



ChangeLab Solutions
Law & policy innovation for the common good.

Finding Common Ground on Health and Safety for Farmworkers and Farmers

ISSUE BRIEF

Finding Common Ground is a series of issue briefs commissioned by the Healthy Farms, Healthy People Coalition to bring agriculture and health stakeholders together, building a stronger base of support for a healthy, economically viable food and farming system in the United States. Each brief highlights a food and farming issue in which agriculture and health stakeholders have shared interest.

The bucolic image of rolling farmland belies the real dangers of farm work: agriculture is considered the most dangerous industry in the United States. While farmers are on average healthier than the rest of the population, they face more occupational health and safety hazards. Farmworkers confront the same occupational hazards, on top of health problems stemming from low socioeconomic status and the transient lifestyle their jobs often require.

In this issue brief, we explore the unique health concerns of farmers and farmworkers. We also look at the business case for making work safer and healthier for everyone on the farm.

Are farmers and farmworkers healthy?

In general, farmers have significantly lower rates of cardiovascular disease and respiratory conditions (two of the leading causes of death in this country) than the average working American. Farmers are less likely to smoke, a major risk factor for chronic diseases such as cancer and heart disease. They're more likely to be overweight, but less likely to be obese.¹

Farm households as a whole are financially better off and more likely to have health insurance than other U.S. households. But because farms tend to be in rural areas, farmers may have less access to health care providers and facilities than the general population. Urban counties, for example, have up to twice as many primary care physicians as rural counties.²

Farmworkers are overall less healthy than their employers. Migrant and seasonal farmworkers, who make up more than half the farm labor force, have an average life expectancy of 49 (compared with 75 for the general population).³ Migrant and seasonal farmworkers experience higher rates of infectious disease, including HIV; higher rates for some cancers, including stomach, skin, and prostate cancers; more dental problems; and greater risk of respiratory problems such as bronchitis and emphysema, despite lower smoking rates.⁴

Researchers point to socioeconomic status, the migratory lifestyle, and occupational hazards like sun and pesticide exposure as important factors driving the health disparities faced by farmworkers.⁵ Half of farmworkers make less than \$7,500 a year, and nearly two-thirds live below the federal poverty line. There is little recent research on farmworkers' insurance status. Older data show that most farmworkers do not have public or private health insurance.^{6,7} Farmworkers also have less access to health care services than farmers because of limited access to transportation, language barriers, and difficulty taking time off from work.^{8,9} The federal government funds health clinics across the country that serve hundreds of thousands of farmworkers each year.¹⁰

Farmworkers' Health and Quality of Life

Farmworkers play a crucial role in our food system, but they earn low wages working physically demanding, often dangerous jobs in extreme conditions. These jobs provide little opportunity for career advancement and wage increases, despite the fact that farmworkers may bring farming expertise from their home countries and learn valuable skills while working in the fields here.¹¹ Many migrate around the country, following ripening crops throughout the seasons.¹² In addition to occupational hazards and the health issues that stem from low socioeconomic status, farmworkers are also more susceptible to injury and disease due to the limited control they have over their jobs and the lack of government regulation of their work environments.¹³

Immigration status is another important factor that affects health and working conditions. Eighty percent of farmworkers are born outside of the United States, and more than half are undocumented immigrants.¹⁴ Fear of deportation and lack of awareness of labor rights keep many farmworkers from reporting unsafe conditions and other labor violations.¹⁵ Undocumented immigrants are not eligible for many state and federal public benefits for low-income families, like Medicaid¹⁶ and the Supplemental Nutrition Assistance Program (SNAP).¹⁷ Farmworker advocates and unions contend that immigration policy reform is necessary to give undocumented workers an opportunity to work legally in this country and to prevent exploitation through below-poverty wages and unsafe working conditions.^{18, 19} Low-income people, people of color, and immigrants experience higher rates of many diseases and conditions.²⁰ Farmworker demographics make this population particularly at risk. Recent data about farmworker health disparities is limited, making it difficult for the health community to quantify and track these issues.

