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Finding Common Ground on Environmentally Sound Economically Viable Agriculture

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.

It's a common saying that farmers are the original environmentalists: their livelihoods are so dependent on land and water that they can't help but care about environmental issues. And because farming practices in turn affect our soil, water, and air, environmental issues are critical considerations in food and agriculture policy.

The interdependence between farms and the environment also matters for public health. People who live on or near farms can become ill from water contamination and air quality problems. The way farmers manage animal waste and farm run-off can affect whether consumers get sick from food-borne pathogens.

Public health professionals have long been involved in setting and enforcing food safety, water quality, and air quality standards. In recent years, rising rates of diet-related diseases has made collaboration between the public health and agriculture communities even more pressing.

The growing involvement of public health in agriculture policymaking provides an opportunity to identify ways to increase access to nutritious food while protecting the environment and the farmer's bottom line. This issue brief offers strategies to advance public health and environmentally sound agriculture alike.

Farms, Health, and the Environment

Techniques intended to make farms more economically viable and meet consumer demand for low-cost food are largely – if unintentionally – responsible for the environmental and health impacts of agriculture, raising concerns for both farmers and health professionals. Greater farm productivity has meant lower prices for crops, negating for most farmers some of the potential profits from efficiencies of scale.¹ Meanwhile, the environmental and health consequences of high-yield farming techniques are becoming increasingly visible.

These realities have opened the door for discussion about alternative farming practices that protect farmers, health, and the environment. When it comes to the impact of agriculture on the environment, here are some of the most commonly cited concerns farmers and health professionals share.

Farmland and soil health

Most fruits and vegetables produced in the United States grow on land near urban areas, making much of American farmland a prime target for future housing and business development.² Over the past 30 years, the amount of land used for residential, industrial, or commercial use has nearly doubled, and half of the developed acreage was agricultural (cropland, pasture, or rangeland).³ Although the amount of agricultural land converted during this period represents a small fraction of total agricultural land,⁴ monitoring and preventing the loss of this farmland is important because land that is developed for urban use does not typically get converted back to intensive agricultural use.⁵

Land is most productive, of course, when the soil is healthy. If the soil ecosystem is functioning properly, it will need fewer inputs, like fertilizer, and therefore be more

profitable for farmers. It also absorbs water more easily, preventing irrigation run-off, flooding, and soil erosion. Fertilizers, pesticides, and even plowing can damage the soil.⁶ Healthy soil may be beneficial to human health by reducing the need for pesticides and preventing poor water quality caused by agricultural run-off. Some researchers also suggest that healthy soil increases the nutritional value of foods produced from the soil.⁷

Air Pollution

Many common agricultural practices, including livestock production, fertilizer application, and prescribed burning, emit a variety of pollutants.⁸ For example, agriculture is responsible for half of particulate matter emissions and one-fifth of ozone-forming gases in California's San Joaquin Valley. These and other air pollutants contribute to higher rates of asthma and lung and heart disease.^{9, 10} Ozone also reduces yields for several food crops by up to 20%.¹¹



Animal agriculture in particular has been identified as a major source of harmful pollutants, including ammonia and hydrogen sulfide (which smells like rotten eggs).¹² Modern livestock operations – known as confined animal-feeding operations – emit toxic gases that are associated with respiratory problems in workers.¹³ Workers have also died from acute exposure to hydrogen sulfide in waste storage areas.¹⁴ Strong odors are common in neighboring communities, which may increase residents' stress levels and blood pressure, and weaken their immune system.^{15, 16, 17}

Water Quantity & Quality

Most fruits and vegetables grown in the United States require irrigation,¹⁸ and growers in some arid regions are depleting groundwater supplies faster than these sources can be naturally replenished.¹⁹ Eighty percent of water consumed in the United States is used for agriculture, and with population on the rise, conflicts between urban and agricultural uses of water are expected to grow.^{20, 21, 22} Efforts to protect the water supply are further limiting access to water from rivers and streams.²³ More efficient use of water on cropland will help farmers maintain profitability in the face of almost certain increases in water prices and reductions in allocations for agriculture.²⁴



