

Farm to School: Identifying Applied Research And Operational Resource Needs and Issues



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**National Food Service Management Institute
The University of Mississippi**

Building the Future Through Child Nutrition

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The purpose of the National Food Service Management Institute is to improve the operation of child nutrition programs through research, education and training, and information dissemination.

MISSION

The mission of the National Food Service Management Institute is to provide information and services that promote the continuous improvement of child nutrition programs.

VISION

The vision of the National Food Service Management Institute is to be the leader in providing education, research, and resources to promote excellence in child nutrition programs.

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**FARM TO SCHOOL: IDENTIFYING APPLIED RESEARCH AND
OPERATIONAL RESOURCE NEEDS AND ISSUES**

EXECUTIVE SUMMARY

Farm to School (FTS) has grown dramatically since the mid 1990's, when a few initiatives were piloted in New York, California, and Florida (National FTS network, 2012). Despite this growth, there has been only minimal peer-reviewed research to support school nutrition (SN) professionals in managing FTS initiatives (Joshi, Misako, and Feenstra, 2008; Colasanti, Matts, and Hamm, 2012). Therefore, the purpose of this study was to explore and identify applied research needs associated with SN programs' engagement in FTS initiatives.

This project consisted of a literature review, three site visits, and one expert panel. The three SN programs selected for the site visits had SN directors in school districts who had successfully implemented a FTS initiative. Each site visit included structured interviews with SN managers and directors, structured interviews with SN employees, and field observations of FTS operational activities. The expert panel consisted of 16 SN professionals, which included two state agency representatives and 14 SN directors. The SN directors were invited based on recommendations from state agency child nutrition directors. The criterion for the recommendations was experience implementing a FTS initiative within the past 10 years.

For clarity purposes, the results of this study are divided into four sections: "challenges and barriers of implementing a FTS initiative;" "challenges and barriers of sustaining and expanding a FTS initiative;" "resources and research needed to support school nutrition SN directors with FTS initiatives;" and "comparison of results to existing literature." When expert

panel members discussed “challenges and barriers to implementing a FTS initiative,” the following primary themes surfaced:

- Procurement
- Knowledge
- Finances
- Food processing/cooking
- Motivation/incentive
- Program support
- Food safety
- Student education
- Marketing
- Customer satisfaction
- Customer service.

The preceding list of themes is arranged and presented in descending order based on the volume of unique comments panel members offered regarding each theme. The theme “procurement” received the largest number of comments from the expert panel.

Expert panel members did not offer any challenges or barriers related to sustaining a FTS initiative. However, four suggestions were provided for increasing FTS sustainability:

- Develop mutually beneficial partnerships and relationships with FTS stakeholders (such as farmers and nonprofit organizations);
- Ensure future SN directors are interested in FTS;
- Get teacher involvement in FTS using school gardens; and

- Work with school administrators to ensure FTS is written into the school wellness policy.

When the discussion shifted to expanding a FTS program, a diverse grouping of challenges/barriers was offered. Comments included the following:

- “It is difficult to find farms large enough to meet expanded needs;”
- “Limited growing seasons limit expansion;”
- “Nutrition education is where expansion needs to occur, but that is the toughest piece to the puzzle;”
- “School nutrition directors have too many responsibilities to consider when expanding their FTS programs;” and
- “Expanding FTS programs to include center of the plate items like raw meat, eggs, and fish, is too risky.”

When asked to identify resources to help overcome challenges and barriers to implementing, sustaining, or expanding FTS initiatives, many suggestions were offered:

- Develop a step-by-step guide on how to implement a FTS program in a large and a small school district;
- Create a clearinghouse Web site that identifies resources and best practices developed by different state agencies and school districts;
- Develop standardized recipes for all possible FTS products;
- Update USDA standardized recipes to include a side bar for dealing with raw products; and
- Create a Web site that list potential grants for FTS programs.

Based on study results, four areas of FTS present the greatest number of implementation challenges and barriers to school nutrition SN directors:

- Procurement
- General Knowledge about Farming and FTS Programs
- Finances
- Food Processing/Cooking.

