Opportunities and Challenges for Marketing Leafy Salad Crops in the Farm-to-School Program

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Support for local food systems is increasing across America and bringing significant economic benefits to local communities (Barham et al., 2012; Hodges and Stevens, 2013; Martinez et al., 2010; Rife, 2013). When considered on a statewide basis, the multiplier effect for purchases of local food in Florida is $3.20 of economic activity for each dollar spent on locally produced food. This means that when fruits and vegetables are produced, sold and consumed in Florida, the dollar spent on the final product circulates throughout the local economy when the salaries of local workers pay for other local items to support their families and farmers use the sale to purchase more production items within the state for the next crop (Hodges et al., 2014). In addition, concerns about food safety, food security and socially responsible food production are also reasons why citizens are intentionally supporting local food systems.

Farm-to-School programs were formed to foster partnerships between local farms and K–12 school lunch programs to provide children and youth with locally grown, fresh fruits and vegetables. Apart from the nutritional benefits, there are also environmental benefits as well, such as reducing transportation, storage, and the energy costs of delivering food over long distances. This paper will describe selected successful Farm-to-School partnerships in Florida and identify opportunities and challenges for implementation of these programs in other areas with special reference to the use of leafy salad crops in the school lunch programs.

Opportunities for Implementation

Florida’s Farm-to-School program began in 1995 when the Florida Agricultural and Mechanical (Florida A&M) University’s Research and Extension Center helped organize a group of innovative African-American farmers as an outcome of a training and market development program. They formed the New North Florida Cooperative Association Inc., which is primarily a producer-driven distributor of processed chopped collard greens focusing on school cafeteria markets. The Co-op now reaches 30 school districts in the Southeast, serving more than 200,000 students and is now also selling into retail markets (NNFC, 2016). The Co-op received a startup grant of $40,000 and in 2001, another grant of $375,000 to purchase four refrigerated trucks. Since then, the Co-op has been self-funded.

In 2013, the Alachua County Farm-to-School-to-Work Hub was established as a partnership between the Food and Nutrition Services Department (FNS) and the Exceptional Student Education Department (ESE) of Alachua County Public Schools. The greenhouse/work hub produces over 150 heads of lettuce each week and aggregates/packages produce from other local farms for schools district-wide. Students operate a garden demonstration area where other students and teachers can learn to grow produce for their own lunchrooms. The Hub also receives support in the form of nutrition education and garden resources from the Family Nutrition Program of the University of Florida’s Institute of Food and Agriculture Sciences.

In 2013 Sarasota School District’s Food and Nutrition Services Department received a USDA Farm-to-School Implementation Grant in order to increase Florida grown produce purchases. A full-time Farm-to-School liaison was hired to conduct farmer outreach, communicate with the produce distributor, expand the seasonality of the district menu, and track Florida grown purchases. At the end of the two-year grant period, the district increased Florida grown produce purchases from 18% to 32%, an increase of $147,750. The percentage of Florida grown produce purchased ranged from 6% in the off season to a high of 65% during the growing season.

In 2014, St. Lucie Food and Nutrition Service stakeholders, along with University of Florida, IFAS Extension and the Family Nutrition Program began working together to procure more Florida grown foods through an annual competitive bid awarded to Localecopia, a non-profit distribution company. Localecopia works directly with farmers to supply Florida produce at competitive prices to all schools in St. Lucie County. Some of the items sourced on a regular basis are lettuce, tomatoes, and peppers.

In 2016, an Orange County Farm-to-School pilot program partnership began at Ocoee High School. The partnership was initiated by John Rivers of 4-Rivers Restaurants and includes the Orange County Extension Service, the University of Florida, IFAS Family Nutrition Program with support from Orange County Public Schools. Students currently enrolled in the agriculture program at the school will receive training in hydroponics with hands on application in several renovated greenhouses. Hydroponic lettuce, cucumbers and tomatoes grown by the students will be supplied to the school’s cafeteria. Also, the school system is preparing a pilot competitive local foods purchasing bid and assigning a dedicated local foods liaison position to coordinate food purchases.

Based on the currently operating Farm-to-School programs that were identified, several options for successful implementation of the programs were identified:

- Use of pilot programs with multiple partners and funding sources helps to overcome existing barriers.

