

United States
Department of
Agriculture



Economic
Research
Service

May 2003



Evaluation of the USDA Fruit and Vegetable Pilot Program Report to Congress

Jean C. Buzby
Joanne F. Guthrie
Linda S. Kantor



*Food Assistance & Nutrition
Research Program*

Evaluation of the USDA Fruit and Vegetable Pilot Program: Report to Congress.
By Jean C. Buzby, Joanne F. Guthrie, and Linda S. Kantor. Food Assistance and Nutrition Research Program, Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture.

Abstract

Almost all schools participating in USDA's Fruit and Vegetable Pilot Program (FVPP) consider the program to be very successful and would like the pilot to continue. The Nutrition Title of the 2002 Farm Act provided \$6 million to the FVPP for the 2002-03 school year to improve fruit and vegetable consumption among the Nation's schoolchildren. The FVPP provided fresh and dried fruits and fresh vegetables free to children in 107 elementary and secondary schools—100 schools in 4 States (25 schools each in Indiana, Iowa, Michigan, and Ohio) and 7 schools in the Zuni Indian Tribal Organization (ITO) in New Mexico. The intent of the pilot is to determine the feasibility of such a program and its success as assessed by the students' interest in participating. Of the 105 schools reporting on feasibility, 100 believe that it is feasible to continue the pilot if funding were made available. The pilot provided ample funding that averaged about \$94 per student. Schools believed that 80 percent of students were very interested in the pilot, and 71 percent reported that students' interest had increased during the pilot period. Many schools reported that the 10-percent cap on nonfood (for example, labor) costs out of each grant was too restrictive. This report provides an early review of the pilot.

Acknowledgments

Special thanks to David Smallwood, Deputy Director for Food Assistance Research at ERS, for his helpful feedback and support, and to Julie Skolmowski, who interned during the early stages of the evaluation and provided assistance on a wide range of tasks. Erika Gordon at ORC Macro and Shirley Pareo and John Booker at the University of New Mexico provided valuable help in collecting and analyzing data. Thanks also to Linda Fischer (ARS), who was the Contracting Officer for the evaluation, Nicole Ballenger (ERS), and Stanley Garnett, Rosemary O'Connell, John Endahl, and Fred Lesnett (FNS) for their assistance. Thanks to Linda Hatcher and Victor B. Phillips, Jr., for editing and design assistance. Thanks to all pilot schools, State Directors, and State offices for their assistance with the pilot and its evaluation. Thanks also to partners Barry Sackin at the American School Food Service Association, Lorelei Disogra and others at the National Cancer Institute's 5 A Day For Better Health Program, and all others involved in this cooperative endeavor.

Contents

	<i>Page</i>
Summary	iii
Introduction	1
Overview of the Fruit and Vegetable Pilot Program	1
Evaluation Plan	1
Evaluation Findings	5
Pilot Management and Implementation	5
Time of Delivery	7
Delivery Method	8
Fruits and Vegetables Served	8
FVPP Nutrition Education and Promotion Activities	10
Perceived Value and Effects of the Pilot	10
Data on Food and Beverage Sales	11
Key Factors in Pilot Implementation	11
Feasibility of Continuing the FVPP or Similar Program	12
Cost Considerations	12
Acceptability of the Pilot	15
Suggestions To Improve the Program	16
Bibliography	17
Appendix A: Legislative Language for the FVPP	18
Appendix B: FVPP Schools	20
Appendix C: FVPP Data—Kinds and Amounts of Fruits, Vegetables, and Value-Added Items Provided Through the FVPP, November-December 2002	23

Summary

To promote fresh fruit and vegetable consumption among the Nation's schoolchildren, the Nutrition Title of the 2002 Farm Act provided \$6 million for USDA to award to schools through a Fruit and Vegetable Pilot Program (FVPP) for the 2002-03 school year. The FVPP provided fresh and dried fruits and fresh vegetables free to children in 107 elementary and secondary schools—100 schools in 4 States (25 each in Indiana, Iowa, Michigan, and Ohio) and 7 schools in the Zuni Indian Tribal Organization (ITO) in New Mexico. Pilot funds were allocated to each school on a per student basis, that amounted to \$94 per student. The intent of the pilot is to determine the feasibility of such a program and its success as determined by the students' interest in participating.

Most participating schools consider the pilot program to be very successful and feel strongly that the pilot should continue. The pilot included only schools that volunteered and applied to participate. Consequently, they may not be representative of non-pilot schools. Pilot sites were, however, chosen to represent a mix of large and small, rural, suburban, and urban elementary, middle, and high schools. The participating schools also included students from diverse ethnic backgrounds and family income levels, as assessed by the proportion of students certified as eligible for free and reduced-price lunches.

USDA's Economic Research Service (ERS) is responsible for evaluating the pilot. This report provides the results of ERS's review, based on analyses of administrative school records, December reports, February reports, site visits to schools, focus groups, interviews, and a conference of pilot program managers, other pilot staff, and policy stakeholders.

Acceptability of the Pilot

The FVPP was popular among most students, parents, State representatives, teachers, principals, pilot managers, and foodservice staff. Almost all schools were interested in continuing the program, provided funding was available. Students took advantage of the pilot: Schools reported that children consumed 93 percent of servings offered during November 18-22, 2002, and 92 percent of servings offered during December 9-13, 2002. Schools reported that 80 percent of students were very interested in the pilot and that 18 percent were somewhat interested, and 71 percent of the schools believed that students' interest had increased during the pilot period.

Pilot Management and Implementation

Three main delivery methods were used to distribute FVPP foods to students: classroom service, kiosks, and free vending machines. Classroom service alone was used by 41 percent of schools, and 16 percent used kiosks alone. Many schools used mixed approaches, with 36 percent using both classroom delivery and kiosks and 3 percent using classroom service and free vending machines. Elementary schools were more likely to use classroom service, while middle schools were largely split between classroom service and a combination of classroom delivery and kiosks. Half of all high schools used a combination of classroom and kiosks. A few high schools and middle schools incorporated free vending machines with other delivery methods.

Of 105 schools, 83 had multiple distribution times. Overall, 85 schools served during morning school sessions, 66 during afternoon school sessions, 62 after school, and 29 before school.

Of 105 schools, 87 bought FVPP foods from a wholesaler or broker, 55 from retailers (e.g., local grocers), 16 from the Department of Defense Fresh Fruit and Vegetable Program (DOD Fresh), and 13 from other sources, such as farmers' markets, an organic grower, and local orchards and growers.

Nearly all schools (93 percent) provided some nutrition education and promotion activities, but the extent and type varied widely among schools and grade levels:

- 65 percent provided nutrition education and promotion as part of school classes, such as by making it a part of health classes or by adapting lesson plans,
- 34 percent provided nutrition education and promotion in school but outside of regular classes, such as at school assemblies, health fairs, and pilot kickoff events,
- 63 percent offered informational materials, such as fliers, pamphlets, and 5 A Day materials, and
- 60 percent provided other materials, such as T-shirts, posters, banners, and buttons or made public address announcements.

Perceived Value and Effects of the Pilot

Nearly everyone recognized some health benefit or other value from the pilot. School staff believed that the pilot lessened the risk of obesity, increased attention in class, reduced consumption of less healthy food, reduced number of unhealthy snacks brought from home, increased students' awareness and preference for a variety of fruits and vegetables (particularly less familiar kinds, such as kiwis and fresh pears), helped children who would otherwise be hungry get more food, and increased students' consumption of fruits and vegetables at lunch.

Some of the reasons that children liked the pilot were that they got to eat favorite fruits and vegetables more often, they liked the health benefits of eating these foods, it was a welcome break from normal classroom activity, and they could eat the foods as a breakfast substitute. Many students described improvement in their eating habits, greater willingness to try different fruits and vegetables, or, at the very least, a greater consciousness about eating too much of what they call "junk" foods.

Data on Food and Beverage Sales

Twenty-three schools offered fruits and vegetables from the pilot program during school meals. Almost one in three schools felt that the FVPP increased the likelihood that children would participate in school meals, and 79 schools reported that the FVPP increased children's acceptance of fruits and vegetables offered as part of school meals.

Quantitative data on the effects of the pilot are limited due to the constraints of the study. The following figures, therefore, are rough proxies of changes in school meals served or in a la carte purchases. Many factors affect sales, and the extent of any influence from the pilot is unknown. These estimates provide some insight into changes in the school environment but are not intended to show causality one way or the other. Between January 2002 (before the pilot) and January 2003 (during the pilot), the total number of free breakfasts remained constant, reduced-price breakfasts fell by 1 percent, and full-price breakfasts rose by roughly 3 percent. The total number of free lunches rose by 7 percent, reduced-price lunches fell by less than 1 percent, and full-price lunches fell by 2 percent. The total number of after-school snacks served through

USDA's Child and Adult Care Food Program (CACFP) and/or National School Lunch Program (NSLP) fell by 7 percent. The value of total cafeteria a la carte food and beverage sales fell by 3 percent.

Key Factors in Pilot Implementation

Four key factors contributed most positively to the pilot. First, the level of cooperation, communication, and commitment among principals, teachers, foodservice directors, and other staff was high. Second, the level of support and partnerships with States and other nonschool partners was also high. Third, the flexibility of the FVPP allowed each school to develop its own implementation plan, work out problems, have broad involvement among teachers and other school staff, and reach its own solutions. Schools could choose when, where, and how they wanted to implement the pilot and could select the mix and quantities of pilot foods to offer students. Fourth, there was ample funding for the pilot.

Cost Considerations

Many schools said that the 10-percent cap on paying nonfood costs out of grant money was too restrictive. Nonfood costs include administrative costs necessary to implement the pilot, such as extra labor, storage, and equipment. Many schools bought higher cost foods for the pilot, such as prepared trays of presliced fruits and vegetables, to keep labor costs within the 10-percent cap or asked States to grant waivers on the cap.

Some schools were not spending all money granted to them, largely due to the time needed to start and implement the pilot. Roughly half of the schools initiated the pilot in October 2002, with additional schools starting in November and December 2002 and two schools starting in January 2003. Given the range in school size, grants ranged from \$10,000 to \$185,000, with an average of around \$56,000 per school or \$94 per student. Schools with more limited serving schedules and distribution were more likely to have unspent funds. At the end of February, schools in four pilot States had spent 26, 26, 36, and 51 percent, respectively, of the total FVPP funds awarded to each. However, based on February spending rates in four States, an estimated 94 percent of the grant (\$88 per student) would have been used if the pilot schools had spent at that rate for 9 months. Therefore, funding appears ample for operating a full school year.

