



# The Human Face of Sustainable Food Systems: Adding People to the Environmental Agenda

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## Introduction

In 1994, the Center for Agroecology and Sustainable Food Systems published *The Human Face of Sustainable Agriculture: Adding People to the Environmental Agenda* [1]. Now, nearly 20 years later, much has changed. Twenty years ago, the concept of sustainable agriculture was still fairly new, and social issues as they related to sustainable agriculture were little discussed. Today many definitions of sustainable agriculture include social issues, and there is increasing recognition of the connection between social and environmental problems. We often speak now about “sustainable food systems” (hence the change in title), highlighting the interconnections among the farm-to-table pathways that bring us our food. Many more organizations are including social issues in their sustainability platforms and activities, and food justice is becoming a recognized term.

For every topic discussed in this brief document, there are researchers, advocates, and consumers working to improve social conditions in the food system. We provide examples of some of this work in the section on moving forward. The data contained in this update demonstrate the importance of their efforts on behalf of the people who grow, process, transport, regulate, prepare, and eat food.

However, many social issues are still in need of more efforts, and broader public attention. This updated document will review the social issues discussed in the first edition, and provide information on their current status.

## Purpose and framework

Our premise is that sustainability problems arise not only from how humans interact with the environment, but also from how people interact with each other. In this framework, social issues are the result of choices and decisions made through history that are now often embodied in policies and institutions. As a consequence, social issues can be invisible and seem intractable.

The purpose of this document, then, is to call attention to social issues in the food system and to highlight efforts to resolve them. We do not analyze the issues here, but rather have compiled and present data and references for others to use in their own work (*see note, page 18*).

Our hope is that the information presented will enable students, activists, researchers and

all interested individuals to better address social issues in projects, education, and research as we move forward in designing sustainable food systems.

## Food security<sup>1</sup> and human health

Everyone, regardless of personal characteristics or place, needs to eat in order to live. Yet, while there is more than sufficient food production to feed everyone [4], more people go hungry today than ever before.

### Who is food insecure?

In 2009, the number of hungry people passed one billion for the first time in history [5]. Worldwide, 925 million people, mostly women and children, were chronically undernourished in 2010 [6].<sup>2</sup> According to the Food and Agriculture Organization of the United Nations, more than 60% of chronically hungry people are women [9]. With 60% of childhood deaths a direct result of malnutrition and hunger-related diseases, every year that hunger continues at current levels costs 6.5 million children their lives [10]. In a world that produces enough food to feed everyone [11], an estimated 24,000 people die every day of starvation or diseases linked to food deprivation [12].

In the U.S. 14.5% of U.S. households—representing nearly 50 million people—were food insecure in 2010 and at times did not have enough money for food. Of food insecure households, more than one-third had very low food security.<sup>3</sup> More than one-third of people experiencing food insecurity in 2010 were children [13].

U.S. food insecurity has class, gender, and racial-ethnic dimensions. Food insecurity is most

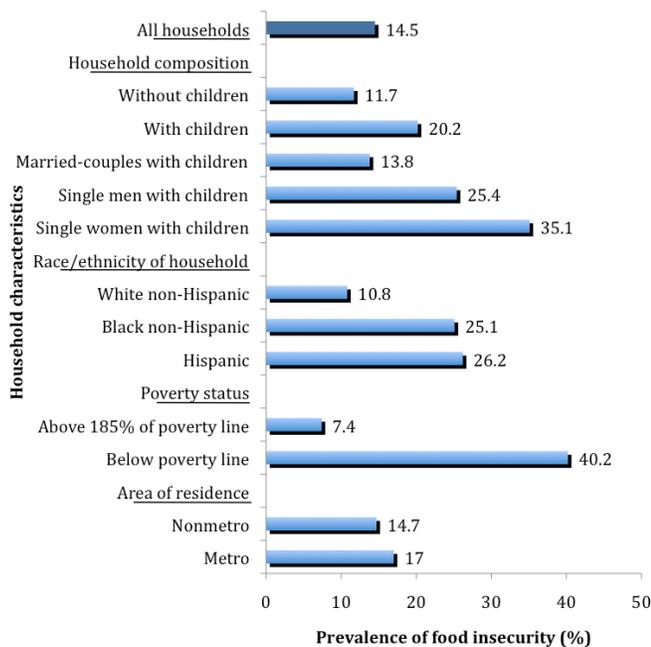
<sup>1</sup>Food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life [2, 3].

<sup>2</sup>Hunger is defined as an individual-level physiological condition due to prolonged, involuntarily lack of food that results in discomfort, illness, weakness, or pain beyond the usual uneasy sensation [7, 8].

<sup>3</sup>According to the U.S. Department of Agriculture, the term “food insecurity” encompasses both “low food security” and “very low food security.” Households with low food security report reduced quality, variety, or desirability of diet, but show little or now indication of reduced food intake. Households with very low food security report multiple indications of disrupted eating patterns and reduced food intake [7].

prevalent in households with incomes below the poverty threshold (40% food insecure), households with children, headed by single women (35%), Black non-Hispanic households (25%), and Hispanic households (26%) [13]<sup>4</sup>(Figure 1).

Even those living in regions of agricultural abundance go hungry if they are poor. For example, low-income residents in California’s Central Valley experience food insecurity rates of over 40% [14] even though three of the counties (Kern, San Joaquin, and Tulare) are among the top ten U.S. counties with the highest agricultural sales. Food insecurity disproportionately affects migrant and seasonal farmworkers. A study of 100 farmworker households at the U.S.-Mexico border showed that 82% of surveyed farmworkers experienced food insecurity, a rate nearly six times greater than the general U.S. population and four times greater than the general U.S. Hispanic population.



**Figure 1: Incidence of food insecurity in U.S. households across various household types<sup>5</sup>**

Source: Coleman-Jensen, A., et al. 2011. *Measuring food security in the United States: household food security in the United States in 2010, ERR-125*. Washington, DC: U.S. Department of Agriculture.

### Food costs and food security

Much of the recent increase in hunger and food insecurity is related to the rise in the cost of food. During the 2008 food crisis, global food prices rose an average of 52% [16], while prices of some staple crops rose even more. For example, the price of rice rose about 75% globally, while the price of wheat increased 120%, causing the price of a loaf of bread to more than double in some poor countries [17, 18]. The United Nations has predicted that worldwide food prices could increase by another

<sup>4</sup>Throughout this document the terms *Hispanic*, *minority*, and *developing country* are used when reporting data from reports and documents that use these terms. We recognize that these terms can be offensive and do not use them except in these cases.

<sup>5</sup>According to 2010 data from the U.S. Census Bureau, a family of four with two children that earned less than \$22,113 was considered to be living below the poverty line [15].

40% in the coming decade [19]. Taking into account the effects of climate change, Oxfam International predicts that international prices of key staples will increase 120–180% by 2030 [20].

Food prices are also related to international policies. For example, the World Trade Organization’s 1995 Agreement on Agriculture (AoA) has tended to discourage farmers in developing countries from subsistence agriculture while encouraging agricultural imports from other countries. Many small farmers in developing countries cannot compete with the low prices of industrialized agriculture [21]. As a result of the AoA, food importation bills for developing countries have doubled since the 1970s [22].

In the U.S., low-income people often pay higher prices for their food and spend a higher percentage of their incomes on food than do middle-income people. One study found that while the average U.S. household spends less than 10% of its income on food, low-income households spend 25% of their income on food, [23].<sup>6</sup> This presents one of the problems for increasing the accessibility of organic food. With prices for some organic food products estimated to be 30% to over 250% higher than those for conventionally grown food, for many low-income households, some organic foods may not be an affordable option [24, 25].

The larger percentage of income spent on food by low-income people is also related to the relatively higher prices of food in low-income neighborhoods. Many low-income communities are “food deserts,” a term used to describe neighborhoods and communities with little or no access to healthy or affordable foods (discussed below). Those who live in food deserts often need to travel outside of their community in order to purchase healthy food items, thereby adding to their costs for food in both time and money.

### Access to healthy food

Food security means more than access to sufficient calories for survival; it also means access to healthy foods. Healthy foods are a part of a healthy diet, or a diet that helps maintain or improve general health. According to the World Health Organization, a healthy diet consists primarily of food-producing plants—particularly fruits, vegetables, legumes, whole grains, and nuts; limited intake of fats, oils, simple sugars, and sodium; and avoidance of saturated fats, especially those found in meats (World Health Organization, 2012). Access to these foods is limited for many low-income people.

