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## **Eating from the Garden**

### ***Evaluation Report for University of Missouri Extension 2009-2010 School Year***

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We especially acknowledge the students who participated in nutrition and gardening activities through this project. We thank them for completing the surveys for this evaluation. We are also appreciative of the families who completed surveys and expressed support for their children's participation in the Eating from the Garden project.

The evaluation team hopes that this report will clearly describe the various components of the Eating from the Garden project and will contribute to the lifelong healthy eating practices of students. We appreciate the assistance of Mrudhula Vajjha, Jodi Arnold, and Michael Abel at the Institute for their assistance in preparing this report.

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## Introduction

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### Project Description

**Overview.** The Health Care Foundation of Greater Kansas City awarded the Jackson County branch of the University of Missouri Extension a three-year grant to implement the “Eating from the Garden” curriculum in a project with children enrolled in programs or schools in the local area. Eating from the Garden is a gardening education program that offers urban children an opportunity to learn where their food comes from and helps them to be better stewards of the environment by designing, cultivating and harvesting school or community center based gardens. The program is designed to encourage the students to try new and healthier foods because they have the opportunity to eat the produce they grow. The intent of the Eating from the Garden curriculum is to teach them about nutrition by relating each lesson to a garden activity.

**Goals.** The Eating from the Garden project aims to achieve these goals with students:

- Increase their consumption of fruits and vegetables,
- Improve their nutritional habits,
- Develop indoor and outdoor gardening skills, and
- Increase their environmental awareness.

**Program Implementation.** The Eating from the Garden program is conducted on a bi-weekly basis at each site throughout the school year. After completing the 30-hour training program, nutrition garden volunteers and program partners lead the program activities and work directly with the students.

**Student Activities.** Students are able to taste fresh fruits or vegetables, develop an outdoor garden, and engage in numerous hands-on activities related to nutrition and plant science. They explore important nutrients and habits for healthy eating through MyPyramid. They are introduced to basic food safety and food handling practices. At each site, a local chef provides demonstrations throughout the year for students and parents to encourage them to taste and prepare fresh fruits and vegetables that can be grown in a home garden.

## Participating Programs

Twenty-three of the 27 sites participating in the Eating from the Garden project during the 2009-2010 School Year provided program evaluation information.<sup>1</sup> Sixteen sites submitted both student and teacher data, and 10 sites submitted evaluation data from students, parents, and teachers.

Student survey data were submitted from report are from the following 20 participating schools and programs:

- The Afrikan Centered Education Collegium Campus (ACECC) (two classrooms)
- Benjamin Banneker Elementary School
- Border Star Montessori School (two classrooms)
- Carver Elementary School (four classrooms)
- Conn West Elementary School
- Dobbs Elementary School
- Gordon Parks Elementary School (two classrooms)
- Holliday Montessori School (two sessions)
- Holy Cross Catholic School (two classrooms)
- Ingels Elementary School
- Knotts Elementary School
- Nativity of Mary School (two classrooms)
- Satchell Paige Elementary School (two classrooms)
- Scuola Vita Nouva Charter School (two classrooms)
- Symington Elementary School
- Thomas J. Ultican Elementary School
- Truman Elementary School
- Woodland Elementary School
- Kansas City Urban Youth Center
- Stonegate Meadows Apartment Community Center

Teachers from 19 sites<sup>2</sup> and parents from 12 sites<sup>3</sup> also completed surveys at the conclusion of the School Year.

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<sup>1</sup> Center High School, Johnson Elementary School, Forty Acres and a Mule, and the East 43<sup>rd</sup> Street location of Boys and Girls Club have participated in Eating from the Garden but have not provided evaluation information at this time.

<sup>2</sup> East Hills Village, Friendship Village, and Whatsoever Community Center provided teacher survey data but did not provide student data. Conversely, these sites provided student data but did not provide teacher data: Benjamin Banneker Elementary, Ingels Elementary, Knotts Elementary, and Symington Elementary.

<sup>3</sup> These sites provided parent survey data: ACECC, Carver Elementary, Conn West Elementary, Gordon Parks Elementary, Holliday Montessori, Holy Cross Catholic School, Ingels Elementary, Scuola Vita Nouva Charter School, Symington Elementary, Thomas Ultican, Truman Elementary, Woodland Elementary.

## Instrumentation

**Student Pre/Post Survey.** The University of Missouri Extension staff administered a *Gardening Student Survey* (pre-survey) to students at the beginning of the School Year to determine the students' knowledge about gardening and eating healthy foods and their experience and interest in these topics. At the end of the year, University Extension staff administered the *Gardening Student Survey* post-survey to participating students. The questions assessed student experience and knowledge on topics covered in the curriculum. Students also evaluated the Eating from the Garden curriculum.

