



RESEARCH ARTICLE

The Farm Fresh Challenge: Formative Evaluation Results of a Multi-Component Farm-to-Grocery Store Program

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Abstract

Background: The 2015-2020 Dietary Guidelines for Americans recommend adults consume at least 4 and a half cups of fruits and vegetables (F/V) a day, yet research indicates these guidelines are not met. Furthermore, agricultural experts are concerned with the declining number of small farms and insufficient production of F/V. The primary purpose of this study was to conduct an assessment of a farm-to-grocery store program.

Methods: Using the guiding foundations of community-based participatory research, the Farm Fresh Challenge (FFC) was developed. The FFC was a multi-component campaign designed to increase the availability of locally grown F/V in grocery stores, while challenging consumers to purchase, prepare, and consume local foods. A formative evaluation was conducted to assess adoption, implementation, reach, maintenance, and perceptions of the program.

Results: Findings indicated: 1) more efforts are necessary to sustain grocer-farmer partnerships; 2) promotion of the program needed to be much more targeted in an effort to better promote local farmers and educate consumers on the benefits of supporting local food systems; and 3) consumers were largely unaware of the FFC.

Conclusions: Farm and grocery store partnerships can serve as a feasible way to improve access to F/V while supporting the sustainability of small farms. However, efforts to educating the public on the benefits of supporting local food systems are warranted, and strategies for enhancing farmer-grocer relationships should be considered.

Keywords: Community-based participatory research; Farm-to-institution; Nutrition and diet; Evaluation

Background

The 2015-2020 Dietary Guidelines for Americans recommend adults consume at least 4 and a half cups of fruits and vegetables a day, yet research indicates that adults are falling well short of meeting these guidelines [1]. It is well documented that a diet rich in fruits and vegetables can prevent obesity and a number of chronic diseases [1–3]. However, data suggests that America's expanding waistlines and diet-related illnesses continue to be among the top 5 chronic diseases afflicting U.S. adults, [4–6] while placing a financial strain on healthcare costs [7–11]. Though the Dietary Guidelines and a number of other federal entities encourage the consumption of fruits and vegetables as part of a healthy diet pattern, agricultural experts are increasingly concerned with the declining number of small farms and the insufficient production, distribution, and procurement of fruits and vegetables [12]. This lack of production, in turn, can have a long-term impact on the diets of Americans. In Kansas, small farms generating less than \$100,000 in sales comprise the backbone of farms producing fruits and vegetables; however data from 2002 to 2012 indicate a 10 percent reduction in small farms [13].

Over the years, a number of interventions and policies have

been aimed at increasing fruit and vegetable availability and consumption within several institutional settings, such as schools and places of work, through partnerships with local farms [14]. Thus, many communities have sought ways to expand programming for broader community access to healthy, affordable foods while also supporting the sustainability and growth of small farms.

In an effort to increase access to local fruits and vegetables in a Midwestern suburban county, a coalition of community members developed and implemented a farm-to-grocery store program. Using the guiding foundations of community-based participatory research (CBPR), the Farm Fresh Challenge (FFC) was developed [15]. The FFC was a multicomponent campaign encouraging consumers to purchase, prepare, and consume local fruits and vegetables through a month-long promotion during the prime growing season. The goal of this study was to conduct a formative assessment of: 1)

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adoption and implementation of the FFC; 2) reach of the FFC to community residents; 3) perceptions of local foods and the FFC from the viewpoints of consumers and grocers; and 4) maintenance of the program between grocers and farmers at a one-year follow up.

Methods

Community Context

The FFC took place in a Midwestern suburban county in 2015. Data from 2013 indicates that less than one in five county residents report regular consumption of the recommended daily servings of fruits and vegetables, and that access to healthy and affordable foods is a primary concern among residents [16]. Furthermore, census reports indicate a growing population trend within the state and Douglas County; however, the rapid decline of small farms has been a significant concern within the state [17].