Nationwide expansion of the program at a level comparable to that of the pilot would cost an estimated \$4.5 billion, based on an average cost of \$94 per student and a count of 48.2 million children in public schools in 2001. Costs would be somewhat higher if private schools also participated. These estimates do not include the costs and burden for USDA's Food and Nutrition Service (FNS)—the agency responsible for implementing the pilot—or for State departments of education and health to administer and support an expanded program. Costs could be lower if fruits and vegetables were offered only once a day.

Lessons Learned

Some challenges could be overcome if the program were continued. First, the 10-percent cap on nonfood costs could be raised. Some schools said that a nonfood cap of 12-40 percent, rather than the 10-percent cap on nonfood costs, would be more feasible and would increase flexibility and efficiency in using pilot funds. Second, the experience of the pilot schools could help schools new to the program speed up implementation time, allowing more efficient and effective use of program funds. Third, if nutrition education and promotion efforts were part of an expanded program, some schools would

need more preplanning time to develop and implement the activities. Fourth, new ways to motivate students to eat more vegetables could be identified that do not rely on high-fat dips and condiments. A wider variety of fresh fruits was served than fresh vegetables, and fresh fruits were more appealing to students. The use of condiments, such as dips (some low-fat) and peanut butter, improved vegetable consumption.

Feasibility of Continuing the FVPP or Similar Program

Most schools were very interested in continuing the program, provided that funding were available. Out of 103 schools reporting on pilot success, 95 percent felt that the FVPP was very successful, 4 percent rated it as somewhat successful, and 1 percent rated it as not successful. Of the 105 schools reporting on feasibility, 100 schools thought that it would be feasible to continue the program beyond the pilot if funding were continued.

Evaluation of the USDA Fruit and Vegetable Pilot Program

Report to Congress

Jean C. Buzby
Joanne F. Guthrie
Linda S. Kantor

Introduction

The Nutrition Title of the 2002 Farm Act provided \$6 million (Section 32) for USDA's Fruit and Vegetable Pilot Program (FVPP) for the 2002-03 school year. The "intent of the pilot program is to determine the feasibility of carrying out such a program and its success as determined by the students' interest in participating in the program" (see FVPP legislative language in Appendix A). USDA's Food and Nutrition Service (FNS) is responsible for administering the FVPP.

The Farm Bill required that the Secretary of Agriculture "...make available to students in 25 elementary or secondary schools in each of 4 States, and in elementary or secondary schools on 1 Indian Reservation, free fresh and dried fruits and fresh vegetables..." during the 2002-03 school year. The Conference Report from the Farm Bill recommended Indiana, Iowa, Michigan, and Ohio as the four States. The Zuni Indian Tribal Organization (ITO) in New Mexico was selected to participate as the Indian reservation and had seven participating schools.

Overview of the Fruit and Vegetable Pilot Program

USDA's Economic Research Service (ERS), the agency responsible for evaluating the pilot, reviewed more than 830 applications from schools in Indiana, Iowa, Michigan, and Ohio. ERS made recommendations to FNS for the sample of 100 non-Zuni schools for participation in the pilot, and FNS made the final selections.

As directed by Congress, an effort was made to select a diverse blend of schools for the pilot project, in terms not only of school characteristics but also of implementation strategies (table 1). Pilot sites were chosen to represent a mix of large and small, rural, suburban, and

urban elementary, middle, and high schools. The participating schools also included students from diverse ethnic backgrounds and family income levels, as assessed by the proportion of students certified as eligible for free and reduced-price lunches. Figures 1-5 show the distribution of participating elementary, middle, and high schools by State. The average enrollment per pilot school was 607 children, ranging from 66 to 2,000 students.

Pilot sites also represented various strategies for distributing the fruits and vegetables, including:

- **Service Delivery Mechanism.** Some sites distributed fruits and vegetables from centrally located kiosks (stationary tables, stands, carts, or baskets in hallways or other central areas), some served fruit and vegetable snacks in the classroom, and others used some combination of delivery mechanisms (e.g., kiosks and free vending machines).
- **Timing of Service Delivery.** Schools could provide pilot fruits and vegetables during the morning or afternoon, before or after school, or throughout the entire school day.
- **Educational or Promotional Activities.** Schools varied in the extent and type of these activities, ranging from having no stated plans for additional activities to having extensive plans for integrating nutrition education and promotion programs with school activities and events as well as daily classroom schedules.

Evaluation Plan

The evaluation comprised four primary components:

- Analysis of administrative records of fruit and vegetable purchases, submitted monthly by each participating school to State administrative agencies,

- Review of pilot project reports describing how the FVPP was implemented and received, submitted by each participating school in December 2002 and February 2003,
- Site visits to participating schools, focus groups, and interviews with selected school stakeholders (e.g., principals, teachers, pilot staff, parents, and students), and
- A March 2003 conference that brought together FVPP program managers, other pilot staff, and

policy stakeholders (e.g., State agency staff, USDA, and our pilot partners) to discuss the findings of the evaluation and lessons learned from the pilot project.

The legislation specified that the pilot operate in schools during the 2002-03 school year, which ends on June 30, 2003. The ERS evaluation, however, had a shorter timeframe in order to meet the Congressional reporting deadline of May 1, 2003. Only limited data were available for this early review of the pilot. ERS

Table 1—Characteristics of participating FVPP schools by State

Characteristics	Indiana	Iowa	Michigan	Ohio	Zuni ITO, New Mexico	Five-State total
	<i>Number</i>					
Schools	25	25	25	25	7	107
Public	24	24	24	24	6	102
Private	1	1	1	1	1	5
Enrollment, all schools, as of October 2001	15,059	13,824	16,607	16,990	1,897	64,377
Schools by grade level: ^{1,2}						
Elementary	10	10	10	10	3 ³	43
Middle	8	8	8	8	3 ³	35
High	6	6	6	6	2	26
Schools by location:						
Urban	9	9	8	8	0	34
Rural	8	9	8	9	7	41
Suburban	8	7	9	8	0	32
Team Nutrition Schools ⁴	15	10	14	11	0	50
Schools with National School Lunch Program (NSLP)	25	24	25	24	7	105
Schools with School Breakfast Program (SBP)	20	21	22	12	7	82
Schools by share of students certified to receive free and reduced-price school meals						
High (>30% of students)	10	11	12	9	7	49
Low (≤30% of students)	15	14	13	16	0	58

ITO = Indian Tribal Organization.

¹For non-Zuni schools, only public schools are tabulated here. Private schools include one school, grades PK-8; two schools, grades K-8; and one school, grades K-12.

²Schools were classified as elementary, middle, or high based on the level code used in National Center for Education Statistics' Common Core of Data Public Elementary/Secondary School Universe Survey: School Year 2000-01 as follows:

 Primary (low grade = PK through 03; high grade = PK through 08)

 Middle (low grade = 04 through 07; high grade = 04 through 09)

 High (low grade = 07 through 12; high grade = 12 only)

³One of the seven Zuni schools was a combination of elementary and middle schools so this school is listed here under both grade levels.

⁴Since 1995, over 30,000 local schools throughout the country have adopted Team Nutrition, a USDA initiative that promotes food choices for healthful diets for children through schools, homes, and communities by developing and providing nutrition education materials, recipes, and other information to assist foodservice professionals.

Source: ERS tabulations of applicant information as of September 19, 2002.

contracted with the consulting firm ORC Macro for conducting site visits in 12 of the 100 non-Zuni schools participating in the pilot and analysis of administrative records, December reports, and February reports for all 107 pilot schools. A separate assistance-type cooperative agreement with the University of New Mexico provided the site visit data collection and analysis for the seven Zuni pilot schools in New Mexico.

In addition to the purchasing reports submitted monthly by participating schools to their States, other important dates include:

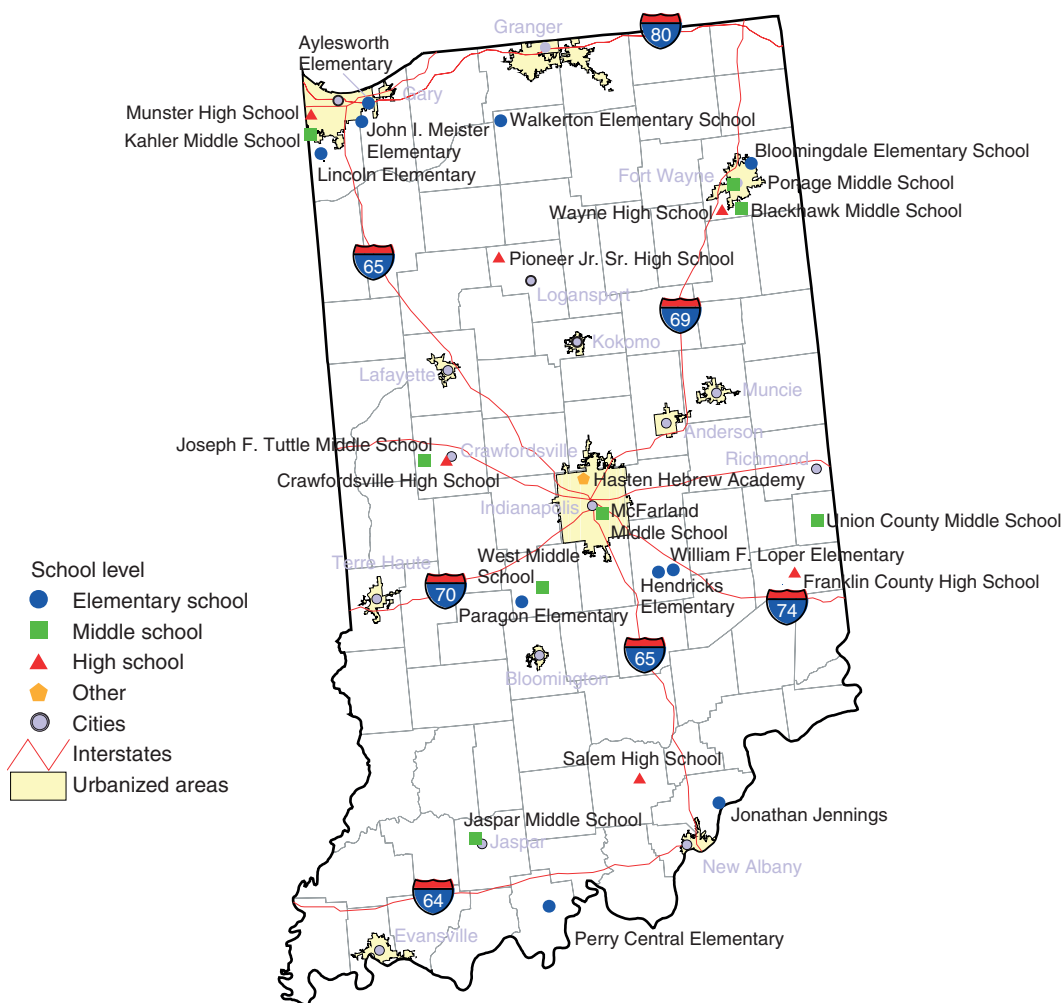
- May 13, 2002—Farm Bill signed into law.
- June 4, 2002—Initial partnership planning meeting (USDA, American School Food Service Association, National Cancer Institute 5 A Day for Better Health Program).
- August 22, 2002—Application deadline.

