

Sustainability & Health

Dining Services at Lehigh

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Sustainability & Health: Dining Services at Lehigh

Executive Summary

Introduction

Lehigh University, as an institution of higher learning that prides itself on high-quality education for young adults, has a responsibility to provide healthy food to students and all those who eat here, and to help the students build awareness and habits that support sustainability. Lehigh Dining has already made substantial progress in the area of waste reduction, especially in the three on-campus dining halls, but not in other areas. The industrialized system of agriculture has evolved to include substances and products that are harmful to humans and yet we continue to serve these foods. Once Lehigh changes the way that they buy and serve food in the dining halls and other locations on campus, then students can learn to make healthy choices that will cause less harm to their bodies and create a more sustainable system of food production. As a community of educators and learners, Lehigh should:

- Procure and serve healthy, sustainably-grown food;
- Develop procurement policies that ensure respect for the health and wellbeing of farm workers, their families, and the communities where food is grown;
- Educate faculty, students, and the community about the importance of such food; and
- Minimize food waste and other waste from food service operations.

Problems with industrialized food production

The food currently served by Lehigh undermines students' health: the widespread use of pesticides, preservatives, and antibiotics in the industrialized agriculture system makes it very likely that we regularly eat unsafe food that causes or directly contributes to health problems. Misuse of antibiotics is another critical problem; virtually indiscriminate use promotes the development of antibiotic-resistant bacteria.

In addition to the many direct health impacts, the industrialized agriculture system also produces greenhouse gas (GHG) emissions that cause and contribute to global warming and climate instability. Also, many people are not aware of the exploitation of labor that still exists in food production not only in the Global South but in our own country. Issues like slavery and unfair labor aren't as visible to most people as the cheap, accessible common food brands and processed foods featured in everyday advertising.

Problems with food packaging and service

People often make poor food choices because they are unaware of the health risks associated with food from the industrialized food system. We tend to accept the brands that are cheap and advertised in a positive light, without asking questions about the actual content of the food. One easy way to initiate this education is to label each dish with nutritional information as well as where each ingredient/food comes from.

Many processed foods and sweetened beverages use high-fructose corn syrup, despite the fact that this sweetener has been shown to contribute to diabetes and obesity and to be carcinogenic. There is a huge problem of waste in preparation, leftovers, and food left on plates; this waste pollutes groundwater, generates greenhouse gas (GHG) emissions, and increases disposal costs.

Sustainability and health

Institutions need to adopt policies that significantly increase the percentage of food that is sustainably or organically grown. In addition to the health benefits, institutions can make a powerful positive impact on the region by purchasing from local growers.

Lehigh should acquire more fair trade items, educate students and staff about the products, and join the effort to end unfair labor. The Fair Trade model supports sustainable development and community empowerment through a market-based trade system that benefits farmers, workers, consumers, industry, and the environment. The system ensures that workers, many of whom are in less-developed countries, receive fair pay as well as education and healthcare for their families, and much of it is certified organic.

Minimizing waste

It is not enough to change the food we serve—it is also important to stop filling our landfills with waste from institutional food-service operations. Lehigh has made considerable progress in the past few years with reusable and compostable products, but needs to go further: eliminate single-use products, close the food loop by composting all food waste, and recycle containers and packaging materials.

Conclusion

Responsible purchasing policies allow institutions to leverage their purchasing power to improve environmental and public health in the communities they serve and in the communities where purchased items are produced. Institutions of learning can go beyond traditional education and foster beneficial habits in students and others with a dedication to sustainability in food purchasing, consumption, and waste.

Step by Step

Lehigh needs to change dining services on campus to protect the health of students and others who eat here and to create a system that contributes to sustainability instead of undermining it. In some of these cases, people must learn to value sustainability and their health more than they value convenience.