As part of a community health action plan, increasing access to healthy foods was targeted as a priority [16]. Likewise, fostering the growth and sustainability of local food systems was identified as an initiative for the county [17]. Thus, in an effort to address these two key concerns, collaborations among multiple organizations were forged to develop a farm-to-institution program that would enhance access to locally-produced fruits and vegetables for all county residents.

Development and Implementation of the Farm Fresh Challenge (FFC)

This project was guided by the foundations of Community-Based Participatory Research (CBPR). CBPR is “a collaborative approach to research that equitably involves all partners in the research process and recognizes the unique strengths that each brings. CBPR begins with a research topic of importance to the community and has the aim of combining knowledge with action and achieving social change to improve health outcomes and eliminate health disparities” [18]. Utilizing this approach to develop the Farm Fresh Challenge (FFC), partnerships were established between members of the local food policy coalition, farmers, grocers, and other community members to

focus on two key identified community concerns: access and availability of healthy food items and the declining numbers of small farms.

The Farm Fresh Challenge (FFC) encouraged consumers in Douglas County to purchase, cook, and consume local foods during the prime growing season (July-September). A cornerstone of the FFC was to encourage partnerships between local farmers and grocers. To facilitate these partnerships, a Local Food Wholesale Directory was developed for use by grocery stores and farmers. The directory included detailed information on 33 local farms and the six participating grocery stores.

Throughout the month of August, consumers were “challenged” to take part in the FFC by taking on one or more of the four local food challenges (Figure 1). Customers were directed to the website URL to register for the challenge and win prizes based on their level of participation. In an effort to encourage participation, program staff held in-store promotions and events where customers had the opportunity to learn more about local foods available and meet some of the farmers and community members involved in the efforts. Store sites were also encouraged to offer taste-testing of farm-fresh food items, cooking demonstrations, or other activities to promote local foods. At some stores, dietitians and chefs offered ways to incorporate local foods into meals by offering recipes and cooking demonstrations. In addition, promotional materials such as signs, banners, t-shirts, postcards, and posters were provided to stores to emphasize locally-grown food items and to distribute to customers. Communication and promotion about the FFC began several weeks prior to the start of the program through press releases and a widespread social media campaign. Table 1 provides a summary of the FFC program components.

Evaluation of the Farm Fresh Challenge

Researchers from a local university worked with the coalition in conducting a formative assessment of the program including adoption and implementation of the FFC by local grocery stores; perceptions of local foods and the FFC from



Figure 1: Farm Fresh Challenge Consumer Food Challenges.

Program Component	Description	Usage
Wholesale Directory	Hardcopy and digital information of 33 local farms and 6 grocery stores. Information on farms included contact information, main products provided, product liability information, food safety plan, and organic certification. Store information included quality standard requirements, food safety requirements, production priorities, and purchasing procedures.	12 hard copies distributed, 2 per store; digital copies also available. Use of directory varied store to store.
Printed Materials		
Banners	6 feet long with FFC logo, website URL	6 distributed, 1 per store
Posters	24 x 36 inches, with program logo, website URL	24 distributed, 4 per store
Signs	5 x 7 inches, with program logo	240 distributed, 40 per store
Postcards	5 ½ x 8 inches, with program logo, website URL	12,000 distributed, varied per store according to size
T-shirts	Program logo, website URL	250 distributed, varied per store according to personnel, in-store activities
Press Releases		
Local radio	Interviews with program staff, grocers, and farmers; promotional advertising	3 interviews; 240, 30-second commercials
Local newspaper	One ½ page ad and one ¼ page ad with promotional logo, website URL, and information about FFC	2 total advertisements over course of the month
Social Media		
FFC Website	Included registration page, information, blog, recipes, grocer and farmer information	401 visits to website; 192 registered to participate in “challenge”
Facebook	Program information, link to website, pictures, videos, discussions, recipes, store advertising of local products, farmer information	553 Facebook fans
Twitter	Program information, link to website, daily promotional activities, pictures, videos, store advertising of local products	206 Twitter followers
In-Store Events		
Facilitated by program staff	Promotional costumes, photo booths, taste tests, educational activities, recipe challenges	1 event per store through the month of August
Facilitated by store staff	Cooking classes, taste tests, educational activities	Varied from store to store, dependent upon store personnel available