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• Startup grants and funding sources outside the school systems are commonly used.
• Having a dedicated local food coordinator position in the school system helps to move the program forward and aids in its success.
• Individuals passionate about local food systems help to drive the programs forward whether that individual is a farmer, a school employee or local entrepreneur.

Challenges to Implementation

There are significant impediments to expanding Farm-to-School programs beyond localized pilot projects especially in large counties with multi-million dollar food contracts. This is due to the increased cost and supervision usually required to manage separate local food sourcing.

• There is a lack of financial incentive for school systems to deviate from large contracts which focus on volume deliveries at the cheapest prices.
• Schools systems often require food delivered in a form that requires minimum or no processing by the school cafeteria staff.
• Many farmers lack the processing, cold storage/transportation and or value added product capability needed to accommodate the minimum handling requirements of schools.
• School systems require farms to have large liability insurance policies and hold them liable for any produce problems that may occur even after produce leaves the farm.

Materials and Methods

Successful Farm-to-School programs in Florida were identified and described using searches of available literature and by telephone conversations with project participants. Field visits were also made to several project site locations. Patterns of opportunities and challenges to implementation of Farm-to-School programs were identified and described.

An email survey to sixteen Florida county school lunch programs was conducted to collect baseline data on the use of leafy salad crops in their public school lunch programs. Follow up telephone surveys were made to selected counties to compile a representative list of most common salad crop uses. Four counties were selected representing small, medium and large county size with somewhat consistent representative serving size/weight among counties reporting salad options was observed. As a result, representative serving samples of shredded iceberg, chopped romaine and spring mix were obtained from Publix Supermarkets to determine an average estimated weight for those serving sizes (Table 1). The USDA serving size weight data tables were also consulted (USDA, 2016).

A preliminary lettuce variety trial was conducted in the Orange County Extension Explorations Gardens pad and fan greenhouse in the spring of 2016 to determine the amount of hydroponic production time necessary to reach certain weights of four Butterhead/bibb lettuce varieties: Adriana, Rex, Salanova Green Butter, and Salanova Red Butter. These were obtained from Johnny’s Selected Seeds, Winslow, Maine. Lettuce was seeded into Rockwool cubes in a plastic tray on 3/22/16 and kept moist until transplanted on 8 April 2016 into suspended net-pots in trays using the Kratky non-circulating hydroponic method (Kratky 2010). Treatments were arranged in a completely randomized block design with three replications of each variety. Lettuce head weights were measured 14, 21, and 28 days after transplanting.

Results and Discussion

There was some variety in leafy salad crop options in the school lunch programs surveyed. Most used some type of pre-chopped or shredded lettuce. Some utilized a salad mix consisting of other items such as chopped red cabbage and carrots (Table 1.) One school used a spring mix consisting of a variety of leafy fresh greens and lettuces of varying tastes and textures, such as red and green romaine, baby spinach, arugula, red and green mustard, red chard and frisée. The Alachua County program delivered whole hydroponic lettuce to the school cafeterias which were then processed by cafeteria staff.

The difference in weight between similar cup sizes was determined to be the result of whether the salad mix was compressed in the cup or the cup was filled with uncompressed salad (for example, 1 cup salad mix at 2.5 oz. vs. 1 cup hydroponic lettuce at 1.4 oz.). Serving size prices varied considerably with 1 cup servings ranging from $0.09 to $0.67 and 2 cup servings ranging from $0.32 to $1.20 (Table 1). The unusually low price that Lake County received for its shredded iceberg lettuce was due to their participation in the Department of Defense Fresh Fruit and Vegetable Program (DoD, 2011) and does not reflect the usual market prices for that item. Even though considerable variability exists between counties, this baseline leafy salad crop data should assist farmers and school lunch personnel in assessing the relative produce amounts and economic values that are of concern to both parties when developing local food system Farm-to-School contracts. Additional information is available that can be used to help determine the total amount of salad products needed to fill orders (Food Buying Guide, 2016; USDA, 2016).