- Purchase more organic, local, and sustainably-grown food that is free of chemicals, GMOs, and harmful pesticides.
- Buy and offer more Fair Trade products and responsibly-sourced food and eliminate non-fair trade products.
- Raise awareness about recycling, waste, and avoiding harmful food, using a variety of educational approaches.
- Use fewer single-use containers and more reusable products in all food service locations and catered functions.
- Make composting food waste the standard at all dining locations on campus. When compostable products are used, make sure they are actually composted.
- Offer more convenient recycling at all locations, with bins right next to the trash cans to encourage more recycling.

Sustainability & Health: Dining Services at Lehigh

Introduction

Lehigh University is proud to offer a high-quality experience to young adults while guiding them to develop into well-rounded citizens that contribute to society. The university's website boasts that Lehigh is dedicated to "making a difference in society and the world." If Lehigh wants to make a difference then dining services is a good place to start.

We now know that much of the food in our stores, restaurants, and institutions does not sustain the health of those who eat it, but instead causes or directly contributes to health problems. The current system of agriculture has evolved to include substances and products that are harmful to ingest, not to mention harmful to workers and to the earth itself, and yet we continue to serve these foods.

Many organizations such as the Association for the Advancement of Sustainability in Higher Education, Institute for Agriculture Trade Policy, Center for Health Design, Robert Wood Johnson Foundation, and Food Trust have recognized how the industrialized food system undermines health. Every day, large institutions such as colleges and universities, schools, and hospitals, serve thousands of people right here in the Lehigh Valley. It is extremely important that they stop serving harmful food and start serving food that protects, sustains, and contributes to the health of those eat it and of the communities where it is produced.

Universities, as institutions of higher learning, have a special responsibility to serve healthy food for students and all who eat here, to make sure that it was produced sustainably, and to properly dispose of food waste and packaging. Lehigh Dining has already made substantial progress in waste reduction and composting in the three on-campus dining halls. Less attention has been paid to serving healthy food that is grown without harmful chemicals and produced by workers who are treated fairly. Lehigh should follow the lead of over 290 health care institutions, and many colleges and universities—from Dartmouth to UC San Diego—that have recognized the need and made commitments to adopt more sustainable food practices. Once Lehigh changes the way that they buy and dispose of food in the dining halls and other locations on campus, then students can learn to make healthy choices that will do less harm to their bodies and create a more sustainable system of food production. As a community of educators and learners, Lehigh should aim to:

- Procure and serve healthy, sustainably-grown food;
- Develop procurement policies that ensure respect for the health and wellbeing of farm workers, their families, and the communities where food is grown;
- Educate faculty, students, and the community about the importance of such food; and
- Minimize food waste and other waste from food service operations.

The Problems with Industrialized Food Production

According to the Union of Concerned Scientists, industrial agriculture 'views the farm as a factory with "inputs" (such as pesticides, feed, fertilizer, and fuel) and "outputs" (corn, chickens, and so forth)...'¹ Many of the 'inputs' used to maximize production are harmful to human health, and much of the food produced in our industrialized food system is deficient in nutrients and contains harmful levels of the chemicals used to enhance production.

Harmful chemicals

The artificial fertilizers and pesticides used in the large-scale industrialized agriculture system leach into groundwater and are toxic to people and animals. Handling these chemicals harms the farm workers, and runoff and aerial spraying pollute the communities' water and air. As if that weren't enough, much of this food also harms the people who eat it. Much of the food from our industrialized food system, because it is deficient in nutrients and contains harmful levels of the chemicals used to enhance production.^{2,3,4,5} Farm chemicals in food have been linked to many common diseases such as asthma, autism, ADHD, and cancer.

Increasingly, whether by choice or by pressure from corporations, farmers use genetically-modified organisms (GMOs) to increase production, but this practice also creates new problems. There is no way of knowing if GMOs will have long-term effects on those who work with them and those who eat the food. GMOs are another example of the lack of sustainability in the industrialized food system, as big companies patent certain products so that farmers cannot save seeds or replant without buying more of the company's product. Although many GMOs are designed so pesticides can be used without injury to the plant, this increases the amount of chemicals used and leads to more resistant pests.