Table 1: Farm Fresh Challenge Program Components.

the viewpoints of grocers and consumers; reach of the FFC; and maintenance of the FFC at a one-year follow-up. A non-experimental, cross-sectional design utilizing mixed methods to collect data was used to assess each of these components. As social media was the primary vehicle for communicating information about the FFC, a process evaluation of the metrics and key performance indicators (KPIs) were assessed. Table 2 provides information for the type of data collected for each component.

Evaluation measures included the following:

- 1) A customer intercept survey to assess purchasing habits of local foods, perceptions of local foods, and awareness of and participation in the FFC. Intercept surveys took place one time at each store site and were conducted at the end of August while the program and

promotional materials were still available.

- 2) A farmer survey to assess implementation activities. Farmer surveys took place one month after the program concluded.
- 3) A grocer survey with store personnel to assess implementation and maintenance of the FFC. The grocer survey took place one month after the program concluded to assess implementation efforts. A one-year follow-up survey assessed maintenance of the program.
- 4) Semi-structured interviews with store personnel to assess the implementation and maintenance of the FFC, as well as perceptions of local foods and the FFC. Interviews took place one month after the program concluded.

5) Social media metrics, including KPIs related to reach and exposure.

Analyses of Data

Data analysis included both quantitative and qualitative methods, and was primarily descriptive in nature. Data from the customer intercept surveys and farmer surveys were entered into the Statistical Package for the Social Sciences (SPSS), version 24.0 [19]. Frequencies were tabulated for categorical variables and means and standard deviations for continuous variables. Incomplete surveys were discarded from analysis.

Qualitative data were analyzed using the constant comparative method [20] and data triangulation [21] by two researchers. As part of the member check process, individuals participating in the interviews were provided summaries of the findings [22].

Key performance indicators were analyzed according to exposure and reach. Table 3 provides a description of the types of metrics used to analyze the KPIs.

Results

Reach

Customer Intercept Surveys: A total of 202 intercept surveys

were collected from the six store sites. Three surveys were discarded due to incomplete data. Results indicated that over half of the customers (55.9%) reported seeing local food promotions or signage during their shopping trip. In regards to knowledge and participation in the FFC, results indicated that 34.2% of customers knew about the FFC. Of those customers, 62.3% reported that knowing about the FFC influenced them to purchase local foods, while only 27.5% reported participating in the challenge. Customers that knew about the FFC were made aware of it primarily via in-store promotions, word-of-mouth, and Facebook. Lack of time and no knowledge of the FFC were cited as reasons for not participating.

Social Media Metrics: Social media impression data for Facebook and Twitter indicated that 1,381 unique participants visited, liked, or viewed videos throughout the month of August. Metrics for reach indicated that the FFC Facebook page had 553 fans and 206 Twitter followers. For the FFC website, data indicated there were 401 total visits; however, only 192 individuals registered to participate in the “challenge.” This represents less than one percent of Douglas County residents participating.

Adoption

Six (54.5%) of the 11 grocery stores approached and involved

Component	Definition	Data Source	Evaluation
Reach	Percent of individuals reached by intervention	Intercept surveys	Descriptive statistics of customer awareness of FFC
		Social media activity	Key performance indicators related to exposure and reach
Adoption	Percent of stores that agreed to participate	Archival records	Descriptive statistics of store managers approached agreeing to participate
Implementation	Extent to which intervention is implemented as planned	Farmer survey	Descriptive statistics of implementation activities
		Grocer semi-structured interviews	Qualitative analysis of implementation activities
		Grocer survey	Frequency analysis of number of farmer relationships established
Perceptions of local foods and the FFC	Consumer and grocer perceptions of local foods and the FFC	Intercept surveys	Descriptive statistics of customer perceptions
		Grocer semi-structured interviews	Qualitative analysis of perceptions
Maintenance	Extent to which intervention is likely to be sustained over time	Grocer semi-structured interviews	Qualitative analysis of sustainability of program
		Grocer surveys	Descriptive statistics of continued relationship with farmers and use of Wholesale Directory

Table 2: Farm Fresh Challenge Evaluation Components.