Researchers have documented disproportionately fewer supermarkets, higher food prices, and lower food quality and freshness in poor urban areas when compared to suburban areas and wealthier neighborhoods [26, 27]. Several studies have found that predominantly of-color neighborhoods have less access to affordable, healthy food and heightened access to “junk” foods<sup>7</sup> found in convenience stores and fast food restaurants when compared to white, middle- to upper-class neighborhoods [29-32].<sup>8</sup> A study conducted in North Carolina,

<sup>6</sup>This difference is because the demand for food is inelastic. That is, the biological need for food does not vary with the price of food. If everyone needs to eat roughly the same amount of food with roughly the same cost, this cost will be a higher percentage of income the lower the income.

<sup>7</sup>“Junk” foods are defined as those that are high in calories but low in nutritional content [28].

<sup>8</sup>While these studies focus on urban areas, food deserts can also occur in rural areas.

Maryland, and New York found that predominantly black census tracts had half as many supermarkets and less than one-third as many natural food stores as predominantly white census tracts [33]. As well, in Brooklyn, NY, researchers found that supermarkets were more prevalent in predominantly white areas than in racially or ethnically mixed areas, and that no supermarkets were located in predominantly black areas [26].

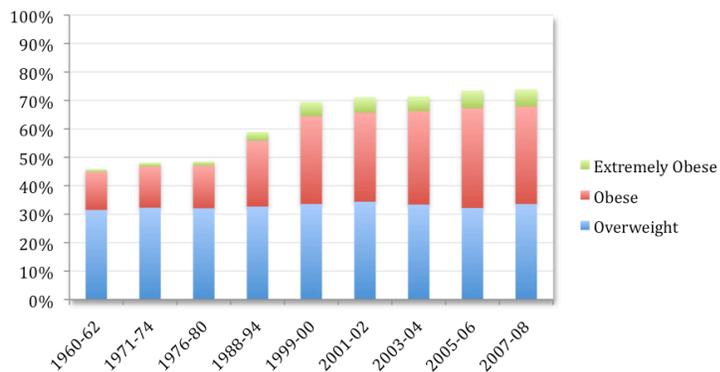
### Food insecurity and chronic diseases

Those who are food insecure are more at risk for contracting food-related chronic diseases, such as hypertension, heart disease, diabetes, and obesity. Food security is literally at the heart of sustainable food systems and health.

### Food insecurity and obesity

In 2008, there were 1.5 billion overweight adults globally, 500 million of whom were obese [34]. From 1980 through 2008, obesity rates for adults doubled while rates for children tripled [35]. (See Figure 2 for changing overweight, obese, and extremely obese rates among U.S. adults from 1960 to 2008.) Being overweight or obese is often a precursor to many diseases and health conditions, such as high blood pressure, arthritis, type-two diabetes, heart disease, stroke, gallbladder disease, sleep apnea and other respiratory problems, and some cancers [36].

Like food insecurity, obesity affects some groups more than others. In the U.S., low-income people, people of color, and



**Figure 2: Age adjusted prevalence of overweight, obese, and extremely obese among U.S. adults, ages 20-74**

Source: Ogden, C. L. and Carroll, M. D. 2010. *Prevalence of overweight, obesity, and extreme obesity among adults: United States, trends 1960-1962 through 2007-2008*. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Health Statistics.

women disproportionately experience not only food insecurity, but also obesity [37]. This is in part because higher obesity rates tend to be associated with low incomes and low education levels [38]. According to the U.S. Census, 27% of blacks and 27% of Hispanics live below the poverty threshold, compared to 10% of non-Hispanic whites [39]. As for education, of adults 25 years and older, 29% of blacks and 20% of Hispanics hold college or graduate degrees, compared to 47% of non-Hispanic whites [40]. According to the Centers for Disease Control and Prevention, people of color and those with low education levels have higher levels of obesity when compared with non-Hispanic whites and college graduates [41].

Some researchers have found that the presence of neighborhood supermarkets is associated with a lower prevalence of obesity and overweight for individuals, while presence of neighborhood convenience stores is associated with a higher prevalence of obesity and overweight [42, 43]. In addition, neighborhoods with high concentrations of fast-food restaurants have populations with higher body mass indexes [43, 44]. One study found that non-car owners who live in areas with high numbers of fast-food restaurants are, on average, twelve pounds heavier than non-car owners who live in areas with fewer numbers of fast food restaurants [44].

### Food insecurity and diabetes

Food insecurity is also correlated with diabetes. In a U.S. study with 15,199 participants from 1999-2004, researchers found that food insecure respondents were more likely to have diabetes than food secure respondents. Like food insecurity and obesity, rates of diabetes are higher among people of color. U.S. national survey data from 2007 to 2009 indicate that 7% of non-Hispanic whites, 8% of Asian Americans, 12% of Hispanics, and 13% of non-Hispanic Blacks had diagnosed diabetes [45].

For farmworkers, diabetes may also be related to pesticide exposure. There is evidence that diseases that alter blood cholesterol levels, such as diabetes, may also increase solubility of organochlorines, which are found in commonly used pesticides. A national study of farmworkers showed that individuals with insulin resistance, a precursor to type-two diabetes, had higher blood levels of organochlorine and nondioxin-like polychlorinated biphenyl (PCB) compounds. Women agricultural workers



Many people living in low-income neighborhoods do not have access to farmers' markets, natural food stores, and other sources of high quality food. Supermarkets are also far less likely to locate in low-income areas.

exposed to pesticides were twice as likely to develop gestational diabetes (high blood sugar that starts or is first diagnosed during pregnancy) than women who were not exposed. Diabetes may also exacerbate occupational hazards, such as the likelihood of heat stroke, amputation after injury, and nerve damage from repetitive motions [46].

### Food insecurity and other chronic health problems

In addition to obesity and diabetes, food insecurity is associated with a host of other chronic conditions. For example, the high rate of food insecurity among farmworkers was associated with both mental and physical ailments (see Table 1). Children from food insecure farmworker households were 18% more likely to have a diagnosed learning disability than children in food secure households [47]. In addition, food insecurity is associated with a higher rate of poor blood-pressure control in patients with hypertension [48].

**Table 1: Farmworker ailments associated with food insecurity**

Ailment	Prevalence (%)
<i>Mental ailments</i>	
Anxiety	41
Depression	37
Learning disorders	11
Neurological disorders	11
<i>Physical ailments</i>	
Allergies	34
Arthritis	16
Diabetes	28
Hypertension	30

Source: Weigel, M., et al. 2007. *The household food insecurity and health outcomes of US-Mexico border migrant and seasonal farmworkers. Journal of Immigrant Minority Health, 2007. 9 (157-169).*

### Working conditions and human health

The food industry relies on a large workforce, and many of these laborers live and work in conditions that can compromise their health. In a recent study, researchers found that over half of surveyed food system workers did not receive health and safety training from their employer. Food system workers were found to perform jobs that put their health and safety at risk, and most did not have benefits to cover preventive or emergency health care—83% of surveyed food system workers did not receive health insurance through their employers, and 58% did not have health insurance at all [49].

### Injuries and illnesses in agriculture

Agriculture is considered one of the most hazardous industries and has one of the highest risks of injuries [50]. Not only are farm laborers at risk for pesticide exposure, they also experience fatal and nonfatal occupational injuries from heavy machinery use [51]. In 2009, the combined category of agriculture, forestry, fishing, and hunting had the highest on-the-job fatality rate of any occupational group in the U.S. [52]. Farmworkers are additionally at increased risk of exposure to infectious, respiratory, and chronic diseases due to substandard living situations.

Working conditions in the field can cause fatalities for farmworkers exposed to excessive heat and inadequate shade and

water. After four farmworkers died in the fields in 2007, California passed strict heat laws to protect farmworkers. After the law was passed, state labor inspectors audited farms and found that over half of the employers were violating the heat laws, and in 2008 three farmworkers died from heat exhaustion [53].

Lack of funds, transportation, communication, cultural barriers, and discrimination make it difficult to impossible for farmworkers to seek out medical services [54, 55]. Moreover, many farmworkers—particularly undocumented workers—often do not have access to health benefits or affordable health care. Most farmworker women and their families do not have health insurance through their employer, and very few receive Medicaid [56].