- September 26, 2002—Agriculture Secretary Ann M. Veneman announced selections.
- Early October 2002—Funds distributed to States.
- December 20, 2002—December report due.
- February 7, 2003—February report due.
- March 25-26, 2003—FVPP conference held in Indianapolis.
- May 1, 2003—Report to Congress due.
- June 30, 2003—Pilot concludes.

To facilitate the pilot and its evaluation, ERS developed an extranet for use by pilot schools. This secure, private website was available for schools to obtain more information on the pilot, download evaluation forms, and interact with other schools through discussion threads. FNS hosted monthly conference calls with policy stakeholders to help administer the pilot.

Figure 1

Indiana schools selected for the Fruit and Vegetable Pilot Program by grade level



The evaluation included both quantitative and qualitative information to address the major concerns of Congress: the feasibility of continuing the FVPP permanently and the interest of students in participating in such a program.

Quantitative data were derived primarily from the monthly administrative records of fruit and vegetable purchases of each participating school and the December and February reports from each pilot school.

Qualitative data were obtained through direct observations during site visits to selected schools, focus group discussions with students, and structured interviews with various FVPP stakeholders, including FVPP program managers, teachers, school foodservice directors and operators, and principals or other school administrators. In addition, telephone interviews with State agencies and their representatives administering the FVPP for FNS provided information on the State agency’s role in implementing and managing the pilot and working with schools to promote the FVPP. Community leaders from the Zuni ITO and a small sample of parents also

provided information, and each school submitted qualitative data in the February reports.

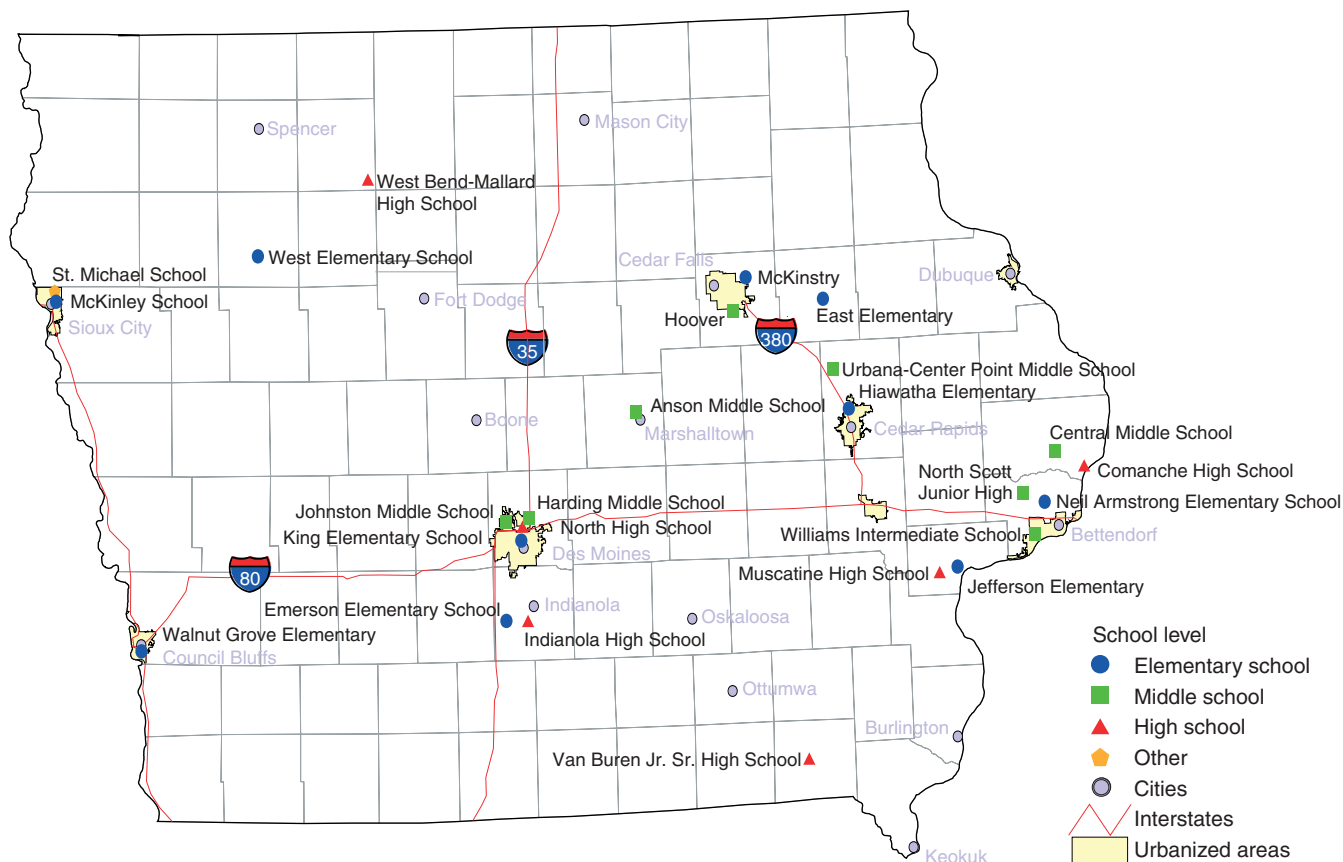
Site visits were made to three schools each in Indiana, Iowa, Michigan, and Ohio. These 12 schools provided a distribution of elementary, middle, and high schools with diverse urban and rural characteristics, delivery mechanisms, and proportion of students certified for free and reduced-price lunches. One private school was included in the sample. All seven Zuni schools participating in the pilot were visited at the request of the Zuni Public School Food Service Director.

Due to the quick startup, the short duration of the pilot, and evolving nature of the initial implementation, the evaluation was not designed to determine:

- Effects on overall diet quality and children’s dietary patterns,
- Fruit and vegetable intakes of individuals,
- Displacement of less nutritious foods,
- Effects on long-term food consumption patterns,

Figure 2

Iowa schools selected for the Fruit and Vegetable Pilot Program by grade level



- Effects of nutrition education, independent of free food,
- Experience of pilot schools versus all typical schools, and
- Existence of more cost-effective alternatives to increasing children’s fruit and vegetable consumption.

In order to address these issues, additional research would be needed that uses a nationally representative, random sample, tracks children in participating schools over time, and has well defined measures to be evaluated. Such a study would be costly and require careful design due to the varied modes of delivery and age ranges of students.

Evaluation Findings

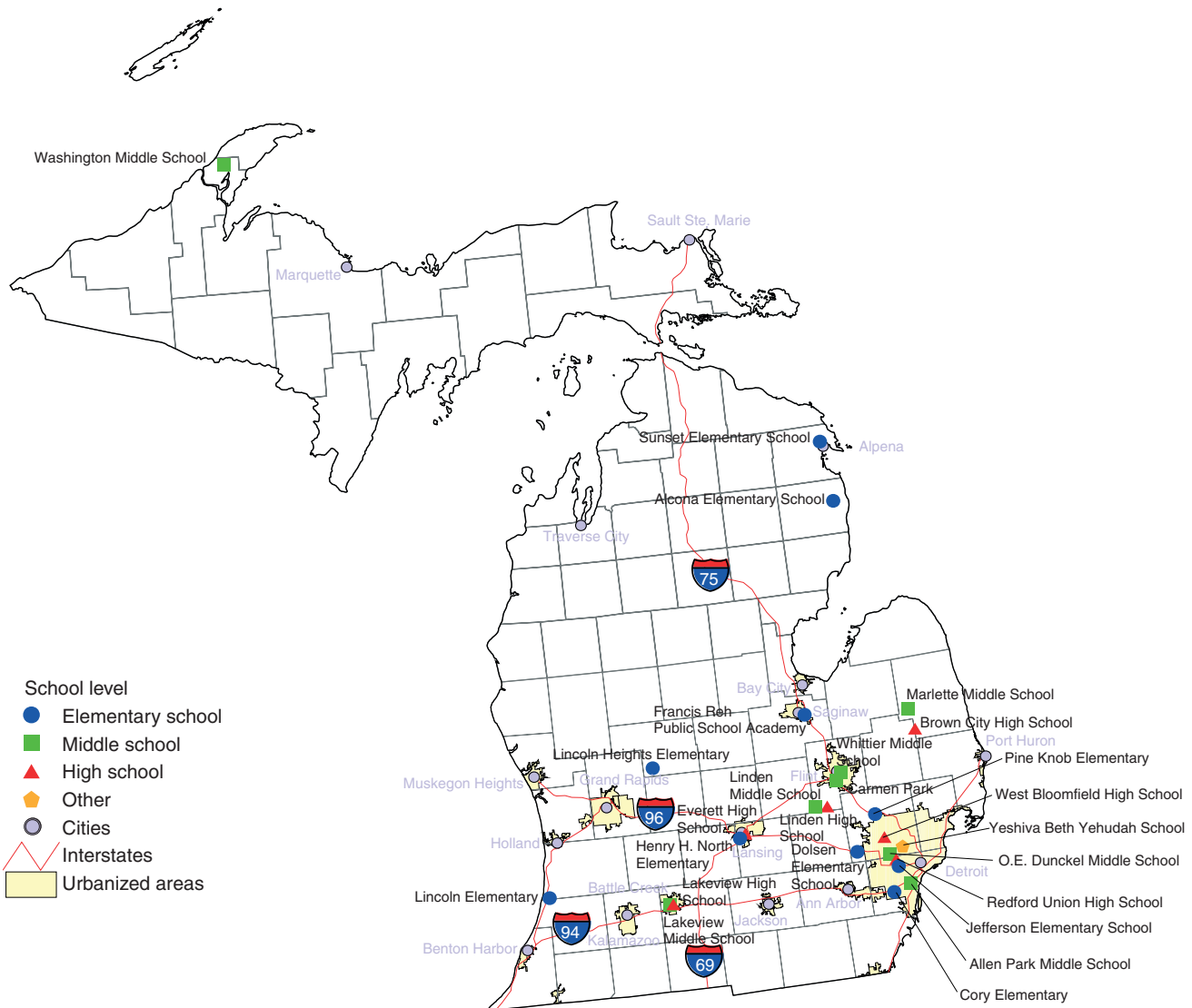
The findings highlight the main issues identified during the evaluation concerning (1) pilot management and implementation, (2) perceived value and effects of the pilot, (3) data on food and beverage sales, (4) key factors in pilot implementation, (5) feasibility of continuing this or a similar program, (6) cost considerations, and (7) acceptability of the pilot to students and others. Suggestions from schools to improve this type of program are provided in the last section of this report.