The 6-item pre-survey contains one *yes/no* question and 5 multiple choice questions. The questions pertain to student's knowledge about healthy eating habits and gardening. The 12-item post-test includes 5 *yes/no* questions, 4 multiple choice questions, and 5 questions requesting brief narrative responses. Four of the questions in the pre-test are repeated in the post-test. Appendix A displays the *Gardening Student Survey* pre-test, and Appendix B displays the post-test.

**Teacher Survey.** At the end of the school year, teachers completed the *Teacher Observation and Behavior Report* (see Appendix C). This 44-item survey is divided into two sections. One section focuses on observed and reported changes in students' behaviors as a result of the program. This section consists of 20 items in which teachers respond *yes, no, or unsure*. The other section focuses on changes in teacher behaviors as a result of their participation in the program. It consists of 21 items to which teachers respond *yes, no, or already practicing*, with regard to (a) their behavioral changes associated with Eating from the Garden and (b) whether they are discussing or modeling these changes with their students. Three additional questions document the number of years they have participated in the program, the settings in which they interact with the students, and their suggestions, ideas and comments for the Eating from the Garden program.

**Parent Survey.** Parents completed the *Parent End of Year Survey* at the conclusion of the School Year (see Appendix D). The parent survey consists of 5 basic questions. Each has several parts that are answered by *yes/no* or multiple choice options. Parents are asked questions to assess their awareness and involvement in the program. They are also asked to provide information about their perceptions of their child's participation in the Eating from the Garden project and changes that have occurred in the home as a result of their child's participation.

**Volunteer Survey.** The program also administered a survey to the volunteers who assisted with the project. These findings are not included in this report.

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## Preliminary Year 1 Findings

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### Student Findings

During the initial year of this study, students were administered the *Gardening Student Survey* pre-test in the fall. Then the project activities occurred throughout the School Year, and the *Gardening Student Survey* post-test followed.

**Student Sample.** During the 2009-2010 School Year, 632 students participated in the Eating from the Garden program and evaluation. Of these, 486 (77%) completed the pre-survey, and 423 (67%) completed the post-survey. A total of 280 of the 632 students (44%) completed both the pre- and post-test.

**Pre-Survey Results.** In the *Gardening Student Survey* (pre-survey), the following 6 items pertained to gardening and healthy eating habits.

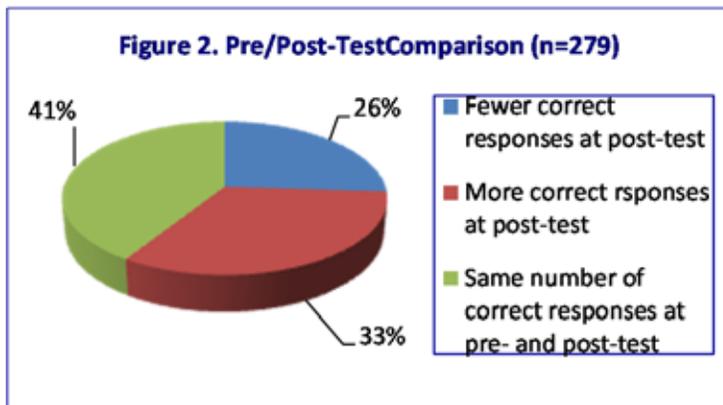
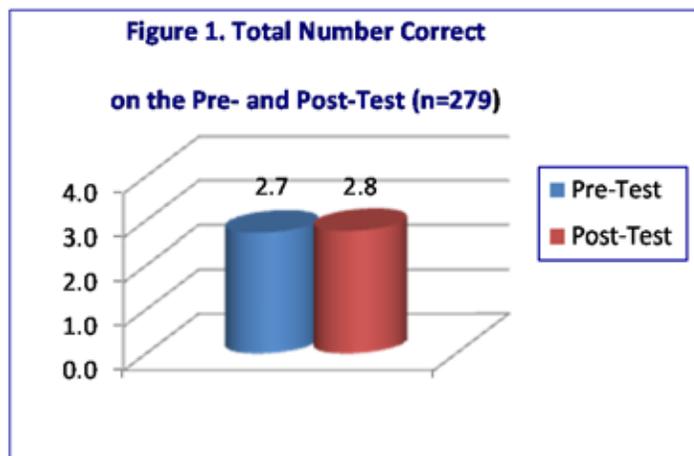
1. Of 486 responding students, 26% reported having a vegetable garden at home.
2. In addition, 19% reported home gardening on an ongoing basis, 27% reported some home gardening, and 24% reported having a home garden at one point in time.
3. In response to an item requesting the identification of a food that should be eaten more frequently, 90% selected the correct response, i.e., *Fresh apples*.
4. When students were asked how food labeling can be helpful, 75% selected *Choose healthier food* and 11% selected *Know what's in the package*, which were the two correct answers from the four options.
5. Twenty-two percent correctly identified *Leaf* as the part of the plant that uses the sun's energy to make food.
6. Over half (56%) of students accurately chose *Rocks* as the item that is not used to make compost.