### Pesticide exposure

Many in sustainable agriculture have been concerned about pesticide residues in our food and water supplies. For those who work in the fields, pesticide exposure is even more direct, causing poisonings, reproductive problems, and death.

A study of 3,271 cases of pesticide poisoning in the U.S. showed that 71% of afflicted individuals were farmworkers [57]. From 1982–2007, there were 4,080 reported cases of illness from pesticide residues in California agricultural fields, most suffered by farmworkers [58]. According to Oxfam America, an estimated 300,000 U.S. farmworkers suffer from pesticide poisoning annually [59].

Farmworkers often lack hand washing and changing facilities when they are exposed. One study found that only about half of the respondents reported that water for hand washing was provided at work, while about a third reported that hand washing facilities were generally poor (dirty, in bad repair, or unavailable). [60]. Only 10% of respondents reported that changing facilities were available to change clothes if contaminated by pesticides [60].

Most pesticide exposure illnesses are caused during routine farm work—not work that involves applying or directly working with pesticides [61]. The incidence of pesticide-related illnesses may in fact be much higher, as many cases go unreported. In a study of California farmworker women, 85% said they had been exposed to pesticides at work, but only half reported the exposure to their employer [60].

Deaths and hospitalization due to pesticide exposure and injuries to farmworkers and their family members tend to be underreported in national data sets. This is due to a host of factors. Doctors do not always recognize and/or report pesticide-related illnesses; insurance companies may not forward doctors' illness reports to the proper authorities; and farmworkers may be reluctant to seek medical attention for suspected pesticide exposure [60]. Furthermore, the effects of pesticide exposure and musculoskeletal injury are often difficult to study, as they may be cumulative, long-term, and difficult to attribute precisely to exposure during a given time period.

### Health of child farmworkers

According to the U.S. Department of Agriculture, children under 18 make up almost 6% of the hired crop farmworker labor force in the U.S. [62]. Some studies estimate much higher percentages, stating that there are between 300,000 and 800,000 child farmworkers laboring in the United States [63]. The exact number of migrant and seasonal workers under the age of 18 is not precisely known because of gaps in the available data. According to federal law, children 12 years and older



Agricultural field workers often risk exposure to dangerous levels of pesticides. Here, Josefina Miranda of Earlimart, California, demonstrates some of what she wears to try to protect herself while her daughter looks on.

can legally work on any sized farm with parental consent, as long as jobs are outside of school hours and deemed “non hazardous.”<sup>9</sup> The Current Population Survey and the National Agricultural Workers Survey are currently the two best counts of farm laborers. However, both typically undercount the number of children working in agriculture—the CPS sample excludes children under 15 while the NAWWS sample excludes children under 14 and covers only crop agriculture. Hence, many children legally working in agricultural positions are not included in these surveys.<sup>10</sup>

Children of farmworkers often experience an elevated risk of pesticide exposure due to working alongside their parents in agricultural fields, pesticide drift from living adjacent to fields, or through indirect pathways of exposure from parents who are agricultural workers (from household dust, cars, or clothes). The Centers for Disease Control and Prevention report that in 2006, 5,800 children were injured due to farm work [50]. Furthermore, years of exposure to pesticides in children is correlated with increasing severity of cognitive deficits [65]. For example, a study of seven-year-old children from Latino farmworker families living in the agricultural area of Salinas, CA found that children prenatally exposed to organophosphate

<sup>9</sup>Children must be at least 16 years old to perform hazardous occupations in agriculture, such as driving or operating farm vehicles and equipment, working with large or potentially aggressive animals, entering grain elevators, and applying pesticides and anhydrous ammonia fertilizers.

<sup>10</sup>As a result of the NAFTA agreement, the number of greenhouses in Mexico that are set up for production and export of tomatoes has increased. The women—who are the primary laborers in these tomato production systems—are often very young (as young as thirteen years old) and make only three or four dollars a day for physically demanding labor [64].

pesticides had poorer scores on tests for IQ, working memory, processing speed, verbal comprehension, and perceptual reasoning [66]. Prenatal pesticide exposure has also been associated with birth defects. One study found a link between living within one-quarter mile of agricultural crops and incidence of neural tube defects [67].

A number of scientific studies have found links between a variety of childhood cancers and pesticide exposure [68-72]. Methodologically, these studies have been limited by nonspecific pesticide exposure information, small numbers of exposed subjects, and the potential for case-response bias. However, many studies report that observed risks are greater for children than those observed in studies of pesticide-exposed adults, suggesting that children may be particularly sensitive to the carcinogenic effects of pesticides [70]. Chronic diseases such as cancer may be the result of lower exposure levels over long periods of time. This and the time lag between exposure and illness make it difficult to make a firm link between pesticide exposure and chronic disease [69].

### Farmworker housing and health

Farmworker housing is often substandard and overcrowded, with inadequate laundry, kitchen, and bathroom facilities (conditions that can cause and exacerbate illnesses).

A nation-wide study of farmworker housing found that one-third of surveyed housing units were either severely or moderately substandard [73].<sup>11</sup> A study in North Carolina found that all surveyed farmworker housing units had at least one exterior housing problem and 93% had at least one interior housing problem. Housing conditions were found to worsen as the agricultural season progressed, while more crowded units and those housing laborers without work visas were found to be associated with poorer conditions [74].

Although there are basic federal health and safety laws governing farmworker housing standards, they are often not enforced [75]. Enforcement of these laws is often constrained by labor-camp conditions in that they often lack telephones, restrict visitors, and are placed in areas that are difficult to find and access [75].

While many farmworkers live in substandard housing conditions, others are homeless. A regional task force on homelessness in San Diego found an estimated 2,300-plus homeless farmworkers, nursery workers, landscapers, day laborers, and others—nearly one-fourth of San Diego county’s homeless population [76].

In some cases, farmworkers have been housed under forced-labor conditions. For example, in federally prosecuted cases of tomato pickers in the Southeastern U.S., farmworkers have been enslaved, forced into debt-servitude, beaten, sexually harassed, charged rent for living in over-crowded trailers, and had their families threatened [77, 78]. In cases brought to court, federal grand juries have indicted employers for assaulting workers at gunpoint, shooting workers who attempted to escape, chaining and locking workers inside trucks and trailers, and creating debt through loans for rent, food, cigarettes, alcohol, and drugs. One employer recruited homeless people throughout the Southeast U.S. with promises of good jobs and housing, then kept them in a labor camp surrounded by a chain link fence topped with barbed wire [79].

<sup>11</sup> The U.S. government does not collect data on farmworker access to facilities and housing conditions on a regular basis.

## Factory food workers and health conditions

Workers in produce and meat processing industries also often work under conditions that can compromise their health. A recent report found the 65% of surveyed meatpacking and poultry processing workers experienced illnesses and injuries on the job [49].

Food processing involves repetitive, physically demanding work and use of dangerous tools and machinery to cut, slice, or grind. Poultry workers, slaughterhouse workers, and frozen food packers have occupations that involve prolonged and repeated flexion and extension of the wrist—repetitive motions that cause high incidences of carpal tunnel syndrome [80]. The cold temperatures of food processing facilities exacerbate these injuries. A study of 1,213 food system workers in distribution, meat production, and breweries found a high incidence of back and joint pain, rheumatic and bronchitic complaints, hearing problems, and white finger disease associated with cold workplace environments [81]. Many injured food processing workers return to work immediately after surgery for joint injuries due to lack of insurance, inadequate worker compensation, or a lack of other job opportunities [82].

Food processing workers may also be exposed to bioaerosols, viruses, bacteria, plant and animal cells, antibiotics, and other products. Exposure to these substances can cause respiratory disease, especially chronic bronchitis and asthma [83]. Slaughterhouse workers are also susceptible to serious skin infections. A 2009 study found that methicillin-resistant *Staphylococcus aureus* (MRSA)—an infectious antibiotic-resistant infection—was highly prevalent in swine (49%) and swine workers (45%) on a large-scale commercial confinement operation with farms scattered throughout Iowa and Illinois [84]. Humans can become infected with MRSA from eating or handling infected meat [84].

