producers out of business—even those for whom *E. coli* contamination is highly unlikely.<sup>54</sup>

Many long-time organic farmers argue that the new federal standards for certified organic production are having a similar effect. For example, meeting USDA organic certification requires an onerous amount of new paperwork, demanding more time than some farmers can spare. And the new rules stipulate that if an organic farm earns less than \$5,000 per year it cannot be certified, and its produce cannot be used in processed foods labelled organic.<sup>55</sup> As a result, farmers who have long been producing certified organic food are now finding their certification threatened.





Small farms can be selectively harmed by other regulations as well. In 2003, the United Farm Workers sponsored California bill SB 534 to ban the use of short-handled hoes and handweeding, based on findings by California Occupational Safety and Health Administration (CAL-OSHA) that stooping increases farmworker back injuries. The proposed legislation, which did not pass the State Assembly, would have posed great difficulties for organic farmers, who don't use toxic chemicals and who typically rely on some degree of handweeding to control weeds. This type of blanket regulation also supports mechanization over hand labor, particularly in harvesting crops like lettuce.

While it is important to improve working conditions for farmworkers, it is interesting that even though pesticides poison great numbers of California farmworkers each year, no OSHA ban on their use has been forthcoming. The complex set of HSE regulations that actually serve large corporate interests is a difficult subject, particularly for those wanting high HSE standards. Yet we must question the type and appropriateness of the specific regulations being passed.

Protecting farmworker health and promoting small-scale, sustainable farming should be mutually attainable goals.

As for protecting consumers and the environment, strict regulatory oversight is clearly needed for the global food system, which depends on dangerous agricultural chemicals, antibiotics, growth hormones, genetically modified organisms, and the transport of perishable food from continent to continent. Unfortunately, corporate lobbyists and the "revolving door" between industry and the government assure that HSE regulations do little to impede the expansion of the global food industry. In the US, for example, regulatory agencies like the FDA and the EPA have effectively turned a blind eye as biotech foods spread rapidly through America's food system, even though biotech foods have never been proven safe for human consumption or for the environment.

As things stand now, the global food system greatly benefits from the regulatory regime that supposedly oversees it. Not only do regulations soothe public anxieties over issues like food safety, they also provide a government-sanctioned ceiling for corporate responsibility. For example, when beef produced by IBP, Inc., the largest meat-packer in the US, sick-

ened members of two families and killed a 5-year old boy in 2000, a lawsuit against the corporation was dismissed by the court: as long as federal meat-inspection rules were followed, the company was shielded from claims of negligence.<sup>56</sup>

Global trade in food also undermines the effectiveness of many HSE regulations. Inspection requirements for foods produced abroad are often much weaker than for domestically-produced foods. Since US laws banning hazardous growing and processing procedures do not apply to food grown elsewhere, imported food may contain residues of illegal pesticides or other contaminants. With increasing amounts of food coming from other countries, it is becoming impossible to adequately inspect it: the USDA, for example, only inspects about one percent of imported meat. Perhaps more alarming, "meat blending" rules allow meats from as many as five different countries to be combined.<sup>57</sup>

### **"Cheap food" isn't cheap**

The argument most often heard in support of the global food system is that it provides consumers with "cheap food." Like many economic arguments, this one is based on the flawed assumption that people's welfare can be reduced to their purchasing capacity. But even on purely economic grounds, the notion of "cheap food" doesn't hold water. If global food is cheaper than local food, it is largely because of hidden subsidies and ignored social and environmental costs. In the end, all of these are paid for by the same "consumers" who supposedly benefit from lower prices.

Looking beyond the prices posted in the supermarket, global food is actually very expensive, though many of its costs are hidden from view. As British researcher Jules Pretty points out, "you actually pay three times for your food: once over the counter; twice through your taxes, which are used largely to support [industrial] farming; and thrice to clean up the mess caused by this method."<sup>58</sup>

Redirecting these subsidies and supports from global to local is essential for creating a foundation for sustainable food systems. The following chapter outlines priority areas and steps toward achieving a favorable policy context for local food economies.

**If global food is cheaper than local food, it is largely because of hidden subsidies and ignored social and environmental costs. In the end, all of these are paid for by the same "consumers" who supposedly benefit from lower prices.**



## CHAPTER 12:

# Moving Forward: Strengthening the Local Food Movement

**A**s we have seen, California's dependence on the global food system has been a net loss for the state. It has eroded the state's environment, undermined the health of its residents, eliminated small farms and locally-owned businesses, and sapped the vitality of California's communities. It provides neither food security today for millions of the state's poorest residents, nor can it offer food security tomorrow for even the richest. The food system's main claim to "success"—billions of dollars in agricultural production and trade—actually benefits only a handful of wealthy farmers and huge corporate agribusinesses, many of them outside the state. A shift toward local food systems is a solution-multiplier that would address all of these issues simultaneously.

### **Can local food systems thrive in the global economy?**

So far, the local food movement in California has focused primarily on building up the various parts of working local food systems—farmers' markets, CSAs, urban gardens, farm-to-school programs, and so on. However, relatively little effort has gone toward alerting the public to the ways in which economic globalization limits the success of those initiatives or keeps them from being more widely adopted. In the long run, local food systems will only be marginally successful if government support remains heavily tilted in favor of trade and long-distance transport, if the real costs of global food are masked by subsidies and externalities, and if the regulatory environment continues to punish smaller farms and

businesses. The net effect of these policies is to make global food artificially cheap, and local food relatively expensive.

As a result, the availability of local foods in California has been somewhat limited. While successful local food systems must supply a significant proportion of peoples' daily needs—including grains, meat, fish, dairy products and fibers—the local products available so far have consisted mainly of vegetables and fruits. For the state's local food systems to provide the bulk of peoples' needs, the biases in public policy that make local production seem "uneconomic" need to be reversed. Only by addressing these broader issues can the movement become strong enough to effect real and lasting change.



To see how important these broad policy considerations are to the local food movement, consider what would happen if a California community decided to meet its food needs locally before looking to imports from elsewhere. As things stand today many reasonable steps—levying a tax on excessive food miles, for instance, or favoring local businesses over global corporations—would be considered infringements on the rights of corporations, inappropriate restrictions in interstate trade, or violations of international trade treaties, and would be struck down. For this reason, work toward *renewing* our local food systems must go hand in hand with *resisting* and reversing the policies that favor the globalization of the economy.

None of this is meant to disparage hands-on efforts to rebuild local food systems. In the end, resistance and renewal strategies complement and strengthen each other. The broad perspective that explains how local food systems are being undermined can help identify the obstacles to renewal. Hands-on initiatives to renew our local food systems, in turn, not only create much of the infrastructure for a more localized economy, they provide inspiration and real world examples of the benefits of a shift in direction.

### Education as activism

More localized food systems are a real option for California, as they are for every other region worldwide. But with agribusiness lobbyists and campaign contributions heavily influencing government policy, the prospects for a fundamental shift to the local will be dim unless the public puts tremendous pressure on policymakers. That pressure will inevitably grow if people are better informed about what is really happening to food and farming.

Although a wide range of agricultural and ecological literacy initiatives are underway in California, more work needs to be done to promote *economic* literacy—thereby making the global system comprehensible to the public in plain language. Most people are unaware of the connection between taxpayer-funded superhighways and the growth of companies like Wal-Mart; between farm subsidies, junk food and increased obesity; between trade deregulation and the destruction of farmers' livelihoods in California, Mexico, or China. Most people don't realize that identical products are simultaneously imported into and exported out of almost any given region, or that global trade in food mainly benefits giant agribusinesses. Most are unlikely to know that "cheap" industrial food is not cheap because of

economies of scale but because of political choices about what is taxed, what is subsidized, and what is regulated.

Ultimately, the local food movement must make it clear that the vast majority is better served by strengthening *local* economies than by subsidizing exports, and that real food security comes from diverse and diversified local farms, not from armed guards at the gates of feedlots and processing plants.

### Changing international policy

Most environmental problems—including climate change, the depletion of the ozone layer and the risks of genetically modified seeds—respect no borders, and global agreements to address them are urgently needed. But the majority of international treaties have not aimed at solving environmental problems, but at deregulating trade and investment, thereby fundamentally *undermining* efforts to protect the environment. Not only do virtually all "free trade" treaties entail a lowering of environmental standards, they serve to spread a highly unsustainable consumer culture to every corner of the planet.