Pilot Management and Implementation

Once the schools were selected for participation, FNS distributed the pilot funds based on enrollment (Appendix B). The schools received roughly \$94 per

Figure 3

Michigan schools selected for the Fruit and Vegetable Pilot Program by grade level



All but two schools reported little to no food waste. Of 105 schools, 29 schools had problems with availability of pilot fruits and vegetables, 15 with quality, 7 with perishability, 2 with leftovers, and 2 with food waste. Students took advantage of the pilot: Schools reported that children consumed 93 percent of servings offered during November 18-22, 2002, and 92 percent of servings offered during December 9-13, 2002.¹

During both of these weeks, leftovers were used for other purposes, primarily subsequent pilot servings or as part of meals served under the National School Lunch or School Breakfast Programs, distribution to students and staff during the day, or distribution after school, such as during school-sponsored events. The pilot project was targeted to students. However, teachers and other school staff were encouraged to eat the produce since they serve as models for behavior. One school donated leftovers to charity each of the 2 weeks, and 11 schools donated leftovers to charity (e.g., food pantries) at least once

¹During November 18-22, 2002, schools reported that 245,831 servings were offered to children in pilot schools and 229,101 servings were consumed. During December 9-13, 2002, 266,533 servings were offered to children in pilot schools and 243,766 servings were consumed.

over the course of the pilot. According to the pilot guidelines, leftovers not easily used in the pilot could be used in meal programs or transferred to charity in accordance with board of health requirements.

Time of Delivery

Pilot fruits and vegetables could be made available at any time during the school day, but offering them during established meal service periods was not encouraged. Fruits and vegetables offered during meal services in the cafeteria could not be used to replace similar items that were part of reimbursable school meals. When asked at what time(s) of day pilot fruits and vegetables were distributed, 83 schools had multiple distribution times, but overall, 85 schools served during morning school sessions, 66 served during afternoon school sessions, 62 served after school, and 29 served before school (fig. 6).

The original distribution times were changed by 44 schools. The reasons included adding more distribution times (18 schools) or making them more convenient (15 schools). About one in every four schools offered pilot foods during school meal service times at hallway kiosks or through some other delivery method.

Figure 5

New Mexico schools selected for the Fruit and Vegetable Pilot Program by grade level



Delivery Method

Delivery of pilot foods varied widely. Schools offered pilot foods in classrooms, hallways, nurse's and school offices, and foodservice areas, including the cafeteria, and on buses or as part of classroom activities, such as nutrition education, or school-sponsored events, such as club meetings or athletic programs. Schools selected their own distribution techniques, partly to fit the grade level and maturity of students, and could change techniques during the course of the pilot. Kiosks and in-classroom service were the two main delivery methods (fig. 7). Over half of elementary schools used classroom service, and 29 percent used a combination of classroom service and kiosks. Middle schools were largely split between classroom service and a combination of classroom delivery and kiosks. Half of all high schools used a combination of classroom service and kiosk, and high schools and middle schools were more likely to incorporate free vending machines with other delivery methods.

The majority of schools rated their distribution strategy as working very well. Over the course of the pilot, 38 schools changed or adjusted their delivery methods: 14 schools could not maintain the original approach, 11 schools wanted to reach more students, 3 wanted to eliminate mess, and 2 wanted to increase participation. Eight schools had other reasons for changing, such as to reduce time to eat food and improve food hygiene. The most common change was switching to classroom

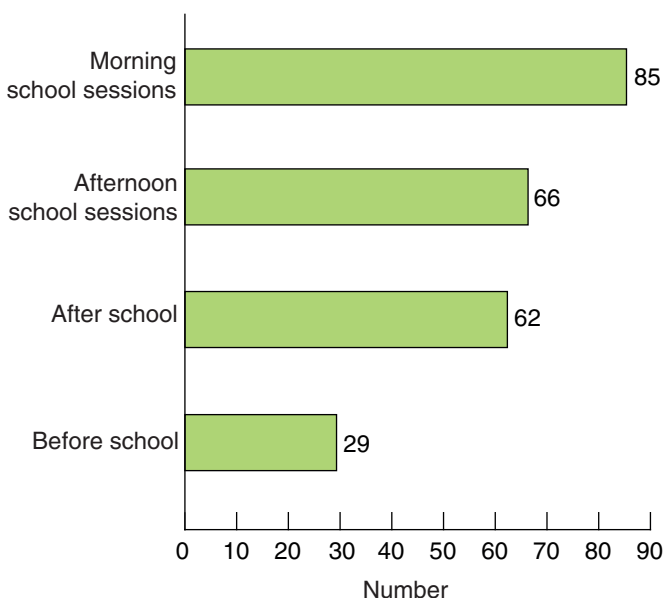
delivery to reduce or contain mess and to maximize classroom time. Kiosks provided students more choice and variety of food and better access for more students. Drawbacks of kiosks included complaints about bruised items, running out of a favorite fruit or vegetable, and having to push to get the FVPP offerings. The downside of vending machines was that they sometimes jammed, had narrower selection of suitable foods, and had limited capacity, requiring time-consuming restocking.

Fruits and Vegetables Served

A wider variety of fruits were offered than vegetables. The selection depended on the distribution method (e.g., some foods are not suitable for vending machines) and the decisions schools had to make to operate within the 10-percent nonfood cost guidelines (e.g., to buy more pre-cut foods to save labor costs). Principals and teachers at a majority of schools decided which fruits and vegetables could not be served.

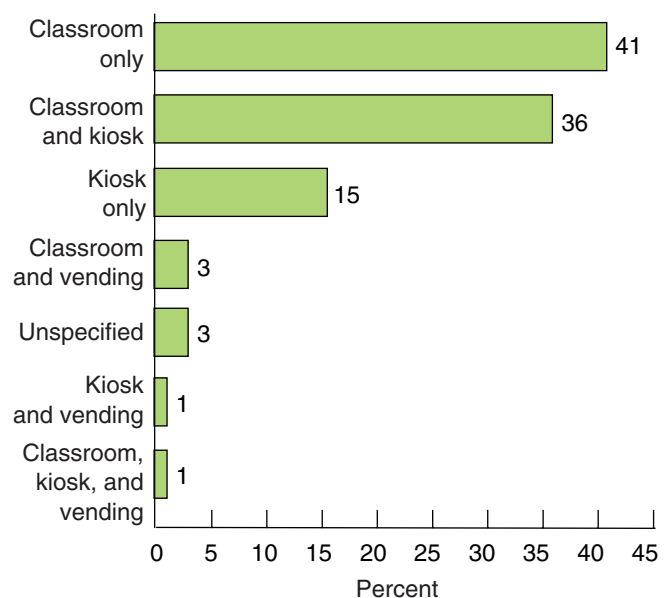
Figure 8 shows the types of fruit that schools purchased at least once during November and December 2002. Apples and bananas were the highest on school shopping lists. Students were exposed to different varieties within types of fruit (e.g., Granny Smith, Delicious, and Gala apples). Kiwis were purchased by 31 percent of schools and ready-to-eat fruit trays by 39 percent. Schools often bought pre-prepared trays to control

Figure 6
Number of schools by time of delivery



Source: February 2003 reports.

Figure 7
Share of schools by delivery method used



Source: February 2003 reports.

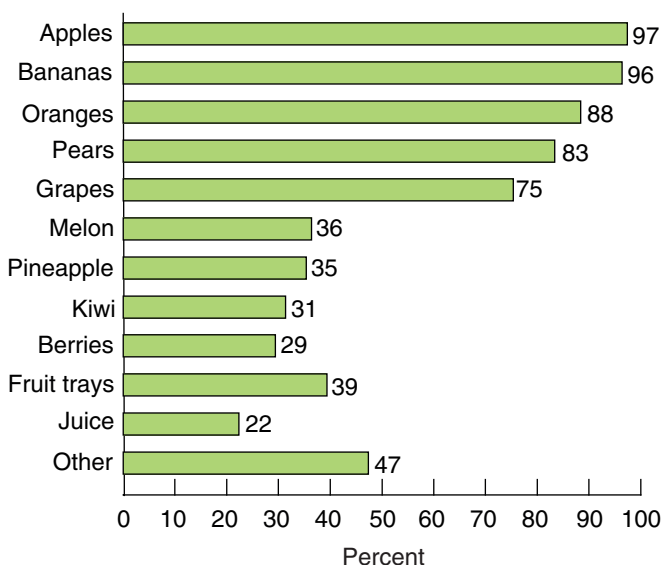
labor costs and handle storage limitations. Juice was served by 22 percent of schools.²

Less than half of schools served dried fruit of any kind, with the highest percentage serving raisins and mixed dried fruit (fig. 9). According to site visit observations, dried fruits seemed to be less popular with children than fresh fruits and vegetables, and dried cherries seemed to be the most popular dried fruit. For most schools, carrots (94 percent) and celery (77 percent) seemed to be the vegetable of choice (fig. 10). Two student favorites were carrots and strawberries.

Most schools (96 percent) bought precut or pre-prepared items (e.g., presliced apples) or served dips, nuts, or small side condiments to compliment pilot foods. When asked if serving these items influenced acceptance, 82 of the 84 schools that responded felt that it did. More schools purchased precut carrots and celery than other precut products and more salad dressing or vegetable dips (67 percent of schools purchasing item) and peanut butter (36 percent) than other dips and condiments. Appendix C provides more detail on the kinds and amounts of fruits, vegetables, and value-added items provided through the pilot in November and December 2002.

²According to FVPP guidelines, schools may serve fresh fruit smoothies and freshly squeezed juice no more than one time per week, must ensure that all food safety precautions are taken, and that fresh-squeezed juice must be locally produced.