Water quality is another source of conflict between agricultural and municipal water uses. More than half of states have identified large livestock operations as a source of water quality problems.²⁵ These increasingly common operations produce massive amounts of waste; for example, a 700-cow facility produces the same amount of waste in one year as a city with 24,000 residents.²⁶ Animal waste can leach into groundwater supplies or run off from storage lagoons after heavy rain.²⁷ The waste contaminates rural and urban water supplies, as well as lakes and rivers used for recreational activities. Exposure to contaminated water either by drinking it or through recreational uses can cause gastrointestinal problems, ear infections, greater risk for hyperthyroidism, and numerous other health problems. Contamination not only threatens human health, but also has resulted in large-scale deaths of freshwater fish.²⁸

Pesticides from cropland also contaminate water supplies. Atrazine, a chemical used to control weeds, is the most common pollutant in drinking water. An analysis of drinking water in Midwestern and Southern states found atrazine in 80 percent of samples. Atrazine disrupts hormones, causing low sperm counts and insulin resistance. It can also cause birth defects and impair the immune system.²⁹ People who drink water with high levels of atrazine may experience these negative health effects.

Wetlands are an important part of the ecosystem that protects water quality. Wetlands absorb excess water from storms, reducing soil erosion and flooding. They also act as filters, keeping

pollutants out of water supplies. Wetlands are sometime drained for agricultural development, compounding the negative effects that some farming can have on water supplies.³⁰

Pesticides

The use of pesticides to control weeds and insects exposes farmworkers and consumers to potentially harmful chemicals. Farmers and workers who apply pesticides bear the brunt of these chemicals' negative health effects; chronic exposure to many of these chemicals is associated with higher rates of certain cancers and neurological problems.^{31, 32} (For more on the occupational health concerns for farmers and workers, see "Finding Common Ground on Health and Safety for Farmworkers and Farmers" at www.changelabsolutions.org/publications/Farmworker_Issue_Brief.)

Pesticide residues are found on many fruits and vegetables.³³ While it is clear that consumers are exposed to low-levels of pesticides from food, water, and other sources,³⁴ little research exists linking this exposure to poor health. Teasing out the health effects of pesticide residue on food is difficult due to the range of chemicals used on farms and the variety of chemical exposures experienced by people every day.

A potential nutritional and environmental consequence of pesticide use is their negative impact on honeybees. Pesticide exposure has been linked to declines in honeybees on farmland, threatening the pollination that's necessary for the production of many fruits and vegetables.³⁵

Antibiotics

Eighty percent of antibiotics sold in this country are used in animals raised for food, employed to prevent disease and promote growth.³⁶ The overuse of antibiotics in livestock is linked to antibiotic resistance in humans:^{37, 38} health care providers are seeing more and more infections that are difficult, if not impossible, to treat.³⁹ Concerns about antibiotic resistance caused by agricultural use have prompted the U.S. Food and Drug Administration to impose stricter regulations on this type of use.⁴⁰ Initial economic research suggests that eliminating antibiotics from animal production entirely would reduce costs for producers without reducing income.⁴¹

Working Together for Farms and Health

Both agriculture and nutrition stakeholders are working on strategies that, if pursued collaboratively, could address environmental concerns while ensuring access to healthy foods and economic viability for farmers. Two examples of starting points for collaboration are institutional purchasing and farmland preservation.



Driving demand through institutional procurement

Because large institutions – schools, hospitals, and governments agencies – purchase and serve large quantities of food, institutional procurement is considered one way to drive demand for certain types of food. The nutrition and obesity prevention communities see government procurement policies as an opportunity to improve the foods sold in government facilities, like parks, city halls, and hospitals.⁴² The sustainable agriculture community is using the same strategy to increase demand for locally sourced foods and food produced in environmentally sound ways.

Through procurement policies, the agriculture and nutrition communities can promote their goals in tandem. Hospitals are a logical starting point, given their purchasing power and role in health promotion. But other institutions, like schools, government agencies, and private employers, could join hospitals in creating a market for affordable, sustainably-produced food – and some already are.