Misuse of antibiotics is another critical problem. Antibiotics are widely used to prevent disease and promote growth in livestock raised in Concentrated Animal Feeding Operations (CAFOs), often called 'factory farms'. Over 80% of all antibiotics used in the U.S. are used for food production, not for treatment of human illness.^{6,7} This indiscriminate use promotes the development of antibiotic-resistant bacteria.

Food that is nutritionally deficient and harmful to those who eat it, combined with the public-health impacts of massive environmental pollution are clear indicators of systemic failure in the food system. As Health Care Without Harm put it in 'Menu of Change':

Clearly, our industrialized food system, the way in which we produce and distribute food, is failing to protect public health. Poor nutrition is a risk factor for four of the six leading causes of death in the United States—heart disease, stroke, diabetes and cancer. Nutrition-related chronic diseases are placing new demands on an already overburdened health care system and taking their toll on human productivity and quality of life.

This industrialized food system favors the production of animal products and highly-refined, calorie-dense foods, rather than fresh fruits and vegetables, whole grains, and other high fiber foods important for health... [and relies on] methods of production and distribution that negatively affect human and environmental health.⁸

Climate change

In addition to the many direct health impacts, the industrialized agriculture system also produces greenhouse gas (GHG) emissions that cause and contribute to global warming and climate instability. According to the EPA, in 2008 the agriculture sector emissions and related electricity emissions amounted to 531.6 million metric tons of greenhouse gasses⁹. The greenhouse gasses coming from industrialized agriculture are products of both the high mechanization on factory farms and mega-farms that require massive amounts of fuel, and the transportation that is needed to move food to far-away destinations.

Most of us have heard dire predictions of the impacts global warming will have on those living on islands and low-lying coastal areas, but it's worth noting that Pennsylvania will also experience some profound impacts, including more-frequent episodes of extreme heat in summer, more precipitation in winter, higher levels of ground-level ozone, higher pollen levels, and other air-quality problems. In addition, diseases borne by vectors such as mosquitoes and ticks are expected to be more of a problem.¹⁰

Working conditions

Many people are not aware that the current food system takes advantage of poor farm workers and small producers—not only in the Global South but in our own country. Many workers in the food industry live with inadequate wages, healthcare, education, and housing as well as frequent exposure to toxic chemicals.

For example, the cocoa industry is known for forced child labor in places like Ghana and the Ivory Coast in Africa, where 80 percent of the world's cocoa is produced. The fact that there is still slavery and child labor in our world is unacceptable, yet we often support it with our purchases. Disregard for workers' welfare and dignity is not sustainable in the long run.

The Problems with Food Processing and Service

Another big problem with our industrialized food system is that food processing creates additional problems after the food leaves the farm.

Processed foods

The industrialized food system has done an excellent job of marketing food that is nutritionally deficient and actually harms people's health. One disturbing example is that many common foods contain a variety of preservatives and other additives that cause or contribute to health problems. Some substances that we regularly consume without realizing the dangers are azodicarbonamide (a bleaching agent used in many breads) and MSG (monosodium glutamate, a flavor enhancer). Azodicarbonamide has been known to cause breathing difficulties similar to asthma, and MSG has been proven to contribute to obesity and neurological problems, and has addictive qualities¹¹. These chemicals are served to us without a warning of their potential effects on our health and safety. The risks that come with processed foods we consume only add to and worsen the negative effects of industrial agriculture.

Many processed foods and beverages use high-fructose corn syrup, despite the fact that this sweetener has been shown to contribute to diabetes and obesity and to be carcinogenic.⁵ Research has shown that this inexpensive sweetener, although similar to sugar, leads to some serious problems. Liver inflammation, obesity, cardiovascular disease, and high blood pressure are all linked to excessive high-fructose corn syrup, while natural glucose does not have the same effects. Unfortunately, it is present in so many foods that it is becoming critical for institutions to identify, purchase, and serve healthy alternatives and to make a real effort to inform people about these hazards.