With a better-informed public and a critical mass of activists, policymakers can be impelled to halt further deregulation, particularly in the area of agriculture.

Opposing the corporate bent of current trade treaties—bilateral and regional agreements as well as the global treaties enforced by the WTO—is particularly important, both to stem the increasing monopolization of food economies and to create a policy environment that doesn't discriminate against local food.

With so many powerful forces from the corporate world aligned against such a shift, the adoption of alternative trade rules might need to be implemented piecemeal through the formation of blocs of countries, ideally bridging the North/South divide. Such blocs could promote a more balanced trade agenda focused on import substitution—trading only where trade makes sense—and a move toward more decentralized control. The position of the United States, the most influential player in the international policy arena, closely reflects the interests of major corporations. Raising awareness and encouraging action among US citizens is therefore urgent if federal policymakers are to stand up for the interests of the majority.

Pressure on national governments to renegotiate existing trade agreements can come not only from activists and the

**People across the country  
are demonstrating a real  
desire for something  
better — for stronger  
community, for more  
sustainable patterns of  
living, and for healthier  
food systems.**



general public, but from state and local governments as well. In fact, this is already beginning to happen as trade treaties create “crises of jurisdiction” among different levels of government. In order to regain a measure of local control, many municipalities and states are starting to rally in opposition to trade liberalization. California is the first state in the US to institute a formal legislative committee—the Senate Select Committee on International Trade Policy and State Legislation—to look at the limits imposed by international trade agreements on the state’s decision-making power. The Committee will attempt “to integrate global trade policies with California’s agenda for promoting local economic development, decent wages and working conditions, civil rights, clean air, environmental protection and restoration and democratic process.”<sup>1</sup>

Advocates of local food can strengthen the movement against the “free trade” agenda by forming closer alliances with groups working to reverse corporate globalization (see Appendix 5 for many of these organizational resources). Already, a number of grassroots alliances are formulating methods to regulate international trade in ways that reflect the needs of the majority. Recently, for example, the International Commission on the Future of Food and Agriculture met in San Rossore, Italy, to draft a manifesto. This document outlines a model for international agricultural policy and an alternative platform for trade rules, and will be disseminated among national trade delegations (see Appendix 4 for their seven goals of trade rules).

### Changing national, state, and municipal policy

Shifts are needed not only in international trade agreements, but in national and local policies as well. Changing farm policy alone will be insufficient, since so many other policies and regulations affect the food system. Policy areas of urgent priority for regenerating local food economies include:

**Farm subsidies:** As we saw in Chapter 11, direct farm payments are heavily skewed in favor of large-scale agribusinesses. Eliminating the heavy bias toward agribusiness and redirecting public funds toward smaller-scale, diversified family farms would be immensely beneficial. Although California is not a prime recipient of direct payments, a shift in of subsidies would still enhance the viability of the state’s local food producers. For example, federal subsidies for industrial corn and wheat production make it all but impossible for local grain

staples to compete. Shifting those subsidies would dramatically increase the range of available and affordable local foods.

**Indirect farm supports:** Redirecting some of the other supports currently devoted to large export-oriented farms is also important. For instance, the state’s “Buy California” campaign is now largely aimed at promoting the state’s food products

overseas, rather than building support for stronger regional food economies at home. Funding for direct marketing was available in the early stages of the campaign, but those funds have now been eliminated. Reinstating that funding would give a boost to local food.

**Transportation policy:** As described in Chapter 11, transportation spending is heavily focused on the demands of international trade. Additional spending on freeways and ports will only serve to further degrade local economies in California and elsewhere. Instead, steps could be taken to level the playing field for producers and processors marketing locally. For instance, California could tax the transportation of goods in the state to account for environmental “externalities,” thereby favoring shorter hauls. Reducing the quantity of public funds dedicated to massive transportation infrastructure

projects, placing some of it in a fund for facilitating the transport of goods locally, would go a long way toward supporting local economies.

**Research and development:** Massive R&D subsidies are available for technology-intensive industrial agriculture and for “techno-fixes,” like irradiation, to address problems inherent in a globalized food system. Meanwhile, sustainable agriculture receives only a pittance, and research into technologies appropriate for regional scale producers and local processors receives even less. Reversing this bias needs to be a priority for the local food movement.

**Energy and fossil fuels:** Highly-subsidized oil underpins the global food economy, from agrochemicals to long-distance transport to food processing. Supporting decentralized, renewable energy in California and encouraging less energy-intensive production would not only reduce our dependence on foreign oil, but increase food security and the availability of jobs in the food system. Incorporating the many environmental and military costs into the price of fossil fuels would eliminate some of the hidden subsidies for global industrial food, making it clear that local food is actually cheaper.

**For the state’s local food systems to provide the bulk of peoples’ needs, the biases in public policy that make local production seem “uneconomic” need to be reversed. Only by addressing these broader issues can the movement become strong enough to effect real and lasting change.**



**Other externalities:** The price of food in the global food system does not account for a range of other externalities, such as pollution and illness from the use of agrochemicals. A rethinking of economic accounting is long overdue: as things stand now we add the cost of war, cancer treatments and car accidents to GDP and count ourselves richer, just as we do when we clear-cut a forest. In the absence of such a fundamental overhaul, however, a shift to local food would both *reduce* externalities, and make those that remain more difficult to hide.

**Regulations:** Health, safety and environmental regulations are perhaps the most commonly overlooked public support for big agribusiness at the expense of smaller-scale operations (see Chapter 11). This problem can be addressed with a “tiered” regulatory system, in which restrictions on global-scale producers, processors and marketers would be implemented by national bodies (with strong safeguards against the “revolving door” between regulatory agencies and Big Business), while smaller-scale enterprises marketing locally would be subject to locally-determined rules enforced by local bodies. Such a system would allow restrictions on the increasingly deregulated global food system to be tightened, and enable local businesses to be regulated in ways that reflect local conditions and needs. In both cases, enforcement costs would be reduced, and accountability increased.

**Antitrust laws:** While antitrust laws were never designed to deal effectively with mobile transnational corporations, trade liberalization has weakened even the laws already on the books. At the moment, the Federal Trade Commission focuses almost entirely on the activities of *national* competitors, largely ignoring and thereby facilitating the concentration of *transnational* corporate control. What's more, the only basis for limiting corporate size concerns the impact on consumers—usually defined in terms of the prices they pay for goods and services. It is time to recognize that as corporate power grows through global mobility, there are detrimental effects on the democratic process, the flow of information, and other matters of vital concern to citizens worldwide.<sup>2</sup>

**Tax reform:** Ending discrimination against small and medium scale businesses would help local economies flourish. As it is, a wide range of tax credits are available for the energy-intensive technologies used by large-scale producers, while smaller, more labor-intensive businesses are burdened with heavy

payroll taxes. Ecological tax reform—which puts the burden of taxation on activities that destroy natural resources—would be a boon to local food systems.

**Precautionary principle and the burden of proof:** The precautionary principle should be the basis for government decisions regarding new technologies, including agrochemicals, genetically-engineered seeds, food irradiation, and many others. Instead of demanding that opponents of such technologies prove that they are hazardous, the corporations that want to use and market them should be required to prove they are safe for the public and the environment.

Many of the ideas on this list have yet to be explored in detail in California, and few options for re-orienting policy in support of local food economies have been fully investigated. But it is promising to see citizen groups already teaming up with local governments to consider ways that public policy can support the local food economy. For example, Pasadena,

Los Angeles, Berkeley and other California cities are beginning to address food policy in their general plans and in their land use planning, as are some rural regions such as the Capay Valley (see Box 8.4). These efforts hold the promise of creative and strategic approaches to system-wide change.