Preserving farmland near urban areas

Farmers and other conservationists are working on local and state policies to protect farmland near urban centers from development,^{43,44} maintaining that keeping farms close to urban areas improves access to fresh foods, protects the environment, and benefits the local and national economies.⁴⁵ Public health professionals and others pushing to reduce dependence on cars have also been working to limit urban sprawl by promoting “smart growth” principles, which prioritize investment in existing communities and infrastructure over developing farmland or open space. From a health perspective, encouraging people to live closer to where they work and go to school will also make it easier for people to walk or bike where they need to go, rather than drive.⁴⁶

Smart growth principles have clear benefits for nutrition, overall health, farming, and the environment. Given the interdisciplinary nature of the smart growth movement, it could provide an existing framework for cross-sector conversations about farmland preservation.

Learn More

With a shared understanding of how agriculture and environmental health issues affect their communities, people working in both fields can strategize potential solutions that would benefit farmers, the environment, and health. Here are some ideas for starting the conversation:

Health stakeholders can...	Agriculture stakeholders can...
<ol style="list-style-type: none">1. Find your county or regional resource conservation district and learn more about local efforts to protect soil, water, and air. www.nacdnet.org/about/districts/directory/index.phtml2. Learn about efforts to preserve farmland and move toward more environmentally-sound production in your state and nationally. www.farmlandinfo.org/states www.sustainableagriculture.net/blog3. Contact the operations director of your local hospital system to learn if it has nutrition or sustainability standards for food served in its facilities.	<ol style="list-style-type: none">1. Find your county or regional resource conservation district and learn more about local efforts to protect soil, water, and air. www.nacdnet.org/about/districts/directory/index.phtml2. Find your county or town planning department’s website and see if smart growth principles and agriculture land preservation are incorporated into local land use plans.3. Contact the operations director of your local hospital system to learn if it has nutrition or sustainability standards for food served in its facilities.

Contact Us

The Healthy Farms, Healthy People Coalition convenes stakeholders from diverse sectors to discuss and collaborate on food and agriculture issues at the local, state, and federal level. Visit the coalition’s website for more background and up-to-date information on the issues discussed in this brief.

www.hfhpcalition.org

ChangeLab Solutions creates innovative law and policy solutions that transform neighborhoods, cities, and states. Contact Christine Fry (cfry@changelabsolutions.org) for strategies to improve access to nourishing food for everyone.

www.changelabsolutions.org

Defining Terms

Many terms are used to indicate the ways in which food is produced. These terms can seem very similar, but there are important distinctions.

Sustainable agriculture is defined in federal law as “an integrated system of plant and animal production practices having a site-specific application that will, over the long term:

- (A) satisfy human food and fiber needs;
- (B) enhance environmental quality and the natural resource base upon which the agriculture economy depends;
- (C) make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls;
- (D) sustain the economic viability of farm operations; and
- (E) enhance the quality of life for farmers and society as a whole.”⁴⁷

Other definitions incorporate more components, including considerations for human health and the safety and quality of life for farmworkers.⁴⁸

Conservation refers to farming practices that reduce the impact of agriculture on the environment by, for example, reducing soil erosion or protecting wildlife near farms. It may also refer to preservation of fragile landscapes, like wetlands, and retirement of farmland. The term is closely associated with federal programs that provide support and incentives to farmers who adopt conservation practices.^{49, 50}

Locally grown refers to the distance between the farm and the consumer. No consistent definition exists, although federal law now defines locally or regionally produced agricultural food product as any that is raised, produced, and distributed either “so that the total distance that the product is transported is less than 400 miles from the origin” or within the borders of a single state.⁵¹

Retailers, farmers' markets, and other food outlets often have their own definitions for local and regional foods, such as those produced within 100 miles of the consumer or purchased directly from the farmer.⁵²

Organic is defined by the USDA as agricultural practices that “foster cycling of resources, promote ecological balance, and conserve biodiversity.”⁵³ Federal law defines the specific practices that can be considered organic, including limiting use of certain pesticides and limiting soil erosion.⁵⁴ This definition determines whether foods can be certified or labeled as organic.⁵⁵ Some longtime organic growers are critical of the USDA's definition of organic and the food industry's influence over the federal organic standards. They believe the legal definition of organic has diverged from the sustainability goals of traditional organic production, such as by not requiring water conservation practices.⁵⁶

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