Journal of Agriculture, Food Systems, and Community Development
ISSN: 2152-0801 online
www.AgDevJournal.com

Increasing local procurement in farm-to-school programs: An exploratory investigation

Erin Roche,[a*] David Conner,[b] and Jane Kolodinsky [b]
University of Vermont

Submitted December 11, 2014 / Revised March 19 and 23, 2015 / Accepted March 23, 2015 / Published online March 30, 2015

Citation: Roche, E., Conner, D., & Kolodinsky, J. (2015). Increasing local procurement in farm-to-school programs: An exploratory investigation. *Journal of Agriculture, Food Systems, and Community Development, 5*(2), 81–90. http://dx.doi.org/10.5304/jafscd.2015.052.019

Abstract

Farm-to-school (FTS) programs have become more widely adopted in recent years because of their potential to mitigate childhood obesity, as well as their economic development and educational benefits. As a result of FTS programs' diverse purposes and grassroots nature, the types of activities they encompass vary considerably from program to program and no systematic measures of impact have emerged. Furthermore, FTS programs launched in colder climate regions may be particularly challenging due to a shorter growing season and narrower range and volume of available products. In this exploratory study, we set out to learn more about the factors that lead to increased procurement of local food in FTS programs. To do this we analyze the results of three recent studies of the impact of FTS programming on school purchases of locally produced foods in Vermont, conducted in 2012 and 2013. The results of a census of FTS programs in Vermont and an evaluation of the Fresh Fruit and Vegetable Snacks program indicate that price subsidies do not necessarily increase local food procurement in Vermont, while a study of FTS programs working with food hubs in Vermont suggests that social capital in the form of viable partnerships and relationship-building holds promise for increasing the procurement of local food. Implications for FTS programming and future research are discussed.

Keywords

farm to school, local food procurement, impact analysis, best practices, social capital

[a*] *Corresponding author:* Erin Roche, Center for Rural Studies, University of Vermont; 206 Morrill Hall, 146 University Place; Burlington, Vermont 05405 USA; +1-802-656-1936; Eroche1@uvm.edu

[b] University of Vermont; David.Conner@uvm.edu

[b] University of Vermont; Jkolodin@uvm.edu

Introduction and Background

Farm-to-school (FTS) programs gained attention during the 1990s and have flourished since then, with FTS programming in place at nearly half the schools in the U.S., or over 40,000 schools (National Farm to School Network [NFSN], 2015). This remarkable growth is due in part to the belief that FTS programs may help stem the increase in childhood obesity (Green, Sim & Breiner, Committee on Evaluating Progress of Obesity Prevention Efforts, Food and Nutrition Board, & Institute of Medicine, 2013; Keener, Goodman, Lowry, Zaro, & Kettel Khan, 2009; Powers, Berlin, Buckwalter, Kolodinsky, & Roche, 2011; Roche, Conner, Kolodinsky, Buckwalter, Berlin, & Powers, 2012; Turner & Chaloupka, 2010; U.S. Department of Agriculture [USDA], n.d.a; White House Task Force on Childhood Obesity, 2010). Yet because these programs have evolved independently and organically, there has been no uniform definition of FTS programming. FTS programs are often characterized by activities that link farmers and schools that serve kindergarten through twelfth grade (K–12) with the goals of contributing to nutritious meals and education for youth, along with increasing opportunities for farmers who market locally.

As a result of FTS programs' diverse purposes and grassroots nature, the types of activities they encompass vary considerably from program to program. Despite this diversity, most FTS programs serve locally produced foods in the school cafeteria (Kloppenburg & Hassanein, 2006; Schafft, Hinrichs & Bloom, 2010), often highlighting fresh or processed fruits and vegetables (e.g., kale, squash, tomato sauce), dairy and meat products, eggs, beans, and other value-added items (e.g., pesto, granola, cider). In addition to locally sourced food served in the cafeteria, components of FTS activities common to many programs include taste tests, lessons on healthful food choices, farm visits, school gardens, recycling activities, and composting systems. Programming aimed directly at children can have many impacts, from "close in" impacts such as enhancing knowledge and skills of participants, to "far out" impacts such as improving public health (Powers et al., 2011; Roche et al., 2012).

Despite methodological challenges, many evaluations have reported evidence of positive outcomes across a broad range of issues as a result of FTS programming. Some researchers argue that FTS can address issues of hunger and food security (Bendfeldt, Walker, Bunn, Martin, Barrow, 2011; Campbell, 2004). Furthermore, although often limited to self-reported consumption, students in school districts across the U.S. have described a *preference* for fruits or vegetables after participating in FTS programs (Bontrager Yoder, Liebhart, McCarty, Meinen, Schoeller, Vargas, & LaRowe, 2014; Powers et al., 2011). Joshi, Azuma, and Feenstra (2008) reviewed findings of the effects of FTS and found that several studies showed positive effects on student food choice and attitudes and especially on increased participation in school meals, although they called for more research to determine the sustainability of the behavior change.