Study results further suggest that SN directors would like to see future FTS research that measures the impact of FTS initiatives. The impact areas include academics, student participation, student satisfaction, local economies, number of local farmers, eating behaviors of students and their families, and SN compliance with federal meal pattern regulations.

INTRODUCTION

Farm to school (FTS) is a collaborative relationship between schools (K-12) and local farms through which both groups can benefit. Students are provided locally grown foods in their school meals, and they are engaged in a variety of learning activities related to agriculture, health, and nutrition education. Local farmers receive the added revenue from area schools as new customers. Farm to school has grown dramatically since the mid 1990's when a few initiatives were piloted in New York, California, and Florida. By 2012, FTS programs had reached almost 6 million students in more than 10,000 schools in all 50 United States and the District of Columbia (National FTS Network, 2012).

Despite this growth, there has been a minimal amount of peer-reviewed research to support school nutrition (SN) professionals in managing FTS initiatives (Joshi, Misako, and Feenstra, 2008; Colasanti, Matts, and Hamm, 2012). Within this FTS literature, the SN program operational issues that have been addressed include: considerations that motivate SN professionals to participate in FTS initiatives; challenges/barriers associated with managing FTS initiatives; equipment needed to support FTS initiatives; circumstances that promote the expansion of individual FTS initiatives; and conditions that contribute to the success of FTS initiatives (Colasanti, Matts, and Hamm, 2012; Izumi, Alaimo, and Hamm, 2010; Izumi, Joshi, Misako, and Feenstra, 2008; Taylor and Johnson, 2013).

Three research studies broached the topic, "motivation for SN professionals to participate in FTS initiatives." The results of a 2004 state-wide survey of SN directors in Michigan indicated that the top three motivators for SN professionals to purchase local food were "supporting local farms or businesses," "providing higher quality food," and "bolstering local economies" (Colasanti et al., 2012). A qualitative study involving structured interviews with seven SN

professionals from school districts with FTS initiatives suggested that the top three incentives for participating in a FTS initiative were “students like it,” “the price is right,” and “FTS benefits local farmers” (Izumi et al., 2010). Izumi and colleagues (2010) reported farmers and wholesalers in their local areas priced products competitively and often priced lower than broadline distributors. In 2008, Joshi et al. analyzed the findings of 15 FTS evaluation reports and studies, most of which were not peer reviewed, and reported that an impetus for SN directors to participate in FTS initiatives is the potential for increase in student participation rates.

Two research studies dealt with the challenges and barriers associated with managing FTS initiatives. In partial contrast to Izumi and colleagues’ (2010) findings, Colasanti et al. (2012) reported that the primary challenges and barriers for Michigan SN directors were cost, quality, safety, and availability of locally-produced foods. Joshi et al. (2008) recounted that inconsistencies in the definition of “local” between different areas of the country and between differing regulatory groups creates challenges for SN directors. Additionally, Joshi et al. (2008) noted that as FTS initiatives progress, local purchasing decreases or levels off due to financial constraints.

Only one of the research studies addressed equipment needed to support FTS initiatives. Colasanti et al. (2012) indicated that fruit and vegetable wedgers, floor or countertop vegetable choppers, steamers, industrial food processors, and knives were needed by any operation handling raw produce. Colasanti et al. (2012) were also the only researchers in this literature review to address circumstances that promote expansion of individual FTS initiatives. They reported that to promote FTS expansion, the following circumstances would need to be addressed: creation of financial incentives for participating in FTS initiatives, an increase in the

availability of partially or minimally processed foods, and changes in regulations that would simplify direct purchasing from farmers.

Joshi et al. (2008) were the only researchers to discuss conditions that contribute to the success of FTS program initiatives. Based on their results, Joshi et al. concluded that three factors are needed for FTS initiatives to succeed: active leaders or champions for the cause; community partners, such as non-profit organizations and cooperative extension programs; and SN directors with the skill to creatively leverage resources (financial, social, and physical) for dealing with obstacles as they arise.

