

Farm to Institution: Creating Access to Healthy Local and Regional Foods^{1,2}

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ABSTRACT

Farm to Institution (FTI) programs are one approach to align food service operations with health and sustainability guidelines, such as those recently developed by the U.S. Department of Health and Human Services and General Services Administration. Programs and policies that support sourcing local and regional foods for schools, hospitals, faith-based organizations, and worksites may benefit institutional customers and their families, farmers, the local community, and the economy. Different models of FTI programs exist. On-site farmer's markets at institutions have been promoted on federal government property, healthcare facilities, and private institutions nationwide. Farm to School programs focus on connecting schools with local agricultural production with the goal of improving school meals and increasing intake of fruits and vegetables in children. Sourcing food from local farms presents a number of challenges including cost and availability of local products, food safety, and liability considerations and lack of skilled labor for food preparation. Institutions utilize multiple strategies to address these barriers, and local, state, and federal policies can help facilitate FTI approaches. FTI enables the purchasing power of institutions to contribute to regional and local food systems, thus potentially affecting social, economic, and ecological systems. Local and state food policy councils can assist in bringing stakeholders together to inform this process. Rigorous research and evaluation is needed to determine and document best practices and substantiate links between FTI and multiple outcomes. Nutritionists, public health practitioners, and researchers can help communities work with institutions to develop, implement, and evaluate programs and policies supporting FTI. *Adv. Nutr.* 3: 343–349, 2012.

Introduction

The intent of institutional food service guidance, such as the HHS⁶ (U.S. Department of Health and Human Services) and GSA (General Services Administration) Health and Sustainability Guidelines for Federal Concessions and Vending Operations, is to assist staff, management, and vendors in aligning the institutional food environment with healthier

and more sustainable choices and practices (1). One mechanism by which institutions can provide healthy food choices to employees and patrons is to source more local and regional foods through FTI (Farm to Institution) activities. FTI programs and policies facilitate access to fresh produce and other products from regional farms to institutions such as worksites, schools, universities and colleges, hospitals, prisons, parks and museums, and faith-based organizations. Comprehensive FTI programs also incorporate education about local foods and producers, cooking, nutrition, agriculture, and the food system by providing information at the point of service in the cafeteria and through other communication channels in the institutional setting. One popular and specialized form of FTI, FTS (Farm to School) programs, includes activities providing students with experiential learning opportunities such as school gardens, salad bars, student farm visits and school visits from farmers, and on-site nutrition and culinary education (2).

FTI programs provide fresh, high-quality, and local foods to people studying, recovering, visiting, or working in public

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⁶Abbreviations used: AMS, Agricultural Marketing Service; FTC, Farm to College; FTI, Farm to Institution; FTS, Farm to School; GAP, Good Agricultural Practices; GHP, Good Handling Practices; GSA, General Services Administration; HHS, U.S. Department of Health and Human Services; KYF2, Know Your Farmer, Know Your Food.

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and private institutions. These programs primarily consist of purchasing locally and regionally produced farm products for use in cafeterias, salad bars, on-site restaurants, stores or markets, meetings and conferences, catering services, and special events. Additional activities may include direct sales to customers at on-site farmers markets, produce stands, or community-supported agriculture produce box deliveries. Limited evidence suggests that the convenience of being able to purchase locally grown food at the workplace can motivate participants to increase purchases of locally grown produce at less convenient venues, such as farmers markets outside the workplace (3,4). Well-developed programs may include nutrition and food system education through visits to facilities by farmers, field trips to farms, taste testing, cooking classes, cafeteria promotional materials, and other mechanisms, usually with an interactive format. The goal of this set of FTI activities is to provide a tangible connection between food and its production and, in turn, highlight the freshness and quality of local food as a means of stimulating consumption of healthy foods, including fruits and vegetables (5). In fact, consumer research data supports the assertion that consumers who buy locally produced food do so because they perceive it is fresher, tastes better, and supports their community and local farmers, among other reasons (6,7).