Meanwhile, voters in Mendocino County, California bypassed their elected representatives by approving a ballot initiative calling for a ban on the “propagation, cultivation, raising and growing of genetically modified organisms.” The March, 2004 vote made Mendocino the first county in the US to prohibit the production of GE foods.<sup>3</sup>

## Dispelling the myths about local food

Since one of the most important prerequisites for effective change is an educated public, it is important to counter common misperceptions about the local food movement. The following list includes many of the commonly-heard arguments against a shift to the local:

### **Only large, industrial farms can feed the world.**

Many people believe that industrial farming has vastly increased agricultural productivity, and that there are simply too many people on the planet to go back to more socially and ecologically sensitive forms of agriculture. But the superior productivity of industrial agriculture is a myth. Studies



Photo: Alex Jensen



carried out all over the world show that small-scale, diversified farms are anywhere from 200 to 1,000 percent more productive per acre than larger farms. In the US, for example, smaller farms produce more than ten times as much value per acre as large farms. Similar relationships are found in every country for which data are available.<sup>4</sup>

There are several reasons why the productivity of smaller farms has been consistently underestimated. One is that government agricultural agencies tend to emphasize *labor* efficiency over *land* efficiency. Since local food systems rely much more heavily on labor-intensive rather than capital-intensive methods, small-farm productivity per unit labor is of course much lower than highly mechanized farms. But if the most productive use of *land* is the goal—which it should be, since the world’s population must be fed on the planet’s limited amount of arable land—then small farms are vastly more efficient. They are especially desirable where unemployment is high, since the majority of people “freed” by agricultural mechanization are generally not free at all, but are merely unemployed.

Another point of confusion is between *yields* and *total output*. The term “yield” generally refers to the amount of produce per unit of land for any given crop, while “total output” refers to the combined output of *all* products from the farm. A typical industrial farm that specializes in one or two products will generate higher yields of those products than small, diversified farms. But comparing only the yields for both types of farm is misleading, since it ignores most of the useful products a diversified farm produces, including its own fertilizer. For example, a study of small farms in West Bengal, India, found that rice fields contained 124 species of economic importance to the farmers.<sup>5</sup> Because official agricultural accounting would consider only the output of rice from these farms, all the other products are statistically invisible.

### ***Local food is only for the wealthy.***

For local food systems to succeed, they must make local food affordable for the vast majority. In some places local food is limited to a small niche market that primarily supplies gourmet items for upscale restaurants or wealthy tourists. This will remain a problem until there is a fundamental shift in how our tax dollars are spent, and until regulations that eliminate small producers from the market are changed. But in the

meantime, a range of creative initiatives are already underway that make fresh local food available and affordable in lower-income communities (see Box 7.1).

### ***Local food is simply too inconvenient to supply people’s everyday needs.***



San Francisco’s Veritable Vegetable is the nation’s oldest distributor of certified organic produce.

Photo: Lisa M. Hamilton

There is plenty of room for local food to become more accessible and convenient. Clearly, local food would be a much more feasible option for the majority if it were available daily rather than limited to a once-a-week farmers’ market or box scheme. Here we have a lot to learn from regions like Europe, where permanent covered markets still supply much of the needs of towns and cities on a daily basis. Paris for example has 73 fresh food markets, 13 of which are covered. Parisians spend about 20 percent of their total food budget at

local markets, and 85 percent of people walk to purchase food.<sup>6</sup>

This kind of system has never existed in the US, but some locations in California are taking steps in this direction. For example, efforts are being made to turn San Francisco’s Ferry Plaza Farmers’ Market—which currently operates four days per week in a covered arcade—into a permanent, daily farmers’ market that gives priority to local small-scale food producers.

### ***A shift to more localized food systems would eliminate existing jobs with distributors and retailers.***

Although direct marketing is a particularly important avenue for establishing local food systems, small-scale processors and independent shops are vital elements in a healthy local food economy. Mainstreaming local food systems will require building up local processing businesses, as well as connections between local producers, processors and independent stores. These relationships and businesses would flourish if economic structures were shifted to support local food, and far more jobs would be created than lost.

### ***Successful small businesses serving local markets will inevitably expand into, or sell out to, bigger chains.***

As long as public policies systematically favor larger-scale businesses over smaller ones, there will be a tendency for businesses that start out serving local markets to expand if they are successful—until eventually they are either bought up by a large corporation or become one themselves. This



is not always the first choice of business owners, many of whom report feeling that in order to survive they are forced to become larger—and that when they do their work becomes less pleasant and rewarding, and more competitive and stressful.

Nonetheless, there are many examples of entrepreneurs who have bucked the trend—from farms that give up the commodity market in favor of direct marketing to successful retailers that refuse to exchange their balanced lifestyle and

close customer connections for the economic rewards of expansion. Rebuilding local food systems cannot succeed without the support of communities that understand the importance of small, local businesses, and an educated public can help small businesses with integrity thrive, even in today's economic and political climate. There is also a place for forums to raise awareness among business-owners about the policy pressures luring them towards larger scale, and to question the assumption that a bigger "bottom line" translates into a better quality of life.

## BOX 12.1: Making it work: The Edible Schoolyard

Photo: Tyler/Center for Ecoliteracy



In 1994, chef Alice Waters and Neil Smith, then-principal of Martin Luther King, Jr. Middle School in Berkeley, California, collaborated with teachers and community members to create the visionary Edible Schoolyard, a non-profit cooking and gardening program that would transform an asphalt-covered lot adjacent to the

school into "an organic garden and landscape which is wholly integrated into the school's curriculum and lunch program," according to the project's mission statement. Work on the garden began in 1995, and two years later the school's abandoned cafeteria was refurbished into a kitchen classroom.

Today, the program is integrated into the middle school's daily life. Garden classes teach the principles of ecology and the origins of food. According to science teacher Yvette McCullough, "With both a kitchen and a garden, we are reminded of the reality that we are sustained by plant growth, not supermarket food wrapped in plastic. Kids see where food really comes from."<sup>12</sup>

The next stage of the Edible Schoolyard program will be the construction of an ecologically-designed cafeteria, where students will prepare their own lunches using local, organic produce and create menus that reflect the ethnic diversity of the student body (36 percent African-American and 18 percent Latino).<sup>13</sup>

The Edible Schoolyard has become an inspiration for school garden projects across California and the US. By 2000, 12 out of Berkeley's 17 public schools had school gardens. In 1999, the Berkeley Unified School District voted to purchase organic food whenever possible for all of its schools' cafeterias. In Los Angeles County, an alliance of science teachers and parents has succeeded in starting gardens in 200 of the county's 915 schools.<sup>14</sup> In 1995, California State Superintendent of Public Instruction Delaine Eastin began the "Garden in Every School" initiative, which has made grants to about 835 schools. All told, it is estimated that about 3,000 schools in the state have school garden projects.<sup>15</sup>

Integrating food literacy into the educational system—especially here in the US where understanding of food origins is so limited—is critical to fostering a citizenry which can both comprehend the destructiveness of the globalized food economy, and work to change it. According to Alice Waters:

Gardening, cooking, serving and eating—these are truly basic things, but the lessons they could teach are drowned out by the clamor of the media and the insidious temptations of consumerism. Kids today are bombarded with a pop culture which teaches redemption through buying things. School gardens, on the other hand, turn pop culture upside-down. They teach redemption through a deep appreciation for the real, the authentic, and the lasting—for the things that money can't buy—the very things that matter most of all if we are going to lead sane, healthy, and sustainable lives. Kids who learn environmental and nutritional lessons through school gardening—and school cooking and eating—learn how to lead ethical lives.<sup>16</sup>

***Supporting local food systems entails “protectionism.”***

Protectionism, a concept derided by proponents of trade liberalization, involves the erection of political and economic barriers to trade, generally with the aim of defending a country's own industries from foreign competition. The debate around protectionism usually pits nation against nation, but today a far more powerful form of protectionism exists, which involves wealthy corporations and banks protecting their interests against a multitude of smaller players.

Although localizing one region's food economy necessarily involves favoring its producers over others, the localization movement is not about protecting one nation's farmers and small businesses at the expense of others—it's about collaborating to build strong local economies *everywhere*. For this reason, the vision underlying the local food movement needs to be international, in particular reflecting the needs of both the North and South. In this respect, the local food movement is one of many “people's movements” around the world that have mobilized to protect livelihoods and the environment from the abuses of TNCs.

***The nations of the South need Northern markets to pull themselves out of poverty.***

In the global South, a focus on exporting food to the North requires an economic transformation that throws hundreds of millions of people off the land and pulls them into urban slums from which they have little hope of ever escaping. It also means those countries must devote their best agricultural land to growing food, fibers, or even flowers for us. Rather than further impoverishing the South, producing more ourselves would allow the South to keep more of its resources, labor and production for itself. A shift towards smaller-scale and more localized production would benefit both North and South, while facilitating meaningful work and fuller employment everywhere.