Some of the unique health concerns farmworkers face:

Hunger

More than two-thirds of farmworker families have inadequate access to healthy food, and more than half of families skip meals or eat less food than they need. Hunger and lack of access to healthy food likely contribute to higher rates of diseases and other health conditions.^{21, 22, 23}

Unhealthy housing

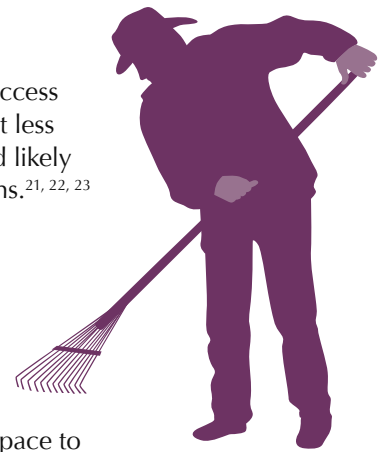
Low wages and a lack of safe, affordable housing in rural places means that farmworkers experience hazardous home environments, which can increase the spread of disease, negatively affect mental health, and increase exposure to dangerous chemicals. More than a quarter of migrant worker camps have rodent problems and insufficient sleeping space to accommodate the number of workers. Many farmworkers and their families live in houses that have high levels of mold and mildew, structural and electrical deficiencies, and insect and rodent infestation.²⁵ Worker housing is often located close to fields treated with pesticides, increasing exposure to pesticides when these chemicals drift away from the fields. Although data on homelessness are not available, it is not uncommon for workers who do not have access to affordable housing to sleep in tents or vehicles near the fields.²⁶

Limited access to water and sanitation facilities

The 2001 National Agricultural Workers Survey found that 20 percent of farmworkers did not have access to drinking water and cups in the fields.²⁷ Other surveys report varying rates, from 5 to 90 percent, of workers who do not have access to toilets and sinks in the fields.^{28, 29} Workers who do not have access to drinking water are at greater risk for heat-related illnesses, which can be fatal. Workers who do not have access to toilets are at greater risk for urinary tract infections due to urine retention, or they may be forced to relieve themselves in the field.³⁰ Lack of handwashing facilities can increase the spread of communicable diseases and can increase workers' risk of skin conditions due to exposure to chemicals and plants that irritate the skin (e.g., asparagus, barley, tobacco, celery, lettuce, and mustard).³¹

Mental illness

Farmworkers face many stressful circumstances, including dangerous worksites, unhealthy housing, and sometimes separation from family and friends, that put them at higher risk for depression, anxiety, and other mental illnesses.^{32, 33} In a study of stressors and mental health, farmworkers reported that low income and "rigid work demands" were associated with depressive and anxious feelings.³⁴



Occupational Hazards of Farming

Farmworkers, as well as farmers, and their families face health and safety hazards unique to their business. The fatal injury rate for farmers and ranchers is seven times that of the entire U.S. workforce,³⁵ attributed to the physical nature of the job, dependence on heavy machinery, and the long hours required during planting and harvesting seasons.³⁶

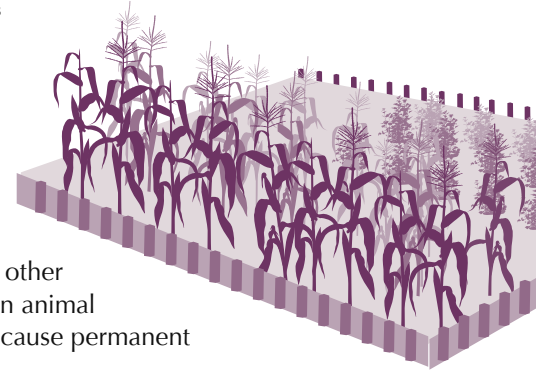
Common occupational hazards include:³⁷

Farm machinery

Tractor rollovers cause the most deaths on farms.^{38, 39, 40} Many of these deaths can be prevented by the use of rollover protective structures on tractors, but fewer than two-thirds of tractors have such devices.^{41, 42} Hearing loss is also common among farmers who work with farm equipment, including tractors, feed grinders, and chain saws.⁴³

Animals

Workers are frequently injured and even killed by being kicked, bitten, stepped on, or pinned by an animal.⁴⁴ People who work in confined animal operations also experience higher rates of respiratory problems, including chest tightness and coughing,⁴⁵ which are likely caused by exposure to waste fumes, like hydrogen sulfide and ammonia, dust, and other particulate matter in these facilities.⁴⁶ Noise is also a concern in animal facilities: large numbers of animals can make enough noise to cause permanent hearing loss over time.⁴⁷