Additional FTS program impacts have been suggested, including economic development opportunities (Joshi et al, 2008; Kane, Kruse, Ratcliffe, Sobell, & Tessman, 2011; Robinson-O'Brien, Story, & Heim, 2009; Tuck, Haynes, King, Pesch, 2010), and increased farmer income (Conner, Knudson, Hamm, & Peterson, 2008). In addition, other scholars assert that FTS affects students' appreciation of the environment through programming such as lunchroom composting, school vegetable gardens, and better understanding of the food cycle (Blair, 2009; Ratcliffe, 2007, 2012; Robinson-O'Brien et al., 2009).

However, the wide range of activities, diverse implementation of these activities, and frequent adaptations of programming that are typically part of FTS programs make it difficult to study these impacts. Recently both the USDA and NFSN suggested that measures of food procurement are a useful and accessible indicator of FTS success (NFSN, 2015; USDA, n.d.b). Indeed, it has previously been suggested that local food procurement may actually serve as an indicator of improved child nutrition, as some studies have found that availability and accessibility, especially of fruits and vegetables, is related to consumption (Cullen, Baranowski, Owens, Marsh, Rittenberry, & de Moor, 2003; Hearn, Baranowski, Baranowski, Doyle, Smith, Lin, Resnicow, 1998). It should be noted, however, that not all studies have found an

association between access to fresh produce and consumption, with at least one study finding that students in two schools who chose more fruits and vegetables as a result of a new policy consumed less and wasted more (Yon, Taylor, Amin, & Johnson, 2014). Still, the preponderance of the available evidence supports FTS's positive impacts on behavior and nutrition.

While dollars spent on local food may not capture the full range of possible FTS outcomes, procurement of local food is considered an easy-to-measure, accessible proxy for economic and child nutrition goals. Though food procurement (measured by volume and/or expense) is a common metric, little has been published on strategies to increase local procurement. Previous research has concluded that several barriers exist to adopting or increasing local procurement (Conner, et al., 2008, 2012; Harris, Lott, Lakins, Bowden, & Kimmons, 2012; Izumi, Wright, & Hamm, 2010). Interviews with food-service professionals in northern states like Alaska and Michigan reveal common barriers to those experienced in a northern climate like Vermont. These barriers include the cost of local products, unreliable supply, safety and procurement regulations; the cost of maintaining multiple relationships; and the desire for single-source suppliers (Colasanti, Matts & Hamm, 2012; Harris et al., 2012; Herron, 2013; Janssen, 2014). So while much has been written on the barriers and challenges to procuring local food for school meals, the factors that lead to increased procurement in FTS programs have not been noted in the literature.

To begin to fill this knowledge gap, we set out to explore the hypothesis that increases in procurement of local food for FTS programming may result from more from increased relationships and trust (that is, social capital) than it does from lower effective prices on local foods. Our approach included examining the results of three separate but related studies focused on FTS procurement in Vermont: (1) a census of Vermont public schools, (2) an assessment of fruit and vegetable procurement for the USDA Fresh Fruit and Vegetable Program in Vermont, and (3) an evaluation of local procurement from food hubs in Vermont by schools participating in a USDA Farm to School Implementation grant.

Methods of the Three Studies

Study 1: Vermont Statewide Census (VSC)

The first study we analyzed is a Vermont statewide census (VSC) of Vermont public K–12 schools. In VSC, data were collected through a telephone survey consisting of 15 questions conducted during the 2012–2013 school year. Eighty-six percent of the 315 public schools in the state participated (a total of 271 schools). The schools that participated were coded for school enrollment, grade levels served, free and reduced lunch eligibility rate, and whether they had received an FTS grant from the state (based on information provided by the Vermont Agency of Agriculture, Food and Markets and the Vermont Agency of Education). The overall goal of the VSC was to determine the prevalence of FTS programming and related activities in Vermont schools, so the brief telephone survey was conducted with the school representatives who could answer the questions (including receptionists, office managers, or principals). The full list of questions and additional information that were coded can be found in Table 1, including "does your school's cafeteria serve local food?" and "are local foods indicated on school meal menus?"

Schools were coded as having elementary grades if the school included one or more elementary grades and similarly, they were coded as having middle grades if they included one or more middle grades and high school if they included one or more high school grades. Some Vermont schools include more than one type of grade, such as K–8 which includes elementary and middle grades.