**Comparison of Pre/Post-Test Findings.** Four items were presented to the students on both the pre-test and post-test to assess their knowledge gains. As shown in Table 1, the majority of students answered three of the four items correctly each time. The only item with more incorrect answers at both the pre- and post-test pertained to the part of the plant that uses the sun's energy to make food.

**Table 1. Comparison of Student Pre- and Post-Test Items**

Student Items (Correct Responses Shown in Bold Type)	n	Pre-Test %		Post-Test %	
		Correct	Incorrect	Correct	Incorrect
MyPyramid tells us to eat more: <b>(A) Fresh apples</b> , (B) Applesauce, (C) Apple pie, (D) Apple muffins	279	92%	8%	82%	18%
The "Nutrient Facts" on the food label helps us to (A) See what the food looks like, <b>(B) Know what's in the package</b> , <b>(C) Choose healthier food</b> , (D) Buy food at lower cost	279	89%	11%	81%	19%
Which part of the plant uses the sun's energy to make food? (A) Root, (B) Stem, <b>(C) Leaf</b> , (D) Flower	279	28%	72%	41%	59%
Which item is not an ingredient used to make compost? (A) Dried Leaves, (B) Fruit and vegetable scraps, <b>(C) Rocks</b> , (D) Water	279	63%	37%	72%	28%

Matched pre- and post-tests were collected from 279 students. For the four items assessed at both times, there was no significant change in the mean number of correct items from the pre-test to the post-test (means of 2.7 and 2.8 correct, respectively). See Figure 1.



In addition, it was noted that the largest percentage of students had the same number of correct responses at each assessment (41%), while 33% had more correct responses, and 26% had fewer correct responses at the post-test. See Figure 2.

**Student Evaluation of the Eating from the Garden Project.** Several questions on the post-survey assessed the degree to which the students perceived that they benefitted from their participation in the Eating from the Garden project. Of the 423 students who completed the post-survey:

- Almost all (96%) responded that they enjoyed growing fruits and vegetables at their site;
- Most (81%) would like to grow fruits and vegetables at home;
- Over half (55%) reported eating vegetables that they had not eaten previously, listing 36 different types (most commonly carrots, radishes, broccoli, spinach, tomatoes, and lettuces);
- Almost half (45%) wanted to learn more about gardening; and
- Over one-third (39%) wanted to learn more about nutrition.

**Benefits Related to Nutrition.** Students described what they learned about nutrition. They cited insights about food selection and benefits of vitamins and other nutrients:

- *I should try different vegetables and fruits. I should eat healthier things when I go out to eat.*
- *I learned how to eat healthier food than junk food that I had never tried before that were healthier and good tasting.*
- *Vitamin A is good for your eyes. Calcium is good for your bones and teeth.*
- *Vitamin C helps heal things. Fiber helps you digest food.*
- *[I] learn[ed] how to read nutrition labels, eating better, using the nutrition label.*

Students also reported that they wanted to learn more about nutrition. Some wanted more information about specific nutritional components of a healthy diet. The following is a sampling of their comments:

- *What do carbs mean?*
- *How [does] calcium helps your bones.*
- *What foods have fiber in them?*
- *What is the best thing to eat for snack?*
- *How...[could I]get one food from each food group in every meal.*
- *I would like to learn more about food labels.*
- *I would want to learn how to make you a very healthy meal.*

**Benefits Related to Gardening.** Students also described what they had learned about gardening during the Eating from the Garden project. They reportedly learned about a wider variety of vegetables and fruits and about plant requirements for healthy growth. They also cited increased knowledge about garden tools, plant cycles, garden insects, and composting. The following are some reflections from students about what they learned:

- *Growing a garden is a lot of work.*
- *Always keep weeds out of the garden. Keep the garden watered.*
- *You should put the plant in deep enough for its roots to grow. Give plants lots of sun.*
- *How to prepare your garden and when to harvest your crop.*
- *How to make compost from scraps.*
- *Worms are good for the soil.*
- *Learning about bad bugs and good bugs.*

They also identified garden-related topics about which they wanted more information. Some wanted to know more about the variety of vegetables they could grow and the harvesting cycles. Others wanted to know about the best location for a garden, as well as soil preparation and the planting process. Following is a sampling of their comments:

- *I would like to learn what kind of nutrients make a garden successful.*
- *Growing cycle(s)*
- *How can a root grow*
- *How to tell plants apart and good and bad bugs apart.*
- *How to make a green house.*
- *How to make winter plants grow.*

**Program Highlights for Students.** Students were asked to identify what they liked best about Eating from the Garden. *Eating* and *tasting food* were mentioned many times. Other students focused on the nutritional aspects of the program: *“How to stay healthy, stay strong and take care of yourself,”* and *“Orange and green vegetables make you see better in the dark.”* Program activities were often listed as a favorite part of the program. Some comments about activities are as follows:

- *Tasting the food we planted.*
- *The best thing...was trying out the seeds.*
- *We got to go in the garden and play and explore...*
- *Getting dirty!*
- *To learn facts and recipes.*
- *The best thing...is eating a salad, a wrap from our garden.*
- *That we got to cook.*
- *Took a field trip to a garden center.*

Several students commented on relationships with the person(s) who worked with them during the Eating from the Garden project. They listed a number of individuals as their favorite part of the project.