Physical labor & weather exposure

Farming requires demanding physical labor, often occurring outdoors in harsh weather conditions. Agricultural workers are at greater risk for musculoskeletal problems, including back pain, joint pain, and repetitive stress injuries.⁴⁸ Nearly half of all injuries in agriculture occur due to overexertion, and the industry as a whole has substantially more musculoskeletal injuries than other sectors.⁴⁹ One study found that fractures, strains, and sprains were the most common nonfatal injuries for older farmers, who make up an increasing proportion of the farming industry, and the most common mechanisms for these nonfatal injuries were either getting hit by an object or falling.⁵⁰

The most strenuous farm work often occurs in the hottest part of the year in direct sunlight. These conditions, combined with limited access to shade and water, put agriculture sector workers at a high risk for a range of heat-related illnesses that can rapidly progress to a fatal condition.⁵¹ Agriculture sector workers are four times more likely to experience heat-related illness and 20 times more likely to die of heat exposure than workers in the overall U.S. economy.^{52, 53} Some farmworkers are paid based on the amount of crop they harvest (known as a piece rate),⁵⁴ which makes it difficult to take breaks without losing wages.

Pesticides

Farmers and farmworkers regularly work with pesticides. One federal study found that 6 out of 1,000 farmers experienced high-level exposure to pesticides in a typical year, while farmworkers had five times the exposure rate – and more than 40 percent of farmworkers exposed to pesticides reported direct health effects like nausea or headaches as a result.⁵⁵ Researchers believe that pesticide exposure rates are underreported, particularly among farmworkers due to lack of access to health care services, difficulty taking time off from work, and fears related to immigration status.⁵⁶

Rates of prostate and ovarian cancers are higher among people who work with pesticides than rates for the general population.⁵⁷ A review of nearly 50 studies concluded that exposure

to certain pesticides is linked to higher rates of Parkinson's Disease.⁵⁸ Long-term, low-level exposure is associated with headaches, dizziness, nausea, and greater feelings of anger, tension, and depression among farmers and farmworkers.^{59, 60}

Pesticide exposure also affects families of people who work with pesticides. Children of women who experience occupational exposure (often farmworkers) while pregnant have greater risk for childhood leukemia.⁶¹ There is also evidence that pesticide residues are brought home on workers' clothes and shoes, increasing exposure risk for children and other adults who live in the same home.⁶²

What's the business case for protecting health?

From a moral standpoint, all of these working and living conditions are inexcusable, particularly in a wealthy country like the United States. But it's important to understand the economic conditions that create the hazards farmers and workers face.

Farmers are the foundation of an increasingly competitive food system, which serves an American population that expects cheap groceries.⁶³ The share of the consumer food dollar that makes it to farmers has been declining in real terms since at least 1993, while the share captured by food retailers and restaurants has been rising. Retail consolidation is giving food sellers more power to set prices, which may be contributing to the decline in farmers' share of the food dollar.⁶⁴

Boosting workers' wages and taking measures to ensure safety for everyone on the farm increases costs in the short run and further squeezes the farm's bottom line. But it may be in the farm's long-term economic interest to improve working conditions and wages.

Public awareness, many farmworker justice groups say, is an important step toward improving working conditions on farms. Consumers have shown a willingness to pay more for food produced in an environmentally sustainable way, suggesting it may be possible for farmers to be compensated for paying higher wages and improving safety. In fact, a survey found that most consumers would be willing to pay more for strawberries if it guaranteed that workers received a living wage and worked in a safe environment.⁶⁵

Recent high-profile wage disputes between farmworker unions and popular retail chains have started to elevate these issues to the consumer level. With Americans' growing interest in

What about wage and safety laws?

Farmworkers in the United States are exempt from many of the federal workplace laws that cover employees in other industries. For example, farmworker employers are not required by the federal government to provide rest breaks or meal breaks. Farmworkers, in most cases, are exempt from federal minimum wage and overtime pay requirements, which means farm owners are not breaking the law when they pay below-poverty wages. The vast majority of farms are exempt from workplace safety regulation by the Occupational Safety & Health Administration, and many states do not require workers' compensation coverage for farmworkers. Farmworkers in most states also do not have the right to join or form a union, unlike most workers in the economy.