Frequency and bivariate analyses were performed using SPSS v.21. Bivariate analysis included chi square tests and t-tests of significance. Schools that had received a Vermont state grant to support FTS efforts since 2007 were coded and compared to schools that had never received the state grant.

Study 2: Fresh Fruit and Vegetable Snacks (FFVS)

In the Fresh Fruit and Vegetable Snacks (FFVS) study, we reviewed school purchase records submitted by Vermont schools participating in the USDA Fresh Fruit and Vegetable Program (FFVP). The goal of this study was to determine how much of the total reimbursement through

FFVP was for *local* fruits and vegetables, as well as what *types* of local fruits and vegetables were purchased.

In Vermont, 115 schools (approximately one third of Vermont's 315 public K–12 schools) participated in the FFVP during the 2012–2013 school year, representing nearly 20,000 students. To be eligible to participate in the FFVP, schools must serve elementary grades, have a student body with at least 50% of students eligible for free or reduced lunch, and apply to participate in the program. Participating schools are reimbursed for the purchase price of the fresh fruits and vegetables purchased for the snack program. On the invoices they submitted for reimbursement each month, schools were asked to itemize the type of fruit or vegetable, the quantity purchased, the amount spent, and whether each item was produced in Vermont. Monthly purchase totals, product-by-product totals, and month-by-month comparisons were performed using Microsoft Excel 2013.

Data were analyzed by coding each type of fruit and vegetable, calculating values for total monthly reimbursement for each school and the overall monthly reimbursement, as well as total reimbursement by product.

Study 3: Food Hubs and FTS

The Food Hubs and FTS study was an evaluation of a grant to the Vermont Agency of Agriculture, Food and Markets awarded by the USDA Farm to School Grant Program. As part of this grant, four Vermont regional food hubs delivered FTS technical assistance to both school food-service staff and local food producers. This assistance included but was not limited to matchmaker events to bring food service and food producers together; food safety trainings for food-service and food producers; and recipe creation using local foods. Local purchase data was collected from the participating schools by the regional food hubs during September or October 2012 (for the 2012–2013 school year) and 2013 (for the 2013–2014 school year), for a year-over-year comparison of the percentage change in local purchasing. Fifty-five schools across six counties were included in this study and represented approximately 6,000 students who participate in the National School Lunch Program (NSLP) at their school. Purchase data was provided by the food hubs in Microsoft Excel spreadsheets. All data was analyzed using Microsoft Excel 2013.

Table 1. VSC Questions and Additional Information about Vermont Public Schools

Questions Asked on VSC	Additional Information Obtained
Does your school have a farm-to-school program?	Number of students enrolled
Does your school's cafeteria serve local food?	Grades served
Has anyone at your school held taste tests of new foods with students?	Vermont FTS recipient
Are local foods indicated on school meal menus? (For example, dishes made with local foods are starred.)	Percent of students eligible for free or reduced lunch
Are local foods promoted in the cafeteria? (For example, via posters, signage, or food service staff)	
Does your school grow any food in a school garden?	
Has your school held student cooking classes or demonstrations?	
Have students gone on field trips to visit farms?	
Have farmers visited the school?	
Are there farm or food lessons taught in the classroom?	
Are teachers trained to integrate food and farm education into existing curricula?	
Do you utilize volunteers from the community to support local food and nutrition education?	
Have you held harvest festivals, community meals, or a FTS open house?	
Do you communicate food-related activities through the school newsletter, community websites, or local media?	
Do you have any full- or part-time staff dedicated to farm to school?	

Table 2. Summary of Vermont School Demographic Information (*N*=271)

Characteristic	Source of Data	Descriptive Statistic: Percent or Mean (Range) Standard Deviation
School received an FTS grant	VT Agency of Agriculture, Food and Markets	17% of schools received a FTS grant
FTS program	VT FTS Census	54% of schools have FTS program, .50
Number of students enrolled	VT Agency of Education	267.78 (17, 1278), 220.56
50% or more students are eligible for free or reduced-price lunch	VT Agency of Education	44% of schools have 50% or more students eligible, .50
School includes elementary grades	VT Agency of Education	78% of schools include elementary grades
School includes middle-school grades	VT Agency of Education	41% include middle grades
School includes high-school grades	VT Agency of Education	19% include high-school grades

Results

Study 1: Vermont Statewide Census (VSC)

The census of Vermont's public schools in the 2012–2013 school year revealed that they had varying degrees of FTS programming, with just over half (54%) of the schools that participated in the VSC in Vermont having a FTS program. As shown in Table 2, 17% of these schools had received a Vermont FTS grant since 2007. Based on the records provided by the state Agency of Education, these schools had enrolled an average of 268 students. Most of the schools (78%) included elementary grades, while 41% included middle-school grades and just 17% included high-school grades. Forty-four percent (44%) of the 271 schools included in the VSC have at least half their students eligible for free or reduced-price lunch.