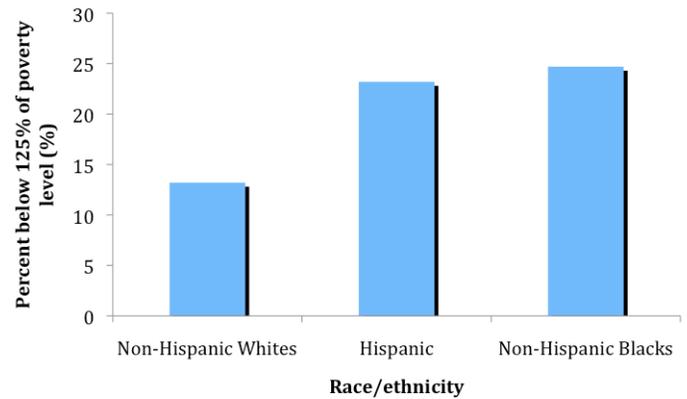
## Income distribution in the U.S. food system

Many of the problems of food insecurity and working conditions are related to poverty and inequality. Throughout the U.S., inequality in income distribution is growing. From 1979 to 2007, the average after-tax income of the top one-fifth of U.S. households increased 275%, but it increased only 18% for the lowest one-fifth of households [85]. According to 2010 statistics from the U.S. Census Bureau, 14% of the U.S. population lives below the poverty line—the highest poverty rate in 15 years [86]. Most often, it is people of color and women who experience poverty in the U.S., including among food-system workers. In one recent report, 86% of surveyed food system workers reported earning low or poverty level wages. Surveyed food system workers were found to use food stamps at almost double the rate of the U.S. workforce [49].

## Race-ethnicity and income distribution

Poverty is correlated with race-ethnicity: 13% of non-Hispanic whites, 23% of Hispanics, and 25% of non-Hispanic Blacks earned below 125% of the poverty level in 2010<sup>12</sup> (see Figure 3) [87]. Poverty amongst people of color is over-represented in both rural and urban areas in the U.S. when compared to poverty amongst non-Hispanic Whites. In non-metropolitan areas in 2010, 33% of non-Hispanic Blacks and

<sup>12</sup> 125% of the official 2010 poverty line for a family of four was \$27,641 [15], an income at which people still struggle to feed their families.



**Figure 3: Poverty level based on race/ethnicity**

Source: U.S. Census Bureau. 2011. *Statistical abstracts of the United States: Income, expenditures, poverty, and wealth*. Washington, DC: U. S. Census Bureau.

nearly 30% of Hispanics earned below the poverty level, more than double the 13% per-capita poverty rate of non-Hispanic Whites. [88] In urban areas, 27% of non-Hispanic Blacks and 26% of Hispanics earned below the poverty level, nearly triple the 9% per-capita poverty rate of non-Hispanic Whites (see Figure 4) [88].

## Gender and income distribution

Irrespective of race and ethnicity, women are at an economic disadvantage to men in the work force. In the U.S., despite several decades of affirmative action, women still earn less than men. In 2010, women earned 81% of the median weekly earnings of their male counterparts. The women-to-men's earnings ratio has been in the 80 to 81% range since 2004; prior to this, the ratio had been gradually trending upward [89].

Thirty-six percent of rural households headed by women are poor [88], which is much higher compared to households headed by men (19%) or households with two spouses (7%) [90]. Nation-wide data shows that 32% of households headed by women, 16% of households headed by men, and 6% of households with two spouses earn below the poverty line [91]. Children are especially affected by this disparity, as 22%, or 2.6 million children, in rural areas are poor [92].

For food system jobs, average U.S. wages in 2009 show that women in agriculture, agricultural science, food processing, and food service earned between 3% and 21% less than men [89].

## Farmworkers and income distribution

Throughout the world, many of those living in the worst poverty are agricultural workers, and U.S. farmworkers are no exception. Poverty amongst U.S. farmworkers is higher than that of all wage and salary employees. The National Agricultural Workers Survey by the U.S. Department of Labor found that about 17% of farmworkers lived below the poverty line in 2008–2009 [93]. According to government sources, farmworker average incomes range from \$10,000 to \$18,000 per year [94, 95]. Other research has reported farmworker incomes to be as low as \$7,500 per year [96]—incomes well below the official U.S. poverty line. Poverty amongst farmworkers is particularly striking given that the wealthiest farms hire the majority of farmworkers. In 2009, farms that earned over \$500,000 per year employed 64% of hired farmworkers while farms making over \$250,000 hired 76% of farmworkers [97].



Despite the long hours, farmworkers seldom qualify for overtime pay and other basic fair-labor provisions.

## Food-processing and restaurant workers and income distribution

Much of the work in the food and agriculture industry is in factories rather than on farms. Many of these jobs are low wage, seasonal, and do not include benefits.

In 2009, the mean salary for food processors, such as bakers, cooking machine operators, butchers, meat trimmers, slaughterers, and meat packers, was less than half the average salary for all occupations in the U.S. [98]. According to the U.S. Department of Labor, in 2000, 100% of surveyed poultry plants had wage and hour violations, such as unlawful denial of workers' compensation claims, lack of compensation for overtime, deliberate miscalculation of hours, and illegal deductions for tools, protective equipment, travel, and housing [75]. The U.S. Department of labor reports that only 16% of food processing workers have union contracts [99].

Low wages are the norm in many food-service positions, as well (see Figure 5 for a comparison of salaries in restaurant occupations in 2009) [100]. Seven of the 10 lowest-paying occupations in the U.S. are restaurant occupations[101]. One report found that restaurants in cities across the U.S. (New York City, Chicago, Metro Detroit, Los Angeles, Miami, New Orleans, Washington, DC, and cities throughout the state of Maine) pay their employees low wages, offer few benefits, and often violate employment, health, and safety laws [102]. A major cause of poverty for employees in the food-service industry is that the federal minimum wage for servers and other tipped restaurant workers has remained at \$2.13 per hour for the past 21 years.<sup>13</sup> Women bear the brunt of this wage stagnation, as 66% of tipped restaurant workers are women [101].

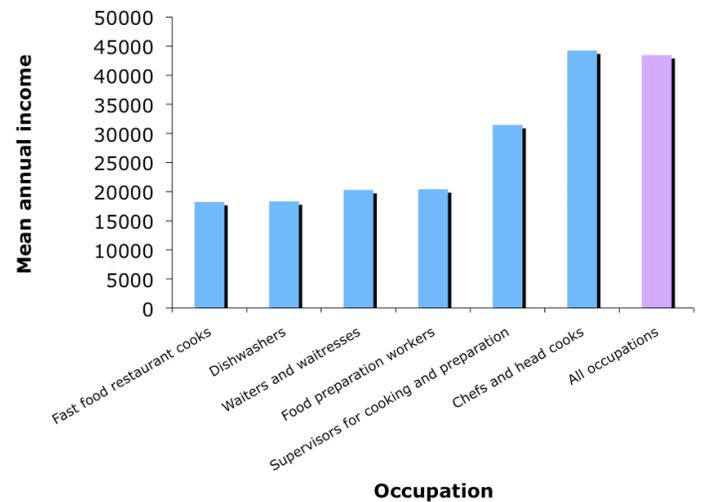


Figure 5: Mean annual income of workers in restaurant occupations

Source: U.S. Bureau of Labor Statistics. 2010. *Occupational employment statistics: May 2009. National occupational employment and wage estimates United States*. Washington, DC: U.S. Bureau of Labor Statistics.

<sup>13</sup> When tips are not sufficient to bring workers up to the full federal minimum wage of \$7.25 per hour, their employers are supposed to make up the difference.

Farmworkers have been excluded from major labor laws passed before 1960 that guarantee the right to organize, minimum wage, overtime pay, and child labor laws. For example, the National Labor Relations Act of 1935, which protects workers trying to form unions, and the Fair Labor Standards Act of 1938 (FLSA) originally excluded all farmworkers. In 1978 farmworkers on large farms were included in FLSA; however, farmworkers continue to be excluded from overtime pay provisions and children as young as 12 can work in the fields as opposed to 16 for all other jobs [75].

Although the majority of farmworkers earn sub-poverty wages, they are eligible for few benefits or social services. Farmworkers generally do not receive paid vacation, sick leave, or holidays. According to the U.S. Department of Labor, in 2008–2009, very few farmworkers received public assistance, such as unemployment insurance (3.5% of surveyed farmworkers), Medicaid (5.8%), WIC (3.4%), and food stamps (1.7%). As can be seen in Figure 4, rates of farmworker use of public assistance have dropped drastically compared to rates just 10 years ago [93]. Many undocumented workers are paid via checks with social security and Medicaid deducted from their wages. Yet these workers are not eligible for the government assistance provided by these taxes, which may account for the low use of public assistance by farmworkers.