Key Performance Indicator	Definition	Metric
Exposure	The number of times content on a social media application is viewed	Visits
		Page likes
		Video views
Reach	The number of people who have contact with the social media application and the related content	Facebook fans
		Number of followers
		Number of website visits
		Number of registered users (e.g., participants signing up for challenge)

Table 3: Key Performance Indicators and Metrics Related to FFC Social Media Use.

in the initial pre-planning meetings agreed to participate in the FFC. Two stores are larger chain grocers; one is a large, locally-owned store; two are small, rural stores; and one is a community-owned cooperative.

Implementation

Grocer Survey: All stores reported the number of new relationships with local growers established as a result of use of the wholesale directory. One store reported no new relationships; two stores reported 1 new relationship; one store reported 2 new relationships; and the final two stores reported 3 new relationships.

Grocer Semi-Structured Interviews: Interviews with primary personnel involved in the planning and delivery of the FFC were interviewed to assess implementation efforts and perceptions of the program. Three main themes were identified.

First, store personnel were asked about their use of the Wholesale Directory to initiate new relationships with farmers. While all stores agreed that the directory provided useful information, most indicated that they had difficulties in establishing new relationships as a result of the directory.

As part of the FFC, promotional banners, posters, signs, t-shirts, and postcards were made available to all of the stores. All six stores utilized these materials and incorporated an in-store event at least one time to further promote the FFC. However, despite the use of these promotional materials, store personnel expressed disappointment in the lack of customer awareness and engagement in the FFC. In general, store personnel reported that the promotional materials were “too generic” to draw attention to local foods, and that they further stopped short of educating consumers about local foods and the farmers that were providing the products. Furthermore, while the intent of in-store promotions were to provide educational and hands-on opportunities (e.g., cooking classes), personnel

still indicated that customers did not seem to connect the events with the FFC.

Finally, store sites were encouraged to make use of Facebook, Twitter, and FFC website to further promote the FFC and events going on in their stores. While all personnel recognize that the use of social media can create awareness and promote programs, all agreed that it should not have been the primary way to promote the program. Several stores again expressed that the use of social media did not provide the information and education necessary to establish long-term sustainability. Further, the smaller, rural stores indicated that they serve an older demographic, so awareness of the program was even lower. All of the stores indicated that they rarely, if ever, participated in posting online information as they felt that it was not an effective means of promoting the program. Table 4 provides a summary of key quotes for each of these themes.

Farmer Survey: Farmers who were listed in the wholesale directory were sent an online survey to assess implementation activities and perceptions of the FFC. Nineteen of the 33 farmers (57.6%) completed the survey. When asked if one of the six participating grocery stores contacted them before or during the FFC, of the 18 farmers completing this question, 27.8% (n=5) responded no; one farmer indicated they had been contacted by one store; and the remaining farmers (66.7%, n=12) had been contacted by three to all of the six participating stores. When asked if they had reached out to any of the stores before or during the FFC, a majority of the farmers (78.9%, n=15) responded that they had not. When asked if they had participated in any of the FFC promotional activities, of the 14 farmers responding, 21.4% (n=3) indicated they had taken part in at least one in-store event; 21.4% (n=3) indicated that they had taken part in posting information on social media; and 57.1% (n=8) reported no participation in activities.