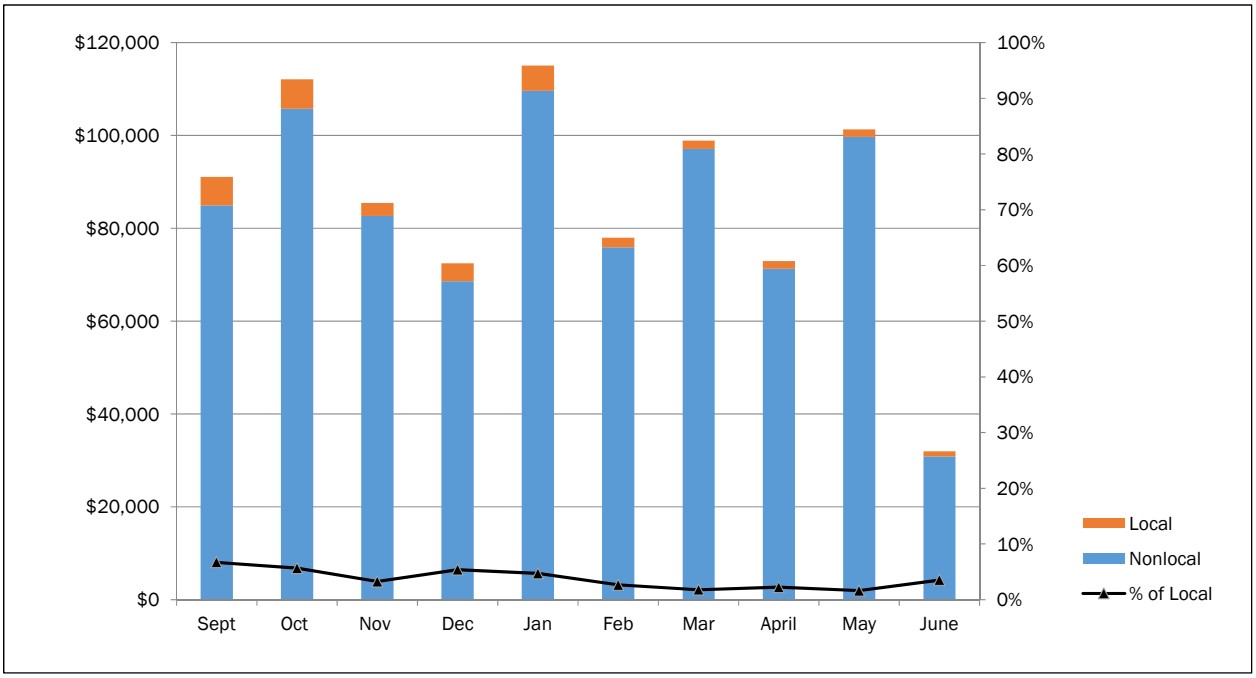
Table 3. Schools Receiving a State FTS Grant Compared to Those with No Grant (*N*=267)

Element	FTS Grant (*n*=44)	No Grant (*n*=223)
Have FTS program	80%	50%***
Serve local food	98%	90%
Taste tests	89%	70%**
Highlight local foods on menu	77%	66%
Promote local foods in cafeteria	77%	72%
School garden	86%	70%***
Cooking classes	80%	78%
Farm field trips	91%	75%*
Farmer visits	59%	41%**
Farm/food lessons in class	57%	53%
Teachers trained	57%	31%**
Community volunteers	75%	63%
Harvest festivals, etc.	80%	52%***
Communications	89%	80%
Paid staff	46%	19%***

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

As shown in Table 3, a higher percentage of those schools that received a state of Vermont FTS grant had an FTS program (80%), compared to those who had not received a grant (50%). In addition, a statistically significant higher percentage of schools that had received a state grant held taste tests, had a school garden, had farmers visit, had trained teachers in FTS, held community gatherings, and had at least a part-time staff position responsible for FTS activities. There was, however, no statistical difference in several of the elements, including schools that serve local food, highlight local foods, or promote local foods. Unlike some states, Vermont schools do not necessarily designate themselves as having an FTS program just based on their serving or promoting of local foods.