***The local food movement would be stronger if it collaborated with corporate retailers.***

As the local food movement grows it risks being co-opted by corporate interests. In England, where the local food

movement has gained broad public support, supermarket chains are already adopting the language of the movement—calling some of their supermarkets “local” stores, for example. Those stores do carry a small percentage of locally-sourced products for which food miles are reduced (though in some cases the “local food” in supermarkets is shipped long distances to be processed and packaged before returning to the point-of-sale).

Ultimately, however, large supermarket chains are structurally incompatible with local food systems. As large corporations whose shares trade on major stock exchanges, they are generally governed by profit pressures from remote investors that cannot possibly have an interest in, or even know, the needs of specific local communities. Furthermore, where large-scale middlemen exert control over the food system, farmers still face manipulative contracts and still receive a too-small fraction of the food dollar. The involvement of large corporations in the local food movement would inevitably add to the pressure for superficial changes, rather than the more fundamental structural changes that are needed.

Here in California, corporate interests are adopting the local food concept in other ways, such as through corporate farm box schemes. Rather than serving as a direct link to consumers that allows the farmer to take home most of the food dollar, companies running box programs frequently source their produce from overseas, with customers often believing the produce is local. A similar phenomenon is occurring in open-air markets. In many regions, farmers' markets allow vendors to sell global food purchased at wholesale outlets. In California, *certified* farmers' markets prohibit this practice.

***As long as the producer is nearby, the food produced is “local.”***

Many Californian communities are located near large-scale industrial farms. People interested in local food might wonder whether to consider the battery-chicken facility down the road a “local” farm, but the answer is obvious when one sees how industrial-scale production and centralized distribution are structurally linked within the global food system. In



Photo: Bill Tarpening, USDA

**For the state's local food systems to provide the bulk of peoples' needs, the biases in public policy that make local production seem “uneconomic” need to be reversed. Only by addressing these broader issues can the movement become strong enough to effect real and lasting change.**





many cases none of the food produced by such farms feeds people locally, but is instead destined for national or global markets. Any food that does return to the community is likely to have traveled great distances for processing and packaging, piling up food miles along the way. On balance, industrial farms represent economic and ecological drains from local communities: while creating just a handful of jobs, virtually all other inputs come from outside the community; profits, and even the food itself, are headed elsewhere.

***Encouraging people to “buy local” is the only way forward.***

“Buy Local” initiatives are a central part of building local food systems. However, unless the policies and regulations that make many aspects of local food systems unfeasible—even *illegal*—local food economies will struggle to provide more than a small niche for a few farmers and marketers. Even the meteoric growth of farmers’ markets in California would have been impossible without changing laws that subjected farmers to onerous grading and packing regulations. Meanwhile many other regulations, along with massive subsidies for global industrial food, threaten to keep local food systems from reaching their full potential. For local food economies to become a viable alternative to the global food economy, the pressure that comes from consumer buying power must go hand in hand with broad-based activism to challenge the premises of the global economy, and to shift the government policies that support it.

***Making a transition to local food systems would lead to chaos.***

Moving from global to local is clearly not an overnight process. Transitioning from one to the other will likely involve a progression in stages, with food coming from closer and closer to home as the local food economy grows and matures. This would allow time for regions that are now trade-dependent to increase production for home consumption while decreasing production for export. Time would be needed, as well, to increase the number of farmers on the land, and to renew the location-specific knowledge on which sustainable local food production depends.

But it is important to emphasize again how disruptive the *global* food system is. Even now, a large proportion of the South’s rural population is being pulled from the land. Farms in the North are being eliminated as well, as are small producers and retailers. We already face serious health and environmental problems from the use of agrochemicals, and may soon confront even more dangerous crises if food irradiation and the use of genetically modified seeds spread. The most disruptive trend we face—global climate change—will likely lead to famine and mass migration on an unprecedented scale, and it too is being dramatically exacerbated by large-scale industrial farming and the global food system’s needless transport of food. A shift to local food systems would undoubtedly cause some short-term inconvenience, but it would simultaneously reduce the far more serious problems caused by the global system.

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## **Taking action**

Since everyone participates in the food system in one way or another, there are steps we can all take to support the growth of local food systems in California. Here are a few examples:

### ***Farmers:***

- diversify production and switch to direct marketing or local distribution;
- educate consumers, policymakers, and other farmers about the benefits of marketing locally;
- team up with nearby farms to share distribution and marketing costs;
- start up or join value-added initiatives, such as community food processing facilities;
- save seed and share it with other farmers;
- establish a conservation easement on farmland;
- join forces with farmers' coalitions such as Via Campesina (for more details see Appendix 5).

### ***Processors, distributors, and marketers:***

- obtain raw foods from sustainable local producers;
- market locally;
- link up with others in cooperatives.

### ***Independent retailers:***

- seek local sources for food;
- stock bulk food to reduce packaging;
- educate customers (see for example Box 9.3).

### ***Restaurants:***

- educate customers (e.g. through menus and wall displays);
- obtain raw foods from local, sustainable farmers;
- seek out processors and distributors that source from local farmers.

### ***Citizens and communities:***

- purchase local food from small-scale sustainable producers wherever possible;
- join a CSA or box scheme—or help start one;
- ask local vendors and restaurants for local foods;
- boycott big food corporations and supermarkets;
- organize a consumer cooperative to purchase local food wholesale or direct from producers;
- start a farmers' market;
- start an edible schoolyard project (see Box 12.1);
- publish a list of local growers;
- start a local labeling initiative;
- pressure policymakers for regulatory changes;
- encourage local government to direct resources toward public spaces and markets;
- join or start a food policy council to effect change locally;
- write letters to local, state and national leaders expressing your commitment to strong local economies;
- write articles or op-eds on local food;
- phone radio call-in shows;
- encourage your local government to make institutional buying of local food part of public policy;
- support or join anti-globalization groups;
- organize a teach-in;
- start a study group;
- host a local food supper and discussion group.



## Ripe for change

Although fundamentally changing the global food system is a daunting task, there is good reason to be hopeful. People across the country are demonstrating a real desire for something better—for stronger community, for more sustainable patterns of living, and for healthier food systems. A nationwide survey, for example, showed that 81 percent of people are willing to pay more for food grown sustainably, and 77 percent felt that government policy should favor family farms over corporate farms.<sup>7</sup> This helps explain why sales of organic food increased more than six-fold during the 1990s alone, and continue to rise rapidly.<sup>8</sup> Farmers' markets are multiplying as well: the US total increased by 79 percent between 1994 and 2002, and the number of growers who sell at them more than tripled.<sup>9</sup> California is a leader in this trend: the number of certified farmers' markets in the state has doubled in the last five years, while direct farm sales rose 84 percent overall from 1992 to 1997—a faster rate than in any other state.<sup>10</sup>

Since cross-border coalitions will be needed to force governments to renegotiate trade treaties, it is important to note that dissatisfaction with the global food system is an international phenomenon: the Slow Food movement, for example, now has chapters in 48 countries, with membership totaling 77,000.<sup>11</sup> These movements in support of the small and local have grown from the grassroots, even as governments have been pouring tax dollars into the global system and catering to the demands of giant corporations. Their spread reflects the hard work and perseverance of increasing numbers of people who are beginning to reject the consumer culture in favor of more sustainable and community-building alternatives.

Since California agriculture is the model that so many other regions emulate, positive change here is of immense significance. Shifts toward the local in California could reverberate throughout the rest of the world, helping to change policies that are equally disastrous everywhere. But there is a great deal of work ahead. Local food systems have not been a major part of California's economy since the breakdown of indigenous life that began 350 years ago. While other parts of the world, mostly in the global South, can focus on retaining or rebuilding their local food systems, California has little to fall back on. But these difficulties are accompanied by new opportunities and still-unexplored possibilities.