Theme	Key Quote
Use of the Wholesale Directory to develop farmer relationships	Identification of [local farmers] who have produce was difficult, so now the FFC has identified more resources [and] that was very, very helpful.
	The time to make the contacts [with the farmers] was a little difficult, wondering where [the product] was going to come from was a little difficult
	[The FFC] was a disappointment to me because in our view the program was geared toward creating the relationship...creating a guide [wholesale directory] is fine... [But] what needs to happen is the relationship [between grocer and grower]. How many of these farms really want to go to sell to a grocery store?
In-store promotion of the FFC	I don't think [customers] realized so much of what [the FFC] was. I don't think it connected, which was disappointing on my end.
	It seems like maybe [the FFC] wasn't as big as we'd hoped to launch in the beginning, so I'm wondering what were those challenges for preventing it from being popular or wildly successful.
	I think some people changed what they were buying when we had the [in]-store events going on.
Social Media Promotion of the FFC	It was challenging to get people engaged in [the FFC] and I don't know if it was because it was just too broad or it was too much online or if we just weren't doing a good enough job of promoting it.
	I...feel that through social media that it's hard to start conversations with people and that's really I feel also what the FFC needed-we're posting a lot [on social media], we're getting this information out there, but there aren't people talking to each other about it online.

Table 4: Key Supporting Quotes for Implementation.

Customer Perceptions of Local Foods

Aggregate customer intercept survey results indicated that 54.5% of customers “sometimes” purchase locally-produced food when it is available, while 37.1% reported “almost always” or “always.” Customers agreed or strongly agreed that convenience (80.2%), alternative to non-local foods (71.2%), increased selection of foods (64.9%), and support of local farmers (92.5%) were primary potential benefits to purchasing local foods at the grocery store. However, over half of customers surveyed agreed or strongly agreed that high cost (61.8%), lack of availability (51.9%), and lack of variety (42.1%) were primary challenges to purchasing local foods at the grocery store. Only 30.2% of customers indicated that poor quality of locally-produced foods was a challenge to purchasing local foods at the grocery store.

Grocer Perceptions of Local Foods and the FFC

All store sites agreed that their support for local farmers and the desire to sell quality, local foods to the community were

key facilitators to their participation in the FFC. Though most stores indicated they already had several established relationships with local farmers in place, they were excited to explore the possibility of building new relationships through their participation in the program.

Though grocers were eager to support their local farmers, and increase the amount of local products made available to customers, in the end, they were disappointed overall in the program. Store personnel cited several reasons for their disappointment, including the use of the Wholesale Directory to establish new relationships, the promotional materials used to create awareness, the use of social media to further promote the program, and the lack of customer awareness and engagement in the program. While store personnel were truly appreciative of all of the effort that went into the development and planning of the FFC, they indicated that the manner in which the FFC was delivered, long-term sustainability of a “buy local” community culture was not an outcome that was achieved. Table 5 provides a summary of key quotes.

Theme/Subtheme	Key Quote
Grocer Perceptions of Local Foods	We’re talking about eating local, buying local, living local...I think it creates an awareness that we need to be more focused on where our food comes from, so I think there are positives to that.
	You’re putting money back into the community rather than sending it away [and] I feel the product is fresher when its homegrown-it’s had more time to grow on the vine.
Decision to Participate in the FFC	[We participated in the FFC] because that’s who we are...we’ve supported a lot of these farmers and so we didn’t know exactly where this would go, but we wanted to be part of it because that’s who we are.
	I think wanting to be a part of the community [is why we chose to participate in the FFC]...I mean it’s a great way to help the economy locally.
	[We decided to participate in the FFC because] I feel like part of its giving back to the community, part of that job I enjoy is interacting with people, providing them with the best quality products we can.
Grocer Perceptions of the FFC	It was challenging to get people engaged in [the FFC] and I don’t know if it was because it was just too broad or it was too much online or if we just weren’t doing a good enough job of promoting it.
	You are creating a cognizant effort within the community to educate them on buying local...and that’s what buy local is naturally...they work on those relationships and they basically create a brand that you can utilize to educate your consumer or your customer that comes in your store that this product is local-produced and it kind of gives them a feel and everyone’s in tune with it and you can see the brand. This brand is for a contest-a contest is short-lived and that’s where I think we were wrong...A buy local campaign is educating the whole community and it helps the farmers and retailers and it’s ongoing if you’re creating the brand.
	It shouldn’t be a month-long contest, carry it forward and then you are growing something that can develop into other things. You can do this [the FFC] in addition to that, but what’s the main brand and in this label there is nothing about local. There is nothing about buying, living, eating local.
Customer Perceptions of local foods and the FFC from the Grocer Viewpoint	The supply chain has figured out how to make their tomatoes look great and the customers are oriented upon look and price. So the tomato, if it’s bright and shiny and its 99 cents, that’s the one they want. They don’t necessarily dig into where it’s from or how it’s going to taste, it’s just the price. So whenever you have something that has a little blemish on it but it’s grown with care, you know someone put their effort into it, it’s oftentimes overlooked by the customer and bringing that customer to realize the benefit of something that’s local grown has been challenging.
	Even before the FFC and while the FFC was going on, the impact of purchasing local foods didn’t resonate with the customers.
	We had some local peaches that had a little bit of hail damage, so [they] had some blemishes on them. We still sold more of those than the ones that looked perfect and [we] had some signage that [explained] why [these] peaches had these spots on them...I think to me as a consumer that looks more appealing to know that it’s not perfect but it probably wasn’t sprayed with chemicals and didn’t travel 2000 miles to get here.
	I think the FFC created a buzz, but it was not sustainable.