Some states, notably California, Oregon, and Washington, offer more workplace protections for farmworkers, including minimum wage, occupational health and safety, and workers' compensation requirements.⁶⁹

For more information about how workplace laws apply to farmworkers, see Bon Appetit Management Company Foundation's and United Farm Workers' Inventory of Farmworker Issues and Protections in the United States, available at www.ufw.org/pdf/farmworkerinventory_0401_2011.pdf.

knowing more about where their food comes from, many labor groups hope food will one day bear labels that indicate the labor practices of the producer, much as these labels increasingly tout organic or locally grown foods.

Farmworker and sustainable agriculture groups have developed the “Food Justice Certified” program, a certification for farms and other food producers who treat workers fairly and provide safe working conditions. It also rewards retail companies for paying fair prices for farm products and establishing long-term relationships with farmers.⁶⁶ The Coalition of Immokalee Workers has also led well-publicized boycotts of major grocery stores, restaurants, and food service companies to raise public awareness about the low wages paid to Florida farmworkers who harvest tomatoes – and to use these retailers’ market power to push growers to pay higher wages to their workers.⁶⁷



Food safety is another business concern for farmers, one that could be improved through better working conditions. An outbreak of disease linked to a particular farm could sicken thousands of people, put the farm out of business, and damage the entire industry’s reputation. Providing workers with access to toilets and handwashing stations reduces the risk of food contamination. Providing paid sick days allows workers to take time off when they’re ill, helping them recover more quickly, preventing the spread of disease to other workers, and keeping germs off the food they’re producing.⁶⁸

Learn More

Agriculture and health stakeholders should understand how the health and safety issues discussed here affect their communities. This common understanding can lead to conversations about potential strategies that would protect farmers and farmworkers. Unfortunately, there are no comprehensive online resources that provide state-level or county-level data about farmer or farmworker health. To find out how these issues are being addressed in your area, contact your local cooperative extension office, health department, or food policy council. Here are some national resources for more information:

Read about farmworkers’ living and working conditions in their own words:

www.farmworkerjustice.org/sites/default/files/documents/7.2.a.7%20weeding-out-abuses.pdf (pages 10-14)

Learn how farmworker organizations are working to improve working conditions and wages:

Coalition of Immokalee Workers: www.ciw-online.org/index.html

United Farm Workers: www.ufw.org

CATA: www.cata-farmworkers.org

Rural and Migrant Ministry: www.ruralmigrantministry.org

Farmworker Association of Florida: www.floridafarmworkers.org

Rural Coalition: www.ruralco.org

See what it takes for a farm to become food justice certified:

www.agriculturaljusticeproject.org/home.html

Funding for this series is provided by the Healthy Farms, Healthy People Coalition through a CDC cooperative agreement administered by the National Network of Public Health Institutes. The Public Health Institute staffs the coalition and provided technical assistance for the series. The views and opinions of these authors and organizations are not necessarily those of CDC or the U.S. Department of Health and Human Services (HHS).

ChangeLab Solutions is a nonprofit organization that provides legal information on matters relating to public health. The legal information in this document does not constitute legal advice or legal representation. For legal advice, readers should consult a lawyer in their state.

