Local Food Systems for a Healthy Population

Nancy G. Creamer, Rebecca D. Dunning

Working together across disciplines and organizational boundaries, North Carolina is leading national efforts to foster environments that increase access to healthy foods and raise awareness about the complexity and benefits of local food systems.

We are all familiar with the rise in rates of diet-related diseases including diabetes, heart disease, and hypertension, as well as with the connection between these diseases and obesity. A 2012 study estimates that the state of North Carolina spends $4.6 billion annually on medical care arising from obesity-related illnesses [1]. The trend toward obesity is associated with an increasingly sedentary lifestyle combined with greater consumption of energy-rich but nutrient-poor processed foods, which have taken over a larger share of the diet from vegetables, fruits, and whole grains [2]. Public health researchers have acknowledged the influence of the food environment on health by measuring consumer access (based on distance to supermarkets and other sources of fresh fruits and vegetables) but only recently has attention turned to creating built environments that give individuals opportunities to engage more directly with all aspects of their food systems.

In this commentary we focus on efforts to create more opportunities for engagement with local food systems—from stewardship of the natural resources needed to produce healthy foods to distribution and consumption. Individuals and organizations with a variety of food-related concerns, such as improving health outcomes, enhancing food access for low-income consumers, involving youth in food systems, preserving farmland, supporting local farmers, and revitalizing rural economies, are collaborating to foster built environments that increase access to local foods and enhance individual and community health.

Local Food Systems: Connecting People to Food

Research indicates that when individuals play a more direct role in the food system—either by producing food, or by making decisions based on an awareness of where and how food has been grown—their consumption of fruits and vegetables increases. Participation in a community garden, for example, is associated with greater intake of fruits and vegetables. A population-based survey of 436 residents in Denver, Colorado, carried out in 2006 and 2007 found that 56% of those surveyed who participated in community gardens consumed the nationally recommended amount of fruits and vegetables (5 servings per day), compared with 37% of those who were home gardeners and 25% of those who were nongardeners [3]. Another example is a 2003 cross-sectional random telephone survey of 766 adults in Flint, Michigan, which found that adults with a household member who participated in a community garden were 3.5 times more likely to consume fruits and vegetables at least 5 times per day [4]. There are other benefits to community gardens as well. For example, the presence of community gardens is linked to increases in neighborhood property values and rates of home ownership [5], and gardens serve as a center for social activity and civic engagement [6].

School gardens play the same role in children’s lives that community gardens play in the lives of adults, serving as centers of social activity and places to reconnect with food and nature. Working in school gardens provides students with feelings of self-efficacy and enthusiasm for nature and growing food. The gardens also help reshape school culture, create a feeling of community, enhance science achievement, increase the intake of healthy foods, and engender parental support, enthusiasm, and involvement [7, 8]. In one study [9], sixth graders at 3 different elementary schools made up 2 treatment groups and a control group. Both treatment groups received 12 weeks of nutrition education, and one of the treatment groups also participated in gardening activities. Only those in the group that gardened had a statistically significant increase in their daily intake of fruits and vegetables, from 1.9 to 4.5 servings. Students in the gardening group also significantly increased their intake of vitamin A, vitamin C, and fiber, and enjoyed the benefits of outdoor physical activity.

Another way of engaging people more directly with food is to create options for buying food through channels that directly link food consumers with food producers. Farmer’s markets have become the public face of the local food movement, with the number of farmer’s markets in the United States growing from 2,000 in 1994 to over 10,000 today. The National Farm to School Network estimates that more than 16,000 schools across the nation now participate in school-based gardening programs, and 40 states have laws or policies related to school gardens [10].

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States growing by 150% over the past decade and 17% just between 2010 and 2011. There are now more than 7,000 farmer’s markets nationwide and more than 200 in North Carolina [10]. Access to farmer’s markets has been linked to greater consumption of fruits and vegetables. A longitudinal study in Charlotte, North Carolina, found that after several community environmental change strategies were implemented in an African American community, including the establishment of a community farmer’s market, the proportion of residents who met goals for daily fruit and vegetable consumption increased significantly [11]. State and local governments and private foundations can support farmer’s markets by providing opportunities and funding that support attractive locations along well-traveled routes, adequate parking facilities, shaded sales venues, plumbed water, and market managers who can persuade farmers and consumers to frequent the market and make it a self-sustaining part of the community. Farmer’s markets can also increase farm profitability and therefore farm viability, as producers are able to garner retail rather than wholesale prices for their products.

Consumer Supported Agriculture programs (CSAs) provide another opportunity for individuals to engage more directly in their local food systems. CSAs link consumers to farmers, who box seasonal items for pickup or delivery. Consumers pay at the beginning of the season for the weekly harvest. This payment system provides cash flow for farmers to purchase seed and other supplies, and it allows consumers to share risk with the farmer in case of weather disaster. CSAs promote transparency for consumers and market assurance for producers. In addition, recent research suggests that those who have CSA memberships have healthier diets than those who do not [12].