What would be accomplished if California shifted support toward more localized food economies instead of the global industrial food system? A shift toward the local would:

- lead to more diversified farms, and more genetic diversity within the crops grown;
- reduce the amount of chemical fertilizers and pesticides used in California;
- lessen the amount of water used in agriculture;
- encourage farming techniques that support wildlife;
- give small farms and farmworkers a bigger share of every food dollar;
- reverse the trend toward ever more concentrated control of California's food system;
- provide Californians with healthier, fresher food at more affordable prices;
- revitalize the state's rural economies and communities;
- reduce fossil fuel use and CO<sub>2</sub> emissions from food transport;
- lessen the need for storage, packaging, refrigeration, artificial additives, and high-tech preservative methods.

These and other benefits of localization are not pipe dreams. On a small scale, grassroots steps toward the local in California and elsewhere have already proven to be effective "solution-multipliers." With policy support at the local, state, and national level, these initiatives can thrive and spread, and lasting solutions to the problems of California's current food system will finally be within reach.

While thousands of people are already engaged in active opposition to the global food system, thousands of others—from farmers to food retailers, from restaurateurs to school educators and urban gardeners—are exploring the pieces of an alternative, human-scale food systems. Putting all those pieces together will be one of the most exciting projects of the new century.



## APPENDICES

### APPENDIX 1: The top three food retailers in California: Profiles

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#### SAFEWAY:

- Number of stores in California:** 541
- California market share:** 23.6 percent
- California supermarket names:** Safeway, Von's, Pavilion, Pak 'n Save
- Headquarters:** Pleasanton, California
- Annual US Sales, 2002:** \$34.3 billion
- National chains:** Dominick's (Chicago area), Genuardi's (Philadelphia area), Randall's and Tom Thumb (Texas), Carr's (Alaska)
- International:** Safeway owns a 49 percent share in Casa Ley, a Mexican food and general merchandise retailer, and has a significant presence in Canada with 215 stores.
- Other information:** In 2001, Safeway also operated 41 processing/manufacturing facilities (bakeries, vegetable processing plants, milk plants, etc.).

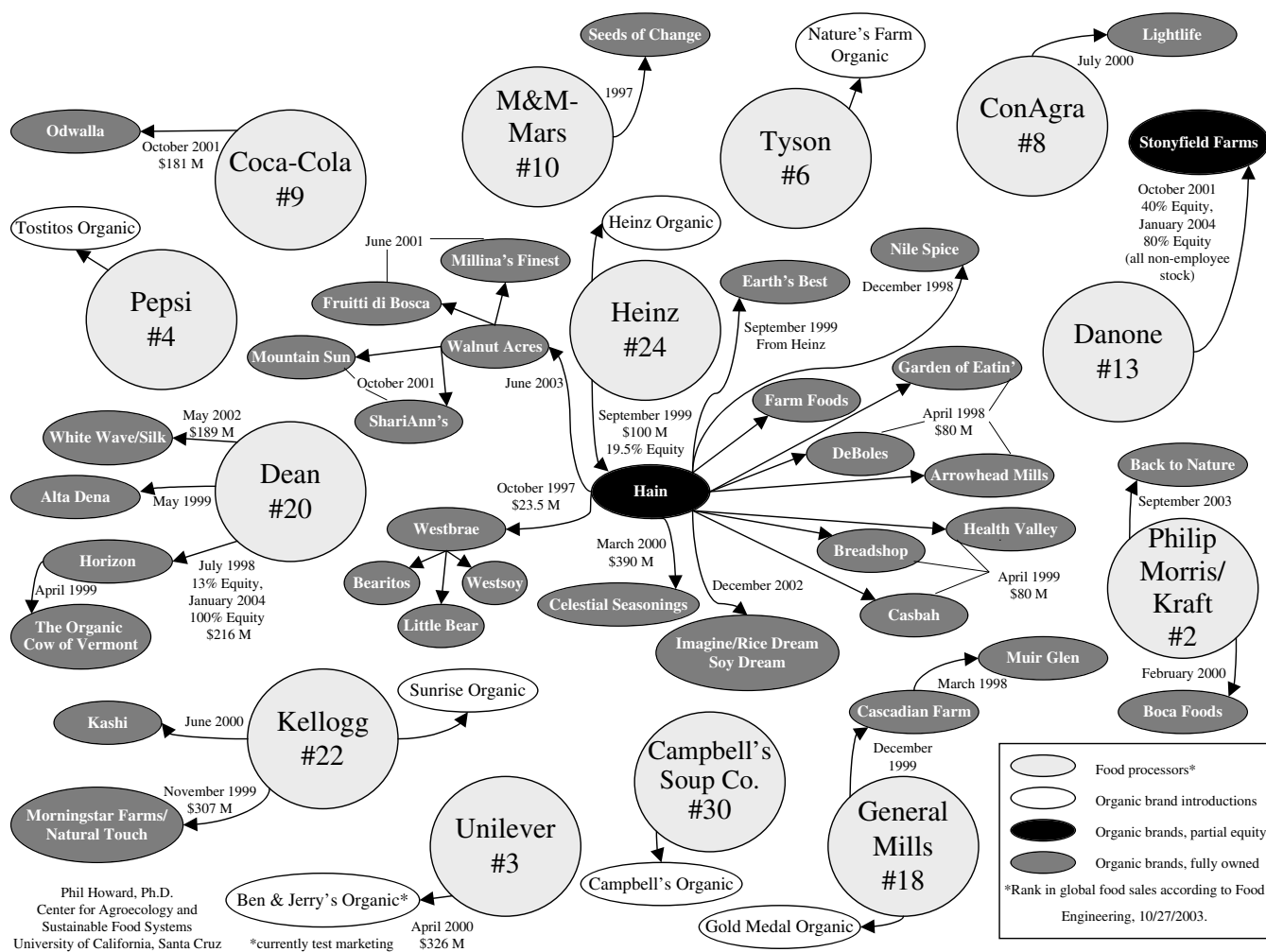
#### KROGER:

- Number of stores in California:** 504
- California market share:<sup>1</sup>** 16.8 percent
- California supermarket names:** Ralph's, Cala/Bell, Food 4 Less, Foods Co.
- Headquarters:** Cincinnati, Ohio
- Annual US Sales, 2002:** \$50.1 billion
- NATIONAL CHAINS:**
- Supermarkets:** Kroger, Ralphs, Dillons, Smith's, King Soopers, Fry's, Quality Food Centers (QFC), Jay C, Cala Foods/Bell Markets, Kessel Food Markets, Pay Less, Baker's, Gerbes, Hilander
- Multi-department stores:** Fred Meyer, Fry's Marketplace
- Big box warehouse stores:** (average size: 53,000 square feet) Food 4 Less, Foods Co.
- Jewelry Stores:** Fred Meyer, Littman, Barclay
- Convenience stores:** Turkey Hill, Kwik Shop, Loaf'n Jug, Quik Stop, Tom Thumb
- Other information:** Kroger holds the first or second position in 41 of its 48 major markets, and has increased its share in 27 of them.<sup>2</sup>

#### ALBERTSONS:

- Number of stores in California:** 483
- California market share:** 16.5 percent
- California supermarket names:** Albertsons
- Headquarters:** Boise, Idaho
- Annual US Sales, 2002:** \$37.9 billion
- NATIONAL CHAINS:**
- Supermarkets:** Albertsons, Acme Markets (Pennsylvania), Jewel Food Stores (Illinois), Super Saver, Max Foods, Grocery Warehouse
- Drug stores:** Savon, Osco Drug
- Other information:** Albertsons is currently pursuing fuel centers as a key growth strategy and has approximately 270 gas stations (PG super50) nationwide.