© 2013 ChangeLab Solutions

Endnotes

- 1 Jones CA et al. *Health Status and Health Care Access of Farm and Rural Populations*. United States Department of Agriculture, Economic Research Service, Economic Information Bulletin No. 57, 2009, p. 12 - 15. Available at: www.ers.usda.gov/publications/eib-economic-information-bulletin/eib57.aspx.
- 2 *Id.* at 25.
- 3 Hansen E and Donohoe M. "Health Issues of Migrant and Seasonal Farmworkers." *Journal of Health Care for the Poor and Underserved*, 14(2): 153-164, 156, 2003. Available at: <http://phs.org/files/Migrant%20and%20Seasonal%20Farm%20Worker%20Health/Migrant%20and%20Seasonal%20Farm%20Workers%20-%20JHCPU.pdf>.
- 4 *Id.* at 156-160.
- 5 *Id.* at 153-154, 161.
- 6 Villarejo D et al. "The Health of California's Immigrant Hired Farmworkers." *American Journal of Industrial Medicine*, 53:387-397, 393, 2010. Available at: www.cpcpa.org/cpcpa/assets/File/Policy-and-Advocacy/Active-Policy-Issues/MSFW/2010-Health-of-CA-Immigrant-Farmworkers.pdf.
- 7 Rosenbaum S and Shin P. *Migrant and Seasonal Farmworkers: Health Insurance and Access to Care*. Kaiser Commission on Medicaid and the Uninsured, 2005, p. 12-13. Available at: www.kff.org/uninsured/upload/Migrant-and-Seasonal-Farmworkers-Health-Insurance-Coverage-and-Access-to-Care-Report.pdf.
- 8 Hansen and Donohoe, *supra* note 3, at 160-161.
- 9 Villarejo et al., *supra* note 7, at 393.
- 10 More information about the Health Resources and Services Administration's Health Center Program is available at: <http://bphc.hrsa.gov/about/specialpopulations/>.
- 11 The Food Chain Workers Alliance. *The Hands That Feed Us: Challenges and Opportunities for Workers Along the Food Chain*. 2012. Available at: <http://foodchainworkers.org/wp-content/uploads/2012/06/Hands-That-Feed-Us-Report.pdf>.
- 12 Hansen and Donohoe, *supra* note 3, at 154.
- 13 Bon Appétit Foundation. *Inventory of Farmworker Issues and Protections in the United States*. United Farm Workers, 2011. Available at: www.ufw.org/pdf/farmworkerinventory_0401_2011.pdf.
- 14 Bread for the World Institute. *Rebalancing Act: Updating U.S. Food and Farm Policies*. The 2012 Hunger Report, 2012. Available at: <http://hungerreport.org/2012/full-report/chapters/three/agricultural-workforce>.
- 15 Bon Appétit Foundation, *supra* note 14.
- 16 United States Department of Agriculture. *Non-Citizen Requirements in the Food Stamp Program: Eligibility Determination Guidance*. 2003, p. 3. Available at: www.fns.usda.gov/snap/rules/Legislation/pdfs/Non_Citizen_Guidance.pdf.
- 17 United States Department for Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. *Overview of Immigrants' Eligibility for SNAP, TANF, Medicaid, and CHIP*. 2012, p. 9. Available at: <http://aspe.hhs.gov/hsp/11/ImmigrantAccess/Eligibility/ib.pdf>.
- 18 *Immigration Reform & Farmworkers*. Washington, DC: Farmworker Justice, 2012. Available at: <http://farmworkerjustice.org/advocacy-and-programs/agjobs>.
- 19 Rodriguez AS. "Immigration Reform for Farm Workers, the Most Practical Solution for America." *The Hill*, April 15, 2009. Available at: <http://thehill.com/blogs/congress-blog/politics/25663-immigration-reform-for-farm-workers-the-most-practical-solution-for-america>.
- 20 Williams DR, Mohammed SA, Leavell J, et al. "Race Socioeconomic Status and Health: Complexities, Ongoing Challenges and Research Opportunities." *Annals of the New York Academy of Sciences*, 1186: 69-101, 2010. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC3442603/pdf/nihms393784.pdf.
- 21 Borre K, Ertle L and Graff M. "Working to Eat: Vulnerability, Food Insecurity, and Obesity Among Migrant and Seasonal Farmworker Families." *American Journal of Industrial Medicine*, 53: 443-463, 2010. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC295350/.
- 22 Weigel MM, Armijos RX, Posada Hall Y, et al. "The Household Food Insecurity and Health Outcomes of U.S.-Mexico Border Migrant and Seasonal Farmworkers." *Journal of Immigrant and Minority Health*, 9:157-169, 2007. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC197674/pdf/15504448.pdf.