The limited scope and construct validity of the preceding literature suggests much opportunity for further research. Additionally, the evolution to pre-processed foods, which has left many SN operations ill-equipped to handle unprocessed FTS products, (Gregoire, & Harrison, 2009; Nettles, 1999) and the vast array of regulations facing SN programs (Martin & Oakley, 2009), makes it apparent that more operational research is needed to support SN directors in managing FTS initiatives. Therefore, the purpose of this study was to explore and identify applied research needs associated with SN programs' engagement in FTS initiatives.

METHODOLOGY

This project consisted of a literature review, three site visits, and one expert panel. The three school nutrition (SN) programs were selected because SN directors at those school districts had successfully implemented farm-to-school (FTS) initiatives. Each site visit included: structured interviews with SN managers and directors (Figure 1), structured interviews SN employees (Figure 2), and field observations of FTS activities at each school district. Prior to each interview, the researcher described the purpose of the study and informed consent to all the interviewees. When discussing informed consent, the researcher explained that participation in the interview was voluntary, that interviewees could decline to participate at any time, and that information gathered during the interview would be strictly anonymous and could not be tied back to any of the interviewees. To reduce bias, SN directors and managers were asked to leave the room when SN employees were interviewed.

Figure 1

Structured Interview with School Nutrition Management

1. Please describe your SN program.
2. How long has your SN program been involved in FTS activities?
3. Please describe the FTS initiative in your school district.
4. How has the FTS initiative evolved since it was first implemented?
5. How have operations in your SN program changed since beginning a FTS initiative?
6. How do you introduce new FTS products to students in your school district to gain acceptance?
7. What does your SN program spend on FTS activities annually?
8. How many hours a week do you spend working on FTS activities?
9. How many full-time equivalents a week do you have dedicated to FTS activities?
10. What challenges have you faced with the FTS initiative in your school district?
11. How has your SN program benefited from participating in the FTS initiative?
12. What resources would you like to see developed to support your or other SN directors' efforts in implementing, maintaining, and expanding a FTS initiative?

Figure 2

Structured Interview with School Nutrition Employees

1. What products do you receive through the FTS initiative?
2. What level of processing have these products received before they are delivered to your school?
3. How has your job changed since the FTS initiative began?
4. How do you introduce new FTS products to students to gain acceptance?
5. How many hours a week do you spend working on FTS activities?
6. What challenges have you faced since the FTS initiative was started in your school?
7. How has participating in the FTS initiative benefited your school?
8. What resources would you like to see developed to support you maintaining the FTS initiative at your school?

Information gathered from the literature review and the site visits was used to develop discussion topics for the expert panel. The expert panel consisted of 16 SN professionals, and included two state agency representatives and 14 SN directors. The SN directors were invited based on recommendations from state agency child nutrition directors. The criterion for the recommendations was experience implementing a FTS initiative within the past 10 years. Prior to the expert panel discussion, the moderator explained the purpose of the study and informed consent. When discussing informed consent, the moderator indicated that participation in the panel discussion was voluntary, that panel members could decline to participate at any time, and that information gathered during the panel discussion would be strictly anonymous and could not be tied back to any panel members. During the expert panel session, participants were asked semi-structured, open ended questions related to the research objectives (Figure 3).

Figure 3

Expert Panel Discussion Topics

1. What are the challenges/barriers of implementing a new FTS initiative related to the following areas:
 - Your motivation or incentive to participate in a FTS initiative;
 - Your knowledge about farms and FTS initiatives;
 - Securing support to participate in a FTS initiative;
 - Procurement and initiative accountability;
 - Receiving;
 - Storage;
 - Processing/cooking;
 - Serving food;
 - Sanitation;
 - Safety;
 - Marketing;
 - Customer satisfaction;
 - Employee satisfaction; and
 - Finances.
2. What are the challenges/barriers associated with maintaining an established FTS initiative?
3. What are the challenges/barriers associated with expanding an established FTS initiative?
4. What resources need to be developed to overcome these challenges/barriers?
5. What research needs to be conducted to solve these challenges/barriers?