## APPENDIX 2: Organic industry structure, February 2004





## APPENDIX 3: USDA subsidy payments to California

### USDA subsidies to California, 1995–2002<sup>3</sup>

Year	Subsidy amount
1995	\$237,655,740
1996	\$293,740,619
1997	\$216,998,417
1998	\$355,602,963
1999	\$665,887,679
2000	\$724,312,839
2001	\$867,632,686
2002	\$652,065,444
1995–2002	<b>\$4,013,896,387</b>

### Biggest USDA subsidy programs, 1995–2002<sup>6</sup>

Rank	Program	Subsidy total, 1995–2002
1	Corn	\$34,552,627,460
2	Wheat	\$17,247,966,489
3	Conservation Reserve Program	\$13,018,173,430
4	Soybeans	\$10,967,530,537
5	Cotton	\$10,663,566,847
6	Rice	\$7,795,799,116
7	Sorghum	\$3,193,985,171
8	Livestock	\$2,256,567,708
9	Dairy Program	\$2,018,407,457
10	Barley	\$1,411,386,147
11	Peanuts	\$1,265,735,609
12	EQIP	\$542,457,791
13	Tobacco	\$479,469,789
14	Sunflowers	\$377,346,688
15	Sugar	\$299,778,377
16	Oats	\$183,445,543
17	Apples	\$169,437,769
18	Wool	\$156,192,611
19	Canola	\$151,361,010
20	Sheep meat	\$55,827,008



## Concentration of subsidy payments in California, 2002<sup>4</sup>

Percent of recipients	Percent of payments	Number of recipients	Total payments 2002	Payment per recipient
Top 1%	21%	198	\$133,911,280	\$676,320
Top 5%	44%	990	\$287,412,759	\$290,316
Top 10%	60%	1,980	\$388,295,485	\$196,109
Top 15%	70%	2,971	\$457,278,973	\$153,914
Top 20%	78%	3,961	\$507,213,926	\$128,052
Remaining 80% of recipients	22%	15,846	\$144,851,518	\$9,141

## Top California recipients of USDA subsidy payments, 1995–2002<sup>5</sup>

Rank	Recipient	Location	Total USDA subsidies 1995-2002
1	Farmers Rice Coop	Sacramento, CA	\$107,987,264
2	J.G. Boswell Co.	Corcoran, CA	\$10,854,199
3	Dublin Farms	Corcoran, CA	\$9,336,652
4	R. Gorrill Ranch Enterprises	Durham, CA	\$7,708,783
5	Wolfsen Land & Cattle Co.	Los Banos, CA	\$7,667,942
6	Starrh & Starrh Cotton Growers	Shafter, CA	\$6,424,904
7	Hansen Ranches A Pts	Corcoran, CA	\$6,407,745
8	C.J. Ritchie Farms	Visalia, CA	\$6,242,900
9	Buttonwillow Land And Cattle Co.	Buttonwillow, CA	\$6,071,239
10	Westfarmers	Visalia, CA	\$5,879,879
11	Sjv Enterprises	Nicolaus, CA	\$5,247,821
12	E. Franklin Larrabee & Associates	Butte City, CA	\$5,105,623
13	Canal Farms	Maxwell, CA	\$5,092,880
14	Bowles Farming Company, Inc.	Los Banos, CA	\$4,750,949
15	Boeger Land Company	Gridley, CA	\$4,551,733
16	Gilkey Five	Corcoran, CA	\$4,414,746
17	Resource Group	Richvale, CA	\$4,121,822
18	River Garden Farms Company	Knights Landing, CA	\$4,034,634
19	Sid, Brent & Leo La Grand	Williams, CA	\$4,024,488
20	Chrisman Farms	Williams, CA	\$4,021,332



## APPENDIX 4: Trade rules to achieve the aims of the International Commission on the Future of Food and Agriculture

Excerpted from: *Manifesto on the Future of Food*, by the International Commission on the Future of Food and Agriculture<sup>7</sup>

This section provides specific principles and suggestions for changes in the rules of the World Trade Organization (WTO) so that they are consistent with the goals of the Commission. Current trade rules of the WTO have forced the continuous lowering of tariffs and other barriers that formerly protected the domestic economies of member nations. These more open borders have resulted in social and economic conditions that are detrimental to the majority, but to the benefit of large corporations. To achieve the aims of the Commission we advocate that these WTO rules must be replaced by new trade rules, to achieve the following goals:

### **1. Permit Tariffs and Import Quotas That Favour Subsidiarity**

Most international trade rules now favour export production and the global corporations that dominate it. New rules must again permit the use of trade tariffs and import quotas to regulate imports of food that can be produced locally. They must emphasise support for local production, local self-reliance, and real food security. This means applying the principle of subsidiarity: whenever production can be achieved by local farmers, using local resources for local consumption, all rules and benefits should favour that option, thus shortening the distance between production and consumption. This is not to suggest that there should be no trade at all in food products but only that trade should be confined to whatever commodities cannot be supplied at the local level, rather than export trade being the primary driver of production and distribution.

### **2. Reverse the Present Rules on Intellectual Property and Patenting**

The World Trade Organisation attempts to impose the US model of intellectual property rights protection on all countries of the world. This model strongly favours the rights of global corporations to claim patents on medicinal plants, agricultural seeds, and other aspects of biodiversity, even in cases where the biological material has been under cultivation and development by indigenous people or community farmers for millennia. Most of these communities have traditionally viewed such plants and seeds as part of the community commons, not subject to ownership and fee structures imposed by outside corporations. These WTO rules on intellectual property should be abandoned to permit reassertion of rules that favour the needs of local and domestic communities and the protection of innovation and knowledge developed over the centuries, as well as to deal with public health crises.

### **3. Localise Food Regulations and Standards**

With the false excuse of providing food safety, many international rules, such as the WTO's Agreement on the Application of Sanitary and Phytosanitary Standards (SPS) and the Codex Alimentarius, have enforced a kind of industrial processing of foods that works directly against local and artisanal food producers, whilst favouring the global food giants. Among other things, the rules require irradiation of certain products, pasteurisation, and standardised shrink-wrapping of local cheese products. Such rules increase enormously the costs for small producers and also negatively affect taste and quality. In fact, the greatest threats to food safety and public health do not come from small food producers, but from large industrial farms and distributors. Their practices have accelerated the incidences of *salmonella*, *E. coli* infection and other bacteria in foods, as well as Mad Cow and Foot and Mouth Disease. Such homogenised industrialized global standards have the primary goal of benefiting global corporate producers. We favor rules and food production standards that are localised with every nation permitted to set high standards for food safety.

### **4. Allow Farmer Marketing- Supply Management Boards**

Currently disallowed by the WTO and NAFTA, these price and supply regulations let farmers negotiate collective prices with domestic and foreign buyers to help ensure that they receive a fair price for their commodities. Less than two years after NAFTA went into effect, Mexican domestic corn prices fell by 48% as a flood of cheap US corn exports entered the country. Stable prices for Mexico's domestic corn growers, as well as stable supply, could have been achieved by the government price regulation agencies that were dismantled by NAFTA. Without these, thousands of farmers have been forced to sell their lands. Trade rules must allow the reinstatement of such agencies.





### **5. Eliminate Direct Export Subsidies and Payments for Corporations**

Although the WTO has eliminated direct payment programmes for most small farmers, they continue to allow export subsidies to agribusinesses. For example, the US Overseas Private Investment Corporation funded by US taxpayers, provides vital insurance to US companies investing overseas. Even loans from the IMF to Third World countries have been channeled into export subsidies for US agribusiness. Such subsidies help multinational corporations dominate smaller local businesses both domestically and abroad. All export subsidy policies should be eliminated. But programmes that permit and encourage low interest loans to small farmers, creation of domestic seed banks, and emergency food supply systems should be allowed.

### **6. Recognise and Eliminate the Adverse Effects of WTO Market Access Rules**

Heavily subsidised Northern exports to poor countries have destroyed rural communities and self-sufficient livelihoods throughout the South. Many people now working, for example, for poverty wages at Nike and other global corporate subcontractors are refugees from previously self-sufficient farming regions. This entire model of export-oriented production is destructive to basic self-sufficient traditional farming. The dominant theory that exports from the South to North can be a major route for development ignores the inevitability of adverse competition between poor exporting countries for these rich markets, and the hijacking of national priorities in the interest of cheaper exports. Also damaging to poor countries are the adverse working and environmental conditions demanded by the mobile corporations that dominate the global food export trade. To reverse this trend countries must have new international trade rules that allow them to re-introduce constraints and controls on their imports and exports.