## Teacher Findings

**Teacher Sample.** A total of 25 teachers from 19 programs completed the *Teacher Observation and Report Survey*, administered in the spring of the School Year. Sixteen were teachers in elementary schools, including 6 fourth grade teachers, 7 fifth grade teachers, and 3 teachers of mixed-age classes. One respondent taught mixed ages of children in a before-school program, and 3 taught mixed ages in an after school program. The other 5 teachers led mixed-age groups in community centers.

**Program Information.** Teachers reported the amount of time that their classroom had been participating in the *Eating from the Garden* program. Twelve teachers (48%) said that this was their classroom's first year of participation in the project (48%), while 11 (44%) said that it was their second year. Two teachers (8%) indicated that this was their third year to participate.

**Settings of Teacher/Student Interaction.** The teachers listed the types of settings in which they interact with the participating students, confirming the types of settings in which their behavioral changes related to *Eating from the Garden* could be observed. Among the 16 teachers who taught at elementary school, these were the settings in which they interacted with the students:

- In the classroom (88%),
- At recess (63%),
- In the restroom (56%),
- At meal and snack times (44%), and
- During out of school time (31%).

Two of the 9 teachers in out-of-school time programs (22%) also reported interacting with participating children at meal and snack times, in addition to their out-of-school time programming.

**Teacher Perceptions of Student Behavioral Changes.** Teachers most frequently observed the following changes in student behavior: caring for plants responsibly, valuing good nutrition, and willingly trying new foods. In addition, they reported that students talked about changes in their own behaviors. Students similarly acknowledged changes in these same areas. Table 2 provides more detail.

**Table 2. Teachers' Perceptions of Changes in Student Behaviors<sup>4</sup>**

Student Behavior	Have you observed this change in your students?			Have your students talked about this change?		
	Yes (n)	No (n)	Unsure (n)	Yes (n)	No (n)	Unsure (n)
More aware of the importance of good nutrition	96% (23)	0% (0)	4% (1)	87% (20)	13% (3)	0% (0)
Make healthier meal and/or snack choices	58% (14)	13% (3)	29% (7)	77% (17)	9% (2)	14% (3)
More willing to try new foods	92% (23)	0% (0)	8% (2)	88% (21)	4% (1)	8% (2)
Improved hand washing	88% (22)	8% (2)	4% (1)	65% (15)	26% (6)	9% (2)
Improved food safety (other than hand washing)	60% (15)	8% (2)	32% (8)	54% (13)	25% (6)	21% (5)
Increased physical activity	58% (14)	13% (3)	29% (7)	55% (12)	27% (6)	18% (4)
Use good food safety with garden produce	78% (18)	0% (0)	22% (5)	41% (9)	41% (9)	18% (4)
More aware of protecting our food supply	62% (13)	5% (1)	33% (7)	65% (13)	15% (3)	20% (4)
Have a sense of responsibility when caring for plants in the garden	100% (23)	0% (0)	0% (0)	91% (20)	0% (0)	9% (2)
Show interest in growing fruits and vegetables for better health at their homes	84% (21)	0% (0)	16% (4)	75% (15)	0% (0)	25% (5)

Teachers provided the following comments about changes observed in student behaviors:

- *The kids were so enthusiastic about working in the garden and gained a lot from this experience...It was fun to see how they gradually became more willing and then enthusiastic about trying new foods.*
- *Lots of students wanted to plant their own garden at home.*
- *[Students were] more aware of washing hands before eating, after sneezing and coughing.*
- *Eating more salads, reading more labels.*
- *This program offers the children the opportunity to try new foods and they are more willing to try.*
- *Children seem to be bringing healthier lunches to school.*

<sup>4</sup> Due to rounding, total percentages in table may not equal 100%. Sample size varies slightly from item to item due to teachers' omission of responses to specific questions.

**Teacher Self-Perceptions of Changes in Their Own Behavior.** Teacher offered the following comments about changes in their own practices within the classroom:

- *[We have] healthier menus when we plan class parties.*
- *We bring fresh fruits for snacks in class.*
- *[I] encourage students to eat less junk food/fast foods.*
- *[I] model good choices by eating nutritiously.*

Two teachers also talked about personal changes they have made because of the project:

- *I've learned a lot through this program...It's helped me to start my own garden and compost heap at home.*
- *Now [I] receive Door to Door Organics food twice a month.*

In addition, over half of the responding teachers reported that they were already practicing improved hand washing (58%) and food safety (56%). Table 3 provides more complete information.