Farmer’s markets and CSAs also indirectly affect community health and economic sustainability by generating income for area businesses and fostering a culture of entrepreneurship. Numerous studies indicate that food that is produced and consumed locally creates more economic activity in an area than does comparable food produced and imported from a nonlocal source. Research sponsored by Sustainable Seattle found that dollars spent at restaurants using local food and grocers stocking local food resulted in more than twice the usual impact on the local economy. The study found that for every $100 spent at an average grocery store, $25 is respent locally, and for every $100 spent at a farmer’s market, $62 is respent locally [13]. Shoppers at farmer’s markets are also highly likely to spend at nearby businesses. An Oregon study of farmer’s markets found that between one-third and two-thirds of those shopping at a farmer’s market did additional shopping at neighboring businesses on the same trip. For every dollar they spent inside the farmer’s market, these shoppers spent another $0.60 outside it [14]. Farmer’s markets and CSAs foster entrepreneurship by serving as business incubators for new growers and by helping existing growers expand and diversify their operations [15, 16]. Farmer’s markets also serve as key catalysts in building local and regional food systems, because they make local food visible in public spaces on a regular basis [17].

Recent studies have made empirical links at the population level between the availability of locally produced food, measured by direct farm-to-consumer sales data, and health outcomes. This research has found significant inverse relationships between county-level direct food sales and rates of mortality, diabetes, and obesity [18]. One study estimated that for each $100-dollar increase in per capita direct farm sales, the county-level obesity rate declines by 0.90%-1.0% [19]. Moreover, local food often tastes better, because produce is picked when ripe and because plant varieties have been selected for taste rather than extended shelf-life and other attributes that favor long-distance shipping. Better taste encourages higher consumption.

Land use and business planning can constrain or encourage the successful development of local food systems. Zoning and other land use regulations have an impact on the viability of public markets and urban food production, including community gardens. Business licensing and fees affect the potential profitability of local food entrepreneurs. Property tax policies are also critical. For example, North Carolina’s present-use value rules [20] directs county governments to assess agricultural land for property tax purposes as farmland rather than as land for potential development. Currently the statute applies to farms growing fruits and vegetables only if they are more than 5 acres in size, thereby exposing smaller farms near urban areas to tax rates that often make it infeasible for owners to continue farming. County governments can also encourage food system growth through purchasing policies. Cabarrus County, for example, requires that at least 10% of all food served at county-catered events be food that was produced within North Carolina.

Collaborations for Healthy Communities

The Centers for Disease Control and Prevention identifies food system support as a strategy for increasing consumption of fruits and vegetables and promoting healthier eating [21]. In North Carolina, diverse organizations have been working together to improve individual and community health through the development of local food systems. In 2008, the Center for Environmental Farming Systems (CEFS), a partnership between North Carolina State University, North Carolina A&T State University, and the North Carolina Department of Agriculture and Consumer Services, launched a statewide initiative, Building a Local Food Economy in North Carolina, From Farm to Fork. The initiative engaged hundreds of partners across the state, including local and state government officials, health professionals, farmers and farmer organizations, food entrepreneurs, business leaders, and many others. The Farm to Fork initiative led to a set of “game changer” strategies, described
Appalachian Sustainable Agriculture Project: Growing Minds and Healthy Communities

Maggie Cramer

Appalachian Sustainable Agriculture Project (ASAP) has been working for a decade to fulfill its mission of helping local farms thrive, linking farmers to markets and supporters, and building healthy communities through connections to local food. Central to that work is its Local Food Campaign, which creates demand and promotes local food and farms through mechanisms such as its local food guide and annual farm tour. Another large part of that work revolves around the Growing Minds farm-to-school program, which builds the next generation of local food supporters and healthy citizens (more information available at http://growing-minds.org).

Farm-to-school is a place-based strategy to benefit children’s health and education that also provides market opportunities for local farms and health benefits for communities. Because of its positive impacts, the number of programs across the country has increased dramatically. In 2001, there were 6 pilot farm-to-school programs in the United States. Today, there are programs in all 50 states, and more than 9,000 schools participate.

ASAP’s farm-to-school program has 4 components: school gardens, local food cooking classes and demonstrations, farm field trips, and local food in school cafeterias. These components are based on the premise that students will make healthy eating choices such as choosing fruits and vegetables, if they have positive experiences with and positive relationships to the source of their food. Although the program has traditionally been associated with kindergarten through fifth grade, preschools are now embracing farm-to-school programming and are working to create healthy food environments for the youngest of our children.

Historically, it has been difficult to excite children about eating healthy food. Rather than promoting the healthy aspects of fruits and vegetables, ASAP’s farm-to-school approach focuses on providing tangible, hands-on, positive experiences with real, fresh food. Children will eat vegetables, but multiple introductions and associations need to be offered, as well as good modeling and easy access. That’s where gardens, cooking classes, field trips and local food in cafeterias come in.