### **7. Promote Redistributive Land Reform**

Although predominantly a domestic decision, for the above changes in trade rules to really benefit the majority in a region, the redistribution of land to landless and land-poor rural families is a priority. This has been shown to be an effective way to improve rural welfare at different times in Japan, South Korea, Taiwan and China. Research also shows that small farmers are more productive and more efficient, and contribute more to broad-based regional development than do the larger corporate farmers. Given secure tenure, small farmers can also be much better stewards of natural resources, protecting long-term productivity of their soils and conserving functional biodiversity. Truly redistributive land reform has worked where it has been fully supported by government policies. These include debt free government grants of land, full rights of title and use of land for women, the reallocation of only good quality land, and easy access to predominantly local markets. The power of rural elites must be broken and reforms must apply to the majority of the rural poor, so they have sufficient strength in numbers to be politically effective. There must be a highly supportive policy framework, reasonable credit terms and good infrastructure for sound local environment technologies.



## APPENDIX 5: Resources

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This list of organizations and resources is intended as a starting point to help Californians access additional information and ongoing initiatives. It is by no means exhaustive. Please feel free to contact ISEC for additional resources and information on more locally based initiatives in your area.

### Organizations working in California

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#### California Food and Justice Coalition

P.O. Box 209  
Venice, CA 90294  
(310) 822-5410  
[www.foodsecurity.org/california/index.html](http://www.foodsecurity.org/california/index.html)

*CFJC is a statewide coalition and partner of the national Community Food Security Coalition, working with community-based efforts in California to create a just and sustainable food supply.*

#### California Food Policy Advocates

116 New Montgomery St., Suite 633  
San Francisco, CA 94105  
(415) 777-4422  
[www.cfpa.net](http://www.cfpa.net)

*CFPA is a statewide public policy and advocacy organization working to improve the health and well-being of low-income Californians by increasing their access to nutritious and affordable food.*

#### Californians for GE-Free Agriculture

15290 Coleman Valley Rd.  
Occidental, CA 95465  
(707) 874-0316  
[www.calgefree.org](http://www.calgefree.org)

*The Californians for GE-Free Agriculture coalition brings together farmer-based organizations with consumer and environmental groups to stop new genetically engineered (GE) crop plantings in California.*

#### Californians for Pesticide Reform

49 Powell St.  
San Francisco, CA 94102  
(415) 981-3939  
[www.pesticidereform.org](http://www.pesticidereform.org)

*CPR is a coalition of over 150 public interest groups dedicated to protecting human health and the environment from pesticide use.*

#### California Sustainable Agriculture Working Group

P.O. Box 1599  
Santa Cruz, CA 95061  
(831) 457-2815  
[www.calsawg.org](http://www.calsawg.org)

*CalSAWG is a network of farm, environmental, consumer, farmworker, and other groups working to promote a sustainable and socially just food system, and providing a forum for collaborative action, policy advocacy, and information exchange.*

#### Center for Agroecology and Sustainable Food Systems

UC Santa Cruz  
1156 High St.  
Santa Cruz, CA 95064  
(831) 459-3240  
<http://zzyx.ucsc.edu/casfs/index.html>

*CASFS is a research, education, and public service program at UC Santa Cruz, dedicated to increasing ecological sustainability and social justice in the food and agriculture system.*

#### Center for Ecoliteracy

2528 San Pablo Avenue  
Berkeley, CA 94702  
[www.ecoliteracy.org](http://www.ecoliteracy.org)

*The Center for Ecoliteracy is a public foundation supporting educational organizations and school communities in their work to foster the profound understanding and direct experience of food systems, watersheds, and the natural world. The Center also publishes a range of resources on ecoliteracy and school gardens.*

#### Community Alliance with Family Farmers

36355 Russell Blvd., Davis, California  
Mailing Address: P.O. Box 363, Davis, CA 95617  
(530) 756-8518  
[www.caff.org](http://www.caff.org)

*CAFF is working to build a movement of rural and urban people who foster family-scale agriculture that cares for the land, sustains local economies, and promotes social justice. They have a wide range of programs related to improving farmer-consumer links and local food systems.*

#### Ecological Farming Association

406 Main St., Suite 313  
Watsonville, CA 95076  
(831) 763-2111  
[www.eco-farm.org](http://www.eco-farm.org)

*EFA is a non-profit educational organization that promotes ecologically sound agriculture. Their special events, such as the "Eco-Farm" conference, bring people together from all over the world to share ideas and experiences in producing healthful food from a healthy earth.*

#### International Society for Ecology and Culture

PO Box 9475  
Berkeley, CA 94709  
(510) 548-4915  
[www.isec.org.uk](http://www.isec.org.uk)

*ISEC is an activist think-tank promoting local alternatives to the global consumer culture. ISEC's 'education for action' work is renowned for its incisive analysis of North-South issues, and for strategic solutions to the planet's most vexing social, environmental, and economic problems. Since the 1980s, ISEC has played a leading role in raising awareness about the urgent need to shift toward more diversified and localized food systems.*



## Occidental Arts and Ecology Center

15290 Coleman Valley Rd.  
Occidental, CA 95465  
(707) 874-1557  
[www.oaec.org](http://www.oaec.org)

*OAEC is an educational center and biodiversity-focused farm whose programs combine research, demonstration, education, and organizing to develop collaborative, community-based strategies for positive social change and effective environmental stewardship.*

## Pesticide Action Network (PAN) North America

49 Powell St., Suite 500  
San Francisco, CA 94102  
(415) 981-1771  
[www.panna.org](http://www.panna.org)

*PANNA works to replace pesticide use with ecologically sound and socially just alternatives. As one of five PAN Regional Centers worldwide, PANNA links local and international consumer, labor, health, environment, and agriculture groups into an international citizens' action network. This network challenges the global proliferation of pesticides, defends basic rights to health and environmental quality, and works to insure the transition to a just and viable society.*

## The Strategic Alliance for Healthy Food and Activity Environments

265 29th Street  
Oakland, CA 94611  
(510) 444-7738  
[www.eatbettermovemore.org](http://www.eatbettermovemore.org)

*The Strategic Alliance is a coalition of nutrition and physical activity advocates in California. The Strategic Alliance is shifting the debate on nutrition and physical activity away from a primary focus on personal responsibility and individual choice to one that examines corporate and government practices and the role of the environment in shaping eating and activity behaviors.*

## UC Sustainable Agriculture Research and Education Program

University of California  
One Shields Ave.  
Davis, CA 95616  
(530) 752-7556  
[www.sarep.ucdavis.edu](http://www.sarep.ucdavis.edu)

*UC SAREP is a statewide program within UC Agriculture and Natural Resources working to help California farmers and ranchers develop sustainable production and marketing systems; and to support California's rural and urban communities in understanding the concept and value of sustainable agriculture and participating in sustainable food and agricultural systems.*

## Wild Farm Alliance

406 Main St., Ste. 213  
Watsonville, CA 95076  
(831) 761-8408  
[www.wildfarmalliance.org](http://www.wildfarmalliance.org)

*The Wild Farm Alliance promotes agriculture that helps protect and restore wild ecosystems, by integrating community-based, ecologically managed farms and ranches into landscapes that accommodate native species and ecological processes.*

## National and International Organizations

### Center for Food Safety

660 Pennsylvania Ave. SE, Suite 302  
Washington, DC 20003  
(202) 547-9359  
[www.centerforfoodsafety.org](http://www.centerforfoodsafety.org)

*CFS works to protect human health and the environment by curbing the proliferation of harmful food production technologies and by promoting sustainable agriculture alternatives.*

### Corporate Agribusiness Research Project

P.O. Box 2201  
Everett, WA 98203-0201  
(425) 258-5345  
[www.electricarrow.com/CARP](http://www.electricarrow.com/CARP)

*CARP was established to monitor corporate agribusiness from a public interest perspective through awareness, education, and action while at the same time advocating the importance of building alternative, democratically controlled food systems. Through fact-based strategic research and the publication of *The Agribusiness Examiner*, a weekly e-mail newsletter, and *The Agbiz Tiller*, a periodic online news feature service, CARP seeks to serve family farmers, farmworkers, and consumers in their struggles for economic and social justice.*

### ETC Group (Action Group on Erosion, Technology and Concentration)

478 River Avenue, Suite 200  
Winnipeg, MB R 3L 0C8 Canada  
(204) 453-5259  
[www.etcgroup.org](http://www.etcgroup.org)

*Formerly RAFI (Rural Advancement Foundation International), ETC group works for the conservation of cultural and ecological diversity and the advancement of human rights, by supporting socially responsible technologies and addressing international governance and corporate power.*

