A Vision for "Good Food" for Iowa

Linking Community-Based Food Systems to Healthy Iowans and Healthy Communities

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An Ecological Approach to Food & Health

Have you thought about where food *really* comes from? Or how far food has traveled before it reaches your plate? Or the energy it takes to produce, process, package and transport food? Have you considered how agriculture policy affects the quality and cost of food or how it impacts the health of families and communities? How will the current food system determine the viability and stability of the food supply for future Iowa eaters?

Food - it is a basic human need and the quality and quantity of food available is essential to public health. Author and farmer Wendell Berry said "eating is an agricultural act" (1) and agriculture is central to Iowa's economy, culture and communities. Yet, eaters are often disengaged with who produces food and how the current industrial food system impacts health.

This disconnection to food production correlates with rising chronic disease trends and public health disparities. The health of Iowans is reflective of the health of the food system. Changes within our food system are needed to assure all Iowans have access to *good food* - food that is healthy, green, fair, affordable, and accessible (2).

Regardless of area of practice, public health practitioners are key partners when reconnecting eaters to farmers. A *good food system* is a community-based food system that focuses on the relationships between farmers, processors, distributors, retailers and eaters. There is an emphasis on locally-grown food, economic development, sustainability, resource conservation, health and social equity (3).

When local food production is integrated within a community, food becomes a community asset. As access to locally-grown food increases, food security improves, more fruits and vegetables are consumed and diet-related chronic diseases decline.

The foundation of a community-based food system is built on healthy and diverse natural resources. Science proves that healthy soil grows healthy food. Science also proves that eating healthy food nourishes healthy people and healthy people form healthy communities. Therefore, when the soil is unhealthy it becomes the source of disease in plants, animals and people.

The time is ripe for public health practitioners to commit to a vision of good food and support a community-based food system by cultivating a food landscape that supports the health, social and economic well-being of individuals, families, farms and communities.

Healthy soil and healthy food can be the next public health achievements!

Healthy soil grows healthy food.
Healthy food nourishes healthy people.
Healthy people form healthy communities.

Snapshot of the Iowa Food System

Regular access to fresh, healthy food is critical for all eaters to follow a healthy diet. Eaters who have limited access to fresh, healthy food are at greater risk of developing diet-related chronic diseases. This is particularly true in rural communities, low-resource populations and communities of color. As the price of healthy foods increases, it will be more challenging for all eaters, especially those with income restraints, to maintain a diet consistent with the Dietary Guidelines for Americans.

To gain a broader understanding of how an industrialized food system impacts public health in Iowa, each sector of the food system must be evaluated.

Agriculture

In 1950, there were approximately 206,000 farms on 34.8 million acres in Iowa. Today, there are less than 90,000 farms covering less than 32 million acres (4).

The diversity of Iowa agriculture products has decreased from 34 different commodities produced in 1920 to less than ten commodities produced for sale today. The top five agriculture commodities are corn, hogs, soybeans, cattle and dairy (5,6).

Iowa is a leader in corn and soybean production. The primary uses of these crops are to feed livestock and produce high fructose corn syrup and hydrogenated vegetable oil (7).

Rapid advances in genetic engineering has increased the number of crops that produce drugs, hormones and industrial chemicals. These non-food crops run the risk of cross-pollinating or co-mingling with food crops (8,9).

In 1929, Iowa produced vegetables on 52,915 acres. Today, less than 12,000 acres are devoted to vegetable production. In 1929, Iowa had 63,185 acres of fruit orchards. Today, less than 3,000 acres are devoted to fruit orchards (10).

Current Iowa agriculture does not meet the food and nutrition needs of Iowans. Iowa does not grow enough of the key foods for a healthy diet. If Iowans were to eat according to the Dietary Guidelines for Americans, significant acres of land would need to be converted from corn and soybean production to fruit, vegetable and dairy production (11).

The US has developed a greater reliance on other countries to produce food. In the last ten years, imports of fresh produce has doubled with most of the fresh produce imported from Central and South America (12).

The commoditization of agriculture has reduced the biodiversity of foods. The loss of biodiversity negatively affects the ecosystem and narrows the variety of food consumed by animals and humans. With more than 7,000 species of plants available for food, wheat, rice and corn account for 60% of the total caloric intake in the human diet (13). As the diversity of food crops decreases, rates of poor health increases (14).