A structured approach was employed to keep the discussions focused on the selected topics. The expert panel was moderated by one researcher, while an additional researcher captured participant comments on a computer. Additionally, comments during the expert panel were recorded with an audio recorder. Toward the end of each session, after all questions were

discussed, the moderator summarized responses, and participants were asked to verify the accuracy of the depiction of the discussion summation.

Informed Consent

The Institutional Review Board at The University of Southern Mississippi reviewed and approved the protocol for this study.

Data Analysis

Data analysis consisted of a thorough review of the transcript from the expert panel and the identification of themes and important points within each discussion.

RESULTS AND DISCUSSION

For clarity purposes, the results of this study are divided into four sections: challenges and barriers of implementing a farm-to-school (FTS) program, challenges and barriers of sustaining and expanding a FTS program, resources and research needed to support school nutrition (SN) directors with FTS initiatives, and comparison of results to existing literature.

Challenges and Barriers of Implementing a Farm-to-School Program

When expert panel members discussed challenges and barriers to implementing a FTS initiative, the primary themes that surfaced were:

- Procurement
- Knowledge
- Finances
- Food processing/cooking
- Motivation/incentive
- Program support
- Food safety
- Student education
- Marketing
- Customer satisfaction
- Customer service.

The preceding list of themes is arranged and presented in descending order based on the volume of unique comments panelists offered regarding each theme. The theme “procurement” received the largest number of comments from the expert panel.

Procurement

The challenges and barriers expert panel members presented in relation to FTS and procurement covered a broad spectrum. The comments are listed below:

- The whole procurement process is in need of repair.
- Procurement standards are different from state to state.
- The procurement regulations and bid requirements for purchasing locally are unclear.
- Identifying local farmers is a challenge.
- Pricing is hard to understand, because it is based on foreign terminology.
- Local farms like cash upon delivery.
- Local farmers have difficulty competing with regional and national distributors regarding price, customer service, one-stop-shopping, and product consistency.
- Trying to establish contracts with farmers is difficult.
- Local farmers and SN directors are apprehensive about entering into formal contracts with each other.
- There are major challenges related to the form and condition of produce upon receipt, such as inconsistent shape/size, varying quantities, bruising, and poor packaging/labeling.
- Schools often cannot handle the amount of produce that is delivered at one time.
- In some districts, logistics is the biggest barrier, because SN directors in those districts want produce delivered directly to each school.
- In some situations, the SN director has to drive to the farm and put the food in his/her trunk.
- Distribution of FTS needs to be centralized at the state level.

- Regional distributors need to offer local products and make them easily identifiable to purchasers.

Knowledge

Panel members identified several challenges and barriers of implementing a FTS initiative relating to general knowledge about farming and FTS programs. The comments included the following statements:

- Many SN directors do not know where to begin when they decide to implement a FTS initiative.
- Many directors do not understand that you can implement a FTS initiative on a small scale.
- The definition of FTS is unclear.
- The definition of the term “local” is unclear.
- School nutrition directors do not have a good understanding of farm terminology, such as bushels and peck.
- School nutrition directors do not have an understanding of what FTS products are available, and when they are available.
- School nutrition directors do not understand the term “seconds.”

Finances

The financial challenges and barriers relating to implementing a FTS initiative ranged from increased cost of food, labor, and equipment, to the difficulties of applying for FTS grants. These comments are included below:

- Farm-to-school products are more expensive and require complete processing.
- Grant writing is a possible solution, but it is time consuming.

- School nutrition directors do not know what FTS grants are available.
- Some grants limit usage of funds and do not allow equipment purchases.
- Farm to school often creates a need for expensive equipment, such as processors, steamers, and blast chillers.
- Farm-to-school initiatives increase labor and training costs.