This paper summarizes presentations given at the Experimental Biology 2011 Conference in Washington, DC in the symposium entitled “Improving the Food Environment at Worksites and Schools through Sustainable and Healthy Food Procurement and Farm to Institution Strategies.” Summaries of presentations given on worksite farmers markets on federal property and on FTS programs and policies needed to support and develop them are provided.

Farmers markets on federal properties

An increasing number of institutions have on-site farmers markets providing convenient access to fruits and vegetables and other farm goods. Institutional hosting of a market can reduce the market’s operational costs by providing a location at low or no cost and provide increased access to clientele while stimulating new partnerships, supporting their missions and programs, and reinforcing their image and influence (8). Federal properties are particularly advantageous sites for farmers markets, because their locations are often in central business districts and there is a potential customer base from federal workers, visitors, and local residents. Farmers markets on federal property can confer a range of benefits to the site and surrounding area by providing easy and convenient access to fresh, locally grown produce and a supplemental source of farm income for local growers (9). Farmers markets in general can revitalize a neighborhood, strengthen the community, and boost foot traffic flow in the area (8–10).

At least 9 markets are currently in operation at U.S. Federal buildings, with more proposed (9). The USDA supports farmers markets through a number of programs managed by different agencies, particularly the Agricultural Marketing

AMS, and federal properties are operated by the GSA. The GSA Urban Development/Good Neighbor Program promotes farmers markets on federal property and, with assistance from Project for Public Spaces, provides support for development, design, and administrative approval (9). AMS offers direct technical guidance to farmers markets operating on federal property, including those at the FDA, U.S. Department of Transportation, HHS, the Smithsonian Institutions’ National Museum of the American Indian, the Census Bureau, and the USDA’s field office in Beltsville, Maryland.

Since 1996, the USDA has been hosting a weekly farmers market on a parking lot of the department’s main building in Washington, DC. The USDA Farmers Market started with only a few vendors on select weekdays during the summer. It has since grown to 14 vendors attracting up to 2000 people per market day during the summer season. The market moves inside during the cold months and recently extended its season to become a full year-round market. Primary shoppers are USDA employees, but because the outdoor seasonal market is located adjacent to the National Mall and a Metro stop, tourists and other casual visitors are among the shopping base.

In September 2010, USDA staff conducted a “dot survey” of market customers to determine their shopping patterns (11). In a dot survey, questions are posted publically on a poster and participants can place colored sticky labels or dots next to their responses on the board. Over 500 customers participated over 2 market days and the results indicated that more than one-half of market shoppers spent between \$10 and \$20 each market visit. Customers cited freshness and taste, supporting local agriculture, and convenience as the top 3 reasons for shopping at the market. These 3 reasons are the same top reasons why customers report shopping at farmers markets nationwide, according to the 2006 USDA National Farmers Market Survey (12). The dot survey also found that 57% of customers agreed or strongly agreed that they increased their consumption of fresh fruits and vegetables as a result of shopping at the farmers market.

FTS programs

FTS programs link local and regional farmers to schools by working with school districts to source fresh, locally grown food for schools meals. An additional goal of FTS programs is to create food system literacy in students that can encourage them to develop healthy lifestyle patterns. For example, components of FTS programs can include not only local procurement of food by the school district but also campus gardens, salad bars, farm tours, cooking classes, composting, and many other activities. FTS programs are a mechanism to improve the quality of school meals, enhance effectiveness of nutrition education, and provide opportunities for eco-literacy training of students through experiential learning in the classroom and outdoors (13,14). Physical activity is also promoted through gardening and other activities, as is a general appreciation of the concept of environmental sustainability among children. The stakeholders who benefit

from FTS programs are not only students but also school food service personnel, farmers, parents, teachers, and the community at large (14).