**Table 3. Self-Perceived Changes in Teacher Behaviors<sup>5</sup>**

Teacher Behavior	Have you made this change since our program?			Do you talk about or model this behavior in front of students?	
	Yes (n)	No (n)	Already Practicing (n)	Yes (n)	No (n)
More aware of the importance of good nutrition	68% (17)	0% (0)	32% (8)	100% (24)	0% (0)
Make healthier meal and/or snack choices	54% (13)	4% (1)	42% (10)	92% (22)	8% (2)
More willing to try new foods	56% (14)	0% (0)	44% (11)	96% (22)	4% (1)
Improved hand washing	42% (10)	0% (0)	58% (14)	87% (20)	13% (3)
Improved food safety (other than hand washing)	40% (10)	4% (1)	56% (14)	83% (19)	17% (4)
Increased physical activity	50% (12)	21% (5)	29% (7)	88% (21)	13% (3)
Practice good food safety with garden produce	55% (12)	5% (1)	41% (9)	82% (18)	18% (4)

<sup>5</sup> Due to rounding, total percentages in table may not equal 100%. Sample size varies slightly from item to item due to teachers' omission of responses to specific questions.

Teacher Behavior	Have you made this change since our program?			Do you talk about or model this behavior in front of students?	
	Yes (n)	No (n)	Already Practicing (n)	Yes (n)	No (n)
Encourage students to be responsible for garden care	78% (18)	0% (0)	22% (5)	95% (20)	5% (1)
More aware of protecting our food supply	65% (15)	9% (2)	26% (6)	73% (16)	27% (6)
Interest in growing fruits and vegetables for better health at home	58% (14)	17% (4)	25% (6)	78% (18)	22% (5)
Make/offer healthier food choices for students	65% (15)	4% (1)	30% (7)		

**Other Teacher Comments.** Teachers provided numerous comments about their experiences with Eating from the Garden. They evaluated the program in these ways:

- *I love that they bring healthy things to show the students that all foods can taste good, even spinach! I even tasted collard greens which I thought I'd never eat. Great program.*
- *We truly enjoyed this program and our kids are excited about trying new foods and love... grow[ing] their own veggies. Thanks SO Much!*
- *Well organized...Kids love the tastings.*
- *This is a great program for inner-city children. I learned a lot about gardening as well. This has sparked an interest in me to start a garden at home. I love the idea of exposing the children to fresh fruits and vegetable and being able to taste in class.*
- *Eating from the Garden is a great program. The kids that have been in the program for years still learn something every year. I think that there has been changes made since I've been here and it was for the good. [We] really enjoy this program.*
- *What I like best about the Eating from the Garden Program is that each lesson could pretty much stand on its own. [As] an after school site, I don't always have the same youth consistently attending every day. They don't necessarily have to have been in attendance the previous week to know what is going on.*
- *I feel the program motivated students to think of our food supply.*

Two teachers added evaluative descriptions of the volunteers who worked with the students:

- *Our volunteers are fantastic-we have new volunteer...[who have] jumped in with both feet and shows lots of enthusiasm.*
- *The instructors were very knowledgeable and easy to work with.*

## Parent Findings

**Parent Sample.** A total of 129 parents of students participating in Eating from the Garden completed a survey at the end of the School Year, excluding 6 parents who submitted blank surveys. The children of responding parents were enrolled in 12 of the participating programs. Altogether, this is a 20% response rate for parents of children in the Eating from the Garden project.<sup>6</sup> About two-thirds of respondents (67%) were parents of children who participated in Eating from the Garden at school, while the others were parents of children who participated during their out-of-school time program activities.

**Parent Awareness.** Most of the parents who completed the survey were aware that their child was participating in the program, and most read the Family Letters. Approximately one-third tried suggested recipes or activities, as well. Almost half of the parents knew about the chef demonstrations, with 11% attending the demonstrations with their child. See Table 4.

**Table 4. Parent Awareness of Eating from the Garden Project Activities**

Survey Item	Percentage of Responding Parents (n=129)
Aware that your child was participating in a nutrition and gardening program	73%
Read the Family Letters sent home after each lesson	66%
Tried recipes or activities from the Family Letters	34%
Aware of chef demonstrations with fruits and vegetables at your child's school/program	46%
Attended a chef demonstration with your child	11%

Parents were asked to identify the best ways that the Eating from the Garden project could help them learn more about healthy lifestyles. Over half (51%) liked the parent/child cooking session option. One parent commented that she preferred the cooking session "*because the children play a big part of the growth.*" Almost half (49%) also liked the newsletter as a source of information about healthy lifestyles. Additionally, 41% of responding parents thought that homework activities with their child would be a positive way for them to learn about healthy lifestyles. A few parents suggested other alternatives, e.g., "*Internet,*" "*email,*" "*...recipes,*" and "*worksheets/reports.*"