Industrial agricultural crops do not develop to their full nutrient potential due to hybridization, depleted soil nutrients, plant spacing, and harvested prior to peak ripeness (15,16).

Each year in the US, about 25 million pounds of antibiotics are given to livestock for non-therapeutic purposes. This is eight times more than prescribed to humans to treat disease (17). Antibiotics are used with livestock that are raised in confinement facilities in an effort to control the spread of disease and to promote growth (18). The FDA states the use of antibiotics in livestock causes microbes to become resistant to drugs used to treat human illness, making some human illnesses harder to treat (19).

Poor fisheries management has depleted 75% of the world's fish stocks (20) and it is projected that all fisheries will be 90% depleted by 2050 (21). Commercial aquaculture poses environmental concerns such as non-therapeutic use of antibiotics, waste discharge, and high stocking densities.

> *"Proper soil fertility which builds appropriate levels of humus in the soil is the basis of the public health system of the future."*
>
> --Sir Albert Howard,
> *An Agricultural Testament*, 1939

Environmental Health & Natural Resources

More than 675 million pounds of pesticides were applied to crops in the US in 2002 (22). Human exposure to pesticides can come through direct exposure by farmers and farm workers, residue in food (on or in fruits and vegetables or in meat such as fish and livestock), contaminated drinking water or in the air. Because pesticides bioaccumulate higher up on the food chain, foods such as meat, milk, cheese and eggs increases exposure to pesticides as they accumulate in fat cells (23). The public health costs of pesticides are estimated to be over $1 billion per year (24).

Much of Iowa's soil has been lost to erosion. On average, seven tons of soil per acre is lost per year due to erosion (25). In some areas in Iowa as much as 30 tons of soil per acre is lost per year (26). When soil is lost, vital nutrients and microorganisms are lost resulting in plants with depressed nutrient profiles (27).

Iowa's agricultural runoff includes chemicals, pharmaceuticals and animal waste. The runoff contaminates streams and rivers and is linked to the dead zone in the Gulf of Mexico destroying fisheries, ecosystems and economies. Animal wastes may contain antibiotic-resistance bacteria, arsenic, dioxin, antibiotics and other volatile organic compounds (28,29).

More than 320 manure spills at livestock operations (confined animal feeding operations) were reported between 1992 and 2002 making Iowans greatly concerned about the quality of their drinking water (30,31).

Approximately 18% of all greenhouse gas emissions come from industrial livestock production (32).

Glacial aquifers are being quickly depleted as a result of extensive agriculture irrigation of feed crops for livestock. It is estimated that for each kilogram of grain-fed beef, it requires more than 100,000 liters of water (33).

With the increased demand for biofuels and ethanol production, Iowa has witnessed a competition between crops for food and crops for industrial energy production. The competition over cropland may have a multiplier affect and increase food prices and further perpetuate hunger and food insecurity among Iowans.

Processing and Transportation

Production, processing and retail markets are very concentrated. Four companies provide the majority of the commercially available seed in the world; three companies trade most of the grain that moves between countries; four companies control almost 85% of the beef packing industry; four companies control more than 66% of the pork packing market; and four companies control 80% of the soybean crushing business (34).

Few food processing facilities exist in Iowa. In 1940, there were 488 creameries in Iowa. In 1995, one creamery remained in operation (35). In 1965, there were more than 550 small meat processors in Iowa. Today, there are less than 200 (36).

In 1975, there were seven grocery store distribution warehouses in Iowa. In 2008, there are three (37).

Iowa's food system is heavily dependent on fossil fuels. Fresh produce purchased in Iowa has traveled an average of 1,500 miles, whereas locally-produced food travels an average of 56 miles (38).

Retailing and Consumption

In 2006, more than $947 billion was spent on food in the US. On average, households spend 10% of their income on food. This is compared to 20% of household income spent on food in 1950 (39,40).

Retailing and Consumption (continued)

Iowans spend more than $8 billion in food each year, of which 90% is imported into Iowa (41). The 440 supermarkets in Iowa reported more than $6.1 billion in sales in 2007 (42).