Food Processing/Cooking

Expert panel members identified several challenges and barriers relating to food processing/cooking, such as the skill level of SN staff, availability and utilization of standardized recipes, employee satisfaction, and increased equipment needs. These are represented in the comments below:

- Many foodservice workers lack the skill to process raw produce.
- Recipes are often misinterpreted when using FTS products.
- The USDA does not have standardized recipes for many FTS products.
- Employee satisfaction is an issue, because SN workers are asked to do more work for the same money.
- Farm to school puts a heavy burden on garbage disposals.
- Farm to school creates a need for more refrigerated storage space.
- Farm to school creates a need for more knives, cutting boards, and food processing equipment in school kitchens.

Motivation/Incentive

When discussing the challenges and barriers that relate to motivating an SN director to participate in FTS, panel members identified obstacles and incentives. The obstacles included the need for FTS champions, the various obligations of SN directors, a lack of inducements, and a

paucity of stakeholder demand. The incentives included health, food quality and supporting local communities. Comments from the panel members included the following statements:

- Farm to school will not work if it does not have a champion to support the cause.
- Many foodservice directors are overwhelmed with the requirements of the Healthy, Hunger-Free Kids Act, and expanding into anything that isn't a requirement is unlikely.
- School nutrition directors have too many program requirements, and FTS is not mandatory.
- Farm to school is challenging and expensive, and there is no reward.
- There is no customer demand for FTS.
- Farm to school is the right thing to do.
- Farm to school helps fight obesity.
- Farm to school benefits small farmers.
- Farm to school supports the local economy.
- Farm to school provides high-quality food.

Program Support

Expert panel members affirmed that support from school staff, school district administration, and non-profit organizations is challenging to secure, but vital to the success of FTS. The comments are included below:

- It is challenging to get teachers and principals to buy-in to FTS.
- If FTS were pushed from the top down through school administration, there would be better participation.
- School administration needs to show support for FTS by eating in the cafeteria.

- Many SN directors are not aware of non-profit organizations they can partner with.
- Large school districts often have too many non-profit organizations wanting to partner with them.

Panel members further identified the follow individuals or groups as potential FTS partners: grandparents, parents, parent-teacher organizations, local universities, legislators, USDA Extension Offices, and state departments of agriculture. It was noted that in some areas, non-profit processors have partnered with local farmers and school districts to process local produce.

Food Safety

Panel members agreed that food safety was a challenge or barrier to implementing a FTS initiative. Food safety issues that were addressed included: increased risk of foodborne illness, inconsistency of regulations between the different levels of government, liability issues associated with using independent farmers, and factors associated with generally accepted practices (GAP) audits. Comments related to this topic are listed below:

- Recent foodborne illness outbreaks from the farming and food processing industry have pushed foodservice directors into a corner; now, many SN directors are apprehensive about processing raw products.
- There are differing FTS regulations/requirements between county health departments.
- Some SN directors are concerned with the liability issues associated with dealing with small farmers.
- Maintaining traceability of FTS items purchased is a challenge.
- Many local farmers are not GAP certified because it is cost prohibitive.
- Many SN directors do not know who is responsible for conducting GAP audits.

Student Education

Expert panel members identified “providing FTS education to students” as a barrier to implementing a FTS initiative. The comments related to this theme included the following statements:

- The education piece of FTS is not promoted enough by USDA.
- Getting FTS into the curriculum is difficult.
- Students do not realize the health benefits associated with FTS.

Panel members noted that school gardens are excellent learning laboratories and the ideal environment for providing FTS student education.

Marketing

Two comments were provided regarding the challenges and barriers of marketing a FTS initiative: “Developing a marketing initiative for FTS is expensive and time consuming;” and “Some SN directors lack adequate knowledge of social media to develop an effective marketing initiative.”

Panel members indicated that a marketing plan should include taste testing, signage, newsletters, Web sites, menus, media releases, social media, and school gardens. Expert panel members further noted that FTS signage should contain the name of farms/farmers, the location of the farms, the name of FTS products served, and a brief overview of each product, including nutrient content. They also suggested developing signage materials that are reusable, such as laminated posters.