Several common threads existed among discussions with school lunch program personnel: 1) they preferred ready to serve products requiring minimum handling by school staff, 2) the products must taste good or the students will not eat them and 3) when given the opportunity, students like to dip finger food. With this in mind, a lettuce variety trial was conducted as a precursor to the potential development of a whole

### Table 1. Survey results of estimated leafy salad crop uses in selected Florida county school lunch programs.

<table>
<thead>
<tr>
<th>School district</th>
<th>Salad crop type</th>
<th>Serving size weight (oz.)</th>
<th>Estimated price total per serving of lettuce</th>
<th>Annual price/lb (total lb purchased)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sumter County</td>
<td>Salad Mix, Chef w/ Red Cabbage &amp; Carrots</td>
<td>1 cup = 2.5 oz.</td>
<td>$0.25/serving</td>
<td>$1.60/lb (7,860 lb)</td>
</tr>
<tr>
<td>Sumter County</td>
<td>Iceberg (shredded)</td>
<td>1 cup = 2.5 oz.</td>
<td>$0.25/serving</td>
<td>$1.60/lb (3,180 lb)</td>
</tr>
<tr>
<td>Lake County</td>
<td>Iceberg (chopped)</td>
<td>1 cup = 2.6 oz.</td>
<td>$0.19/serving</td>
<td>$1.17/lb (21,687 lb)</td>
</tr>
<tr>
<td>Lake County</td>
<td>Iceberg (shredded)</td>
<td>1 cup = 1.3 oz.</td>
<td>$0.09/serving</td>
<td>$1.11/lb (12,260 lb)</td>
</tr>
<tr>
<td>Lake County</td>
<td>Romaine (chopped)</td>
<td>1 cup = 2.6 oz.</td>
<td>$0.33/serving</td>
<td>$2.07/lb (22,632 lb)</td>
</tr>
<tr>
<td>Lake County</td>
<td>Spring Mix</td>
<td>2 cups = 5.2 oz.</td>
<td>$1.20/serving</td>
<td>$3.69/lb (1,155 lb)</td>
</tr>
<tr>
<td>Orange County</td>
<td>Romaine (chopped)</td>
<td>1 cup = 2.04 oz. Elem</td>
<td>$0.32 Elem.</td>
<td>$2.12/lb (9,418 lb)</td>
</tr>
<tr>
<td>Orange County</td>
<td>Iceberg (shredded)</td>
<td>2 cups = 4.38 oz. High</td>
<td>$0.59 High</td>
<td>$1.07/lb (69,000 lb)</td>
</tr>
<tr>
<td>Orange County</td>
<td>Salad</td>
<td>1 cup = 2.46 oz. Elem</td>
<td>$0.18 Elem</td>
<td>-</td>
</tr>
<tr>
<td>Orange County</td>
<td>Mix</td>
<td>2 cups = 4.92 oz. High</td>
<td>$0.36 High</td>
<td>$1.16/lb (89,740 lb)</td>
</tr>
<tr>
<td>Alachua County</td>
<td>Hydroponic Leaf &amp; Romaine</td>
<td>1 cup = 1.4 oz.</td>
<td>$0.67/serving</td>
<td>$2.23/lb (1,260 lb)</td>
</tr>
</tbody>
</table>
food single salad serving for students in school lunch programs (Fig. 1). Results indicated that for harvesting a 1 cup, 1.4 ounce serving of whole hydroponic lettuce (Table 1), harvest should occur about 18 to 21 days after transplanting (Fig. 2; Fig. 3). If harvesting as a chopped lettuce serving, then the variety Rex, a compact dense lettuce variety provided the most weight when mature and harvested 28 days after transplanting. The two Salanova lettuce types have the advantage of only requiring one cut near the base of the plant after harvest to separate all the leaves from the core at once, potentially reducing single serving processing time. The Adriana variety was deemed to be too loose and light weight for the purposes of this trial.

Summary

Farm-to-School programs foster partnerships between local farms and school lunch programs while providing children and youth with locally grown, fresh fruits and vegetables. This helps bring economic, nutritional and environmental benefits to local communities. Five successful Florida Farm-to-School programs were identified and described. Based on their experiences, opportunities and challenges to implementation of Farm-to-School programs in Florida are described.

Surveys were conducted to establish a baseline for the use of leafy salad crops in selected county school lunch programs. This data should help establish weights and values that can be used by school lunch procurement staff and farmers to assist in negotiating and writing local food contracts for suppling leafy salad crops to school cafeterias. A hydroponic Bibb/butterhead lettuce variety trial was conducted to test the feasibility of creating a single serving whole salad mix using greenhouse lettuce production techniques.

With growing support for local food systems in Florida there is considerable potential for expanding Farm-to-School programs using pilot programs, grants and other innovative ideas generated by passionate advocates whether they are school lunch food service employees, farmers or other entrepreneurs in the local food system.

Literature Cited