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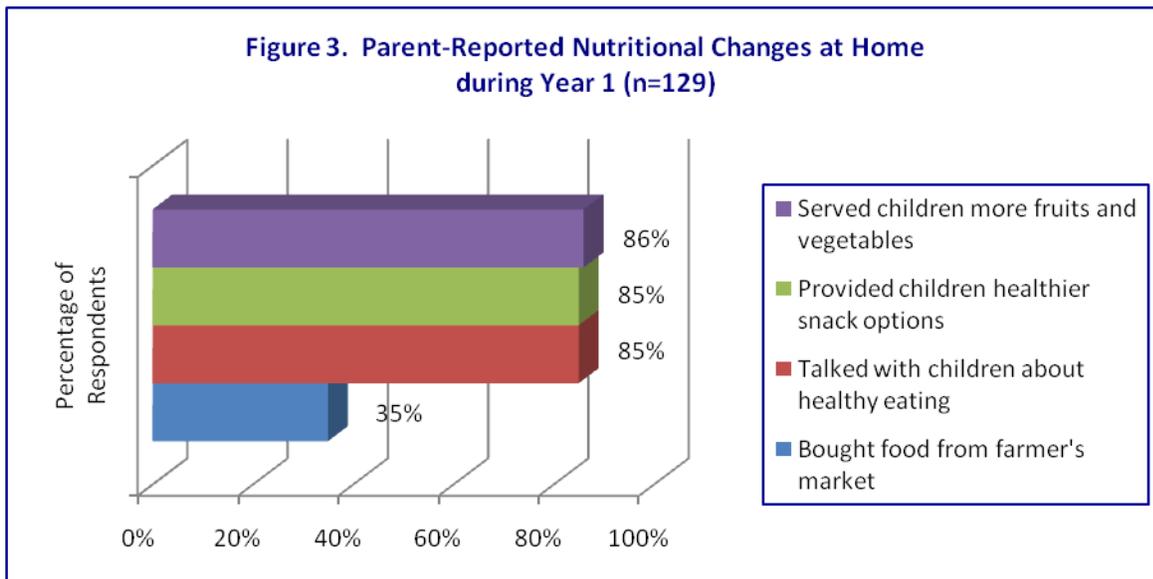
<sup>6</sup> Parent findings must be interpreted with caution. It cannot be assumed that the non-responding parents would respond similarly to the 20% who completed the survey.

**Parent Reports on Family Nutrition.** Parents also reported the frequency with which their child has eaten fruits and vegetables since the beginning of the school year. A majority of responding parents reported that their children tried (81%), asked for (86%), and/or chose (78%) more fruits and vegetables. Concerning actual intake of fruits and vegetables, compared to the beginning of the year, parents estimated the following:

- For 76%, children ate more of these foods,
- For 16%, children neither increased nor decreased their intake of these foods,
- For 6%, children ate both more and less of different fruits and vegetables, and
- For 3%, children ate less of these foods.

Parents were also given an opportunity to comment on this survey item. One parent indicated that her child *"came home asking me to buy/make more fruits and vegetables, so I did!"* Another stated that her child *"is eating more of a variety of different foods, trying more."*

Parents cited changes that they made in four specific areas since the beginning of the school year. As displayed in Figure 3, a large majority of parents reportedly served their children more fruits and vegetables, provided healthier snack options for their children, and discussed healthy eating with their children. In addition, more than one-third indicated that they purchased food from a farmer's market.



Following are other parent comments about the nutritional aspects of the project:

- *[I] learned how to cook...healthier.*
- *I feel the program is very good for kids and adults. There are so many overweight grade school kids and adults, teenagers, that healthy eating should be demonstrated in all schools and also at home.*
- *Because I have diabetes we (household) have to make better food choices.*

**Parent Reports on Home Gardening.** Parents responded to a series of questions about their intent to garden at home. Fifty-three parents reported that they intended to grow some fruits or vegetables over the summer. Of these, 26% had grown one before, 18% indicated their child requested that they grow a garden, 12% had never had a garden before but decided it was something they wanted to do, and 11% stated that they would like information about planting a garden at home. Parents reported other reasons for starting a garden such as *"I love planting"* and *"(I) like home grown veggies."* One parent stated that cost was a factor and wanted *"to save money on fruit and vegetable(s)."* Another viewed a garden as a way to increase the family income, saying, *"We plan to sell some at the farmers market to make money."*

Sixty-eight parents indicated that they were not planning to grow a garden. Of these, 22% did not have the time or the place for a garden, 15% were not interested, and 4% had a garden previously but were not interested in having one now. One parent said, *"I would love a garden, but we don't have the space,"* and another stated, *"I don't know my residents. It's not right to dig up someone else's yard."* Other parent comments included:

- *[I] don't know how.*
- *[There is] not enough money for this.*
- *We live in...[an] apartment.*
- *[I'm] not a good gardener.*
- *We don't have a yard, but are going to try the topsy tomato plant.*

Parents were also asked if they would be interested in helping with the garden during the upcoming project year. Fifty-six parents expressed their willingness to volunteer. The most frequently cited reason that parents were unable to volunteer was work-related scheduling conflicts.