Figure 1. Total USDA Fresh Fruit and Vegetable Program (FFVP) Purchases by Vermont Public Schools, Local Versus Nonlocal (*N*=115) and Percentage of Purchases That Are Local



Study 2: Fresh Fruit and Vegetable Snacks (FFVS)

In 2012–2013, the FFVS project collected data about local and nonlocal fresh fruits and vegetables purchased as part of the USDA Fresh Fruit and Vegetable program (FFVP). The results show the not-surprising seasonal ebb and flow of local purchasing of fresh fruit and vegetables for school snacks, related to when fresh products are most available in Vermont. These results further reveal that the proportion of spending on local fruits and vegetables, while always quite small, is higher in the fall and early winter months than in the spring (Figure 1).

The FFVS also tracked the types of fruits and vegetables purchased through the Fresh Fruit and Vegetable program. Table 4 shows the highest volume (by dollar) fresh fruits and vegetables purchased by schools in the FFVP program during the 2012–2013 school year. While the USDA Fresh Fruit and Vegetable Program is not FTS programming per se, because schools are reimbursed for the full cost of the fruits and vegetables purchased, this may provide an opportunity to increase local spending on fruits and vegetables. Schools spend more on apples (both local and nonlocal) in this program than any other fruit or vegetable. The top 5 nonlocal products are all fruits, while carrots and toma-

Table 4. Most Purchased Fresh Fruits and Vegetables by Schools Participating in the USDA Fresh Fruit and Vegetable Program (FFVP) in 2012–2013 (*N*=115)

Local Produce	Total Amount Spent in FFVP (US$)	Percent of Total Local or Nonlocal Spending
Apples	$20,133.82	61.42%
Carrots	$3,257.88	9.94%
Grapes	$1,645.25	5.02%
Cantaloupe	$1,528.50	4.66%
Tomatoes	$1,018.32	3.11%
Nonlocal Produce		
Apples	$114,430.92	13.85%
Grapes	$84,063.53	10.17%
Strawberries	$56,939.33	6.89%
Bananas	$46,667.65	5.65%
Pears	$48,249.71	5.84%

toes are two of the top five products purchased locally. It should be noted that the top two local products, apples and carrots, are available year round in Vermont.

Study 3: Food Hubs and FTS

In the Food Hubs and FTS study, each food hub provided at least one matchmaking, safe food-handling, and food-safety training in their area. A total of 58 schools and 165 farms participated in these activities. As a result of these activities, a best practices guide entitled *Using Food Hubs to Create Sustainable Farm to School Programs* was developed by the Vermont Agency of Agriculture, Food and Markets (VAAFM, 2015).

As shown in Figure 2, there was a 58% overall increase in same-period, year-over-year spending by the 55 participating schools from fall 2012 to fall 2013.

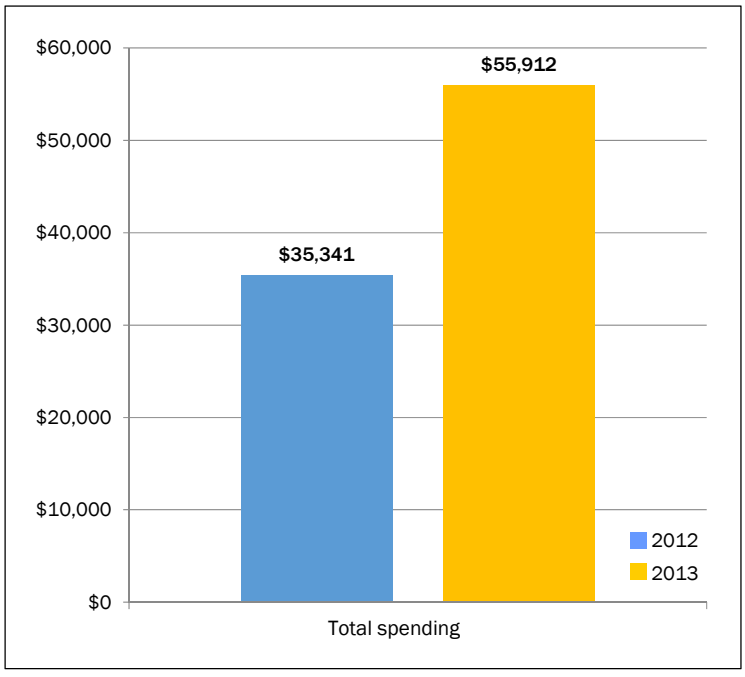
Discussion

FTS programming has become so widespread that both the USDA and the National Farm to School Network have promoted the importance of measuring its impacts across the nation. The USDA launched a grant program to support FTS programming, providing nearly US$5 million in grants in each of the past four years (USDA, n.d.b). Grantees are expected to complete evaluation activities that attempt to measure the success of their efforts. The NFSN seeks to honor the grassroots nature of FTS programming and has developed an evaluation framework to provide guidance in measuring FTS impact without being prescriptive (NFSN, 2015). Both USDA and NFSN embrace the multiple outcomes and areas of impact that FTS programming can have and both are engaging in the challenging effort to facilitate a better understanding of the impact of the diverse programming that makes FTS such a powerful tool for behavioral and cultural change.