Currently, >2300 FTS programs are estimated to operate in all 50 states, up from only 2 in 1996 (2); however, few studies have documented the impact of FTS programs on the diet quality of school children. A review of mainly non-peer-reviewed FTS program evaluations that assessed student dietary behavior found that nearly all programs (10 of 11) reported increased purchase or intake of fruits and vegetables by students following the incorporation of farm produce into school salad bars, meal selections, or class-based education, which was often implemented in combination with nutrition education curricula (5,13). Even though these programs target students during school hours, 4 of the 5 programs that examined children's dietary behavior outside of school found students increased fruit and vegetable consumption even when not at school (5).

Supporting FTI

A number of different challenges can hinder institutional purchasing of local foods and the growth of FTI activities. Primary issues include sourcing products, cost and seasonality of local products, food safety and liability, and lack of skilled labor for food preparation. Strategies and policies for addressing these issues will be briefly reviewed. Because there are multiple definitions of the terms "local" and "regional" in relation to the food system, the functional applications are left to individual programs to define (15).

Sourcing products

Several different issues can interfere with effective sourcing of local products, including insufficient product availability from local producers and communication barriers between farmers and institutions (16–18). In addition, in the US there is a general lack of infrastructure for aggregation, distribution, and processing from small- and mid-size producers, who often do not have sufficient capital to purchase their own trucks, refrigeration units, or storage space (16,19). One solution promoted by the USDA is the development of regional food hubs, which are centralized facilities designed to aggregate, store, process, distribute, and market locally or regionally produced food products (20). Farmer cooperatives may also facilitate this process by aggregating products, simplifying delivery systems, and providing enhanced liability coverage (21). Internet Web-based solutions are also available as a means to link farmers with institutions. MarketMaker is a national partnership of land grant institutions and state departments of agriculture dedicated to the development of a comprehensive interactive database that can be used within a state to link producers with purchasers (22). In Oregon, another online marketplace called FoodHub has been developed by EcoTrust to connect wholesale buyers and sellers of Pacific Northwest regionally grown food (23). In many states, local and regional FTS advocates hold workshops and training sessions for both the farming and school foodservice communities in order to understand

the needs and expectations of each other in supplier/purchasing relationships.

Cost and seasonality of local product

Sourcing regional foods produced by small- to mid-size producers typically requires institutions to change how they develop menu plans and prepare meals. One common concern for institutions is the cost of foods sourced locally compared to foods from conventional sources. Because many factors account for cost of food, it is difficult to make direct cost comparisons between food from conventional distribution compared to short-supply chain sources, and quantitative data are limited. A few studies that have been conducted comparing prices to consumers between produce purchased at farmers' markets and grocery stores suggest that prices at farmers' markets are competitive and at times even lower (24–26). When making such comparisons of costs between local and conventionally purchased products, quality factors may also be considered, including taste, freshness, nutritional quality, and other factors related to utility and value in food service. Some institutions may be willing to absorb some amount of increased costs considering all factors, but other strategies may also be utilized to control costs of local food purchasing (17,18). Different approaches to control costs, including sourcing using food hubs, aggregators, and Web-based tools, and buying produce in season can assist food service operations to produce standardized meals at lower costs (27).

Food service professionals who purchase primarily through conventional distributors often have year-round availability to specific ingredient items due to transportation from long distances in the US and/or importation of fruits and vegetables from overseas. This allows for a standardization of menus customary in many institutions. However, many chefs prefer to use seasonal foods and plan meals around the availability of fresh produce. The issue of seasonal variability in fresh produce availability is potentially more problematic for schools, which are generally not in session during the summer months when many fresh fruits and vegetables are harvested (27). Schools have compensated for this limitation by working with farmers to grow foods that can be harvested during the school year and by purchasing bulk products in season to freeze, can, or lightly process into prepared dishes and baked goods. This approach may necessitate working with food hubs or aggregators to acquire product from multiple suppliers when supply from individual producers is low early and late in the season. Additionally, institutions may need to acquire supplementary equipment, such as large freezers and food processors for storage (27).