In 2006, more than 20,000 new food products were introduced in supermarkets with 54% being candy, gum, snacks and beverages (43).

Five supermarket chains reported almost $250 billion in grocery sales which accounted for 48% of all supermarket sales in the US (34). Wal-Mart is the largest food retailer in the world with $312 billion in revenue in 2006 (34).

Iowa has food deserts in which supermarkets have closed in urban and rural areas and convenience stores and fast food restaurants become the only outlets for food, thereby decreasing access to fresh, healthy food (44,45). Researchers have found the greater distance to travel for fresh, healthy food, the greater the rates of diet-related chronic diseases (46).

Iowa has almost 50,000 food manufacturing workers (47), many of whom are immigrants and work in meat and poultry packing plants (48).

In 2005, Iowans consumed an average of 3.5 servings of fruits or vegetables per day, 1.5 servings less than the recommended minimum. Only 19.5% of Iowans ate five or more servings of fruits and vegetables per day (49).

Iowans eat 25.9 million pounds of carrots each year and only 5% of these are grown in Iowa Only 30% of the 5.8 million pounds of green beans eaten every year by Iowans come from Iowa (50).

Americans are eating 523 more calories per day (51) and are consuming 1000% more refined sugars such as high fructose corn syrup since 1970 (52).

Refined sugars (e.g., high fructose corn syrup), grains and added fats are subsidized agricultural products which enables food manufacturers to produce inexpensive food. This creates an inverse relationship between the energy density of foods (calories per gram) and energy cost (dollars per calorie) resulting in diets based on refined grains, added sugars, and added fats that are cheaper than a diet based on fresh fruits and vegetables, lean meats and fish (53). Cheaper foods are often highly processed, calorie dense and nutrient deficient and contribute to diet-related chronic diseases.

Demand for local, sustainable, humanely-raised, fair-trade food production has increased with the organic food industry growing about 20% each year (54).

Food Systems and Energy Dependency

Iowa diets are heavily dependent on nonrenewable fossil fuels. For example, for every 100 calories of vegetables, 50 calories of fossil fuel energy is needed. Likewise, for every 100 calories of chicken requires 500 calories of fossil fuel energy. For every 100 calories of grain-fed beef, 1,600 calories of fossil fuel energy is needed (55,56).

Using a life cycle energy analysis, a diet high in processed and packaged foods requires much more energy for production than a fresh, locally-grown diet (57).

Health Status of Iowans

Two-thirds of Iowans are either overweight or obese (49). Almost a third of low-income Iowa children between two and five years of age are overweight or at-risk of being overweight (58).

Iowa's direct costs attributable to obesity are estimated to be more than $783 million, of which $198 million is paid by Medicaid and $165 million by Medicare (59).

Since 1996, there has been more than a 60% increase in the rate of diabetes in Iowa (49).

Researchers have predicted that because of the dramatic rise in obesity and related chronic diseases, especially among young people, Iowans may witness a decline in life expectancy by as much as five years over the next few decades. *Iowa children may have a shorter life spans than their parents* (60).

More than 11% of Iowa households do not have regular access to safe and nutritious food, and almost 4% of Iowa households were hungry or experienced very low food security (61). The economic cost of hunger in Iowa is estimated to be almost $1 billion (62).

According to a survey conducted by the Leopold Center for Sustainable Agriculture, 69% of respondents "somewhat" or "strongly" agreed that local food is better for their personal health than food that has traveled across the country (63).

Public Health Benefits of Community-Based Food Systems

Community-based food systems, or "good food" systems, are formed when agriculture, processing, distribution and consumption are cohesive processes that regenerate rather than degrade natural resources. They are socially just, accessible, affordable, develop local communities and economies and meet the food and nutrition needs of all eaters.

Healthy individuals, healthy families, healthy farms, healthy communities and healthy ecosystems are a result of vibrant community-based food systems.

Fresh, Flavorful Food. Iowans are interested in the health benefits, food safety and quality of local foods (64). Local foods are grown closer to the point of consumption providing a fresh, ripe and flavorful product. Because local produce is picked when ripe, there is a more robust flavor profile as compared to produce that was picked before it was ripe and traveled thousands of miles.