- 23 Quandt SA, Arcury TA, Early J, et al. "Household Food Security Among Migrant and Seasonal Latino Farmworkers in North Carolina." *Public Health Reports*, 119: 568-576, 2004. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC1497674/pdf/15504448.pdf.
- 24 Centers for Disease Control and Prevention. *Healthy Housing Reference Manual*. 2009. Available at www.cdc.gov/nceh/publications/books/housing/cha02.htm.
- 25 Arcury TA and Quandt SA. "Living and Working Safely: Challenges for Migrant and Seasonal Farmworkers." *North Carolina Medical Journal*, 72(6): 466-470, 468, 2012. Available at: <http://xa.yimg.com/kq/groups/1552668/1041281894/name/Arcury+%26+Quandt+2012+Living+and+working+safety...NCMJ.pdf>.
- 26 Hansen and Donohoe, *supra* note 3, at 155.
- 27 United States Department of Labor, Office of the Assistant Secretary for Policy, Office of Programmatic Policy. *Findings from the National Agricultural Workers Survey (NAWS) 2001-2002: A Demographic and Employment Profile of United States Farm Workers*. 2005, p. 45. Available at: www.doleta.gov/agworker/report9/naws_rpt9.pdf.
- 28 Shipp EM, Cooper SP, Burau KD, et al. Pesticide Safety Training and Access to Field Sanitation Among Migrant Farmworker Mothers from Starr County, Texas." *Journal of Agricultural Safety and Health*, 11(1): 51-60, 2005.
- 29 Whalley LE, Grzywacz JG, Quandt SA, et al. "Migrant Farmworker Field and Camp Safety and Sanitation in Eastern North Carolina." *Journal of Agromedicine*, 14(4): 421-436, 2009.
- 30 Hansen and Donohoe, *supra* note 3, at 157.
- 31 *Id.*
- 32 *Id.* at 159-160.
- 33 Arcury and Quandt, *supra* note 26, at 468.
- 34 Magaña CG and Hovey JD. "Psychosocial Stressors Associated with Mexican Migrant Farmworkers in the Midwest United States." *Journal of Immigrant Health*. 5(2): 75-86, 2003.
- 35 United States Department of Labor, Bureau of Labor Statistics. *National Census of Fatal Occupational Injuries in 2011*. News Release. September 20, 2012, p. 5. Available at: www.bls.gov/news.release/pdf/cfoi.pdf.
- 36 Jones CA, Parker TS, Ahearn A, et al. *Health Status and Health Care Access of Farm and Rural Populations*. United States Department of Agriculture, Economic Research Service. 2009, p. 11. Available at: www.ers.usda.gov/media/155453/eib57_1_1.pdf.
- 37 Frank AL, McKnight R, Kirkhorn SR, et al. "Issues of Agricultural Safety and Health." *Annual Review of Public Health*. 25: 225-245, 2004. Available at: <http://my.ilstu.edu/~knelso/AGR%20205/article1.pdf>.
- 38 Centers for Disease Control and Prevention. *Workplace Safety & Health Topics: Agricultural Safety*. 2012. Available at: www.cdc.gov/niosh/topics/aginjury/default.html.
- 39 Frank et al., *supra* note 38, at 230-231.
- 40 Myers JR and Hendricks KJ. "Agricultural Tractor Overturn Deaths: Assessment of Trends and Risk Factors." *American Journal of Industrial Medicine*. 53(7): 662-672, 2009. Available at: http://industrial.design.iastate.edu/rops/files/2012/02/Myers_JR_Trends.pdf.
- 41 *Id.*
- 42 Centers for Disease Control and Prevention, *supra* note 39.
- 43 Von Essen SG and McCurdy SA. "Health and Safety Risks in Production Agriculture." *The Western Journal of Medicine*, 169: 24-220, p. 216, 1998. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC1305289/pdf/westjmed00325-0022.pdf.
- 44 Mitloehner FM and Calvo MS. "Worker Health and Safety in Concentrated Animal Feeding Operations." *Journal of Agricultural Safety and Health*, 14(2): 163-187, p. 164. Available at: <http://animalscience.ucdavis.edu/faculty/mitloehner/publications/2008%20and%20calvo%20worker%20health%20and%20safety%20calvo.pdf>.
- 45 Von Essen and McCurdy, *supra* note 45, at 215-216.
- 46 Mitloehner and Calvo, *supra* note 47, at 170-171.
- 47 Mitloehner and Calvo, *supra* note 47, at 170.
- 48 Von Essen and McCurdy, *supra* note 45, at 218-219.
- 49 Davis KG and Kotowski SE. "Understanding the Ergonomic Risk for Musculoskeletal Disorders in the United States Agricultural Sector." *American Journal of Industrial Medicine*, 50(7):501-511, 2007. Available at: http://farmer.rda.go.kr/source/english/pdf_dw/usa_01.pdf.