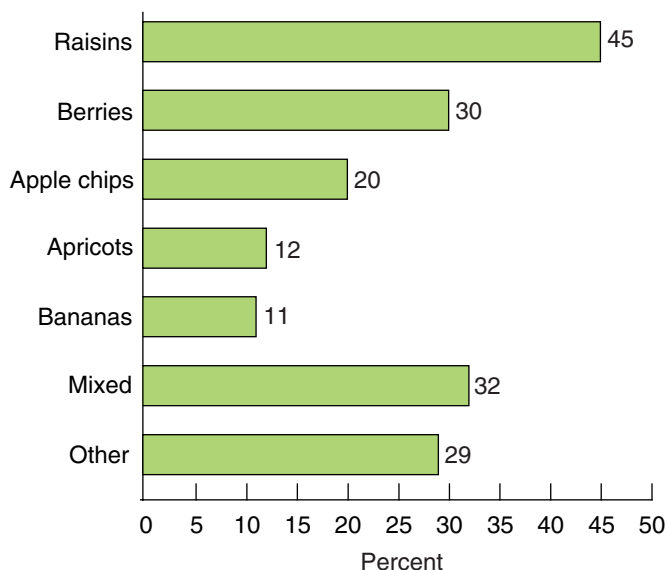
Figure 8
Share of schools by fresh fruit purchases in November and/or December 2002



Source: November and December 2002 monthly administrative reports.

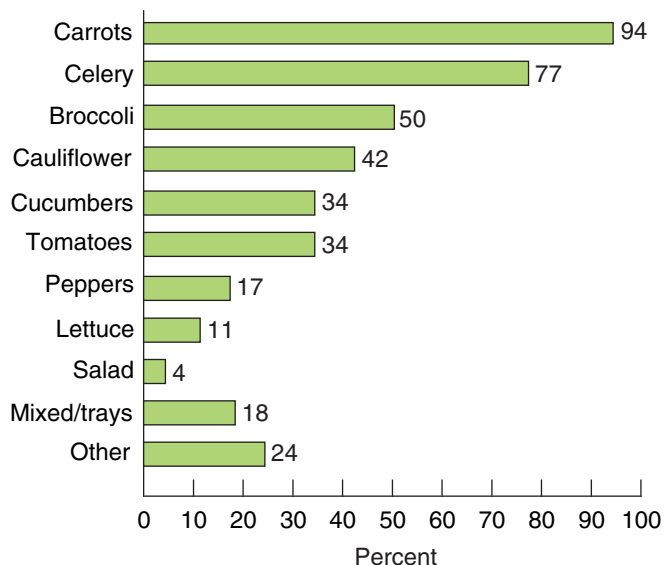
Flexibility in the source of acquisition was important. Almost three-fourths of schools made special arrangements to buy fruits and vegetables for the pilot (e.g., contracts with companies to prepare trays). Reasons included the need for greater variety and quantity of fresh produce, new vendors for dried fruit, more direct

Figure 9
Share of schools by dried fruit purchases in November and/or December 2002



Source: November and December 2002 monthly administrative reports.

Figure 10
Share of schools by fresh vegetable purchases in November and/or December 2002



Source: November and December 2002 monthly administrative reports.

or frequent deliveries, and more pre-cut or prepared foods. Some 87 of 105 schools indicated that they bought FVPP foods from a wholesaler/broker, 55 bought from retailers (e.g., local grocers), 16 from the Department of Defense Fresh Fruit and Vegetable Program (DOD Fresh), and 14 from other sources, such as farmers' markets, an organic grower, and local orchards and growers. Three schools bought dried fruit directly from producers.

FVPP Nutrition Education and Promotion Activities

Nutrition education and promotion activities were strongly encouraged but not required. Participating schools were given complete flexibility on the type and extent of the activities and materials they used. Nearly all schools (93 percent) offered some nutrition education and promotion activities, but these varied widely among schools and grade levels:

- 65 percent provided nutrition education and promotion as part of school classes, such as making them part of health classes or adapting lesson plans,
- 34 percent provided nutrition education and promotion in school but outside of regular classes, such as at school assemblies, health fairs, and pilot kickoff events,
- 63 percent offered informational materials, such as fliers, pamphlets, and 5 A Day materials, and
- 60 percent provided other materials, such as T-shirts, posters, banners, and buttons or made public address announcements.

Elementary schools were the most likely to incorporate these activities and materials in teaching situations. Elementary and middle schools tended to post more fliers compared with high schools. Some schools were invited by local newspapers, radio, and television stations to produce news items on the pilot.

Of 98 schools, 91 reported that teachers participated in nutrition education and promotion activities, 34 said that school nurses participated, 65 said other school staff did, and 22 said parents did. Outside partners helping with the activities included the American Heart Association, County and State Health Departments, dietitians and dietetic interns, Extension specialists, 5 A Day, hospitals, local grocers and stores, vocational clubs, and other health and produce associations and partnerships. One-fourth of schools used nonpilot funds or resources for implementing promotional and nutrition activities for the pilot.

Teachers were most involved in promoting the pilot by “modeling” healthy eating—that is, by eating the foods in front of the children—by monitoring or directing the distribution of FVPP foods, and by initiating generalized discussions about hygiene and manners when eating pilot foods.

Several schools had no coordinated nutrition education component or promotion effort to educate school staff, parents, teachers, or the community as a whole about the implementation and purpose of the FVPP. Some schools did not use all the materials provided by State agencies, 5 A Day, and others. Although the study did not provide information on whether nutrition education and promotion activities and materials affected consumption of fruits and vegetables, several schools felt that the pilot program could be strengthened by providing guidelines for schools on effective use of the materials. A longer startup period could help with planning for these activities. Other schools had nutrition education programs that were already operating when the FVPP began, including TRI-FIT, which is an overall health promotion program that encourages good nutrition along with physical activity, and the Iowa Nutrition Education Network “Pick a Better Snack: Fruits and Vegetables Program,” which operates in a number of Iowa schools. In addition, 5 A Day and Team Nutrition materials were widely available to pilot schools.

Perceived Value and Effects of the Pilot

The pilot was popular. School staff believed that the pilot lessened the risk of obesity, encouraged children to eat healthier food, increased children's awareness of a variety of fruits and vegetables, and helped children, who would otherwise be hungry, get more food. Prior to the pilot, many children had never been exposed to some fairly common fruits and vegetables, such as fresh pears and kiwis, or to some different varieties within types of fruit, such as different types of pears and apples.

Some principals and foodservice workers believed that students were eating more of the fruits and vegetables served at lunch since the FVPP program began. Some principals and teachers observed a reduction in unhealthy snacks that students bring from home. Many teachers reported that students' attention in class improved.

Some parents reported that their children arrived home less hungry and that they were requesting more fruits and vegetables at home. Other parents saw the pilot as an opportunity for students to try unfamiliar fruits and vegetables without pressure from them.

Some of the reasons children liked the pilot were that they got to eat favorite fruits and vegetables more often, they liked the health benefits of eating these foods, and they could eat the foods as a breakfast substitute. Some children said they were hungry because they came to school without breakfast, missed the breakfast offered at school, or did not eat enough food at lunch to fill them up (particularly at middle and high schools). Many students identified vegetables like broccoli or cauliflower that they were unwilling to eat before, but now were willing to eat. Many students, including high school and middle school students, described positive changes in eating habits, greater willingness to try fruits and vegetables, or, at the very least, a greater consciousness about eating too much of what they call “junk” food.

Data on Food and Beverage Sales

The appeal and taste of pilot foods was cited by a majority of the students interviewed as the primary motivation for their interest and for reconsidering their other food choices. The free pilot food, compared with the cost of school lunches or competitive foods, was not the leading factor in students’ decisions to continue buying or eating other foods. Some evidence suggests, however, that pilot foods were used as substitutes for snacks regularly purchased by older students. The free pilot food was mentioned most by middle and high school students but was still not the most important factor in their decision to participate in the pilot.

Twenty-three schools offered FVPP fruits and vegetables during school meal services. Almost one in three schools felt that the FVPP made it more likely that children would participate in school meals, and 79 schools felt that the FVPP seemed to influence children’s acceptance of the fruits and vegetables offered as part of school meals. Schools said that students were eating more fruits and vegetables during school meals or were at least willing to try them. Many students expressed a greater willingness to eat the fruits offered with school meals.

Quantitative data on the effects of the pilot are limited due to the constraints of the study. The following figures, therefore, are rough proxies of changes in school meals served or in a la carte purchases. Many factors affect sales, and the extent of any influence from the pilot is unknown. These estimates provide some insight into changes in the school environment but are not intended to show causality one way or the other. Between January 2002 (before the pilot) and January 2003 (during the pilot), the total number of free break-

fasts remained constant, reduced-price breakfasts fell by 1 percent, and full-price breakfasts rose by roughly 3 percent. The total number of free lunches rose by 7 percent, reduced-price lunches fell by less than 1 percent, and full-price lunches fell by 2 percent. The total number of after-school snacks served through USDA’s Child and Adult Care Food Program (CACFP) and/or National School Lunch Program (NSLP) fell by 7 percent. The value of total cafeteria a la carte food and beverage sales fell by 3 percent.

Fifty-five schools indicated that children could purchase foods or beverages at school from vending machines, school stores, or some other location outside the cafeteria. Of these schools, 19 said that FVPP lowered sales, 30 said there was no change in sales, and 6 were not aware of changes.

Foodservice staff in one school said that they had sold 25 percent fewer doughnuts in the morning since the pilot’s inception and 50 percent fewer lunch-time desserts. In another school, middle school students reported that the sale of candy through the school booster activity had dramatically decreased since the pilot’s beginning. While 850 pieces of candy had been sold the week before the pilot started, only 300 had been sold every week since.

Key Factors in Pilot Implementation

- *Cooperation and commitment of school staff*

The level of cooperation, communication, and commitment among principals, teachers, school nurses, operations or custodial staff, foodservice directors and workers, and others was high. Pilot schools depended on the support of the school administration (especially the principal and vice principal) and their control over the implementation. Some administrators helped deliver pilot foods and select appropriate pilot offerings. Foodservice coordinators and staff overcame initial challenges and implemented the pilot in addition to their regular school nutrition work. This support was particularly critical in schools unable to find or pay for additional labor for the pilot. Although teachers were the most likely to participate in nutrition education and promotion activities, nurses in 34 schools and other staff in 65 schools also participated. Parents and outside partners also assisted with these activities.

- *Outside support and partnerships by State administration and others*

Another positive contribution to the FVPP was the support, partnerships, and collaboration among schools and Federal, State, local, and private partners. State

health and/or education offices provided considerable oversight and support in managing pilot funds and other forms of assistance. The March conference was sponsored by the National Cancer Institute, Produce for Better Health Foundation, the American School Food Service Association, and the United Fresh Fruit and Vegetable Association with the cooperation of USDA. Outside support for nutrition education and promotion activities came from the American Heart Association, county and State health departments, dietitians and dietetic interns, Extension specialists, 5 A Day, hospitals, local grocers, vocational clubs, and other health and produce associations and partnerships. Partnerships between schools and food distributors increased as the pilot evolved.