Decrease Chronic Disease. A diet rich in fruits and vegetables maximizes good health. Increased fruit and vegetable consumption substantially lowers the risk of developing obesity, diabetes, heart disease and could prevent at least 20% of all cancers (65), thereby reducing health care costs.

Beneficial Nutrients. Some studies show that organic farming produces crops with higher levels of beneficial nutrients such as antioxidants as compared to conventionally-grown crops (16). Pasture-raised, grass-fed beef contains less total fat than meat from grain-fed animals. Meat and milk from pasture-raised, grass-fed animals contain greater levels of beneficial fatty acids such as omega-3, alpha-linolenic acid and conjugated linoleic acid (66).

What are Community-Based Food Systems?

The CS Mott Group for Sustainable Food Systems at Michigan State University developed a community-based food systems model to demonstrate the interconnectedness of how food is produced, processed, transported, purchased, prepared and consumed. The inner ring, or food system sectors, influences the many outcomes identified in the outer ring.

The community-based food system model frames the "circle of connections" to enable public health practitioners to communicate the relationships between health, economic development, natural resources and social well-being. The model can be used to initiate a dialog with local policy makers and as a framework for creating a community food profile as a supplement to the Community Health Needs Assessment and Health Improvement Plan.

For more information go to www.mottgroup.msu.edu.

Tools for Public Health Practitioners

American Public Health Association Policy Statement on Sustainable Food Systems
The APHA has identified the urgency of transforming the current food system to promote environmental sustainability, improve nutritional health and ensure social justice. In a policy statement titled *Toward a Healthy, Sustainable Food System,* the APHA reviewed the evidence that links the current industrial food system to diet-related chronic disease and poor health, and identified key public health policies and opportunities for practitioners to support sustainable food systems. For more information go to www.apha.org/advocacy.

Counties and Local Food Systems-Ensuring Healthy Foods, Nurturing Healthy Children
Published by the National Association of Counties, Center for Sustainable Communities, this resource outlines how county governments can support local food systems. Four case studies are described including food policy councils, farm to school programs, infrastructure for local food production, and agriculture conservation easements. For more information go to www.naco.org.

Policy Guide on Community and Regional Food Planning
The American Planning Association identified seven specific policy initiatives that support the incorporation of food issues into community planning activities. The policies establish comprehensive food planning processes at the community and regional levels; specifically, local food policies that strengthen the economy, improve health, establish ecological sustainability, preserve food cultures, and are equitable and just. For more information go to www.planning.org/policyguides.

Cultivating Common Ground - Linking Health and Sustainable Agriculture
Sustainable agriculture practices should be viewed as a solution for improving public health. This report by the Prevention Institute suggests strategies to engage health professionals as advocates for sustainable agriculture. For more information go to www.preventioninstitute.org.

Food Without Thought - How US Farm Policy Contributes to Obesity
Published by the Institute for Agriculture and Trade Policy, this report the connection between agriculture policy and obesity. The report identifies food and farm policies that garner public health rewards while benefiting farmers and rural communities. For more information go to www.iatp.org.

Healthy Land, Healthy People: Building a Better Understanding of Sustainable Food Systems for Food and Nutrition Professionals
Developed by the American Dietetic Association, this primer provides tools for dietitians to incorporate sustainable food systems strategies into all areas of dietetic practice. For a copy of the primer, contact Angie Tagtow at angie.tagtow@mac.com.

Public Health Benefits of Community-Based Food Systems (continued)

Diverse Foods. Diverse foods are needed to meet the food, nutrition and health needs of all Iowa eaters. Diversifying farm products helps meet that demand and enables a producer to spread out their production and level of risk. Diversity in production systems and natural ecosystems increases the diversity of diets and the prospect of a sustainable future (67).

Strengthen Food Security. Linking fresh, local foods to nutrition assistance programs may decrease food insecurity and hunger and improve the health of low-income Iowans. With more than 120 farmers' markets in Iowa, Iowans have greater access to locally-grown fresh produce. This increases the supply of fresh, local food to low-income families who may have higher rates of diet-related chronic diseases. In the event conventional food distribution channels are disrupted in Iowa, local food sources should be incorporated into emergency preparedness plans. Community-based food systems strengthens individual, household and community food security.