Customer Satisfaction/Customer Service

When asked about challenges and barriers of implementing a FTS initiative related to customer satisfaction and customer service, only one comment was made about each. Expert panel members indicated that a primary customer satisfaction challenge was “overcoming students’ dislike of some fresh vegetables,” while the primary customer service challenge was, “The students are not allocated enough time at lunch to select and consume meals containing FTS products.”

Challenges and Barriers of Sustaining and Expanding a Farm-to-School Program

Sustaining

Expert panel members did not offer any challenges or barriers related to sustaining a FTS initiative. However, four suggestions were provided for increasing FTS sustainability. Those suggestions were as follows:

- Develop partnerships and relationships with FTS stakeholders, such as farmers and nonprofit organizations, that are mutually beneficial to both parties.
- Ensure future SN directors are interested in FTS.
- Get teacher involvement in FTS using school gardens.
- Work with school administration to ensure FTS is written into the school wellness policy.

Expanding

When the discussion shifted to expanding a FTS program, a diverse grouping of challenges/barriers was offered. Those comments are included below:

- It is difficult to find farms large enough to meet expanded needs.
- Limited growing seasons limit expansion.

- Nutrition education is where expansion needs to occur, but that is the toughest component of FTS.
- School nutrition directors have too many responsibilities to consider expanding their FTS initiatives.
- Expanding FTS initiatives to include center of the plate items like raw meat, eggs, and fish, is too risky.

Resources and Research Needed to Support School Nutrition Directors with

Farm-to-School Initiatives

Resources

When asked to identify resources to help overcome challenges and barriers to implementing, sustaining, or expanding FTS initiatives, many suggestions were offered:

- Develop a step-by-step guide on how to implement a FTS program in a large and a small school district.
- Create a clearinghouse Web site that identifies resources and best practices developed by different state agencies and school districts.
- Develop standardized recipes for all possible FTS products.
- Update USDA standardized recipes to include a side bar for dealing with raw products.
- Develop food training videos for preparing FTS produce.
- Develop a boot camp training program to teach SN employees scratch food production.
- Clarify procurement standards/regulations for purchasing local foods.

- Coordinate efforts between the Department of Defense Fresh Fruit and Vegetable Program and the FTS program.
- Develop a checklist to assess farms.
- Develop a list of farms that are GAP certified.
- Develop food specifications for FTS products.
- Add a FTS section to the Food Buying Guide.
- Create a guide with instructions and resources for implementing a FTS marketing initiative.
- Create a Web site that lists potential grants for FTS initiatives.

Research

Panel members provided several research ideas to support SN directors in the implementation, maintenance, and expansion of FTS initiatives. First, they suggested that researchers determine the impact of FTS initiatives on multiple variables including:

- Student academic performance
- Student attendance
- Student participation
- Student satisfaction
- Local economies
- The number of local farmers
- Produce consumption by students and families at home
- School nutrition program compliance with the new USDA regulations.

Next, the expert panel members suggested researchers determine the perception of FTS initiatives by school administrators.

Comparison of Results to Existing Literature

Several findings from this study are in agreement with those observed in the literature review. The barriers for participating in a FTS initiative that were in unison with Colasanti et al. (2012) included: higher food prices; less customer service; lack of product consistency; a need for clarity regarding the definition of “local;” a need for steamers, food processors, and knives many of which have to be purchased; and an increased risk of food borne illness. Three of the potential motivators for participating in a FTS found in this study were consistent with those reported in the literature, “it supports local farms,” “it provides access to higher quality food,” and “it bolsters local economies” (Colasanti et al., 2012; Izumi et al., 2010). The findings from this study agreed with those reported by Joshi et al. (2008) in that the potential for FTS success is increased when there is someone to champion the cause, and when community partners, such as non-profit organizations, are available to provide support.

A couple of the findings reported in the literature review contradicted what was reported by the expert panel members in this study. First, Izumi et al. (2010) reported that farmers and wholesalers in their local areas priced products competitively and often lower than broadline distributors, which disagreed with the results this study and those reported by Colasanti et al. (2012). Second, Izumi et al. (2010) related that students like FTS products. Our expert panel members indicated that “students’ dislike for some vegetables” is one of the challenges to implementing a FTS initiative.