**Other Parent Comments.** Parents gave additional evaluative comments to guide the Eating from the Garden project. Following are representative parent comments.

- *It was a good learning experience.*
- *Gardening is good. Teaches on self sufficiency and teaches the children that we can produce what we eat – agriculture.*

Parents also made the following requests and suggestions:

- *These projects can also be started in the science classes.*
- *(I) would like more information about growing your own garden.*
- *Try to get more people involved and grow different stuff.*

- *Maybe invite parents to do a prep/cooking session. I had never seen or eaten collard greens before grandparent's day last year and my kids liked them and the way they were prepared - unfortunately the recipe they gave wasn't the one that was made, so we couldn't duplicate it.*
- *Label the foods that you grow. The kids have a hard time identifying the plants.*
- *Volunteers that loved to teach the youth.*

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## Discussion and Implications

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Among the most promising findings in this program evaluation are the reports from students, teachers, and parents about the students' increased willingness to try more healthy foods and the students' increased interest in gardening. These findings appear across types of programs that participated in the Eating from the Garden project, as well as across the age groups of students.

It is less apparent from the pre- and post-test data that the students gained new knowledge about nutrition and gardening. Since only four identical content-focused questions were asked at both the pre- and post-test, it could not be verified that learning related to these topics increased. It is recommended that the curriculum be carefully examined to determine the desired content that all students should master through the curriculum. Then the development and administration of a broader set of identical items at both the pre- and post-test is recommended, including some questions that include interval or ordinal measurement. This will assist in determining whether student mastery of the most vital information from the curriculum occurred.

Ongoing effort to collect information from all participating students and their teachers and parents is also encouraged. The improved response rates will lead to a better understanding of the full impact of the program. Responses from the larger samples will aid in the determination of barriers to implementation. In addition, this information will assist programmatically in ascertaining which content areas to enhance or clarify and which successful features to expand.

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## Appendices

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Appendix A	Student Gardening Survey (Pre-Test)
Appendix B	Student Gardening Survey (Post-Test)
Appendix C	Teacher Survey
Appendix D	Parent Survey



## Appendix A: Gardening Student Survey (Pre-Test)

Directions: Circle the best answer.

1. Do you have a vegetable garden at home?
  - A. Yes
  - B. No
  
2. Has your family ever planted a garden?
  - A. Never
  - B. Once
  - C. Sometimes
  - D. All the time
  
3. MyPyramid tells us to eat more:
  - A. Fresh apples
  - B. Applesauce
  - C. Apple pie
  - D. Apple muffins
  
4. The Nutrient Facts” on the food label helps us to
  - A. See what the food looks like
  - B. Know what’s in the package
  - C. Choose healthier food
  - D. Buy food at a lower cost
  
5. Which part of the plant uses the sun’s energy to make food?
  - A. Root
  - B. Stem
  - C. Leaf
  - D. Flower
  
6. Which item is not an ingredient used to make compost?
  - A. Dried leaves
  - B. Fruit and vegetable scraps
  - C. Rocks
  - D. Water



## Appendix B: Gardening Student Survey (Post-Test)

Directions: Circle the best answer.

1. Did you enjoy growing fruits and vegetables in your school garden?
  - A. Yes
  - B. No
  
2. Would you like to grow fruits and vegetables with your family at home?
  - A. Yes
  - B. No
  
3. After taking this class, do you eat a vegetable now that you never had before?
  - A. Yes            If Yes, what vegetable(s)? \_\_\_\_\_
  - B. No
  
4. MyPyramid tells us to eat more:
  - A. Fresh apples
  - B. Applesauce
  - C. Apple pie
  - D. Apple muffins
  
5. The Nutrient Facts” on the food label helps us to
  - A. See what the food looks like
  - B. Know what’s in the package
  - C. Choose healthier food
  - D. Buy food at a lower cost
  
6. Which part of the plant uses the sun’s energy to make food?
  - A. Root
  - B. Stem
  - C. Leaf
  - D. Flower

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7. Which item is not an ingredient used to make compost?
  - A. Dried leaves
  - B. Fruit and vegetable scraps
  - C. Rocks
  - D. Water
  
8. List two things you learned about nutrition during the Eating from the Garden program this year.
  
  
  
  
  
  
  
  
  
  
9. List two things you learned about gardening during the Eating from the Garden program this year.
  
  
  
  
  
  
  
  
  
  
10. Would you like to learn more about gardening? Yes no  
If yes, what?
  
  
  
  
  
  
  
  
  
  
11. Would you like to learn more about nutrition? Yes no  
If yes, what?
  
  
  