A growing number of companies have expressed willingness to switch to real sugar instead, but the Corn Refiners Association still attempts to convince people that it is "just sugar," despite all the research showing otherwise. Lehigh Dining needs to take action to reduce the amount of high-fructose corn syrup that is served to students and make sure students and staff receive accurate information so everyone can make educated choices about the food they buy and eat.

Waste

The way people dispose of and treat waste only contributes to the overall negative environmental and health impacts of the current food sector. What is *not* eaten is an important part of sustainable practices that contribute to public health. Large kitchens create a large amount of waste in preparation, leftovers, and food left on plates, not to mention packaging; this waste pollutes groundwater, generates excess greenhouse gas emissions, and increases disposal costs.

Paper, food, and other waste in landfills release methane as they break down and contribute to the heat-trapping greenhouse gasses. Landfills also release harmful cancer-causing carcinogens and other air

pollutants, such as nitrogen oxide and sulfur oxide, which are chemicals that create acid rain; nitrogen oxide is also a greenhouse gas. Currently in the United States, about 55 percent of waste is sent to landfills. Additionally, at least five states have reported less than 10 years of remaining landfill capacity. Some states and regions therefore must ship out their solid waste, and Pennsylvania has become the largest importer of this transferred waste, bringing the risks and harmful substances closer to home.

A big problem with the way we serve and consume food now is the widespread reliance on single-use food service items. Single-use products are especially problematic when they are made of plastic such as styrene and Styrofoam. We use these products in high volumes—an estimated 25 billion Styrofoam cups are discarded each year—and the environmental and health impacts are enormous. Styrene and Styrofoam products are often discarded as litter, and now make up a large part of the ‘great pacific garbage patch’—now twice as big as the state of Texas—of toxic plastic refuse that has been reduced to small particles and enters the food chain after it is consumed by marine animals.

Styrene is classified as a possible human carcinogen by the EPA and by the International Agency for Research on Cancer.¹² When used with foods, trace quantities of the toxic components can be absorbed into the food, threatening human health and reproductive systems.¹³ (The harmful effects are increased when used with hot food and especially when heated in a microwave.)

Fortunately, Lehigh already uses reusable containers in the dining halls and uses compostable products at catered functions. But most compostable products are not actually composted and other locations on campus still use many Styrofoam containers. Lehigh needs to reduce the amount of single-use serving products and increase recycling and composting to reduce the amount of trash heading for the landfills.

Sustainability and Health

Food that is grown sustainably avoids many of these problems.¹⁴ By changing our purchasing, consuming, and waste practices, Lehigh can improve students’ and others’ personal health as well as create a healthier environment for us all.

Organic farming and sustainably-grown food

Lehigh and other institutions should adopt policies that significantly increase the percentage of food that is sustainably or organically grown, with an eventual goal of replacing all items that are not sustainably grown within, say, five years. This not only would give the benefit of farm-fresh food, but it also supports local farmers and the local economy. Organically-grown food has higher nutritional value, with significantly higher levels of Vitamin C, magnesium, phosphorus, iron, and other nutrients.¹⁵ Organic growing has also been shown to significantly reduce the greenhouse gas (GHG) emissions that contribute to global warming while sequestering carbon in the soil. The focus is on soil fertility, organic fertilizers, and biodiversity, rather than GMOs (genetically modified organisms), pollutants, and other chemicals.

Organic farming can help not only by reducing greenhouse gasses but by reducing diseases such as asthma, autism, ADHD, and even cancer, which are all linked to farm chemicals. Besides these benefits to our health, organic farming helps to establish an ecological balance while producing food, providing sustainability in the long-term.

In addition to the health benefits, institutions can make a powerful positive impact on the region by purchasing from local growers. Besides providing healthier food that has not been treated with commercial chemicals, purchasing from local growers would help the local economy. Small farmers have many times been pushed aside in favor of large factory farms for bulk buying but by returning to these local growers we can take steps to make healthier decisions while improving the areas we live in.

