

EVALUATION OF THE FRESH FRUIT AND VEGETABLE PROGRAM – SUMMARY

Food and Nutrition Service, Office of Research and Analysis

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Background

The Fresh Fruit and Vegetable Program (FFVP) aims to increase fruit and vegetable consumption among students in the Nation's poorest elementary schools by providing free fresh fruits and vegetables to students outside of regular school meals. FFVP began as a pilot program in 2002 and was converted into a nationwide program in the Food, Conservation, and Energy Act of 2008, also known as the Farm Bill (PL 110-234).¹

FFVP funds are allocated at a level of \$50 to \$75 per student per school year, or between \$1 and \$2 per week "to schools with the highest percentages of low-income students, to the maximum extent practicable" (PL 110-234). Initial funding was \$40 million for the 2008–2009 school year, rising to \$65 million, \$101 million, and \$150 million in the following 3 school years, allowing more schools to participate in each year. Funding is to continue at \$150 million thereafter (indexed for inflation).

The 2008 Farm Bill required the Secretary of Agriculture to conduct an evaluation of the program in order to determine "*whether children experienced, as a result of participating in the program an increased consumption of fruits and vegetables; other dietary changes, such as decreased consumption of less nutritious foods; and such other outcomes as are considered appropriate by the Secretary.*"

This report describes findings from the evaluation conducted during the 2010–2011 school year. The evaluation had two components: (1) an impact study to estimate program impacts on participating elementary students and schools; and (2) an implementation study to examine how the FFVP operates in the selected elementary schools.

The primary objectives of the impact study were to compare total quantity of fruits and vegetables consumed and total energy intake by participating and nonparticipating students. Secondary outcomes included students' knowledge, attitudes, and

perceptions of fruits and vegetables; consumption of other foods; dietary status; and FFVP's impact on nutrition education, school meals, and other foods served.

The implementation component assessed the program application process, distribution methods and frequency, types of fruits and vegetables offered, established partnerships, student participation, and program satisfaction as reported by students, parents, and other stakeholders.

Methods

The impact of FFVP was estimated by regression discontinuity (RD), which is considered the strongest possible design when random assignment is not feasible. RD design estimates impact by comparing schools immediately above and below the funding cutoffs in each of a nationally representative sample of States. The final restricted near-cutoff sample included 4,696 students in 214 schools within 2.5 percentage points of the funding cutoff in each State: 2,471 students in 115 FFVP schools just above the funding cutoff, and 2,225 students in 99 non-FFVP schools just below the funding cutoff.

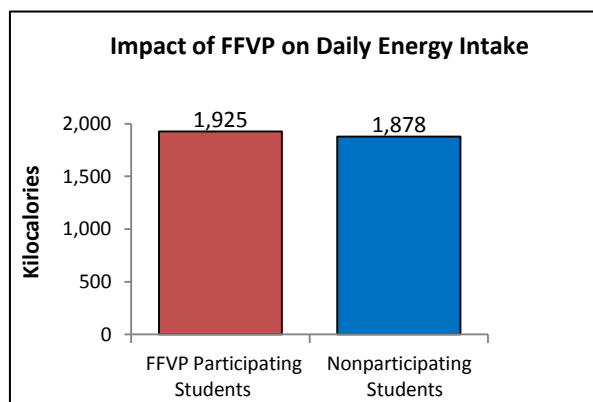
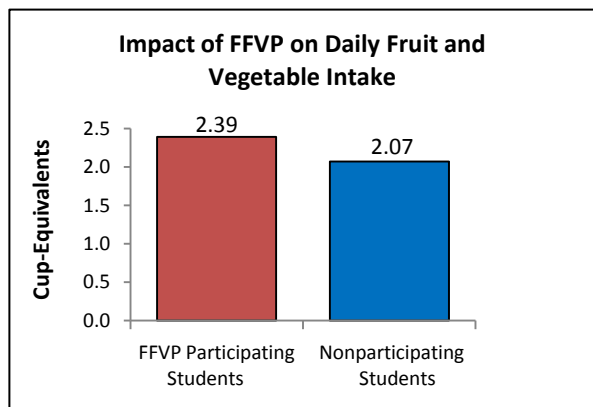
The study collected information on student food intake using diary-assisted 24-hour recall interviews for students participating in FFVP and nonparticipating students. Students also completed a survey on their attitudes towards fresh fruits and vegetables.

The implementation component was assessed by surveys of the State Child Nutrition Directors, School Food Authority (SFA) directors, principals, food service managers, teachers, students, and parents.

Impact Findings

FFVP students consumed more fruits and vegetables than nonparticipating students. The results indicate that FFVP increased average fruit and vegetable consumption among students in participating schools on FFVP days by approximately one-third of a cup per day ($p < 0.001$). The 0.32 cup increase consumed was mostly fruits (0.26 cups) rather than vegetables (0.06 cups). No significant change in energy intake was observed.

¹ The Food, Conservation, and Energy Act of 2008 amended the Richard B. Russell National School Lunch Act (NSLA). FFVP is described in Section 19 of the amended NSLA.



FFVP students consumed more carbohydrates, beta carotene, vitamins A and C, and fiber than nonparticipating students. These results are consistent with the observed impact of FFVP on fruit and vegetable intake. Fruits and vegetables consist mainly of carbohydrates and are good sources of beneficial nutrients such as vitamins, minerals, phytochemicals, and fiber.

FFVP schools offered nutrition education more frequently than nonparticipating schools. Schools participating in FFVP provided nutrition education more often than nonparticipating schools (2.40 days and 0.66 days, respectively; $p < 0.01$). More FFVP schools included nutrition education messages on fresh fruits and vegetables, other types of healthful foods, and general nutrition information compared to nonparticipating schools ($p < 0.01$).

Implementation Findings

A majority of applicant schools received FFVP funding. For the 2010–2011 school year, 74 percent of applicant schools were granted funding for FFVP. Of those schools, 67 percent had three-quarters or more of the students approved for free or reduced-price school lunches.

A majority of FFVP schools served fruit and vegetable snacks 3-5 times per week. Nearly all FFVP schools (82 percent) served fruits and vegetables 3-5 times per week, exceeding USDA's suggestion to serve two or more times each week. Apples were the most frequently served fruit (99 percent of schools), and carrots were the most frequently served vegetable (92 percent of schools). FFVP snacks were most often served in the classroom (89 percent of schools).

A majority of FFVP students took the fruit and vegetable snack when offered. Of the participating students, 85% took the fruit snack most or all of the time that it was offered compared to 63% of students that took the vegetable snack most or all the time. Of those who took the snack, 97% tried the fruit snack and 84% tried the vegetable snack, and 60% and 33% of students consumed the entire fruit and vegetable snacks, respectively.

Participating SFA directors, principals, food service staff, teachers, students, and parents reported a positive opinion of FFVP. More than 85 percent of the participating SFA directors, principals, food service staff, teachers, students, and parents reported a positive opinion of FFVP. Nearly all participating students (97 percent) wanted FFVP to continue in their school.

For More Information

Bartlett S., Olsho L., Patlan K.L., Blocklin M., Klerman J., et al. (2013). *Evaluation of the Fresh Fruit and Vegetable Program (FFVP)*. Prepared by Abt Associates under Contract No. AG-3198-D-09-0053. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service. Project Officers: Karen Castellanos-Brown and Allison Magness.

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