CONCLUSIONS AND RECOMMENDATIONS

Research Study Conclusions and Applications

Based on study results, the areas of farm to school (FTS) that present the greatest number of implementation challenges and barriers to school nutrition (SN) directors are:

- Procurement
- General knowledge about farming and FTS programs
- Finances
- Food processing/cooking.

Procurement appears to present the greatest number of challenges/barriers to SN directors, including: regulations for bids, developing specifications, engaging in contracts, identifying local farmers, evaluating pricing, understanding farm terminology, and an array of customer service issues. With regard to general knowledge about farming and FTS initiatives, the greatest challenge appears to be issues associated with beginning a FTS program, such as: defining FTS, local, and unfamiliar farm terminology; determining where and how to start; and identifying what products are available at different times throughout the year. The primary financial challenges are potentially higher food, labor and equipment costs. Grant writing was identified as a potential financial solution. However, it was noted that grant writing presents additional barriers, including the time and skill it takes to find and apply for grants and the purchasing restrictions associated with many grants. The challenges related to food processing/cooking were the lack of adequate food processing skills by many SN employees, the need for standardized recipes specific to FTS products, potential employee dissatisfaction, and the need for more food processing equipment and refrigerated storage space in many SN operations.

When the discussion moved from implementing to sustaining FTS initiatives, the primary theme of challenges and barriers was identifying and gaining the support of community

stakeholders. The list of potential stakeholders included farmers, non-profit organizations interested in FTS, future SN directors, and school faculty and administration. There was no significant theme regarding challenges and barriers to expanding a FTS program. The general challenges associated with FTS expansion were difficulty finding suppliers to meet expanded needs, expanding to include the provision of FTS education to students, finding time to plan the expansion of FTS operations, and food safety issues associated with expanding FTS initiatives to include raw animal proteins.

When the list of suggested resources for overcoming FTS challenges and barriers was analyzed, it was observed that five general themes emerged: procurement, general knowledge about farming and FTS initiatives, finances, and food processing/cooking, and marketing. Each theme with the corresponding suggested resources is listed below:

- Procurement:
 - Clarify procurement standards/regulations for purchasing local foods.
 - Coordinate efforts between the Department of Defense Fresh Fruit and Vegetable Program and the FTS program.
 - Create checklist to assess farms.
 - Develop a list of farms that are generally accepted practices certified.
 - Create food specifications for FTS products;
 - Add a FTS section to the Food Buying Guide.

- General Knowledge About Farming and FTS Initiatives:
 - Develop a step-by-step guide on how to implement a FTS program in a large and a small school district.
 - Create a clearinghouse Web site that identifies resources and best practices developed by different state agencies and school districts.
- Finances:
 - Create a Web site that identifies potential grants for FTS programs.
- Processing/Cooking:
 - Develop standardized recipes for all possible FTS products.
 - Update USDA standardized recipes to include a side bar for dealing with raw products.
 - Food training videos for preparing FTS produce.
 - Develop a boot camp training program to teach SN employees scratch food production.
- Marketing:
 - Create a guide with instructions and resources for implementing a FTS marketing initiative.

Recommendations for Further Research

Study results suggest that SN directors would like to see future FTS research that measures the impact of FTS initiatives. The impact areas include academics, student participation, student satisfaction, local economies, the number of local farmers, eating behaviors of students and their families, and SN compliance with federal meal pattern regulations. Additionally, based on the emphasis expert panel members gave to the challenges and barriers

associated with procurement, general knowledge about farming and FTS initiatives, and finances, it is recommended that research efforts be aimed at finding possible solutions to the dilemmas identified within these themes. Examples of such research include:

- Identify the best ways to streamline the FTS procurement process for SN directors in each state;
- Determine the best practices for starting a FTS program for small, medium, and large school districts; and
- Develop best practices for controlling costs associated with FTS.

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