- *Flexibility in implementing pilot*

Flexibility was key to the success of the FVPP. Schools could choose when, where, and how they wanted to implement the pilot and could select the mix and quantities of pilot foods to offer students. Each school was allowed to develop its own implementation plan, work out problems, have broad involvement among teachers and other school staff, and reach its own solutions. Initial troubles with implementation, concerns about disruption in the classroom, and possible messiness of the foods were largely corrected through an evolving and flexible pilot program. For example, teachers found ways to balance FVPP eating with classroom activities. This flexibility kept teacher interest high and allowed the pilot to become a regular routine for students. Over time, schools changed delivery methods to improve the pilot and developed schedules and guidelines for FVPP eating, including limits to classroom consumption time and designated places for students to eat FVPP foods. The types of foods offered were also modified to address student behavior and suitability for different delivery methods, and to accommodate the lack of labor for daily preparation. Some schools offered whole fruits on days when staff could not prepare trays with pre-sliced items, while other schools ordered more prepackaged items that did not require as much labor. Staff was increasingly able to find vendors or suppliers who could provide selection and prepackaged items. Creative ways to secure the labor for ordering, inventorying, washing, cutting, and preparing pilot foods within the 10-percent nonfood funds were also critical to pilot's success.

As discussed more fully in the section on cost considerations, there was ample funding for purchasing fruits and vegetables for the pilot. This was another key factor in the success of the pilot. There were constraints, however, on nonfood costs.

In general, pilot implementation improved over time, with initial challenges successfully handled through pilot adjustments (table 2). Once the initial challenges were addressed, schools reported that the pilot tended to run smoothly. No food safety problems were reported. The involvement of school foodservice staff was an important factor in the use of safe food-handling practices.

Feasibility of Continuing the FVPP or Similar Program

Most schools voiced very strong beliefs that this or a similar program should continue. Since most of the challenges of implementing the pilot were minor and have been resolved, most participating schools are very supportive and interested in continuing the program. However, most also thought that they would not be able to continue without continued Federal financial support.

Of the 105 schools reporting, 100 schools thought that it would be feasible to continue beyond the pilot, provided funding were available. Two schools said it would not be feasible without continued funding plus the hiring of a director for the pilot. One school said it was not feasible due to teacher dissatisfaction, and another provided no explanation. Another school felt that pilot funds would be better used in providing free breakfasts to all students and free meals to current reduced-price households or in increasing meal subsidization.

Schools that questioned the feasibility of extending the program suggested improvements to the program: continued funding (23 schools), increase the 10-percent cap on nonfood funds (13 schools), buy more equipment for storage/operation (11 schools), hire more staff (10 schools), increase preplanning time (3 schools), and expand the program to breakfast or lunch (3 schools).

Cost Considerations

The most frequently cited challenge in administering the FVPP was the 10-percent cap on nonfood spending from total funds to each school. Nonfood spending includes administrative costs necessary to operate the pilot, such as additional wages for staff to prepare and serve pilot foods and purchases of nutrition education materials and durable and nondurable supplies (e.g., small equipment to prepare and serve pilot foods, trash cans and bags, and leased equipment for the duration of the project). During site visits to 12 schools, 8 said that it was extremely difficult to operate the FVPP with the allowable nonfood funds, and some foodservice workers said that schools could not afford to cover the additional costs. Forty-four schools reported costs of delivering FVPP food that were

Table 2—Challenges reported and how they were overcome

Categories of reported challenges	Specific challenges in some schools	Examples of how challenges were overcome in some schools
Distribution method	<p>Kiosks reduced students' access, were less sanitary, took too much time, and caused confusion in hallways.</p> <p>Vending machines had limited capacity.</p> <p>Classroom service interrupted learning time.</p>	<p>Kiosks replaced with classroom delivery.</p> <p>Kiosk distribution times modified or more heavily monitored.</p> <p>Afternoon traveling kiosk added to supplement vending.</p> <p>Teachers found ways to balance FVPP eating with classroom activities, such as having children eat quietly while reading.</p>
Storage and refrigeration	<p>Extra storage, preparation space, and refrigeration needed.</p>	<p>If nonfood funds were available, new refrigeration units purchased.</p> <p>Storage concerns solved by purchasing more pre-cut or pre-prepared foods or having more frequent but smaller food deliveries.</p> <p>One local dairy provided coolers.</p>
Finding FVPP foods to serve	<p>Difficulty finding vendors or suppliers who could meet needs of pilot (reliable supply and quantity and wider range of pilot foods requested).</p>	<p>Used ERS extranet, professional networks, or recommendations from State agencies to find suitable vendors.</p> <p>Made special arrangements.</p> <p>Used local grocery stores.</p> <p>An ongoing problem with one unreliable food distributor was that the vendor delivered foods late, disrupting planned distribution. Due to the isolated locale, other suppliers were not available, so staff at the two affected schools distributed prepackaged items or borrowed and later replaced supplies ordered for school meals programs once the shipments came in.</p> <p>Over time, some vendors found products not normally ordered (e.g., dried or prepackaged food) and adjusted volume as needed.</p> <p>Had more frequent deliveries.</p> <p>Contacted dried fruit producers or distributors directly.</p>
Selection of FVPP foods	<p>Children did not like certain food.</p> <p>Preparation costs too high.</p> <p>Kiosks ran out of personal favorites.</p>	<p>Vegetables generally less accepted than fruits, though some vegetables worked better with dip or peanut butter.</p> <p>Avoided labor-intensive foods or served whole fruits.</p> <p>Bought pre-prepared foods (e.g., trays).</p> <p>Increased foodservice hours.</p> <p>Served more or had monitors remind students to take only one.</p>

Continued—

Table 2—Challenges reported and how they were overcome—Continued

Categories of reported challenges	Specific challenges in some schools	Examples of how challenges were overcome in some schools
Student behavior	A small number of children were unruly (e.g., pushing at kiosks), wasted food, or used food as weapons.	<p>Served in classrooms or staggered times at kiosks.</p> <p>Zuni students were taught that wasting food was against Zuni tradition.</p> <p>Avoided small items that tempt students (e.g., grapes, whole kiwis, cherry tomatoes, and raisins).</p> <p>Developed guidelines on manners.</p>
Extra cleanup and garbage caused by FVPP offerings	<p>Mess and potential for food to be ground into carpeted areas.</p> <p>Initial difficulties with getting students to dispose of food properly.</p>	<p>Avoided whole oranges.</p> <p>Only served pre-prepared foods.</p> <p>Avoided trail mix.</p> <p>Included extra garbage bags for trash disposal in food delivery bins or double bagged the regular room trash, so the trash could be picked up easily.</p> <p>Monitored during distribution times.</p> <p>Staff checked distribution areas afterward to collect any trash.</p> <p>Switched to classroom distribution.</p> <p>Restricted eating areas.</p> <p>Gave children guidelines for proper consumption and disposal.</p> <p>Leftovers given to sports teams and charity or used in reimbursable meals.</p>
Staffing issues	Difficulty in finding staff to prepare food and administrative funds to pay them for their time.	<p>Developed community partnerships with local grocery stores to order, prepare, package, and deliver foods.</p> <p>Relied on staff volunteering for extra hours.</p> <p>Hired part-time person.</p> <p>Limited offerings to pre-prepared foods.</p>
Managing the demand for FVPP foods	Participation often higher than anticipated, leading to difficulties.	<p>Supplemented prepackaged items with hand cut items.</p> <p>Pursued waiver of 10-percent cap on nonfood costs from State agency to cover additional labor.</p> <p>Used reusable serving dishes to reduce environmental impact of disposable products.</p> <p>Limited distribution to only one item.</p> <p>Ordered less variety or less expensive foods to reduce costs.</p>

not reimbursed by USDA—specifically, 33 schools mentioned extra personnel costs (serving/cleaning), 32 mentioned expendable supplies (wet wipes), and 25 mentioned durable supplies (e.g., serving cart). Of these schools, 24 said that these costs were “minimal” and 20 thought they were “noteworthy.” Some schools said that a nonfood cap of 12-40 percent, rather than the 10-percent cap on nonfood costs, would be more feasible and would increase flexibility and efficiency in using pilot funds. Once the problem was identified, FNS permitted the State agencies, in consultation with their FNS Regional Offices, to consider, on a case-by-case basis, requests to waive the 10-percent limit on non-food costs.

Pilot funds were allocated to schools based on enrollment, at approximately \$94 per student per school year. Given the range in school size, grants ranged from \$10,000 to \$185,000, with an average of around \$56,000. Some schools were not spending all money granted to them, largely due to the time needed to start and implement the pilot. Roughly half of the schools initiated the pilot in October 2002, with additional schools starting in November and December 2002 and two schools starting as late as January 2003. Schools with more limited serving schedules and distribution were more likely to have unspent funds. As of the end of February, schools in four pilot States had spent 26, 26, 36, and 51 percent, respectively, of the FVPP funds awarded to each. However, based on February spending rates in four States, an estimated 94 percent of the grant (\$88 per student) would have been spent if the pilot schools had spent at that rate for 9 months.³ Therefore, funding appears ample for operating a full school year.

The overwhelming response from principals and teachers during most of the site visits in the five States was confidence in the feasibility of continuing the program, provided that funding were available. Some of the stipulations, however, were that continuation of this or a similar program would need financial support from USDA or another organization, and if nutrition education were a component of this program, some schools would also need technical and replanning assistance.

Nationwide expansion of the program at a level comparable to the pilot would cost an estimated \$4.5 billion, based on an average cost of \$94 per student and a count

³January spending was used for schools that had not yet submitted February monthly administrative reports to States. Spending in subsequent months could not be analyzed to meet the May 1, 2003, deadline for this report.

of 48.2 million children in public schools in 2001. Costs would be somewhat higher if private schools also participated. These estimates do not include the costs and burden for FNS and State departments of education and health to administer and support the expanded program. State agencies in the pilot provided different levels of support, including help with initial recruitment of schools, finding nonpilot resources and partnerships, monitoring promotional and educational activities, assisting schools with paperwork and requirements (e.g., 10-percent nonfood cap, acceptable value-added produce items), processing monthly administrative reports and other paperwork, and other technical assistance. Costs could be lower if fruits and vegetables were offered only once a day.

Schools were requested to buy American produce to the extent practical with the understanding that some produce, such as bananas, may not be available from domestic producers. Fourteen schools bought pilot foods from farmers’ markets, an organic grower, and local orchards and growers. Therefore, an expanded program could create new markets for domestic fruits and vegetables.