Food safety concerns and liability

Providing safe food, with respect to pathogenic microorganisms, is one of the highest priorities for institutions that prepare and/or deliver food to large numbers of people. Many institutions accustomed to highly industrialized supply chains and distribution systems have increased concerns

about food safety and product liability coverage when buying from local, regional, and especially small to mid-size producers (28). There is no evidence to demonstrate that food from local sources is inherently more or less safe than conventionally distributed food. Local food advocates argue that the short supply chain of foods purchased from local sources offers fewer opportunities for contamination in storage, aggregation of product, and transportation. When purchasing agents are buying directly from producers or processors, they can conduct their own due diligence of facilities and operations by visiting farms and meeting growers (28,29). The recently passed Food Safety Modernization Act included an amendment that outlines the application of the law for small and medium-scale producers and processing facilities that market their products directly to consumers, restaurants, or grocery stores located in the same state where the firm sold the food or within 275 miles of the firm (30). Food safety training programs for these farmers and processors are also specified.

Many wholesale produce buyers require farmers and packers to comply with one or more food safety protocols and/or carry liability insurance to protect against economic loss from food-borne illness attributed to the farmer's product. One such set of guidelines are the voluntary GAP (Good Agricultural Practices) and GHP (Good Handling Practices) defined by the FDA and USDA in 1998 (28). The purpose of GAP/GHP guidelines and principles is to give guidance in implementing best management practices that will help to reduce the risks of microbial contamination during growing, harvesting, and packing of fresh fruits and vegetables. The costs of adopting all the GAP/GHP standards can be prohibitive for some small, mid-scale, and organic producers, however, effectively eliminating them from some markets. Similarly, some institutions require such high liability insurance (up to \$5 million in some cases) that some producers cannot afford the premiums and again lose access to the institutional market. In many instances, institutions work together with farmers and producers so that food safety can be assured but still allow purchasing outside the conventional distribution system. Some strategies include requiring third party inspections or simply GAP/GHP training rather than certification. Some food service operators work with local extension agents and other agricultural professionals to make sure growers and processors have the information and tools that they need to ensure safe food production. Other farmers form cooperatives that can carry a single insurance policy to distribute the cost (31). These approaches reduce food safety risks and assist in liability coverage while allowing small and limited-resource producers to access the institutional food service market.

Labor for food preparation

Some institutional food service staff is accustomed to serving primarily heat-and-serve products that require minimal labor. Increased use of fresh foods implies more scratch cooking, and food service staff may require additional training on how to prepare and cook fresh whole foods. Professional

development opportunities for school nutrition services staff is recommended, particularly when facilities allow for scratch cooking (32). Such training could include culinary training programs for food service workers, sometimes called "culinary boot camps," which are being offered in a number of locations throughout the US to train regular food service employees (primarily school district staff) to cook dishes from scratch (33). Many schools partner with local chefs, such as those participating in the Chefs Move to Schools initiative, to provide additional training to school food service staff and assist in recipe development (27). In cases where staff availability or facilities for food preparation is limited, distributors that supply produce can be asked to provide food in a ready-to-use use form, e.g., washed and cut up and ready to serve.

Policies to aid FTI activities

Policies that may assist institutions in implementing FTI programs are being devised at state, local, and federal levels. Local and state policies around food procurement can be facilitated through food policy councils. Local and state food policy councils bring together stakeholders from diverse food-related sectors to examine how the local and state food system is operating and develop recommendations on how to improve it; as part of this mission, they can help influence institutional procurement policies (34). Food policy councils can be effective at persuading government agencies to purchase from local farmers by educating officials and the public, shaping public policy, improving coordination between existing programs, and starting new programs. For example, the Michigan Food Policy Council, established by Governor Jennifer M. Granholm in June 2005, developed a set of policy recommendations for the Governor that promote institutional and public purchasing of Michigan grown and processed foods, improve access to fresh and healthy foods, expand food-related businesses and jobs, and enhance agricultural viability within Michigan (35). Specific recommendations were made for increasing the amount of Michigan foods purchased for schools and the Michigan Department of Corrections.