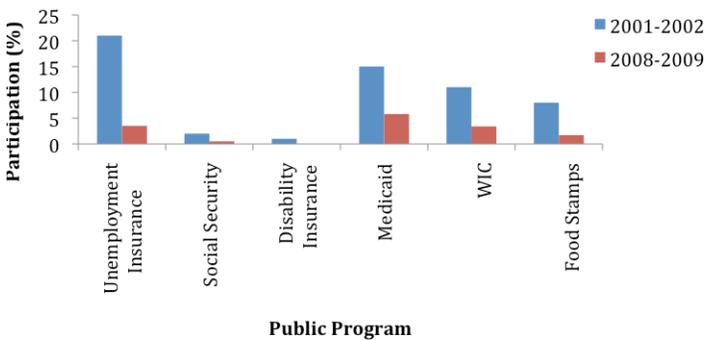
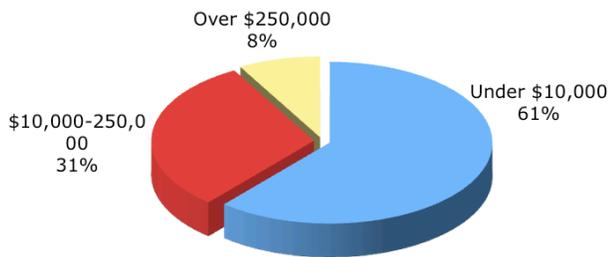


Figure 4: Farmworker use of public assistance programs, 2001–2009

Source: U.S. Department of Labor, 2009. *The national agricultural workers survey*. Washington, DC: U. S. Department of Labor.

## Farm households and income distribution

Although farm household incomes have historically been lower than those of nonfarm households in the U.S., this is no longer generally the case. In 2009, average U.S. farm household income was 10% higher than the U.S. average household income [103, 104]. Although farmers on the whole are better off economically than non-farmers, these average figures mask significant differences among farmers—small, or low-earning income, farms make up the vast majority of all farms in the U.S. For example, in 2009, 61% of farm households had a gross farm income of less than \$10,000, 31% of farm households earned a gross farm income between \$10,000 and \$250,000, and 8% of farm households had farms that grossed \$250,000 or more (See Figure 6) [105].



**Figure 6: Distribution of farm household incomes**

Source: U.S. Department of Agriculture and Economic Research Service, 2011. 2010 Farm income forecast. Washington, DC: U.S. Department of Agriculture.

One of the factors that affects the distribution of income among farmers is government subsidization. U.S. agricultural subsidies were originally established to stabilize and improve farmer incomes. Since support programs link benefits to acreage historically under production, the primary beneficiaries of these programs are large-scale farmers who own land with a long-term history in agriculture. Only 39% of U.S. farm households received government payments in 2008 [106]. An Environmental Working Group study of U.S. farm subsidies found that between 1995 and 2009, the wealthiest 10% of farm program recipients received 74% of all subsidies [107].

Some agricultural subsidy programs—such as the sugar and dairy programs—restrict supplies and raise food costs, resulting in higher to consumers in addition to the taxes they pay for the subsidy programs. For example, for the past 25 years, the average price of sugar in the U.S. has been over twice as much as the world average, an inflated cost that is a direct result of the U.S. government sugar program [108].

## Concentration and diversity in the food system

The American food and agriculture system was highly concentrated in both production and marketing when we wrote our original *Human Face of Sustainable Agriculture* publication, and this trend continues. Concentration of production, markets, and resources in the food system reduces competition and diversity and provides the opportunity for some to exert substantial influence on policies.

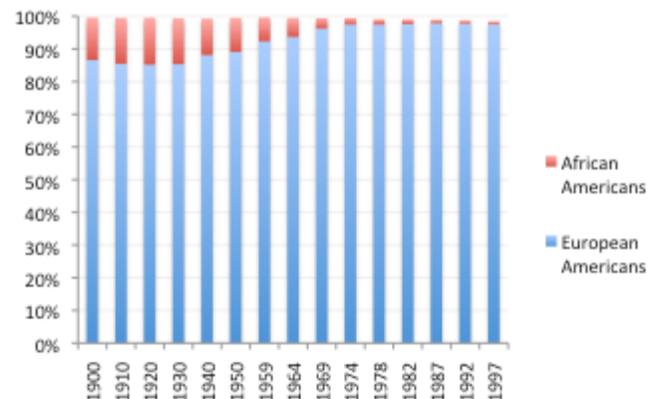
## Concentration and diversity in farm ownership

According to the U.S. Department of Agriculture, there are over two million farms in the U.S. and 922 million acres of farmland. Farmland accounts for 41% of total U.S. land. Less than 4% of principal operators manage 54% of this farmland [109]. Nationwide, 5% of total farms accounted for 75% of agricultural production in 2007 [109]. Small farms, defined as those with sales of less than \$250,000 annually, account for over 90% of all farms, but produce less than 30% of all agricultural output [62].

Although they make up about half of the world's population, women are underrepresented as farmland owners. In developing countries for which data are available, women account for only 10–20% of landowners [20]. Of those who control U.S. farmland, only about 14% were women (data from 2007). As well, women tend to work much smaller farms. The acreage of all women-operated farms only accounted for about 5% of all U.S. farmland acreage in 2007 [109]. Farms run by women operators were about half the size of farms operated by men [109]. Over 80% of farms operated by women in 2007 were small farms (i.e., smaller than 180 acres) [109].

Although Latinos, African Americans, and Asian Americans have provided much of the farm labor in the history of U.S. agriculture, they are much less likely than European Americans to be farm operators. Although they comprise 36% of the population [110], nonwhites operate a mere 6.5% of the farms in the U.S. [111].

African American farmers have left farming at three times the rate of white farmers [75]. In 1900, African Americans were 13% of U.S. farmers, but their proportion had declined to 1% by 1997 [112].<sup>14</sup> In 2007, farms operated by Black or African American farmers accounted for just over 1% of all U.S. farms in 2007, and the acreage of these farms accounted for less than 0.5% of all U.S. farmland acreage [109].

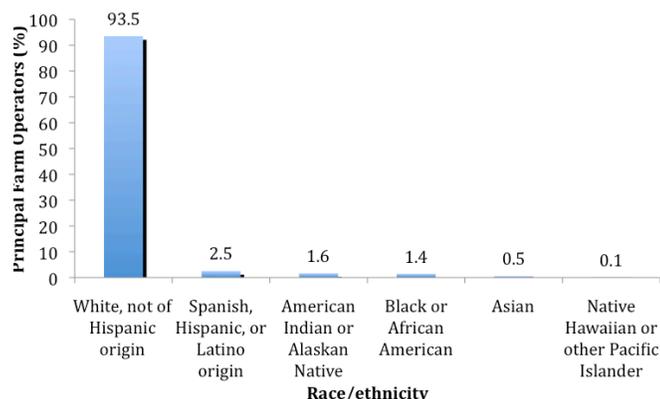


**Figure 7: Percent of European American and African American farmers in the U.S. between 1900 and 1997**

Source: USDA, Rural Business-Cooperative Service, 2003. *Black farmers in America, 1865-2000: the pursuit of independent farming and the role of cooperatives*. RBS Research Report 194. Washington, DC: USDA.

<sup>14</sup>The loss of African American farmers in the U.S. has been partially attributed to discrimination by the Farmer's Home Administration, which denied credit to small-scale African American farmers in the 1990s [75].

Farms operated by people of Spanish, Hispanic, or Latino origin accounted for just 2.5% of all U.S. farms, and the acreage of these farms accounted for about 1% of all U.S. farmland acreage.