Both NFSN and USDA describe increasing local procurement of school food as an element of FTS programming, although neither is prescriptive in how to increase purchasing from local producers. In this paper we provide evidence about two strategies employed to increase local purchasing for school meals in communities throughout Vermont. The results of the VSC and the FFVS studies suggest that providing subsidies (in the form of state grants) or reimbursements (through the FFVP) for local purchasing alone may not result in increased amount of local food in school meals. However, the Food Hubs and FTS study provides evidence that barriers such as quality, food safety, and availability can best be overcome through activities like matchmaking and food-safety trainings. This research implies that strategies to increase local purchasing rely more on education and partnership development than upon deep discounts or subsidies.

Although establishing local partnerships and building relationships with local producers are often included in descriptions of FTS programming, the contribution of social capital to achieving FTS goals has not been clear. The results of this exploratory study set the stage for further research that may more concretely demonstrate the value of efforts to cultivate strong partnerships

Figure 2. Local Spending by Schools Participating in the Food Hubs and FTS Project, 2012 and 2013



between food-service staff and producers.

Further, the most effective partnerships and relationships are built around addressing known barriers, such as price, availability, quality, and safety. The Food Hubs and FTS study included relationship-building activities that brought together food-service staff and producers in professional development activities that promoted better understanding of food safety, product quality, and expectations about pricing and availability. In addition, the intervention activities likely benefited from being coordinated through regional partners with existing relationships with both food-service staff and area producers, and not just from lowering the costs of local food.

While the results presented here encourage us to believe that our hypothesis of the importance of social capital to increase local procurement may be valid, more geographically widespread research is needed, as is longitudinal research in order to confidently demonstrate the impact of intensive relationship-building in maximizing procurement of local food for FTS programs. We concede that while this research shows that price is not the only consideration, school food budgets are not elastic and increasing the purchase of locally produced food will likely need to consider financial constraints.

While FTS programming is abundant throughout the U.S., collecting the data needed to understand its effects remains a challenge. The data reviewed in this study relied primarily on food-service purchase records. These records were not easily obtained, despite the fact that the schools have to maintain these records. Food-service directors are busy and are asked to do many small favors in the course of a day—for parents, students, teachers, and administrators—and providing records to researchers was not their highest priority. To understand the impact of FTS programming, more data and research are needed. FTS practitioners can help by looking for ways to make purchase data more accessible and by actively seeking researchers who have capacity to thoughtfully review the available data.

Limitations

Several limitations of this study should be noted. First, while the schools in all three studies are Vermont K–12 public schools, the Fresh Fruit and Vegetable Snacks (FFVS) and Food Hubs and FTS studies provide data from only a subset of these schools; therefore they do not provide a true triangulation of the data. Second, while school food purchase data is generally reliable and schools typically must track what they purchase throughout the school year, these data should not be interpreted as a direct measure of what is consumed. It is also important to note that as a result of its complexity, the impact of FTS on local procurement is not limited to the time frame in which it is delivered. Further, this type of "far out" behavior change requires multiple and ongoing treatments, as FTS programming may show its largest impact when delivered repeatedly, year after year.

Conclusions

Increasing purchases of locally produced food is commonly a goal of FTS programming. Increased access to local food may help improve child nutrition as well as economic opportunities in the community. Efforts to increase local procurement have met with mixed results. This research suggests that addressing the cost of local food alone is not sufficient to increasing purchasing, but that programming that builds relationships between school food-service buyers and producers can result in increased local procurement.

Relationship-building takes effort. Just offering networking events likely is not sufficient to build the trusting relationships needed to change purchase patterns. In this research, the most successful intervention included professional-development opportunities in food safety and safe handling, as well as facilitated matchmaking activities between producers and buyers.

While this research was geographically limited to Vermont, the implications for practice could be applicable to any community with relatively mature FTS programming. More evidence, especially of a longitudinal nature, will be needed to fully determine the relative contributions of FTS practices to increasing local procurement. Nevertheless, the results presented here provide evidence of partnership-building as a valuable strategy to increase local procurement.