Local. Over the last decade, numerous institutions have adopted internal guidelines to inform purchasing decisions, including requirements for local food sourcing (36). Examples where guidelines have been implemented include hospitals, universities and colleges, and K-12 schools. In the healthcare field, over 350 hospitals around the country have signed the Healthy Food in Health Care Pledge, sponsored by The Health Care Without Harm campaign, a global coalition of medical, environmental, and public health organizations working to promote sustainable healthcare practices (37). These hospitals pledge to implement policies and programs that demonstrate a commitment to "first, do no harm and treating food and its production and distribution as preventive medicine that protects the health of patients, staff, and communities" (37). Specifically, hospitals that take the pledge promise to increase accessibility to healthier food choices, adopt sustainable food procurement,

and work with local farmers, community-based organizations, and food suppliers to increase the availability of fresh, locally produced food. Furthermore, vendors and food management companies are encouraged to supply food that meets standards for sustainable and fair production, to communicate with group purchasing organizations to better identify source and production practices for products, to develop a program to promote and source directly from producers and processors that meet certain ethical standards, and to educate and communicate to colleagues, patients, and communities about nutritious, socially just, and ecologically sustainable healthy food practices and procedures.

In the higher education setting, numerous universities and colleges support sustainable food projects or Farm to College (FTC) programs. Importantly, these programs set purchasing guidelines and goals for colleges and universities as well as promote dining service innovations in menu planning and kitchen operations. In addition, they bring together students, faculty, staff, and food service to formulate new academic programs (including courses, concentrations, and internships), support direct marketing opportunities on campuses with farmers' markets and community supported agriculture opportunities, and provide experiential learning opportunities in community gardens and campus farms (38). Overall, FTC programs are instrumental in connecting the university food setting with regional farmers and food production (39,40). A national organization of students, The Real Food Challenge, is advocating for the expansion of FTC programs to all universities and colleges in the US (41).

In the K-12 school environment, local school wellness policies can have a component that addresses sourcing of food. As required by law in the 2004 reauthorization of Child Nutrition Programs and recently expanded in the Healthy, Hunger-Free Kids Act of 2010, every local educational agency participating in federal school meal programs must have a local school wellness policy in place that provides goals for nutrition education, physical activity, and other school-based activities that promote wellness and also provides nutrition guidelines for all foods sold on campus (42,43). Use of FTS programs for creative ways to expand nutrition education and to increase servings of fresh and minimally processed foods can be encouraged in the local school wellness policy. A comprehensive wellness policy can be designed to support local purchasing and integrate experiential education activities, such as gardening, cooking demonstrations, or farm and farmer's market tours, into existing curricula at all grade levels. Additionally, nutrition education messages from the classroom can be modeled in the cafeteria and across campus by marketing and promoting locally produced foods to students via taste tests, inclusion in school meals, hosting farmers in the cafeteria, and developing creative campus "farm-raisers" for fundraising based on healthy, locally sourced food items. The Center for Eco-literacy has developed a Model Wellness Policy Guide containing language and recommendations to help schools and districts develop, monitor, and update comprehensive

wellness policies (44). The guide contains model language that supports the inclusion of FTS-related activities into wellness policies.

In Oregon, Portland Public Schools' wellness policy includes strong FTS components, including a Harvest of the Month program and a commitment to school gardens (45). This is a result of the Wellness Directive adopted by the district's Board of Directors, stating "The knowledge of food—how it is grown, who grows it, how it is prepared, its connection to traditions, sustainability and its influence in shaping society—is integral to a comprehensive education" (46). In Washington, DC, the district's wellness policy incorporates experiential learning, including farm visits and school gardens, as well as a goal to "increase the use of locally-grown, locally-processed, and unprocessed foods from growers engaged in sustainable agriculture practices" (47).