**Figure 8: Farm operators by race/ethnicity**

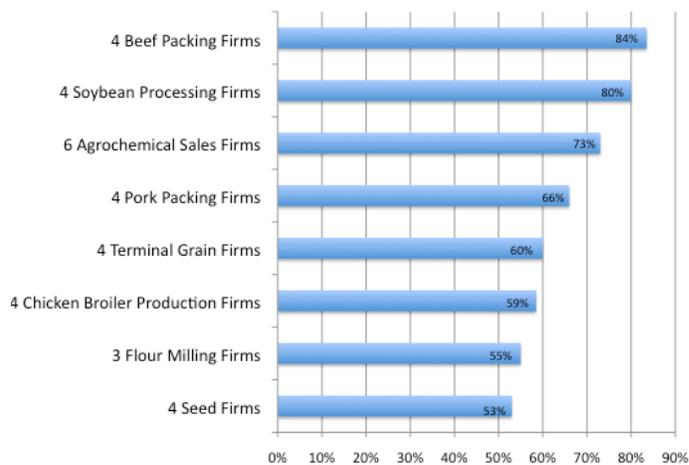
Source: U.S. Department of Agriculture and National Agricultural Statistics Service. 2009. 2007 Census of agriculture. Washington, DC: U.S. Department of Agriculture.

### Concentration and diversity in distribution, processing, and retail

Related to concentration of farming is concentration of marketing. Globally, four seed firms—DuPont, Monsanto, Syngenta and Limagrain—control over 50% of the world market for commercial seeds [113]; four companies—Cargill, Cenex Harvest States, ADM, and General Mills—control 60% of terminal grain trade in the U.S.[114]; six firms control over 70% of agrochemical sales [113]; four companies slaughter over 80% of beef; four companies slaughter over 60% of pork; four companies process 80% of soybeans; four companies control almost 60% of chicken broiler production; and three U.S. companies mill 55% of flour [115] (see Figure 9). Almost all international grain trade moves through one of three companies—ADM, Bunge, or Cargill [113].

According to one report, only a few hundred companies—made up of traders, processors, manufacturers, and retailers—control 70% of the choices and decisions in the global food system, including those concerning key resources such as land, water, seeds, technologies, and infrastructure [116]. Concentration of seed firms has led to loss of genetic diversity, as large companies tend to produce only one cultivar or breed to cut costs, insure uniformity, and simplify their production systems.

There is also a long-term trend toward larger and fewer grocery stores. Large-scale grocery retailers are able to provide lower prices compared with traditional grocers, which can decrease the economic viability of smaller grocery retailers. In the U.S., five companies (Wal-Mart, Kroger, Albertson’s, Safeway, and Ahold) controlled almost 50% of grocery retailing in 2006. Wal-Mart’s sales were nearly twice as high as Kroger, the second-runner up. Since then, Supervalu acquired 60% of Albertson’s stores and is now the third largest grocery retailer [115]. Large supermarkets dominate grocery retailing, accounting for 9 out of every 10 dollars spent on retail food sales [117].



**Figure 9: Percent of market share by firm types**

Sources: Hendrickson, M. and W. Heffernen. 2005. *Can consolidated food systems achieve food security?*, in *New Perspectives on Food Security*. Glynwood: Cold Spring, NY. p. 21-23; Hendrickson, M. and W. Heffernen. 2007. *Concentration of Agricultural Markets*; Meijerink, G. and M. Danse. 2009. *Riding the wave: High prices, big business? The role of multinationals in the international grain markets*. LEI Wageningen UR: The Hague.

### Concentration and diversity among managers and workers

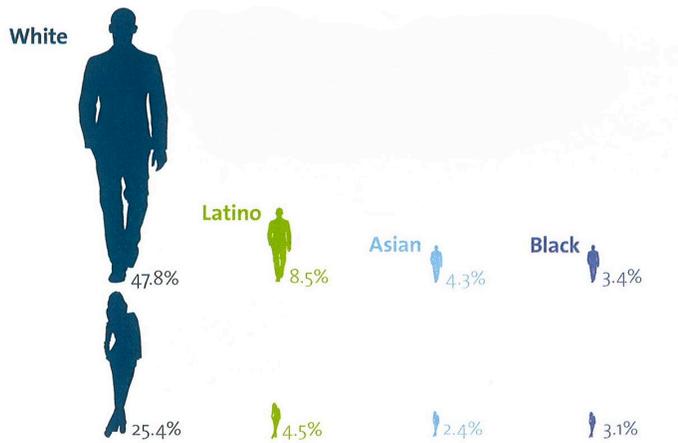
Gender and racial-ethnic concentrations extend throughout the food-system labor force.

In 2006 through 2008, U.S. workers of color outnumbered white workers in most low-earning, low-level food processing positions, while whites—especially white men—held most managerial positions in food processing plants. Across the entire food system, three out of every four managers were white. Almost half of all white men who worked in food system jobs from 2006 through 2008 were employed as managers, while only a quarter of all white women performed managerial roles. In 1989, women made up less than 1% of the total managerial force in the agricultural industry [1]. Twenty years later, in 2009, women made up 18% of farm, ranch, and other agricultural managers [118].

Workers of color during this time period populated rank-and-file positions at a much higher rate than management positions. Forty-four percent of rank-and-file workers were people of color, and made up only 26% of managers and only 15% of chief executives in food system professions. When gender is considered, disparities are even more striking. Latina women made up less than 5% of all managers in the food system, while Asians and Blacks made up 3% or less [119, 120].

In the U.S., Latinos are overrepresented in low-wage food production jobs [119], primarily employed as farmworkers or graders and sorters.<sup>15</sup> People of Hispanic or Latino origin make

<sup>15</sup> In 2006, there were over one million hired farmworkers in the U.S., which constitutes one third of the people employed in agriculture [62]. Historically, the U.S. Census Bureau has undercounted migrant and seasonal farmworkers [121]. In 1992, the U.S. Census Bureau carried out a study that used alternative counting methods and found that many farmworkers deliberately omitted information about household members, either out of fear of losing government assistance or confusion about what was being asked [122].



**Figure 10: Percentage of each race/gender in food chain, employed in managerial occupations**

Source: Liu, Y.Y. and D. Apollon. 2011. *The Color of food*. Applied Research Center: New York, NY.

up about 16% of the U.S. population [123]; however, their percentages in low-wage food system jobs are much higher. While the majority of farm operators and managers are white, the U.S. farm labor force is composed almost exclusively of people of color. According to the 2010 Current Population Survey, about half of farm laborers and supervisors are Hispanic and foreign-born, while farm managers are mostly non-Hispanics whites and U.S.-born [124]. Recent and undocumented immigrants make up a large proportion of U.S. agricultural employees. More than 70% of workers who grade and sort through farm yields are Latino [119, 120] and at least six out of every 10 farmworkers are undocumented immigrants [125]. Even in California, a racially and ethnically diverse state where 60% of the population is nonwhite [126], less than 7% of farm operators are nonwhite [111].

Food service workers as a whole make low wages, and workers of color often make less than their white counterparts. White men earn the highest wages of all race and gender groups working in the food system. For every dollar of median income a white man earned in 2006 through 2008, men of color made 20 to 40 cents less. That trend continues for women. White women earned 63 cents for every dollar that a white man made, while Black women made 53 cents, and Latina women made 50 cents [119, 120]. The Restaurant Opportunities Center United found that workers of color in eight metropolitan areas are concentrated in lower wage jobs, while whites are concentrated in better paying ones, with of-color restaurant workers making \$3.71 less per hour than white workers [102].

### Concentration and diversity among policymakers

Our current food and agriculture system is the result of the social structures, institutions, and processes that determine who makes decisions in food and agriculture and in whose interests these decisions are made. Historically, U.S. agricultural policy makers, business and farm-group leaders, researchers, and educators have been predominantly affluent European American men. Women and people of color have been underrepresented in key decision-making positions.

For example, women and people of color are underrepresented in the federal legislature, which sets food and agricultural policy priorities. Only 17% percent of those in the House

of Representatives and 17% of senators are women [127]. Still, these percentages have increased since our 1994 publication of *The Human Face of Sustainable Agriculture*, in which we reported that only 11% of House representatives and 7% of senators were women [1]. As well, the first female Speaker of the House was elected in 2008, showing further progress in gender equity at the federal level. In terms of people of color representation, currently, there are no Native Americans, no African Americans, two Asian Americans, and two Latinos among the 100 members of the U.S. Senate [128]. In 1994, there were no people of color in the U.S. Senate [1].

Of the 21 members of the powerful Senate Committee on Agriculture, Nutrition, and Forestry there are three women—one of whom is the chair of the committee—and no African Americans, Asian Americans, or Latinos [129]. In 1994, there were no women or people of color on this committee [1]. The fact that one of the women members of the Senate Committee on Agriculture is also the chair of the committee shows some progress in gender equity. Similarly, the majority of employees within the U.S. Department of Agriculture and other government agencies related to agriculture are also predominantly white and male. In 2007, 43.6% were women and 22.2% of USDA employees were minorities [130]. Of those in Senior Executive positions at USDA in 2007, 24.5% were women and 16.9% were minorities [130].