Acknowledgements

Farm-to-school (FTS) programming is complex and engages multiple stakeholders. Even in a small state like Vermont, many stakeholders have contributed to the growing body of FTS research thus far: the University of Vermont; the Vermont Agency of Agriculture, Food and Markets; the Vermont Agency of Education; the Vermont Department of Health; Shelburne Farms; Northeast Organic Farming Association of Vermont; Food Connects; Upper Valley Farm to School; Green Mountain Farm to School; Vermont Public Schools; and the many food service directors who have shared their data and their reflections.

References

Bendfeldt, E. S., Walker, M., Bunn, T., Martin, L., & Barrow, M. A. (2011). *A community-based food system: Building health, wealth, connection, and capacity as the foundation of our economic future.* Blacksburg, Virginia: Virginia Cooperative Extension. Retrieved from https://vtechworks.lib.vt.edu/bitstream/handle/10919/50742/3306-9029.pdf

Blair, D. (2009). The child in the garden: An evaluative review of the benefits of school gardening. *Journal of Environmental Education, 40*(2), 15–38. http://dx.doi.org/10.3200/JOEE.40.2.15-38

Bontrager Yoder, A. B., Liebhart, J. L., McCarty, D. J., Meinen, A., Schoeller, D. Vargas, C., & LaRowe, T. (2014). Farm to elementary school programming increases access to fruits and vegetables and increases their consumption among those with low intake. *Journal of Nutrition Education and Behavior, 46*(5), 341–349. http://dx.doi.org/10.1016/j.jneb.2014.04.297

Campbell, M. C. (2004). Building a common table: The role for planning in community food systems. *Journal of Planning Education and Research, 23*(4), 341–355. http://dx.doi.org/10.1177/0739456X04264916

Colasanti, K. J. A., Matts, C., & Hamm, M. W. (2012). Results from the 2009 Michigan farm to school survey: Participation grows from 2004. *Journal of Nutrition Education and Behavior, 44*(4), 343–349. http://dx.doi.org/10.1016/j.jneb.2011.12.003

Conner, D. S., Knudson, W. A., Hamm, M. W., & Peterson, H. C. (2008). The food system as an economic driver: Strategies and applications for Michigan. *Journal of Hunger and Environmental Nutrition, 3*(4), 371–383. http://dx.doi.org/10.1080/19320240802528849

Cullen, K. W., Baranowski, T., Owens, E., Marsh, T., Rittenberry, L., & de Moor, C. (2003). Availability, accessibility, and preferences for fruit, 100% fruit juice, and vegetables influence children's dietary behavior. *Journal of Nutrition Education and Behavior, 30*(5), 615–626. http://dx.doi.org/10.1177/1090198103257254

Green, L.W., Sim, L., Breiner, H. (Eds.), Committee on Evaluating Progress of Obesity Prevention Efforts, Food and Nutrition Board, & Institute of Medicine. (2013). *Evaluating obesity prevention efforts: A plan for measuring progress.* Washington, D.C.: National Academies Press. Retrieved from http://www.nap.edu/catalog.php?record_id=18334

Harris, D., Lott, M., Lakins, V., Bowden, B., & Kimmons, J. (2012). Farm to institution: Creating access to healthy local and regional foods. *Advances in Nutrition, 3,* 343–349. http://dx.doi.org/10.3945/an.111.001677

Hearn, M. D., Baranowski, T., Baranowski, J., Doyle, C., Smith, M., Lin, L. S., & Resnicow, K. (1998). Environmental influences on dietary behavior among children: Availability and accessibility of fruits and vegetables enable consumption. *Journal of Health Education, 29*(1), 26–32. http://dx.doi.org/10.1080/10556699.1998.10603294

Herron, J. R. (2013). *Feasibility of farm-to-school in Alaska: A state-wide investigation of perspectives from school food service professionals* (Master's thesis). Retrieved from ProQuest (Publication No. 1523806). http://gradworks.umi.com/15/23/1523806.html

Izumi, B. T., & Wright, D. W., & Hamm, M. W. (2010). Farm to school programs: Exploring the role of regionally-based food distributors in alternative agrifood networks. *Agriculture and Human Values, 27*(3), 335–350. http://dx.doi.org/10.1007/s10460-009-9221-x

Janssen, B. (2014). Bridging the gap between farmers and food service directors: The social challenges in farm to school purchasing. *Journal of Agriculture, Food Systems, and Community Development, 5*(1), 129–143. http://dx.doi.org/10.5304/jafscd.2014.051.012

Joshi, A., Azuma, A. M., & Feenstra, G. (2008). Do farm-to-school programs make a difference? Findings and future research needs. *Journal of Hunger and Environmental Nutrition, 3*(2–3), 229–246. http://dx.doi.org/10.1080/19320240802244025