State. Many states also have long-standing marketing programs to support state-grown products and several have instituted FTI legislation that support local purchasing in state institutions. For example, California and Massachusetts are in the process of establishing comprehensive guidelines for food purchased and sold in state buildings; however, Massachusetts' guidelines do not promote local food purchasing (48). California recently introduced Assembly Bill 727, based on the HHS/GSA Guidelines for Federal Concession and Vending Operations, which requires food sold in state buildings to meet minimum nutritional requirements and sustainable purchasing practices, including local purchasing (49). Missouri House Bill 344 passed in 2011 creates a Farm to Table Advisory Board to help facilitate purchasing of locally grown products into state institutions and schools (50).

A number of states have enacted legislation specifically to support FTS activities; a summary of state legislation can be found on the National Farm to School Network site (51). Goals of state legislation to support FTS vary from state to state but can include dedicating staff from state agencies to facilitate FTS activities, creating a task force or council, implementing pilot programs, appropriating state budget dollars or creating a state fund for FTS programs, offering promotional events or programs, creating a directory or database to connect producers with schools, and sponsoring resolutions in support of FTS programs. For example, Oregon recently passed HB 2800, a bill that allocates \$19.6 million in state funds (equivalent to 15 cents/lunch and 7 cents/breakfast) to reimburse schools for purchasing Oregon food products and provides an additional \$3 million to competitive education grants to support food, garden, and agriculture activities in up to 150 school teaching gardens each fiscal year (52). Several states including North Dakota (53) and Georgia (54) have passed resolutions or proclamations establishing specific FTS days or weeks.

Federal. A number of federal programs support FTI activities. The USDA has consolidated information sharing for those activities supported by USDA in the KYF2 (Know Your Farmer, Know Your Food) initiative (55). The mission

of KYF2 is to strengthen the connection between farmers and consumers and to support local and regional food systems. KYF2 integrates programs and policies that stimulate food- and agriculturally based community economic development, foster new opportunities for farmers and ranchers, promote locally and regionally produced and processed foods, cultivate healthy eating habits and educate and empower consumers, expand access to affordable fresh and local food, and demonstrate the connection between food, agriculture, community, and the environment. The KYF2 Web site provides information on grants, loans, and support as well as tools and resources to support this mission. Various federal funding mechanisms have been used to fund FTI activities, including Communities Putting Prevention to Work (CDC), Specialty Crop Block Grant Program (USDA), and Community Food Projects Competitive Grants Program (USDA). The HHS/GSA Health and Sustainability Guidelines for Federal Concessions and Vending Operations also recommend local purchasing (1).

There are several federal initiatives that specifically promote local purchasing of food by schools. A provision of the 2008 Farm Bill encourages institutions operating Child Nutrition Programs to purchase unprocessed locally grown and locally raised agricultural products, thus allowing geographic preference in food procurement for the National School Lunch Program, the School Breakfast Program, the Fresh Fruit and Vegetable Program, the Special Milk Program, the Child and Adult Care Food Program, and the Summer Food Service Program, as well as purchases made for these programs by the Department of Defense Fresh Program (56). In addition, the Healthy, Hunger-Free Kids Act of 2010 (section 243) established a FTS competitive grant and technical assistance program to be administered by USDA to help promote the use of local foods from small and medium-sized farms in schools (43).

Conclusions

Institutions represent considerable purchasing power. Food service guidelines can be formulated by institutions with the network of stakeholders in mind, from producer to consumer. As institutions increase regional food sourcing, social, economic, and ecological benefits may arise. These can include improved regional agricultural profitability, an increase in the associated employment in the food production sector, and greater local availability of healthy and sustainably produced foods (19).

Research and evaluation are necessary to continue to build the evidence base and best practices linking institutional purchasing of local foods to outcomes ranging from consumer health to regional economy development and job creation (13). Given the interdependence of the stakeholders in the local food system, these evaluation efforts should also assess the relationships between individual stakeholders, as has recently been done in the FTS system (17,57). Emerging evaluation results are anticipated within the next several years from federally funded programs, such as the CDC's Communities Putting Prevention to

Work and the USDA's People's Garden School Pilot Program. In the meantime, many communities are continuing to work with institutions to develop programs for local and regional food purchasing with the goal of making healthy choices the easier choices for their employees and patrons.

Acknowledgments

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