- 50 Myers JR, Layne LA and Marsh SM. "Injuries and Fatalities to US Farmers and Farm Workers 55 Years and Older." *American Journal of Industrial Medicine*, 52(3): 185-194. Available at: www.agsafetyandhealthnet.org/Myers%20Old%20Farmers%20Conference%20Version%20071015%20Final.pdf.
- 51 P Rao. *Heat Related Illnesses: An Occupational Health Concern for Farmworkers*. Farmworker Justice and Migrant Clinicians Network, 2007. Available at: <http://farmworkerjustice.org/sites/default/files/documents/Heat20Related20Illnesses.pdf>.
- 52 Hansen and Donohoe, *supra* note 3, at 158.
- 53 Centers for Disease Control and Prevention. *Heat-Related Deaths Among Crop Workers --- United States, 1992-2006. Morbidity and Mortality Weekly Review*, 57(24): 648-653, 2008. Available at: www.cdc.gov/mmwr/preview/mmwrhtml/mm5724a1.htm.
- 54 United States Department of Labor, Employment & Training Administration. *The National Agricultural Workers Survey*. 2004. Available at: www.doleta.gov/agworker/report9/chapter5.cfm#basis_for_pay.
- 55 Alavanja MC, Sprince NL, Oliver E, et al. "Nested Case-Control Analysis of High Pesticide Exposure Events from the Agricultural Health Study." *American Journal of Industrial Medicine*. 39(6): 557-563, 2001.
- 56 Calvert GM, Karnik J, Mehler L, et al. "Acute Pesticide Poisoning Among Agricultural Workers in the United States, 1998-2005." *American Journal of Industrial Medicine*, 51(12): 883-898, 2008. Available at: www.beyondpesticides.org/AJIM_final.pdf.
- 57 Alavanja MC, Sandler DP, Lynch DF, et al. "Cancer Incidence in the Agricultural Health Study." *Scandinavian Journal of Work, Environment & Health*, 31(Suppl 1): 39-45, 2005.
- 58 Van Der Mark M, Brouwer M, Kromhout H, et al. "Is Pesticide Use Related to Parkinson Disease? Some Clues to Heterogeneity in Study Results." *Environmental Health Perspectives*, 120(3): 340 - 347, 2012. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC3295350/.
- 59 Alavanja MCR, Hoppin JA and Kamel F. "Health Effects of Chronic Pesticide Exposure: Cancer and Neurotoxicity." *Annual Review of Public Health*, 25: 155 - 197, 2004.
- 60 Kamel F and Hoppin JA. "Association of Pesticide Exposure with Neurologic Dysfunction and Disease." *Environmental Health Perspectives*, 112(9): 950-958, 2004. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC1247187/.
- 61 Wigle DT, Turner MC and Krewski D. "A Systematic Review and Meta-analysis of Childhood Leukemia and Parental Occupational Pesticide Exposure." *Environmental Health Perspectives*, 117(10): 1505-1513, 2009. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC2790502/.
- 62 Curl et al. "Evaluation of Take-Home Organophosphorus Pesticide Exposure among Agricultural Workers and Their Children." *Environmental Health Perspectives*, 110(12): A787 - A792, 2002. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC1241133/pdf/ehp0110-a00787.pdf.
- 63 Frank et al., *supra* note 38.
- 64 United States Department of Agriculture, Economic Research Service. *A Revised and Expanded Food Dollar Series: A Better Understanding of Our Food Costs*. 2011. Available at: www.ers.usda.gov/media/131100/err114.pdf.
- 65 Howard PH and Allen P. "Consumer willingness to pay for domestic 'fair trade': Evidence from the United States." *Renewable Agriculture and Food Systems*, 23(3): 235-242, 2008. Available at: www.msus.edu/~howardp/S1742170508002275b.pdf.
- 66 For more information about the Food Justice Certified movement, please see the Agricultural Justice Project home page, available at: www.agriculturaljusticeproject.org/home.html.
- 67 Coalition of Immokalee Workers. *CIW 101*. 2012. Available at: www.ciw-online.org/101.html#cf.
- 68 The Food Chain Workers Alliance. *The Hands That Feed Us: Challenges and Opportunities for Workers Along the Food Chain*. 2012, p. 25. Available at: <http://foodchainworkers.org/wp-content/uploads/2012/06/Hands-That-Feed-Us-Report.pdf>.
- 69 See Bon Appétit Foundation, *supra* note 14.