Two initial steps that are particularly easy for Lehigh to implement are to purchase milk and dairy products only from dairies that do not use bovine growth hormone (rBGH) or antibiotics to increase production and to purchase pasture-fed meat and free-range poultry and eggs from local farmers who use sustainable methods. (Commercial claims of ‘cage free’ and ‘free range’ or ‘pasture fed’ have little meaning, even on food that is certified organic; so there is no substitute for direct contact with a local producer.)

Fair Trade

Not all the products that people want can be grown locally, of course. Institutions should be concerned with responsible sourcing, taking steps to make sure all their suppliers protect environmental health, avoid use of toxic chemicals, and treat workers fairly. Lehigh, as a hub of learning, should take a leadership role in developing solutions to the problems of exploitation and mistreatment of workers. To ensure fair treatment, Lehigh and other universities should commit to responsible food sourcing of the food that we buy and serve on campus. Sodexo, the major food-service company that provides Lehigh dining services, is the “lone holdout” on a Fair Food agreement with the Coalition of Immokalee Workers, an organization that represents farm workers.¹⁶ If other major companies can agree to work towards fairly-produced food, then Lehigh and other schools should demand it from their providers.

The Fair Trade model supports sustainable development and community empowerment through a market-based system that benefits farmers, workers, consumers, and the environment. A certification system ensures that producers, many of whom are in the global South, receive fair pay for their work and have quality education and health care for themselves and their families. It also requires sustainable agricultural practices, so many Fair Trade Certified products are also certified organic. As of this date, Fair Trade certification is available for coffee, tea, cocoa & chocolate, vanilla, sugar, tropical fruit, and rice, as well as a number of non-food products.

Some universities, such as Oberlin College, Rice University, and UC San Diego, committed to serving only Fair Trade coffee several years ago. Lehigh should act promptly to replace the current (non-Fair Trade) products with products that are Fair Trade Certified. Lehigh already offers some Fair Trade coffee, which is very popular, but non-fair trade options still need to be eliminated. The school should take advantage of its buying power and insist that suppliers provide fair-trade choices to meet students’ demand for variety. Fair Trade tea, chocolate, and bananas should be introduced as rapidly as possible, along with other products as they become available, and Lehigh Dining should not only offer the fair trade products, but promote them to the campus community.

Education

Colleges should also inform students and faculty about healthier food choices. People often are unaware of and misled about the health risks associated with food from the industrialized food system. Increasing the demand for healthy food will help drive down costs and make it more accessible to the public. In order to make these changes, people need to learn to value sustainability and their health more than they value low price and convenience. Education about sustainable and healthy food choices will help improve health on campus and throughout the community.

To protect the health of students and of the community as a whole, university leaders need to respond to misleading information with a clear educational ‘marketing’ campaign to help people understand that healthy food—food that is produced sustainably, without the use of artificial fertilizers, pesticides, or additives and without the use of growth hormones or antibiotics—is critical to health.

Educational brochures, display materials, and news articles on healthy food choices should be part of a comprehensive effort to improve health by improving food choices. Lehigh’s Healthy Hawks program is a good start, but the education must expand to include everyone, not just those who take an interest in

healthy food; and the problem isn't just eating food that meets nominal nutrition standards, but eating nutrient-rich food that was sustainably grown. Lehigh must have more visible educational information to raise awareness about recycling, waste, and healthy food choices.

Make information available where food decisions are made

Food service operations provide an excellent opportunity to help people learn about healthy and sustainable food and the critical relationship of food to health. Lehigh Dining should label each dish with the location from which each food/ingredient comes and identify which dishes or ingredients are certified organic or Fair Trade. The same labels should clearly indicate which dishes are appropriate for vegetarian, vegan, Kosher, or Halal diets.

When coupled with educational information about the effects of various foods, this simple step at least allows students to make better, informed choices. The same system should, of course, also help people avoid foods that contain known allergens or asthma-triggering components such as sulfites. This type of food labeling system would help increase public awareness of the direct relationship of food to health and accommodate many diverse diets. At the same time, it is simple and inexpensive to implement.