Table 5: Grocer Perceptions of Local Foods and the FFC.

Maintenance

Grocer Semi-Structured Interviews: Three themes related directly to long-term sustainability of the FFC are discussed.

First, store personnel were asked to describe the elements of successful grocer-farmer relationships. Three key components were identified: ongoing communication, honesty, and quality product. All stores indicated they could identify current farmers they work with that they had established quality, long-term relationships with in which these components existed and contributed to sustainability of the relationships.

With this in mind, personnel were asked if they would continue to use the Wholesale Directory to establish new relationships with farmers. Overall, all store sites agreed that while the directory provided useful information, it takes much more than a directory to create and maintain relationships with farmers. Once again citing the traits crucial to successful grocer-farmer relationships, all store sites were in agreement that these components are fostered through face-to-face meetings and direct communication with farmers, and not through the use of a directory.

Finally, store personnel offered their perceptions of sustaining the FFC long-term. There was agreement that in order for long-term change to take place, efforts must be focused beyond a social-media driven one-month program. Stores also suggested that to better educate consumers on the benefits of local foods, farmers must be more visible in community efforts. In short, educating consumers on local foods, creating a commonplace for grocers and farmers to build relationships, and doing work beyond social media to promote such efforts are necessary to engage the public long-term. Table 6 provides key quotes for this theme.

Grocer Follow-Up Surveys: To assess if stores continued to use the wholesale directory and maintain relationships developed during the FFC through the use of the directory, a follow-up survey was conducted 12 months later. Two grocers responded to the survey. Of those 2 grocers, both indicated they had not maintained any relationships formed during the FFC, and that they had not used the directory since the completion of the FFC. Three of the stores reported turnover in staff that had been involved in the planning and implementation efforts of the FFC, and one store manager did not respond.

Discussion

The FFC sought to plan, develop, implement and assess a community-wide effort of increasing access to local foods by fostering farmer-grocer relationships and informing and engaging the public through a multicomponent campaign. Despite the use of CBPR to develop a program to address two key concerns in the community, results indicated low reach, and that the maintenance of long-term farmer-grocer relationships did not occur.