Acceptability of the Pilot

With few exceptions, most participants in the pilot had a high appreciation of the program. Table 3 shows the perceptions of schools about the level of support among different pilot participants and how interest in the FVPP has changed since the pilot began. Schools believed that 80 percent of students were very interested in the pilot, and 71 percent felt that students’ interest had increased during the pilot period. In all 19 site visits, the students expressed a high level of interest in participating in the FVPP. Most student concerns were about the foods offered. Students who did not seem initially interested in some of the fruits and vegetables changed their minds over time.

Parents’ interest in the pilot was more moderate. The FVPP appeared to have little effect on parents’ inclusion of fruits and vegetables in brown bag lunches or on food purchases or menu planning. Many of the interviewed parents were aware of the pilot only because they had recently been asked to sign a parent permission form for a student focus group at their child’s school.

Teachers were perceived by 77 percent of schools to be very interested in the pilot; 68 percent said that teachers’ interest increased over time. Initially, some teacher interest was slightly dampened because they were not asked about their school participating in the

pilot and perceived themselves to be doing extra work to ensure that it functioned properly. Providing information early to teachers about the pilot and how it would be implemented could have addressed some of these concerns. School nurses reported fewer visits by students for stomachaches and headaches since pilot implementation.

The majority of foodservice staff (64 percent) expressed a strong interest in the pilot, and almost half became more interested over time; only 4 percent of schools said that foodservice staff’s interest had decreased over the school year. Foodservice directors generally expressed a high level of support for the pilot and did not note any major changes in interest, despite the extra burdens on foodservice staff. However, the foodservice director at one school expressed limited interest in the pilot due to her concern that it placed a large burden on foodservice staff.

The interest levels of school principals seemed to increase with the smooth operation of the pilot. Out of 105 schools, 83 percent perceived that principals were very interested in the pilot and roughly half believed this interest had increased over time.

Suggestions To Improve the Program

One challenge is to increase vegetable consumption without relying on high-fat dips and condiments. A wider variety of fresh fruits were served than fresh vegetables, and fresh fruits were more appealing to students. The use of condiments, such as dips (some low-fat) and peanut butter, improved vegetable consumption.

Nutrition education and project promotion were not mandatory components of the pilot, nor were they funded by pilot grants. Materials and assistance, however, were made available by 5 A Day and other

sources. If nutrition education and promotion activities were part of an expanded program, some schools would need more preplanning time to develop and implement them. Seven schools had no education and promotion effort to accompany the FVPP, and several others had little to no coordination between nutrition education and program implementation. Nutrition education and promotion seemed to be a separate component from pilot implementation. For example, the foodservice staff in the pilot schools focused primarily on implementation, while nutrition education and promotion efforts were left up to teachers’ discretion.

If this or a similar program were continued, lessons learned from other countries with similar programs (e.g., Denmark, England, France, Norway, and the Netherlands) could be incorporated. Individuals interviewed during the pilot gave the following suggestions to improve the program. Their suggestions are general and may not be appropriate for individual schools:

Distribution

- Have policies in place to address concerns about trash—for example, provide classrooms with wipes for clean up.
- Have policies for students about proper consumption and trash disposal (e.g., food cannot be taken out of the distribution area).
- If the kiosk delivery method is used, put the kiosks in multiple locations accessible by all students and away from carpeted areas.
- Consider an alternative to Styrofoam serving containers, as many of the teachers were concerned about the environmental impact of the nonfood waste generated from the program.

Table 3—Level of interest and change in level of interest in the FVPP over the pilot period

Individual or group	Level of interest				Change in interest			
	Very interested	Somewhat interested	Little or no interest	Don't know	No change	Increase	Decrease	Don't know
	<i>Percent</i>							
Students	80	18	1	1	24	71	3	2
Parents	45	39	11	5	41	53	0	6
Teachers	77	19	3	1	30	68	1	2
Foodservice staff	64	29	6	2	48	46	4	3
Principal	83	13	2	2	51	46	1	3

Notes: The number of schools included in this analysis was 105. Numbers may not total to 100 due to rounding. Schools submitted responses in February 2003, the midpoint of the pilot implementation period. In most schools, FVPP managers and/or foodservice directors provided the responses.

Source: FVPP February reports.

FVPP Foods

- Adjust selections to students' preferences (e.g., serve less popular items infrequently) and to accommodate the level of available labor.
- Provide a greater variety of foods while taking into account that some fruits and vegetables are fragile and have a short shelf life and that others are not feasible given some students' behavior.
- Prepare foods before serving them to students to make the foods easier and more appealing to eat and to reduce mess.
- Use dips and other condiments to promote vegetable consumption.
- Use prepackaged versions of dips and peanut butter for condiments to reduce mess instead of using bowls.

FVPP Administration

- Anticipate the need for extra staff time to prepare and deliver the fruits and vegetables and have adequate funding to obtain any additional staff.
- Anticipate the need for extra staff time to process reports and other paperwork at the district or State levels.
- Coordinate efforts to communicate the purpose of the program to principals, teachers, foodservice staff, students, and parents.
- In order to obtain early support, pay attention to logistics to make sure the staff understands the program and how it will be implemented.
- Respond to reports from the custodians about trash and mess and take needed actions.
- Increase the 10-percent cap on nonfood, administrative costs.
- Provide schools with additional references and resources to find FVPP foods and additional labor sources.

Nutrition Education and Promotion

- Provide more guidance and assistance in the development and administration of a nutrition education component (e.g., guidance on how to effectively incorporate materials and activities).
- Provide more educational materials to be used in connection with pilot foods.

Bibliography

Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services. *Fact Sheet: Nutrition Services*. From CDC's School Health Policies and Programs Study (SHPPS) 2000. Accessed at: <http://www.cdc.gov/nccdphp/dash/shpps/fact-sheets/pdf00/nutrition.pdf>, March 13, 2002.

ORC Macro. "Fruit and Vegetable Pilot Program (FVPP) Evaluation Analysis Report—Site Visit Findings in Four Midwest States." Report submitted to USDA's Economic Research Service under Contract No. 53-3K06-0-1102, April 7, 2003.

Krebs-Smith S.M., and L.S. Kantor. "Choose a Variety of Fruits and Vegetables Daily: Understanding the Complexities," *Journal of Nutrition*, 131(2001):487S-501S.

Troiano, R.P., K.M. Flegal, R.J. Kuczmarski, S.M. Campbell, and C.L. Johnson. "Overweight Prevalence and Trends for Children and Adolescents: The National Health and Nutrition Examination Surveys, 1963 to 1991." *Archives of Pediatric and Adolescent Medicine*, 149,10(1995):1085-1091.

Pareo, Shirley L., and John M. Booker. "Zuni Fruit and Vegetable Pilot Program Evaluation Results." Report submitted to USDA's Economic Research Service in fulfillment of an Assistance Type Cooperative Agreement with the University of New Mexico, March 10, 2003.

U.S. Government Accounting Office (GAO). *Fruits and Vegetables: Enhanced Federal Efforts to Increase Consumption Could Yield Health Benefits for Americans*. Washington, DC, July 2002.

Appendix A: Legislative Language for the FVPP

The section contains the evaluation report language from the Farm Bill's (Public Law 107-171 Farm Security and Rural Investment Act 2002) Conference Report H.R. 2646 and the accompanying Explanatory Notes to the Conference Report.

Farm Bill Language

Title IV. Nutrition Programs
Subtitle C. Child Nutrition and Related Programs

SEC. 4305. FRUIT AND VEGETABLE PILOT PROGRAM.

- (a) IN GENERAL.—Section 18 of the Richard B. Russell National School Lunch Act (42 U.S.C. 1769) is amended by adding at the end the following:
- (g) FRUIT AND VEGETABLE PILOT PROGRAM.—
- (1) IN GENERAL.—In the school year beginning July 2002, the Secretary shall carry out a pilot program to make available to students in 25 elementary or secondary schools in each of 4 States, and in elementary or secondary schools on 1 Indian reservation, free fresh and dried fruits and fresh vegetables throughout the school day in 1 or more areas designated by the school.
- (2) PUBLICITY.—A school that participates in the pilot program shall widely publicize within the school the availability of free fruits and vegetables under the pilot program.
- (3) REPORT.—Not later than May 1, 2003, the Secretary, acting through the Administrator of the Economic Research Service, shall report to the Committee on Education and the Workforce of the House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the Senate on the results of the pilot program.
- (4) FUNDING.—The Secretary shall use not more than \$6,000,000 of funds made available under section 32 of the Act of August 24, 1935 (7 U.S.C. 612c), to carry out this subsection (other than paragraph (3)).
- (b) EFFECTIVE DATE.—The amendment made by this section takes effect on the date of enactment of this Act.

Joint Explanatory Statement of the Committee of Conference

The Managers on the part of the House and the Senate at the conference on the disagreeing votes of the two Houses on the amendment of the Senate to the bill (H.R. 2646) to provide for the continuation of agricultural programs through fiscal year 2011, submit the

following joint statement to the House and the Senate in explanation of the effect of the action agreed upon by the managers and recommended in the accompanying conference report:

Excerpts From Pages 124-125

(55) Fruit and vegetable pilot program
The Senate amendment requires the Secretary to use "Section 32" funds to conduct a pilot program to make free fruits and vegetables available to students in 25 schools in each of four states and students in schools on one Indian reservation, in the 2002-2003 school year. It also requires an evaluation of the pilot to determine whether students take advantage, whether interest increased or lessened over time, and what effect the pilot has on vending machine sales and sales of school meals. The Secretary is required to use \$200,000 in "Section 32" funds to carry out the evaluation. The evaluation is to be conducted through the Economic Research Service and submitted to the House Committee on Education and the Workforce and the Senate Committee on Agriculture, Nutrition, and Forestry not later than one year after implementation of the pilot program. (Section 461)

The House bill contains no comparable provision.

The Conference substitute adopts the Senate provision with amendments: The pilot will begin in July 2002 and last one year; free fresh and dried fruits and fresh vegetables will be made available throughout the school day in one or more areas designated by the school; not later than one year after the implementation of the pilot program, the Secretary (acting through the Economic Research Service) shall report to the Committee on Education and the Workforce of the House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the Senate, the results of the pilot program; \$6 million of Section 32 funds shall be made available to carry out this pilot program.

The Managers agree that the intent of the pilot program is to determine the feasibility of carrying out such a program and its success as determined by the students' interest in participating in the program. The Managers encourage USDA to work with the schools to collect information on the types of schools that ultimately participate in the program, how schools choose to implement the program (including information on whether or not they incorporate nutrition education), and reasons for different implementation approaches. The Depart-

ment is encouraged to find out from the schools about lessons learned and whether or not (and why) they are interested in continuing to participate in a similar program. To the extent practical, the Department is also asked to find out from teachers and/or students about

students' attitudes and actual behavior over the course of time. The Managers recommend the selection of the following four states to participate in the pilot: Indiana, Iowa, Michigan, and Ohio. The Secretary will select the Indian reservation and the schools within each of the states that will participate in the pilot.