Establish Relationships. Local foods enable Iowans to reconnect with where their food comes from and how it is produced by establishing personal relationships with farmers. Preparing and eating local foods at home provides opportunities for families to share quality time contributing to better connected families and communities.

Decrease Widespread Contamination. Local production, processing and distribution systems have shorter supply chains and offer less co-mingling of products as compared to a global industrial food system. This decreased vulnerability allows potential food contamination to be contained.

Increase Economic Viability and Stability. Iowans are seeking higher quality, fresh, healthy foods from farmers who implement responsible agricultural practices. This demand will result in greater financial opportunities for farmers. This revenue will be recirculated and reinvested within communities and will strengthen local economies (68). For example:

- If Iowans ate five servings of fruits and vegetables per day, and Iowa farmers supplied that produce for three months of the year, production and marketing for these additional crops would add $302.4 million and 4,094 jobs to the Iowa economy (69).
- For every dollar spent at an Iowa farmers' market generates $1.58 in additional sales. Every dollar earned by a vendor translates into $1.47 in income to others (70).
- For every 100 farmers' market jobs, 145 additional jobs are formed elsewhere in Iowa further strengthening rural economic development (70).

Higher and More Stable Farm Incomes. Iowans are more likely to purchase locally-grown foods if available (71). This demand, if matched by local production, may enhance the farmer's share of the final retail price as there are fewer exchanges between farmer and consumer. Stable farms are the cornerstone of rural Iowa.

Saves Farmland. Community-based food systems will slow the rapid loss of farmland to residential and commercial development. Iowa can establish sustainable communities centered around profitable local food production.

Preserves Natural Resources. As Sir Albert Howard said in 1939, "...soil is the basis of public health..." A community-based food system includes diversified farming systems. These systems regenerate natural resources, maintains soil nutrients, reduces dependence upon chemical pesticides and fertilizers, promotes crop diversity, decreases erosion and preserves water quality.

Maintains Ecological Balance. A community-based food system encourages diverse and seasonal eating which maintains ecological balance within a region.

Decrease Dependence on Nonrenewable Energy. Locally-produced and consumed products travel shorter distances. If Iowa grew and transported more produce intended for Iowa consumption, there would be an annual savings of 280,000 to 346,000 gallons of fuel and an annual reduction of 6.7 million to 7.9 million pounds of CO_2 emissions (72).

Foundation of a Vibrant Community. Iowa's food system is a reflection of the ecological, social, economic and public health stability and integrity of Iowa communities. These elements are essential for sustainability, not just for Iowa's food system, but also for the whole of society and the future of humanity (73). Healthy individuals, healthy families, healthy farms, healthy communities and healthy ecosystems are a result of vibrant community-based food systems.

"Good Food" Checklist for Public Health Practitioners

Healthy
- Dietary guidance is based on *good food* principles
- Food does not incur disease
- Health care costs attributed to diet-related diseases are minimal
- Nutritional value of food is maintained and food is free of artificial ingredients

Green
- Food is produced with no or low environmental impact
- Food is grown in a balanced ecosystems
- Non-renewable energy is minimal to produce and distribute food
- Wastes are recycled

Fair
- The food system does not exploit anyone or anything
- Farmers are economically self-sufficient
- Local food systems are economically vibrant

Affordable/Accessible
- All eaters have equal and regular access to fresh, safe, nutritious, seasonal and sustainably-produced food to maintain a healthy lifestyle
- Individual, household and community food security is maximized

Public health practitioners can be a guiding force in the establishment of a healthy, green, fair, affordable and accessible food system. Using this checklist, pick five "good food' strategies you will accomplish in the next few months and build from there. Start at home, you may be surprised to find you are doing some already!

I will...