Community gardens

Community gardening is an important alternative to over-processed institutional food and an important part of food education. Gardening helps people produce healthy food and helps people change their relationship with food, become part of the process that brings food to their plates, and to see the connections between food and health.¹⁷ Other colleges such as Vanderbilt, Lafayette, and Washington University in St. Louis have successfully implemented campus gardens. Lehigh's SouthSide Initiative has been active with promoting community gardens for some time, and Lehigh should expand its own garden as a source of fresh, nutritious, and sustainable food.

Minimizing Waste

It is not enough to change the food we serve—it is also important to stop filling our landfills with polluting waste from institutional food-service operations. Lehigh has made considerable progress in the past few years with reusable and compostable products, but needs to go further: eliminate single-use products, close the food loop by composting food waste in all locations, and make sure containers and packaging materials are recycled.

Use more-sustainable food packaging and serveware

Lehigh has switched to reusable take-out containers in the three on-campus dining halls, but should extend that practice to all locations on campus. Single use products such as styrene plates, cups, and utensils are costly and wasteful by nature, and styrene products are known to be harmful to health; compostable products, although better than styrene, are even more costly. Reusable plates, cups, mugs, and utensils pay for themselves in a few months and then continue to reduce costs every month. By using fewer single-use products, Lehigh can reduce costs *and* improve environmental health. Styrene and Styrofoam products should be eliminated completely, and compostable products should be used only when reusable serveware is not possible.

Lehigh took steps in a positive direction to reduce waste by going trayless in its dining halls, but action should not stop there. Other schools, such as Dartmouth, have also gone trayless, but haven't stopped there: their goal is to make the idea of throwing things out seem unnatural; this requires a change in understanding, not just in our habits.

Compost food waste

A great deal of food waste ends up in a landfill, but most of it could be composted and used as a natural fertilizer. Composting food waste renews the natural cycle by restoring nutrients and organic matter to the soil, reduces greenhouse gas (GHG) emissions, reduces pollution from artificial fertilizers, and reduces the volume of solid waste going to the landfill. This compost is rich in nutrients and organic material and can be used by farmers, landscapers, and community gardens as a natural, non-toxic fertilizer. Food service operations can utilize commercially-available food pulpers to reduce the volume and weight of food waste by up to 80% thus reducing the volume sent to the landfill and recovering the cost of the equipment. When food waste is composted, as we recommend, the pulping process removes excess water and breaks food waste into smaller pieces with greater surface area, thus improving the composting process.

Lehigh has composting at Rathbone Dining Hall, and plans to have it at lower UC in the fall; the next step should be to have it at all locations. We should be willing to compost everything that we possibly can at Lehigh, including waste from dorms, Greek houses, and even off-campus houses. UC Berkeley has been using composting since 2008, offering bins in residence halls as well as in the kitchens, with students, signs, and bulletin boards, giving instructions for proper trash separation. They charge 50 cents for compostable takeout containers to offset some costs. As of 2008, they compost about 50 tons per month at UC Berkeley—diverting a great amount of waste from the landfills, as Lehigh and other large institutions should do.

Composting is the perfect solution for food waste, but there is an even better option for surplus food. Whenever possible, dining services should donate leftover food to organizations that serve the needy. We think this is a very important responsibility of all large institutions that serve food in our communities, and that Lehigh should take the lead. (Donations can be made directly to individual local organizations that serve the needy, such as New Bethany, or to distribution organizations such as Second Harvest Food Bank.) The federal 'Good Samaritan law' provides extensive protection to institutions and individuals who donate food to the needy; if restrictive internal policies prevent food from being shared, they should be changed as soon as possible.

Recycle as much as possible

For non-food waste, recycling drastically reduces the demand for extraction of new resources and for the energy used in manufacturing, so it is important for Lehigh to make sure its recycling program is effective. Current single-stream recycling accepts glass, plastic, cans, corrugated cardboard, and other containers and packing materials—including those used in the kitchen and containers used by patrons. Making sure all recyclable products actually get into the recycling process will, of course, also help reduce the amount of waste from food services.