### Concentration and diversity among agricultural scientists

Other decision makers in U.S. agriculture are researchers, who are central to shaping the direction of agriculture. Only a small proportion of these scientists are women and people of color, but their representation is increasing.

A study of 47 low- and middle-income countries found that women make up 22% of agricultural researchers [131]. In 1986, 7% of U.S. agricultural scientists were women [1]. Almost 20 years later, a survey of professors at U.S. land-grant universities showed that in the fall of 2005, 17% of participating agricultural scientists were women. These numbers may increase further, as 36% of U.S. doctoral degrees in agricultural science were awarded to women in 2005 [132]. In the European Union women make up an average of 44% of agricultural researchers employed by the government [131].

In the U.S., people of color are also underrepresented in agricultural science professions. In 1986, 3% of agricultural scientists were African American, Native American, or Hispanic [1]. A National Science Foundation report on characteristics of scientists and engineers found that 12% of agriculture and food scientists in the U.S. labor force in 2006 were American Indian/Alaska Native, Asian, Black, or Hispanic [133].

### Moving forward: addressing social issues in the food system

In the 20 years since the first *Human Face* publication, there have been major conceptual shifts in how we think about social issues related to food. For example, food justice, a relatively new concept with roots in environmental justice, places food security in the contexts of institutional racism, racial and ethnic formation, and racialized geographies [134]. Interest in food and the food system has never been greater, and new and established organizations are addressing social issues such as food security and access to nutritious food, better conditions for

those who work in the food system, and improving the gender and race-ethnicity balance of decision makers.

Here we list efforts that illustrate the multiple ways in which people are working to improve the food system by addressing social issues. These kinds of programs and projects can be found in government agencies, communities, and grassroots organizations. And more and more people are getting involved as individuals through purchasing and advocacy choices. This list is not meant to be all-inclusive; rather, it is intended to provide examples of ways that people are engaged in social issues in the food system.

### Whole-system efforts

Some organizations that work toward social justice within the food system have formed activist collaborations in order to form strong movements around multiple issues. Many of these social justice collaborations are utilizing online resources such as social networking sites and blogging with great success. Websites are used as a means for reaching large groups of people to raise awareness of current efforts, to communicate with supporters, and to allow members to coordinate action plans and share news.

- La Via Campesina, for example, leads the International Peasant Movement, which supports the rights of small farmers, agricultural workers, and rural women and children. This international movement tackles issues such as milk prices in Europe and workers rights in India. The movement helps organize protests, conferences, and educational experiences that promote the core values of social justice for agricultural communities, environmental preservation, food sovereignty, and sustainable agriculture worldwide [135].
- Food Policy Councils (FPCs) bring together stakeholders from across multiple food system sectors to examine how the food system operates and to develop recommendations on how to improve it. FPCs are either grassroots efforts or commissioned by a state or local government. Food Policy Councils shape public policy foster collaboration between existing projects, and educate officials and the public. Food Policy Council efforts have led to the creation of new transit routes to connect underserved areas with grocery stores, have persuaded government agencies to purchase from local farmers, and have organized community gardens and farmers' markets. The first Food Policy Council arose thirty years ago in Knoxville, TN. Since 2000, Food Policy Councils have proliferated substantially—the Community Food Security Coalition documents over 100 councils nationwide [136].

### Increasing access to healthy foods

#### Child nutrition programs

Recent U.S. policies have addressed nutrition and food insecurity for children. The Improving Nutrition for America's Children Act of 2010 was amended and passed in July 2010. Its goals are to reduce childhood hunger and obesity through nutrition programs [137]. In 2010, the U.S. Senate and House of Representatives passed the Healthy, Hunger-Free Kids Act, which awards \$4.5 billion over the next 10 years to child nutrition programs. The act primarily addresses food served in



With encouragement from UC Santa Cruz students like Alexandra Villegas, Chancellor George Blumenthal committed UCSC to a goal of 40% “real food” purchases by 2020.

schools, and provides strict nutrition guidelines for what can be served in schools, helps schools develop local farm to school programs, and increases the number of children eligible for free or reduced-price meals at school [138, 139].

#### Institutional food programs

One way to improve access to healthy foods is through implementation of farm-to-institution programs. These programs link farms and schools, colleges, universities, hospitals, and other institutions in order to serve local produce in institution cafeterias and support local and regional farmers. The Real Food Challenge, a national organization run primarily by students, aims to shift \$1 billion of existing university food budgets away from industrial farms and junk food and towards “real food,” defined as food that is local/community-based, fair, ecologically sound, and humane, by 2020. This program is significant because it prioritizes social justice issues along with ecological ones. [140]. Farm-to-school programs improve student nutrition and provide agriculture, health and nutrition education opportunities for students. In 2004, there were 400 farm-to-school programs in the U.S.; currently, there are an estimated 2,518 farm-to-school programs in all 50 U.S. states [141].

#### Community supported agriculture

A number of efforts are underway to increase access to healthy, organic foods—efforts that are both internal and external to traditional market systems. These include community supported agriculture systems (CSAs) and farmers' markets with alternative payment schemes and self-provisioning of healthy foods through urban agriculture. While a typical CSA subscription costs anywhere from \$350 to \$600 for the entire season, with payment due before the spring harvest, CSAs with flexible payment schemes offer the option of weekly payments of \$15 to \$20. Other alternative CSAs offer subsidized share prices for low-income customers, with elevated share prices for higher-income customers. Still others accept payments via food stamps or Electronic Benefit Transfer (EBT) [18].

#### Farmers' markets

Numbers of farmers' markets have more than doubled in the past decade. There were 7,175 operating farmers' markets documented by USDA in 2011 [142]. There is a history of public policy efforts to make farmers' market produce accessible to low-income consumers. For example, farmers' markets that

are set up in low-income neighborhoods tend to offer predominantly culturally appropriate produce at affordable prices. Also, there are many farmers' markets in the U.S. that are set up to receive payments via food stamps or EBT [18].

### Urban agriculture and gardening

Growing one's own food is a way to circumvent the market entirely. Self-provisioning of organic produce through urban agriculture offers an outside-of-the-market approach and can occur on an individual (e.g., in a private garden in one's own yard) or collective (e.g., in a community garden or other collective gardening venture) basis. According to the American Gardening Association, 31% of U.S. households (approximately 36 million households) participated in food gardening in 2008. This figure was expected to increase by 19% the following year [143]. This strategy for food security breaks the chains of reliance on the current market structure in order to provide access to organic produce.

Through urban agriculture programs, poor, disenfranchised people are empowered to grow their own food. Urban agriculture also utilizes urban land that has been vacant or unused because it is otherwise unattractive for urban development [144]. By using available land in people's backyards, on rights-of-ways, and in vacant lots, urban agriculture does not put pressure on urban development needs. A number of new urban gardening organizations focus on developing garden sites in neighborhoods that are underserved by healthy food venues in order to increase access to fresh produce and teach people to grow their own food.

- Growing Power develops Community Food Systems, which provide high-quality, safe, healthy, affordable food for residents in diverse low-income communities in Milwaukee, WI and Chicago, IL [145].
- Nuestras Raíces promotes economic, human, and community development in Holyoke, MA through community gardening and youth leadership training [146].
- People's Grocery works to improve the health and economy of West Oakland, CA through urban agriculture, youth leadership trainings, and a subsidized CSA [147].



Urban gardens can provide a significant source of healthy food.

### Working conditions and rights

- The Agricultural Justice Project works toward the development of social justice labels for food in order to increase consumer awareness. These labels would communicate to consumers that food was produced with fair trade principles, using fair labor standards, and including rights for indigenous people [148].
- The Alliance for Fair Food is a network of different advocacy groups that work together to fight for farmworker rights. The members of the alliance include human rights, religious, student, sustainable food, and environmental groups with the common goal of improving labor conditions and wages for farmworkers. The Alliance for Fair Food has been a part of several labor rights movements, and has been integral in helping organizations reach agreements with leading food service providers to improve wages and working conditions for food system employees [149].
- Black Workers for Justice is an organization in North Carolina that fights for black workers' rights and to stop race, ethnic, and gender discrimination. The organization is involved with issues such as health care, environmental racism, and wages [150].
- Restaurant Opportunities Centers United (ROC-United), the only national restaurant workers' organization in the U.S., works to improve wages and working conditions for the nation's low-wage restaurant workforce. The organization addresses issues of minimum wage, paid sick days, compliance with basic employment standards, and health care [151].