- ☐ Learn more about the public health benefits of community-based food systems
- ☐ Choose a diet rich in locally-grown and seasonal foods
- ☐ Maintain a container or a backyard garden
- ☐ Support and promote community gardens and greenhouses
- ☐ Shop at the local farmers' market, food co-op or buy directly from local farms and road stands
- ☐ Support local food processors such as meat lockers and canning facilities
- ☐ Start a gardening program at a school, daycare, church, hospital, long-term care facility, or community center
- ☐ Purchase fair-trade, organic coffee, tea and chocolate
- ☐ Compost fruit and vegetable scraps
- ☐ Implement a reduce, reuse, recycle program in the home, workplace or community
- ☐ Use recycled disposables versus styrofoam or plastic products and select packaging options that are recyclable and environmentally friendly
- ☐ Complete a Master Gardener course
- ☐ Become a member of Practical Farmers of Iowa or Iowa Network for Community Agriculture
- ☐ Grow food for a community supported agriculture (CSA) farm or a farmers market
- ☐ Become an organic farmer
- ☐ Promote local, seasonal and sustainably-raised food to individuals, families, institutions and communities
- ☐ Promote *Buy Fresh Buy Local* marketing initiatives
- ☐ Promote agritourism and ecotourism in the community
- ☐ Serve local, seasonal and sustainably-raised food at meetings and conferences
- ☐ Include community-based food system tips in public health and nutrition education materials
- ☐ Educate clients about the health, social and environmental benefits of eating local, seasonal and sustainably-raised food
- ☐ Support schools, hospitals and long-term care facilities who choose to purchase directly from local farms and local distributors
- ☐ Review food safety issues related to local foods, regional distribution and transportation systems
- ☐ Host a farmers market at the health department
- ☐ Educate public health students about:
  - ☐ The link between community-based food systems and population health
  - ☐ The interconnectedness of food and agricultural policy with the availability of healthy food
  - ☐ Strategies to incorporate community-based food systems into public health practice
- ☐ Glean food from local farmers for food banks and pantries
- ☐ Work with food banks and pantries to regularly provide local, seasonal and sustainably-raised food
- ☐ Incorporate local, seasonal and sustainably-raised food into disaster and emergency preparedness plans
- ☐ Refer clients to the WIC or Senior Farmers' Market Nutrition Program
- ☐ Provide support and encouragement to mothers who are breastfeeding
- ☐ Express interest in eating local, seasonal and sustainably-raised food at restaurants
- ☐ Support businesses and restaurants that use local, seasonal and sustainably-raised food
- ☐ Request food stores to buy from local farmers and processors
- ☐ Encourage point-of-sale identification of local, seasonal and sustainably-raised food in markets
- ☐ Include the public health benefits of community-based food systems on the health department's website
- ☐ Write articles or blogs about the health benefits of community-based food systems
- ☐ Submit a letter to the editor or an op-ed about the benefits of locally-grown foods
- ☐ Add food systems concepts into presentations or media interviews
- ☐ Complete a community food profile as part of the next Community Health Needs Assessment and Healthy Improvement Plan
- ☐ Develop community-based food system strategies that support Public Health Performance Measures
- ☐ Establish a food policy council in the community
- ☐ Work with city councils, BOH, BOS, state and federal policy makers on establishing vibrant community-based food systems by:
  - ☐ Reducing barriers to obtaining healthy, green, fair, affordable and accessible foods
  - ☐ Increasing incentives for farmers to grow fruits and vegetables
  - ☐ Incorporating sustainable agriculture and other public health goals in the Farm Bill and Child Nutrition Reauthorization
  - ☐ Supporting federal food and nutrition programs (i.e., WIC, Food Stamps, WIC Farmers Market Nutrition Program, School Breakfast and Lunch Programs, Fruit and Vegetable Snack Program) that connect participants with fresh, locally-grown food
  - ☐ Supporting food production practices that reduce the use of synthetic chemicals and non-therapeutic antibiotics, conserve resources, and decrease work-related injuries
  - ☐ Increasing research funding for reviewing the health impacts of current agriculture policy and how community-based food systems can improve public health
  - ☐ Aligning Dietary Guidelines for Americans with foods that are healthy, green, fair, affordable and accessible
  - ☐ Establishing financial supports for new and transitioning small and mid-sized farms
  - ☐ Implementing and enforcing Country of Origin Labeling
  - ☐ Urging greater environmental standards and enforcement on industrial animal production and waste
  - ☐ Prohibiting outdoor production of genetically engineered crops to produce pharmaceuticals, industrial compounds and non-food ingredients
  - ☐ Expanding environmental health and public health tracking of food systems concerns

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