### Food First (Institute for Food and Development Policy)

398 60th Street  
Oakland, CA 94618 USA  
(510) 654-4400  
[www.foodfirst.org](http://www.foodfirst.org)

*Food First is a people's think tank and education-for-action center whose work highlights root causes and solutions to hunger and poverty around the world, with a commitment to establishing food as a fundamental human right.*

### FoodRoutes Network

PO Box 443  
Millheim, PA 16854  
(814) 349-6000  
[www.foodroutes.org](http://www.foodroutes.org)

*FoodRoutes provides communications tools, technical support, networking, and information resources to organizations nationwide that are working to rebuild local, community-based food systems.*



### **Institute for Agriculture and Trade Policy**

2105 First Ave. South  
Minneapolis, MN 55404  
(612) 870-0453  
[www.iatp.org](http://www.iatp.org)

*IATP promotes resilient family farms, rural communities, and ecosystems around the world through research and education, science and technology, and advocacy.*

### **International Forum on Globalization**

1009 General Kennedy Avenue #2  
San Francisco, CA 94129  
(415) 561-7650  
[www.ifg.org](http://www.ifg.org)

*The IFG seeks to expose the effects of economic globalization and to reverse the globalization process by encouraging ideas and activities which revitalize local economies and communities, and ensure long-term ecological stability.*

### **National Campaign for Sustainable Agriculture**

P.O. Box 396  
Pine Bush, NY 12566  
(845) 744-8448  
[www.sustainableagriculture.net](http://www.sustainableagriculture.net)

*NCSA is a nationwide coalition of farmers, environmentalists, and consumer advocates focusing on federal policies, land grant university priorities, and marketing systems.*

### **Organic Consumers Association**

6101 Cliff Estate Rd  
Little Marais, MN 55614  
(218) 226-4164  
[www.organicconsumers.org](http://www.organicconsumers.org)

*The OCA is a public interest organization working to build a healthy, safe, and sustainable system of food production and consumption.*

### **Permaculture Institute of Northern California**

P.O. Box 341  
Point Reyes Station, CA 94956  
(415) 663-9090  
[www.permacultureinstitute.com](http://www.permacultureinstitute.com)

*PINC is an educational organization providing courses and workshops that enable people to develop the skills necessary to live a more sustainable life on the planet. Permaculture is an increasingly popular way to integrate more holistic approaches to sustainable food systems and beyond. California also has numerous regional permaculture guilds.*

### **Research Foundation for Science, Technology and Ecology/NAVDANYA**

A-60 Hauz Khas  
New Delhi-110016, India  
+91 (11) 26968077  
[www.vshiva.net](http://www.vshiva.net)

*RFSTE works on biodiversity conservation and the protection of people's livelihoods and the environment from centralized systems of monoculture in forestry, agriculture, and fisheries.*

### **Third World Network**

121-S, Jalan Utama, 10450  
Penang, Malaysia  
+60 (4) 2266728/2266159  
[www.twinside.org.sg](http://www.twinside.org.sg)

*TWN is an independent network of organizations and individuals involved in issues relating to development, the Third World, and North-South issues, including trade agreements, global economics, security, human rights, and development.*

### **Via Campesina**

Apdo. Postal 3628MDC  
Tegucigalpa, Honduras  
+504-2394679  
[www.viacampesina.org](http://www.viacampesina.org)

*Via Campesina is an international movement which coordinates peasant organizations of small and mid-scale producers, agricultural workers, rural women, and indigenous communities from around the world.*

### **Resources from the International Society for Ecology and Culture**

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For more information about these and other ISEC resources, visit [www.isec.org.uk](http://www.isec.org.uk)

### **Local Food Program**

*ISEC's Local Food Program works to increase public awareness about the hidden costs of global food and the multiple benefits of local food, in order to stimulate community action and political change toward a more sustainable food system.*

### **Local Food Toolkit**

*An education-for-action package designed to raise awareness about the need to strengthen local food economies, that includes a slideshow, poster series, books, and resource guides.*

### **Bringing the Food Economy Home: Local Alternatives to Global Agribusiness**

by Helena Norberg-Hodge, Todd Merrifield, and Steven Gorelick (Kumarian Press, 2002)

*If the many social, environmental, and economic crises facing the planet are to be reversed, a good place to start is to rebuild local food economies. This book shows how local food is a powerful solution-multiplier internationally, with benefits for farmers and consumers, urban and rural, the economy and the environment.*

### **Roots of Change Program**

*A community-based study, discussion, and action program, with a curriculum revealing the root causes of today's social, economic, and environmental crises, along with systemic solutions.*



## Additional Resources

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### Local Harvest

[www.localharvest.org](http://www.localharvest.org)

*Local Harvest maintains a nationwide directory of small farms, farmers' markets, and other local food sources, helping people find local sources of sustainably grown food, and encouraging them to establish direct contact with family farms in their local area.*

### The Vivid Picture project

[www.vividpicture.net](http://www.vividpicture.net)

*This project, coordinated by Ecotrust ([www.ecotrust.org](http://www.ecotrust.org)), is designed to generate a blueprint for a sustainable food system in California. It includes the creation of a comprehensive vision for a sustainable food system for California that addresses multiple aspects of the system; the development of a change agenda that identifies policies, economic plans, and/or communication programs that can shift the entire system or entire components of the system; and the creation of impact analysis tools to help assess the impact of the sample change agendas. Organizations and individuals are invited to submit input to the project at [www.vividpicture.net/contribute.html](http://www.vividpicture.net/contribute.html)*

### California countywide food systems studies conducted by UC SAREP

[www.sarep.ucdavis.edu/cdpp/foodsystems/countystudies.htm](http://www.sarep.ucdavis.edu/cdpp/foodsystems/countystudies.htm)

*These studies provide an overall snapshot of the food system in three California counties: Alameda, Placer, and Stanislaus. Through data collection and interviews with food system stakeholders, the studies analyze each county's food system, identify the most significant trends, and describe the food system from three angles: agricultural production, distribution, and consumption.*

### ***Fast Food Nation: The Dark Side of the All-American Meal***

by Eric Schlosser (Harper Collins, 2002)

### ***Fatal Harvest: The Tragedy of Industrial Agriculture***

Andrew Kimbrell, Ed. (Island Press, 2002)  
[www.fatalharvest.org](http://www.fatalharvest.org)

### ***The Penguin Atlas of Food: Who Eats What, Where, and Why***

by Erik Millstone and Tim Lang (Penguin, 2003)

### ***Food Politics: How the Food Industry Influences Nutrition and Health***

by Marion Nestle (UC Press, 2002)

### ***Short Circuit: Strengthening Local Economies for Security in an Unstable World***

by Richard Douthwaite (Green Books, 1996)



# ENDNOTES

## INTRODUCTION

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## CHAPTER ONE

### From Indigenous to Industrial:

#### A Brief History of California Food Production

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## CHAPTER TWO

### Globalizing California Agriculture

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## CHAPTER THREE

### Consolidating the Food Supply Chain

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**Box 3.3: Wal-Mart**

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## CHAPTER FOUR

### Expanding Transport and Trade

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  19. While South Korea, Taiwan, Indonesia, Malaysia, and Thailand are among the top export destinations, this is due to significant cotton exports for the textile industry. China is also a major recipient of cotton from California.
  20. Note that figures for trade with Canada and Mexico in particular are slightly skewed as they do not account for transshipments—the movement of products to these countries but destined to be re-exported to other countries. For example, while food accounts for only a small portion (5%) of transshipments via Canada, it is noteworthy that imports via Canada increased 210% and exports via Canada increased 62% from 1990 to 2000.  
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  26. Ibid. It is unclear whether or not this figure is adjusted for raw farm product imported to California to be processed and then re-exported. Anecdotal evidence suggests the quantity of such products is relatively low.
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## CHAPTER FIVE Health and the Food System

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## CHAPTER SIX

### The Ecology of California's Food System

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## CHAPTER EIGHT

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## CHAPTER TWELVE

### Moving Forward: Strengthening the Local Food Movement

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## APPENDICES

1. Approximate market share is calculated based on retail shares in Northern and Southern California, scaled to respective populations, and includes Reno and Las Vegas, Nevada and does not include the Northern California counties of Humboldt, Del Norte, Siskiyou, and Modoc, which have a combined population of 209,350.
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