In the U.S., there are efforts by organizations to ensure that farmworkers receive the basic rights afforded to other employees—e.g., overtime pay, vacation time, health benefits, and a livable wage. Other organizations offer training and opportunities to empower farmworkers to become farmers rather than farmworkers.

The Comité de Apoyo a las Trabajadoras Agrícolas (Farmworker Support Committee) is working to develop standards that will ensure farmworkers' rights to negotiate fair contracts and the right to unionize, protect the rights of undocumented workers, and reduce and address safety issues in the workplace [152].

- The United Farm Workers of America, founded in 1962 by Cesar Chavez, advocates for union contracts that protect workers rights to healthy working conditions and fair compensation [153]. For example, UFW advocacy helped reinstate farmworker protection rules for agricultural guest workers in February 2010 [154].
- The Coalition of Immokalee Workers is an organization based in Immokalee, Florida that fights for farmworkers' rights. The Coalition works on several campaigns, which include advocating for fairer wages, fighting against slavery and human rights abuses in agriculture, and campaigning for fair food [155].

### Improving diversity in the food system

There are a number of efforts within the U.S. Department of Agriculture to increase the participation of women and people of color in farming and farming programs. The Federal Farm Bill Program has funding that is prioritized for women and socially disadvantaged farmers. For example, the Rural



Farmworkers in the Agriculture and Land-Based Training Association's programs learn skills to start and manage their own farms.

Women's Project assists women farmers with loans for farm ownership and operation expenses [156]. As well, the Women's Agricultural Network is a collaborative effort of the USDA and the University of Vermont Extension that has provided education and mentorship, scholarships, technical assistance, and networking opportunities for women farmers, and is especially geared toward encouraging women entering agriculture. [157].

In terms of assisting people of color in agricultural endeavors, USDA's Minority and Socially Disadvantaged Farmers Assistance office assists minority and socially disadvantaged farmers in filing loan applications.<sup>16</sup> In addition, the USDA Minority Farm Register is intended to promote equal access to USDA farm programs and services [160].

The Agriculture and Land-Based Training Association (ALBA) in Salinas, CA began as a part of the Rural Development Center's program to train farmworkers in the skills needed to become farm managers and farm owners. Today, ALBA's work is focused on helping socially disadvantaged, small-scale farmers and farmworkers receive the technical assistance and opportunities needed to successfully farm in Monterey County, CA. Their programs include education for small farmers, conservation training, leadership development, marketing education, and business education [161].

There are also organizations that help give voice to women and people of color in agriculture. The Women's Food and Agricultural Network—a national and international organization—strives to promote sustainable agriculture and communities, social and ecological justice, networking and agricultural education, and create policy changes to assist women farmers in these activities [162].

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<sup>16</sup>African American farmers filed a class action lawsuit (*Pigford v. Glickman*), against the USDA claiming routine discrimination. They stated that between the years 1983 and 1997 they experienced unfair allocation of price support loans, disaster payments, farm ownership loans, and operating loans, and that the USDA had failed to process complaints about racial and ethnic discrimination [158]. As a result of this lawsuit, over 13,000 African American farmers have received a collective \$995 million from the U.S. government [158]. This is the largest federal settlement for civil rights violations to date [159]. When Shirley Sherrod was first wronged by the USDA, in *Time*.

## Expanding research approaches

The research approaches we use in food and agriculture determine how problems are defined, how solutions are derived, which options are considered available, and what types of changes are likely to take place. The goal of publicly funded agricultural research is “to advance knowledge for agriculture, the environment, human health and well-being, and communities” [163].

Historically, research funding been focused on increasing production, with less attention paid to the environmental or social issues in the food system. This has begun to shift. A review of the USDA special grants program shows several recent grants that focus on these issues. Examples of funded topic areas pertaining to environmental issues include climate change, integrated pest management, organic agriculture, and water quality. Examples of funded topic areas pertaining to social issues include childhood obesity prevention, global food security, sustainable community and capacity building, community food projects, healthy urban food, disaster resilience for rural communities, outreach for socially disadvantaged farmers, and children, youth, and families [164]. As well, USDA's Community Food Projects Competitive Grants Program provides \$5 million every year to fund community food projects that help promote food security and self-sufficiency in low-income communities. [165]

Many programs and organizations recognize that sustainable agriculture is incomplete as a production model alone, and that social problems and solutions should and can be addressed within the framework of a sustainable food system. Political ecology is an example of an approach that combines the study of ecological factors and processes with political economic structures and systems. As well, environmental justice approaches study the inequitable distribution of both fair and unfair environmental, social, and economic resources. Interdisciplinary studies such as these can help us to formulate more holistic research questions.

Sustainable agriculture has gained increased attention in the past two decades, although it does not receive a large amount of funding. The U.S. Department of Agriculture Fiscal Year 2012 Budget Summary and Annual Performance Plan shows that only about 1% of its budget allotted for research, education, and economics will be allocated for their Sustainable Agriculture Research and Education program [166]. Private lending for sustainable agriculture projects more than doubled from 1993–2002 to 2003–2006 [167]. A survey of both governmental and non-governmental funding agencies to assess contributions to sustainable agriculture research and projects found that private lenders account for 58% of all sustainable agriculture funds. These funds were used to establish public policy, further research and education, support market development, establish and support programs at land grant universities, encourage adoption of sustainable farming methods, build organization capacity, and improve minority involvement in sustainable agriculture.

And, while the number of U.S. sustainable agriculture programs and projects has been increasing, they have been primarily focused on and located in traditional arenas such as production, food safety, and engineering. However, although most funding goes toward these areas, there has been a trend toward funding research that focuses on environmental and social issues for farmers and communities.

The complexity of factors involved in sustainability requires diverse perspectives and approaches to sustainable food and agriculture theory and practice. Addressing social issues such as food distribution, control of resources, and labor conditions requires a significant increase in sustainability funding along with a redirection of current funding toward the broader social aspects of food and agriculture. It clearly also requires expanding the number of sustainable food system researchers trained in the social sciences.

There are essential and compelling social-science questions. For example, how can society provide better working conditions for the people who work in fields and factories to produce and prepare the food we eat? How can land be more available for those who want to farm? What accounts for the prevalence and increase in diet-related diseases and what actions can reverse this trend? Why are some foods subsidized while others are not? Why do people go hungry in a world in which food is abundant?

These questions are being addressed by NGO researchers and in new university programs. USDA reports that over 150 colleges and universities in the U.S. host programs in sustainable agriculture [168]. Food studies programs are gaining momentum as well—programs that are difficult to quantify as they often cross disciplines and departments.

## A final note

As we work toward sustainability, which and whose needs we decide to address and which social structures we decide to sustain will determine our future food and agriculture system. The priorities we choose will carry important implications not only for the environment, but also for the lives of people occupying different positions within the food and agriculture system.

So much has changed in the past 20 years. Sustainable agriculture broke new ground by prioritizing the environment; the field of sustainable food systems is expanding this ground by adding people's needs into the equation. Today we are focusing on interactions not only between people and the environment, but also among people in different jobs, cultures, and socioeconomic positions.

We are heartened by the creation of the larger tent of sustainable food systems and by increased emphasis on food justice. As we have seen, though, there is still much to be done to improve the livelihoods and life chances of those who suffer in the shadow of our abundant and vibrant food system. In 20 more years, the work of individuals and organizations can create a food system in which no one goes hungry, healthy food is easily accessible and affordable, jobs in the food system are safe and dignified, and people have the voice and resources they deserve. May the next generation inherit a food system of which we are proud.

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*Note from page 1*

We have presented the most recent and comprehensive data we could find, but there were many topics on which we could find no data at all or nothing recent. Limited funding for research on social issues in food and agriculture means that in a number of areas data simply do not exist. In order to more fully understand and be able to better address social issues in sustainable food systems, increased funding is required, both for research and for projects.

Despite limited resources, social issues in the food system are being addressed by many projects, people, and policies. The ones we highlight are only a sample of the efforts that aim to increase access to healthy foods for everyone, improve rights and opportunities for food workers, and improve opportunities for women and people of color in the food system.

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