Evaluation results indicated three primary areas that were problematic during the implementation of the FFC, which further hindered long-term maintenance of the program. First, though farmers and grocers both agreed during the initial planning meetings that the development of a wholesale directory to foster and establish relationships between each other would be helpful, results of the evaluation indicate that this was not the case. Both farmers and grocers reported very little use of the directory, and one year after the program, the directory was not being used by the grocers. Furthermore, information obtained from the farmer surveys and grocer interviews indicate that there is disagreement as to who should make initial contact. Grocers indicated that farmers should be

Theme/Subtheme	Key Quote
Development and sustainability of successful grocer/farmer relationships	I think communication is on the top of the list [for those relationships that are successful]. [And] I would say consistent [quality of the product] where they [farmers] know what we expect.
	It is labor-intensive [to build quality relationships with farmers].
	There has to be commitment [from the farmers] that [they're] going to grow [for our store].
Long-term use of the local Wholesale Directory	I don't think the relationships [between grocer and farmer] were established, but I think they made an attempt in creating the [wholesale] directory.
	[A] huge shortcoming [of the FFC]...[is] that you really need to have a meeting with the growers and retailers because everybody's got to get together on how this works and there was never [that connection].
	I thought the directory was going to be a fantastic idea, and maybe for some people it worked, we just didn't have any luck.
Long-term sustainability of the FFC	You are creating a cognizant effort within the community to educate them on buying local... and that's what buy local is naturally...they work on those relationships [between grocer and farmer] and they basically create a brand that you can utilize to educate your consumer...that this product is local-produced...This brand [the FFC and directory] is for a contest. A contest is short-lived and that's where I think we were wrong...A buy local campaign is educating the whole community and it helps the suppliers and the retailers and it's ongoing.
	Maybe it shouldn't be called FFC...so that you're engaging everyone, so basically [customers] know that in Douglas County, all of these stores are participating in this local food movement.
	It [shouldn't] be a month-long contest. Carry it forward and then you are growing something that can develop into other things.

Table 6: Key Supporting Quotes for Maintenance.

the first to contact them to indicate interest in working with them, while farmers felt that grocers should be the one to initiate contact. Store personnel reported that a critical piece missing during the planning process was face-to-face meetings between farmers and grocers to facilitate relationships. While the wholesale directory at first seemed like a novel, efficient way to foster relationships, face-to-face communication to develop trust is essential. Grocers indicated that successful relationships with farmers take good communication and trust; these are traits fostered through face-to-face contact and not through a directory.

Moreover, turnover of staff can be a common occurrence in the grocery industry. A one-year follow up survey with stores indicated several changes in personnel who were the decision-makers in the purchase of local foods. New personnel were unaware of the wholesale directory as a means to establish contacts with local farms. Consequently, this change in personnel has an impact on farmers who were accustomed to working with previous personnel and had established successful relationships. Turnover of staff can impact these relationships, thus limiting the access and availability of locally-grown foods to consumers who depend on them. Therefore, other mechanisms must be in place when such turnovers occur in order to maintain farmer-grocer relationships that had previously been established.

Furthermore, the use of regional food hubs in recent years has been viewed as a convenient method to supply grocery stores with locally grown foods [23]. Food hubs work with local family farms to purchase their goods. They sort and store the food items in warehouses and then market and distribute the food to schools, hospitals, grocers, and restaurants within the region. Considering the time it takes for farmers and grocers to develop relationships, the availability of a food hub can eliminate some of the institutional barriers to developing and maintaining relationships, while still providing locally-sourced foods to consumers.

The second issue identified from the assessment was the manner in which the FFC was promoted in the store. Store personnel were appreciative of the signs, postcards, and banners that were provided to promote local foods, but also agreed that it didn't resonate with customers. This prohibited customers from making a connection between the signs used to promote local foods and the FFC. This was also evident in the results of the customer intercept survey, as a large proportion of those surveyed had not heard about the FFC, and was not aware of the signage in the stores as they shopped. However, this finding is not localized to this intervention. Prior studies have recognized that even if a grocery store carries locally grown food items, visible signage would need to draw shoppers' attention, because few frequently look at signs to determine place of origin [24]. Therefore, more targeted marketing aimed at promoting local farmers and educating consumers on the benefits of purchasing and consuming local foods could have enhanced awareness of the program, and helped to foster a supportive community culture of local food systems.