  
  
  
  
  
  
  
12. What was the best thing about the program this year?



## Appendix C: Teacher Observation and Behavior Report

Changes in Students Behaviors <i>Please check 'yes', 'no, or 'unsure' next to changes that students may have made since receiving our program.</i>	Have you observed this change in your students?				Have your students talked about this change?		
	Yes	No	Unsure		Yes	No	Unsure
More aware of the importance of good nutrition							
Make healthier meal and/or snack choices							
More willing to try new foods							
Improved hand washing							
Improved food safety (other than hand washing)							
Increased physical activity							
Use good food safety with garden produce							
More aware of protecting our food supply							
Have a sense of responsibility when caring for plants in the garden							
Show interest in growing fruits and vegetables for better health at their homes							
<i>Please share any comments about changes your students have made:</i>							
Changes in Teacher Behaviors <i>Please check 'yes', 'no', or 'already practicing' to show what changes you have made since our program. Check 'already practicing' if you were engaging in this behavior prior to our program.</i>	Have you made this change since our program?				Do you talk about or model this behavior in front of students?		
	Yes	No	Already practicing		Yes	No	
More aware of the importance of good nutrition							
Make healthier meal and/or snack choices							
More willing to try new foods							
Improved hand washing							
Improved food safety (other than hand washing)							
Increased physical activity							
Practice good food safety with garden produce							
Encourage students to be responsible for garden care							
More aware of protecting our food supply							
Interest in growing fruits and vegetables for better health at home							
<b>Make/offer healthier food choices for students</b>							
<i>Please share any comments about changes you have made:</i>							

Agency/ School Name: \_\_\_\_\_

Teacher/ Service Coordinator: \_\_\_\_\_

**How long has your classroom participated in the Eating from the Garden Program?**

\_\_\_ This was the first year your classroom/ agency has participated

\_\_\_ This was the second year your classroom/ agency has participated

**In what settings do you interact with this group of students? (Check all that apply)**

\_\_\_ Classroom

\_\_\_ Recess

\_\_\_ Lunch/ Dinner/ Snack Time

\_\_\_ Afterschool Programming

\_\_\_ Restroom

\_\_\_ Community Center Programming

**Do you have any requests, suggestions, ideas for improvement, or other comments?**

**Thank you for the opportunity to work with your students. We appreciate your support of nutrition and gardening education. Your feedback is important to us—it will help us provide programming that best meets the needs of you and your students.**

ID Number:



## Appendix D: Eating from the Garden Parent End of Year Survey

We would like your thoughts about the Eating from the Garden program that your child participated in this year. We hope that you and your child have enjoyed the program.

1. Please answer the following questions.

	Yes	No	Comments
a. Were you aware that your child was participating in a nutrition and gardening program?			
b. Did you read the Family Letters that were sent home after each lesson?			
c. If you received the Family Letters, did you try any of the recipes or activities?			
d. Were you aware of the chef demonstrations with fruits and vegetables at your child's school?			
e. Did you attend a chef demonstration with your child?			

2. What is the best way the Eating from the Garden program can help parents learn more about a healthy lifestyle? (circle all that apply)

- a. A newsletter
- b. Homework activities with my child(ren)
- c. Parent/child cooking session
- d. Other: \_\_\_\_\_

5. Since the beginning of the school year, my child seems to have:

	Yes	No
a. Eaten more fruits and vegetables		
b. Tried more fruits and vegetables		
c. Asked for more fruits and vegetables		
d. Chosen more fruits and vegetables for a snack when given the opportunity.		
e. Eaten less fruits and vegetables		

Comment: \_\_\_\_\_

6. Since the beginning of the school year, I have

	Yes	No
a. Talked to my child about healthy eating		
b. Served my child more fruits and vegetables		
c. Provided healthier snack options for my child		
d. Bought food from a farmer's market		

Comment: \_\_\_\_\_

ID Number:
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7. Do you plan to grow some fruits or vegetables this summer?

- a. Yes
- b. No

If *Yes*, what are the reasons? (circle all that apply)

- a. We've had a garden before, and we like to grow some fruits and vegetables.
- b. We've never had a garden before, but decided it would be something we want to do.
- c. My child asked to grow some vegetables this summer.
- d. I would like some more information about planting a garden.
- e. Other: (please explain) \_\_\_\_\_

If *No*, what are the reasons? (circle all that apply)

- a. We've had one before, but I'm not interested this year.
- b. My child asked to grow some vegetables this summer, but we don't have the time or place to do so.
- c. We are not interested in growing fruits and vegetables.
- d. Other: (please explain) \_\_\_\_\_

8. Would you be interested in helping with the garden next year?

9. Other comments or ideas for improving the program?

*Thank you for your time in completing this survey! Please return to your child's teacher. Have a great summer.*

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School: \_\_\_\_\_ Child's teacher: \_\_\_\_\_