Appendix B: FVPP Schools

FVPP school, location, and enrollment

School name	Town/city	State	Enrollment <i>Number</i>
Westland High School	Galloway	OH	2,000
West Bloomfield High School	West Bloomfield	MI	1,876
Princeton High School	Cincinnati	OH	1,846
Muscatine High School	Muscatine	IA	1,733
Everett High School	Lansing	MI	1,717
Munster High School	Munster	IN	1,302
Redford Union High School	Redford	MI	1,249
North High School	Des Moines	IA	1,203
Summit Country School	Cincinnati	OH	1,175
Kahler Middle School	Dyer	IN	1,089
Lakeview High School	Battle Creek	MI	1,081
Stebbins High School	Riverside	OH	1,068
Indianola High School	Indianola	IA	988
Whittier Middle School	Flint	MI	987
Johnston Middle School	Johnston	IA	984
Wayne High School	Fort Wayne	IN	967
Franklin County High School	Brookville	IN	902
Scarlet Oaks Center Development Campus	Cincinnati	OH	897
Prospect Elementary and Intermediate School	Girard	OH	873
Linden High School	Linden	MI	856
Harding Middle School	Des Moines	IA	847
Allen Park Middle School	Allen Park	MI	847
Blackhawk Middle School	Fort Wayne	IN	832
Ridge Junior High School	Mentor	OH	785
Williams Intermediate School	Davenport	IA	781
Jasper Middle School	Jasper	IN	750
Firelands Elementary School	Oberlin	OH	733
South Amherst Middle School	South Amherst	OH	717
O.E. Dunckel Middle School	Farmington Hills	MI	713
Linden Middle School	Linden	MI	700
Hoover Middle School	Waterloo	IA	679
Henricks Elementary School	Shelbyville	IN	675
Crawfordsville High School	Crawfordsville	IN	672
Perry Central Elementary School	Leopold	IN	659
Oak Harbor High School	Oak Harbor	OH	634
West Middle School	Martinsville	IN	619
Joseph F. Tuttle Middle School	Crawfordsville	IN	611
William F. Loper Elementary School	Shelbyville	IN	578
Mill Valley Elementary School	Marysville	OH	571
Scioto County Joint Vocational School	Lucasville	OH	567

See note at end of table.

Continued—

FVPP schools, location, and enrollment—Continued

School name	Town/city	State	Enrollment <i>Number</i>
Salem High School	Salem	IN	566
Lakeview Middle School	Battle Creek	MI	557
McKinstry Elementary School	Waterloo	IA	553
Robert E. Lucas Intermediate School	Cincinnati	OH	550
Anson Middle School	Marshalltown	IA	548
Portage Middle School	Fort Wayne	IN	548
Brown City High School	Brown City	MI	547
Liberty Center Elementary School	Liberty Center	OH	542
Aylesworth Elementary School	Portage	IN	527
Hiawatha Elementary School	Hiawatha	IA	524
Marlette Middle School	Marlette	MI	523
Napoleon Middle School	Napoleon	OH	504
Orchard Elementary School of Science	Cleveland	OH	500
Henry H. North Elementary School	Lansing	MI	497
North Scott Junior High School	Eldridge	IA	494
Emerson Elementary School	Indianola	IA	477
Dowa Yalanne Elementary	Zuni ITO	NM	467
Jonathan Jennings Elementary School	Charlestown	IN	466
Pine Knob Elementary School	Clarkston	MI	465
Lincoln Heights Elementary School	Greenville	MI	463
Walkerton Elementary School	Walkerton	IN	460
Pioneer Junior Senior High School	Royal Center	IN	448
A:shiwi Elementary	Zuni ITO	NM	447
Alcona Elementary School	Lincoln	MI	445
Wickliffe Middle School	Wickliffe	OH	443
Nevin Coppock Elementary School	Tipp City	OH	437
Walnut Grove Elementary School	Council Bluffs	IA	436
Washington Middle School	Calumet	MI	410
Union County Middle School	Liberty	IN	403
McFarland Middle School	Indianapolis	IN	391
Yeshiva Beth Yehudah School	Southfield	MI	391
Central Middle School	DeWitt	IA	388
Bloomington Elementary School	Fort Wayne	IN	385
West Elementary School	Lancaster	OH	385
Jefferson Elementary School	Muscatine	IA	384
Lincoln Elementary School	South Haven	MI	377
Urbana-Center Point Middle School	Center Point	IA	370
Pleasant View School for the Arts	Canton	OH	369
Zuni High School	Zuni ITO	NM	368
Dolsen Elementary School	New Hudson	MI	365
Black Lane School	Fairborn	OH	365
Townsend Elementary School	Vickery	OH	355
Jefferson Elementary School	Redford	MI	344
Zuni Middle	Zuni ITO	NM	344
Carman Park School	Flint	MI	342
Lincoln Elementary School	Cedar Lake	IN	341
King Elementary School	Des Moines	IA	337
Van Buren Junior Senior High School	Keosauqua	IA	335
Paragon Elementary School	Paragon	IN	334
Cory Elementary School	Romulus	MI	332

See note at end of table.

Continued—

FVPP schools, location, and enrollment—Continued

School name	Town/city	State	Enrollment <i>Number</i>
Francis Reh Public School Academy	Saginaw	MI	316
Durling Elementary School	Lorain	OH	308
Neil Armstrong Elementary School	Eldridge	IA	286
Camanche High School	Camanche	IA	285
East Elementary School	Independence	IA	269
John I. Meister Elementary School	Hobart	IN	269
Hasten Hebrew Academy	Indianapolis	IN	265
McKinley Elementary School	Sioux City	IA	245
West Bend-Mallard High School	West Bend	IA	239
West Elementary School	Storm Lake	IA	229
St. Michael School	Sioux City	IA	210
Sunset Elementary School	Alpena	MI	207
Saint Anthony	Zuni ITO	NM	205
Seacrest Elementary School	Warren	OH	189
Salem-Liberty Elementary	Lower Salem	OH	177
Twin Buttes High School	Zuni ITO	NM	66
Total			64,377

Source: Food and Nutrition Service, USDA, February 27, 2003.

Appendix C: FVPP Data—Kinds and Amounts of Fruits, Vegetables, and Value-Added Items Provided Through the FVPP, November-December 2002

Kinds and amounts of fresh and dried fruits, fresh vegetables, and value-added items provided by FVPP schools in 1 or more months, November-December 2002

FVPP food item	Number of schools purchasing the item in 1 or more months	Share of schools purchasing the item in 1 or more months	Average total cost of the item (among schools that purchased it)	Total cost of FVPP offering	Share of total cost for FVPP food category
	<i>Number</i>	<i>Percent</i>	-----Dollars-----		<i>Percent</i>
Fresh fruits:					
Apples	95	97	1,030	97,803	28.1
Bananas	94	96	236	22,224	6.3
Oranges	86	88	410 ¹	34,885 ¹	10.0
Pears	81	83	282	22,847	6.6
Grapes	73	75	247	17,996	5.2
Melons	35	36	360	12,593	3.6
Pineapples	34	35	342	11,633	3.3
Kiwis	30	31	233	6,984	2.0
Berries	28	29	466	13,062	3.7
Mixed fruit (e.g., precut and served on trays)	38	39	1,720	65,344	18.8
Juice	22	22	253	5,570	1.6
Other fresh fruits ²	46	47	815	37,472	10.8
Total fresh fruits	98	100	3,555	348,412	100.0
Dried fruits:					
Raisins	44	45	184	8,075	11.8
Berries	29	30	754 ¹	21,098 ¹	30.9
Apple chips	20	20	330	6,597	9.6
Apricots	12	12	448 ¹	4,930 ¹	7.2
Banana chips	11	11	94	1,031	1.5
Dried fruit mixes	31	32	466	14,443	21.1
Other dried fruits ³	28	29	436	12,214	17.9
Total dried fruits	81	83	855¹	68,390	100.0
Total fruits	98	100	4,253	416,801	N/A
Fresh vegetables:					
Carrots	92	94	572 ⁴	52,013 ⁴	49.4
Celery	75	77	224	16,805	16.0
Broccoli	49	50	102	5,003	4.8
Cauliflower	41	42	126	5,169	4.9
Cucumbers	33	34	94	3,118	2.9
Tomatoes	33	34	90 ⁵	2,797 ⁵	2.7
Peppers	17	17	48	815	.8
Lettuce	11	11	50	548	.5
Salad	4	4	183	734	.7
Mixed vegetables (e.g., precut and served on trays; not salad)	18	18	714	12,846	12.2
Other fresh vegetables ⁶	23	24	235	5,402	5.1
Total fresh vegetables	98	100	1,085⁴	105,248⁴	100.0

See notes at end of table.

Continued—

Kinds and amounts of fresh and dried fruits, fresh vegetables, and value-added items provided by FVPP schools in 1 or more months, November-December 2002—Continued

FVPP food item	Number of schools purchasing the item in 1 or more months	Share of schools purchasing the item in 1 or more months	Average total cost of the item (among schools that purchased it)	Total cost of FVPP offering	Share of total cost for FVPP food category
	<i>Number</i>	<i>Percent</i>	<i>-----Dollars-----</i>		<i>Percent</i>
Dips and condiments:					
Salad dressing or vegetable dips	66	67	183 ⁴	11,926 ⁴	62.1
Peanut butter	35	36	100	3,491	18.2
Other ⁷	25	26	151	3,780	19.7
Total dips and condiments	72	74	267	19,197	100.0
Total fruits, vegetables, and dips/condiments	98	100	5,523	541,246	N/A

N/A = Not applicable.

¹One school with missing values.

²Other fresh fruits include papayas, cantaloupes, star fruits, tangerines, avocados, grapefruits, mangos, peaches, lemons, plums, persimmons, pomegranates, and unspecified fruits.

³Other dried fruits include dates, fruit bars, fruit roll-ups, figs, plums, pineapple, and unspecified dried fruits.

⁴One school with missing values.

⁵Two schools with missing values.

⁶Other fresh vegetables include onions, spinach, cilantro, mushrooms, cabbage, squash, radishes, potatoes, turnip, asparagus, zucchini, beans, and unspecified vegetables.

⁷Other dips and condiments include yogurt, pickles, coleslaw, vegetable pizza, caramel, cheese, margarine, and unspecified dips and condiments.

Source: Monthly pilot administrative reports for November and December 2002. Out of 107 schools, 85 filed reports for November and December, 8 filed reports for December only, 5 filed reports for November only, and 8 did not file any reports. Numbers may not total due to rounding.