Finally, the use of social media to inform customers, and the creation of a "challenge" to further engage them did not have the reach and impact as initially anticipated. While online communication methods offer easy, cost-effective access and have the potential to reach broad audiences, results indicate that social media had very little impact on educating the community, influencing purchase of local foods, and engaging them in the FFC and in meaningful conversations about access to healthy, local foods. Community members who participated in the survey largely reported learning about the FFC via in-store activities. Though the social media sites of Facebook recorded over 500 fans and Twitter over 200 followers, a preliminary analysis of the conversations that took place through these online platforms revealed that very few engaged in conversations about local foods. Even farmers and grocers participated very little in these platforms. Thus, while social media can be effective in improving knowledge [25–27] and encouraging behavior change, [28] in this instance, it appears that more face-to-face community activities to educate the public on the health benefits of consuming local fruits and vegetables and the importance of supporting local food systems were warranted.

Limitations

This study is not without its limitations. Most notably is the lack of data regarding consumption of locally-grown fruits and vegetables. While we collected data on customer purchasing habits of locally grown foods, it is not known if customers consumed the food items purchased, or the manner in which it was prepared. Furthermore, we did not collect data on the amount of locally-grown produce grocery stores purchased from farmers. To understand if the FFC did indeed facilitate relationships between farmers and grocers, data on the amount of locally grown food purchased from farmers the season prior to the FFC, during the FFC, and the season after the FFC would have provided useful information as to the impact of the intervention between farmers and grocers. Additionally, we were unable to collect data on the amount of locally-grown fruits and vegetables that were purchased from consumers. As with the farmer-grocer sales data, understanding the amount of local foods customers purchased prior to the FFC, during the intervention, and post-intervention would have further helped to assess the impact of the program. Finally, while it is worth noting that to our knowledge, no other farm-to-grocery store program has been assessed, the lack of standard evaluation measures to assess such a unique program is a limitation.

Conclusions

The challenge for many buy local efforts is to offer community members easy opportunities to purchase locally grown foods on a regular basis. While most Americans recognize that consuming local foods has benefits, [24] exposing them to locally grown food remains a challenge. Most weekly shopping occurs in locations that are unlikely to have a large amount of locally grown food, such as large grocery stores and small independent stores [24]. However, according to a 2015 National Grocers Consumer Report, over 85 percent of

customers indicated that they select a grocery store based in part on whether it stocked food from regional producers [29]. Thus, farm-to-grocery store partnerships can have significant impact on improving the diets of community members, while supporting small farms. Unlike other farm-to-institution programs, grocery stores have the ability to reach a large proportion of the population who normally do not have access to farmers' markets, roadside stands, or Community Supported Agriculture (CSA) programs. For example, older adults who reside in assisted living and rely on residential or public transportation to get them places typically have regular access to grocery stores. Grocery stores can also reach diverse populations, including individuals of different cultures, Supplemental Nutrition Assistance Program (SNAP) users, and disabled individuals who may not go to farmers' markets for various reasons. Grocery stores typically provide accessibility for everyone, thus enhancing access and availability to local foods benefits grocers, consumers, and farmers. Finally, if developed and implemented properly, grocery stores can provide a unique opportunity to educate youth and families on the importance of healthy eating and demonstrating where food comes from, while supporting their local food systems.

In order to understand the impact grocery stores can have on the sustainability of small farms and the nutrition of community members, much more evaluation of such programs is warranted. Future studies need to assess the long-term economic impact of farmer-grocer relationships on communities. Furthermore, studies need to also assess if behavioral change of consumers occurs when there is enhanced access to locally grown fruits and vegetables.

The public is interested in supporting local farms, while enhancing access and consumption of locally grown foods. The United States Department of Agriculture (USDA) encourages stronger connections between farmers and consumers, in part to expand access to affordable fresh and local food while stimulating community economic development [30]. Despite its weaknesses, the FFC offered a unique way to build relationships between grocers, farmers, and community members, and is a feasible approach to enhancing access to locally grown foods while supporting local farms.

Human Subjects Approval Statement

This study was approved by the University of Kansas Human Subjects Committee, ID00002883.

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