Kane, D., Kruse, S., Ratcliffe, M. M., Sobell, S. A., & Tessman, N. (2011). *The impact of seven cents.* Portland, Oregon: Ecotrust. Retrieved from http://www.ecotrust.org

Keener, D., Goodman, K., Lowry, A., Zaro, S., & Kettel Khan, L. (2009). *Recommended community strategies and measurements to prevent obesity in the United States: Implementation and measurement guide.* Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Retrieved from http://www.cdc.gov/NCCDPHP/DNPAO/Publications/index.html

Kloppenburg, J., Jr., & Hassanein, N. (2006). From old school to reform school? *Agriculture and Human Values, 23*(4), 417–421. http://dx.doi.org/10.1007/s10460-006-9024-2

National Farm to School Network [NAFSN]. (2015). *National Farm to School Network* [Home page]. Retrieved 12/14 from http://farmtoschool.org

Powers, A., Berlin, L., Buckwalter, E., Kolodinsky, J., & Roche, E. (2011). Connecting classrooms, cafeterias & communities: Promising practices of farm to school education: Summary of evaluation findings—2011. Retrieved from the Vermont FEED website: http://www.vtfeed.org/materials/connecting-classrooms-cafeterias-communities-promising-practices-farm-school-education-sum

Ratcliffe, M. M. (2007). *Garden-based education in school settings: The effects on children's vegetable consumption, vegetable preferences and ecoliteracy* (Master's thesis). Retrieved from ProQuest (Publication No. 32837986). http://gradworks.umi.com/32/83/3283796.html

Ratcliffe, M. M. (2012). A sample theory-based logic model to improve program development, implementation, and sustainability of farm to school programs. *Childhood Obesity, 8*(4), 315–322. http://www.liebertpub.com/overview/childhood-obesity/384/

Robinson-O'Brien, R., Story, M., & Heim, S. (2009). Impact of garden-based youth nutrition intervention programs: A review. *Journal of the Academy of Nutrition and Dietetics, 109*(2), 273–280. http://dx.doi.org/10.1016/j.jada.2008.10.051

Roche, E., Conner, D., Kolodinsky, J. M., Buckwalter, E., Berlin, L., & Powers, A. (2012). Social cognitive theory as a framework for considering farm to school programming. *Childhood Obesity, 8*(4), 357–363. http://www.liebertpub.com/overview/childhood-obesity/384/

Schafft, K., Hinrichs, C. C., & Bloom, J. D. (2010). Pennsylvania farm-to-school programs and the articulation of local context. *Journal of Hunger and Environmental Nutrition, 5*(1), 23–40. http://dx.doi.org/10.1080/19320240903574155

Tuck, B., Haynes, M., King, R., & Pesch, R. (2010). *The economic impact of farm-to-school lunch programs: A central Minnesota example.* Falcon Heights, Minnesota: University of Minnesota Extension. Retrieved from http://www.extension.umn.edu/food/farm-to-school/research/farm-to-school/docs/cfans_asset_289518-1.pdf

Turner, L., & Chaloupka, F. J. (2010). *Executive summary: School policies and practices to improve health and prevent obesity: National elementary school survey results.* Chicago, Illinois: Bridging the Gap Program, Health Policy Center, Institute for Health Research and Policy, University of Illinois at Chicago. Retrieved from http://www.bridgingthegapresearch.org

U.S. Department of Agriculture [USDA]. (n.d.a). *Know Your Farmer, Know Your Food initiative.* Retrieved June 1, 2014, from http://www.usda.gov/wps/portal/usda/knowyourfarmer?navid=KNOWYOURFARMER

USDA. (n.d.b). *The farm to school census: National overview.* Retrieved June 1, 2014, from http://www.fns.usda.gov/farmtoschool/census#/

Vermont Agency of Agriculture, Food and Markets [VAAFM]. (2015). *Using food hubs to create sustainable FTS programs.* Montpelier, Vermont: Vermont Agency of Agriculture, Food and Markets. Retrieved from http://agriculture.vermont.gov/producer_partner_resources/market_access_development/food_hubs

White House Task Force on Childhood Obesity. (2010). *Solving the problem of childhood obesity within a generation: White House Task Force on Childhood Obesity Report to the President.* Retrieved from http://www.letsmove.gov/white-house-task-force-childhood-obesity-report-president

Yon, B., Taylor, J. C., Amin, S. A., & Johnson, R. K. (2014). Elementary students select more fruits and vegetables when required, but waste more regardless of farm to school programing. *Journal of Nutrition Education and Behavior, 46*(S4), S97. http://dx.doi.org/10.1016/j.jneb.2014.04.008