If children grow vegetables in a garden, or meet the farmer who grew them, and cook the vegetables themselves, they are more likely to eat them—at school and at home. Local fruits and vegetables taste great and also have a story with which children can connect. When food comes with a relationship, the likelihood is increased that a child will not only eat it, but also enjoy it.

Recently, ASAP expanded its farm-to-school program to include training for university students studying to become teachers and dietitians. This university training program began as a pilot, called the Farm to School Education Project, in Jackson County, North Carolina, with funding from the Blue Cross and Blue Shield of North Carolina Foundation. The concept of working “upstream,” integrating farm-to-school programming into college courses of study in the 2009 summary publication From Farm to Fork: A Guide to Building North Carolina’s Sustainable Local Food Economy [22]. Now, 4 years later, nearly all of the “game changer” plans have been accomplished by CEFS and others, or are under way. CEFS and its partners worked to pass legislation establishing a North Carolina Sustainable Local Food Advisory Council, which provides a forum for policy work and collaborations that enhance the built environment of local food systems. With support from the Golden Leaf Foundation, CEFS in partnership with the North Carolina Cooperative Extension Service launched the statewide 10% Campaign to encourage North Carolina citizens and food businesses to commit 10% of their food budget to North Carolina-grown products. Because North Carolinians spend about $35 billion a year on food, this would make about $3.5 billion available in the local economy [23].

CEFS also partnered with the Cooperative Extension Service 4-H Program to bring FoodCorps to North Carolina. North Carolina is one of 10 selected inaugural states for the FoodCorps service program, which places young people 18 years of age or older in school garden settings to foster nutrition education, garden engagement, and links between local farms and school cafeterias. According to Tes Thraves of CEFS (July 2012), North Carolina currently has 6 service members, and since August of 2011 they have built or revitalized 73 school and community gardens, serving over 6,000 students.

Blue Cross and Blue Shield of North Carolina (BCBSNC) and the North Carolina Recreation and Park Association have joined forces to support the establishment of community gardens in all 100 North Carolina counties by the end of 2013. The BCBSNC Foundation is also supporting healthy food in schools by helping to fund FoodCorps and by providing grant support for the North Carolina Department of Agriculture and Consumer Services’ Farm to School Program.

Diverse partnerships create innovative, community-based solutions. A range of community partners in Goldsboro, North Carolina, collaborated to create Produce Ped’lers, a bicycle delivery program to deliver fresh produce from the city farmer’s market to areas of the community that have limited access to fresh, local produce. Community partners, including Dillard Academy Charter School, the Wayne County Health Department, the Wayne Food Initiative, the City of Goldsboro, Plum Tree Marketplace and CEFS, teamed
study in education and health science, is being put into practice for the first time. Professors, teachers, faculty, and students of Western Carolina University, as well as community members in the university’s town of Cullowhee, embraced this new idea and shared ASAP’s goal that education and nutrition students be able to incorporate farm-to-school methods from day 1 of their careers.

With continued funding from W.K. Kellogg Foundation, ASAP has established farm-to-school learning labs, sites where WCU students can observe and participate in the farm-to-school approach, close by the university in Jackson County Public Schools and Head Start centers. The consistent presence of that multicomponent approach—which connects classroom and cafeteria activities to create positive food environments and engages educators, parents, and community members—is making an impact.

ASAP program coordinator Anna Littman recently shared a spinach success story. While making fresh fruit and spinach smoothies with children in kindergarten through fifth grade classrooms, one Western Carolina University student admitted that she was hesitant to bite into the fresh, raw spinach the way elementary students had done at the outset of the class. However, she modeled the healthy eating choice and ended up loving the spinach. As this story illustrates, the farm-to-school program creates a healthy food environment not only in the school itself but also in the community at large. Once positively affected, those involved take the experience beyond the school’s walls.

Another component of ASAP’s work deals with access to food away from the school cafeteria. To improve access to fresh, healthy, affordable food that is grown locally, ASAP has implemented an electronic payments system at Asheville City Market, a farmers’ tailgate market run by ASAP in downtown Asheville. The system allows shoppers to pay by swiping debit or credit cards or cards issued through the Supplemental Nutrition Assistance Program, commonly referred to as food stamp cards. Since the program began, Asheville City Market has led the state in food stamp payments at farmers markets, and ASAP has partnered with more than 50 community organizations that work with low-income residents to spread the word about the availability of this payment method. ASAP also hosts a Kids’ Corner Market at Asheville City Market, providing fun children’s activities relating to local food and the farmers’ market.

Whether at school or home, parents want healthy food for their children and for themselves. ASAP believes that people respond to positive messaging and positive associations with healthy food and with the local food community, and much of its work is built around this belief. ASAP is changing the way Western North Carolinians interact with the food environment in hopes of achieving their vision of strong farms, thriving local food economies, and healthy communities where farming is valued as central to our heritage and our future (more information is available at http://www.asapconnections.org).

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