An effective program requires more than a system that allows recycling—the institution must take responsibility for the success of the recycling program and provide a system that is convenient and easy to use, coupled with appropriate education and reinforcement in the importance of recycling. In every location, recycling bins should be placed right next to the trash bins to make it easier for people to make the right choice. Education should not be restricted to the classroom; rather, universities like Lehigh must teach students about the availability and importance of recycling.

Conclusion

As people, businesses, and institutions realize that food choices have a profound impact on the health of people and ecosystems, more and more are choosing to be part of the solution. Responsible purchasing policies allow institutions to leverage their purchasing power to improve environmental and public health in the communities they serve and in the communities where purchased items are produced. Since Lehigh

selects and purchases the food and serving products, it has the power to make changes simply by adopting policies for more responsibly sourced food and products.

Universities can go beyond traditional education and help students and others learn more about the food we eat and how it is produced, how it affects our health, and the importance of reducing waste. Lehigh can demonstrate good model policies for higher education, health care, and other institutions.

Where promoting people's health and education is a primary concern, it is especially important to examine the effects of our actions and to make the right choices. Purchasing, consumption, and waste practices can be changed to create a more sustainable community. Sustainability in food services is critical for Lehigh to live up to its claim to never settle for less than the best.

This proposal is the product of research and recommendations by Brittany Rodak (Lehigh University), Kaylee Christ and Ali Schklair (Muhlenberg College), Clarissa Browne (Lafayette College), Codi Gauker (Moravian College), and Brenna Bowman (a 2009 graduate of Lehigh University).

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¹ 'Industrial Agriculture: Features and Policy'. Union of Concerned Scientists. 2007.

² 'Redefining Healthy Food: An Ecological Health Approach to Food Production, Distribution, and Procurement'; Center for Health Design; 2006.

³ Marie Kulick. 'Healthy Food, Healthy Hospitals, Healthy Communities: Stories of Healthcare Leaders Bringing Fresher, Healthier Food Choices to their Patients, Staff and Communities'; Institute for Agricultural Trade Policy; 2005.

⁴ Codi Gauker. 'The Impacts of Sustainable and Industrial Agriculture on Human Health'. Alliance for Sustainable Communities–Lehigh Valley. 2009.

⁵ Jay Withgott and Scott Brennan. *Essential Environment*. 2009.

⁶ M. Gilchrist, C. Greko, D. Wallinga, G. Beran, D. Riley, & P. Thorne. 'The potential role of concentrated animal feeding operations in infectious disease epidemics and antibiotic resistance.' *Environmental Health Perspectives*. 2007.

⁷ Leo Horrigan, Robert S. Lawrence, and Polly Walker. 'How Sustainable Agriculture Can Address the Environmental and Human Health Harms of Industrial Agriculture'. Center for a Liveable Future, Johns Hopkins Bloomberg School of Public Health. 2002.

⁸ 'Menu of Change: Healthy Food in Health Care'. Health Care Without Harm. 2008.

⁹ '2010 U.S. Greenhouse Gas Inventory Report'. Environmental Protection Agency. 2010

¹⁰ Climate Change in Pennsylvania: Impacts and Solutions. Union of Concerned Scientists. 2008.

¹¹ Pesticide Information Database. Pesticide Action Network. 2010

¹² Styrene Fact Sheet' CAS #100-42-5. Agency for Toxic Substances and Disease Registry. 2007

¹³ "Are Styrene Food and Beverage Containers A Health Hazard?," Institute for Local Self-Reliance, Washington, DC, 1990.

¹⁴ 'Cultivating Common Ground'. Prevention Institute. 2004.

¹⁵ Virginia Worthington. *Journal of Alternative and Complementary Medicine*. April 2001, 7(2): 161-173.

¹⁶ "And Then There Was One." *Coalition of Immokalee Workers (CIW)*. 1 July 2010. Web. 3 Aug. 2010. <www.ciw-online.org/sodexo_lone_holdout.html>.

¹⁷ *Community Gardening*. Brooklyn Botanical Garden. 2008