

APPENDIX A

STUDY OBJECTIVES, RESEARCH QUESTIONS, OUTCOME MEASURES,
DATA SOURCES, AND PLANNED ANALYSES

Exhibit A.1 Study Objectives, Research Questions, Outcome Measures, Data Sources, and Planned Analysis

Research Questions	Unit of Analysis	Outcome Measures	Data Sources	Analysis
Study Objective 1: Examine the impacts on fruit and vegetable consumption (and plate waste) at the schools participating in the pilot project				
1a. Do students eat comparable amounts of fruits and vegetables under the standard FFVP compared to the CFD pilot conditions?	Student	Total cup equivalents of fruits and vegetables consumed per FFVP day in school Mean and distribution of cup equivalents of fruits and vegetables consumed in school by type and form (fresh, canned, frozen, or dried) Regression coefficient for fall to spring difference in cup equivalents of fruits and vegetables consumed Mean usual in-school intakes of energy and key nutrients on FFVP snack days Mean Healthy Eating Index (HEI)-2010 scores (total) for in-school consumption	In-school diary/dietary recall Student-level FFVP Snack Form (Observations for Recall (and Plate Waste)	Regression analysis (fall vs. spring) controlling for fruit/vegetable type, portion size, days offered, and week collected Descriptive cross-tabulations (fall and spring) of mean energy, key nutrients, and HEI score for in-school consumption
1b. How do the foods (fruits and vegetables) offered in the pilot compare to those under standard FFVP conditions – what is offered; what is the nutrient profile of the average fruit/vegetable; how do fruit and vegetable selections in a typical week compare between the standard and pilot conditions for variety, nutritional value?	School (Daily/weekly menu)	Percentage of daily meal and FFVP snack menus offering various fruits and vegetables by type and form (fresh, canned, frozen, or dried) Percentage of daily FFVP menus offering choices, median different items per day, and median different items per week Mean calorie and nutrient content of daily FFVP fruits and vegetables <i>offered</i> (including calorie-adjusted comparisons) on standard FFVP vs. pilot days Mean calorie and nutrient content of daily FFVP fruits and vegetables <i>served to/taken by</i> students on standard FFVP vs. pilot days	School-level Reimbursable Fruit and Vegetables Form Reimbursable Fruit and Vegetables Form (Observations) School and FFVP menus	Descriptive cross-tabulations (fall and spring) Regression analysis (fall vs. spring), controlling for days offered and week collected
1c. How does what is offered versus what is taken and consumed compare? i. Average number of servings per student offered (on serving day)? ii. Average number of servings per student selected (on serving day)? iii. Average number of servings per student left over (on serving day)?	School (Daily menu, FFVP serving days)	Mean number of servings of fruits and vegetables per student in FFVP snacks <i>offered</i> and <i>served/taken</i> Mean number of servings per student of FFVP fruits and vegetables left over	Same as those listed under 1b and Daily Meal Count Form	Descriptive cross-tabulations (fall and spring)

Research Questions	Unit of Analysis	Outcome Measures	Data Sources	Analysis
1d. What is the impact of the pilot on plate waste of FFVP fruits and vegetables?	Student Classroom	Percentage of fruits and vegetables wasted per FFVP day at-school (in cup equivalents, total and by form and minor food group)	In-school diary/dietary recall	Impact analysis (i.e. fall vs. spring)
		Percentage of fruits and vegetables wasted at FFVP snacks (in cup equivalents, total and by form and minor food group, by snack location, and by snack timing)	Student-level FFVP Snack Form (Observations for Recall (and Plate Waste)	Descriptive cross-tabulations
		Top 5 fruit and vegetables at FFVP snacks uneaten and with highest percentage plate waste (total and by form and minor food group, by snack location, and by snack timing)		
		Mean and percentage of energy and key nutrients wasted relative to offered (total and by form and minor food group, by snack location, and by snack timing)		
Study Objective 2. Describe the impacts of the pilot project on school participation in FFVP				
What is the impact of the CFD pilot on FFVP participation levels?	School Student	FFVP student participation rate (i.e. percentage of students who took a fruit and/or vegetable snack when it was offered, based on student self-reports)	Student-level FFVP Snack Form (Observations)	Impact analysis (fall vs. spring)
		Frequency of FFVP program participation	In-school diary/dietary recall	Descriptive cross-tabulations (fall and spring)
		Usual proportion of fruits and vegetables eaten	Student Survey	
		Reasons for not participating in FFVP ^a	Parent Survey	
Study Objective 3. Describe the implementation strategies used by the schools participating in the pilot project				
3a. <i>Under the pilot conditions:</i> i. Are CFD options offered alone or in combination with each other? ii. Are CFD options offered alone or in combination with fresh options? iii. Is the number of items, variety, and/or nutrients available/offered affected? iv. What is offered, and what is the combination of CFD and fresh (all canned, all frozen, all dried, all fresh, mostly one or the other, another	School	Percentage of daily FFVP snack menus offering fruits and vegetables only in order of frequency by type and form, separately for CFD-only and CFD and fresh	School-level Reimbursable Fruit and Vegetables Form	Descriptive cross-tabulations of spring pilot data
	Daily/weekly menu	Percentage of daily FFVP menus offering choices, median different items per day, and median different items per week	Reimbursable Fruit and Vegetables Form (Observations)	
		Daily mean calories and distribution of key nutrients offered of fruits and vegetables offered at FFVP snack	FFVP menus	
		Percentage of daily FFVP snack menus offering fresh and CFD fruits and vegetables by various	FSM Survey	

Research Questions	Unit of Analysis	Outcome Measures	Data Sources	Analysis
<p>combination?)</p> <p>v. When are CFD items offered (regularly, only close to weekends and/or holidays, other) and how are schools making these decisions (price, convenience, school schedule, student preference, delivery schedule, storage, other)?</p> <p>vi. What is offered, and what is the combination of CFD (all canned, all frozen, all dried, mostly one or the other, another combination?)</p>		<p>combinations (all fresh, all canned, all frozen, all dried, and top 3 combinations) per day and per week</p> <p>Percentage of schools offering CFD fruits and vegetables by time of day (before lunch, after lunch, or both)</p> <p>Percentage of daily FFVP snack menus offering CFD fruits and vegetables only by various combinations (all canned, all frozen, all dried, and top 3 combinations) per day and per week</p>		
<p>3b. <i>Comparing normal and pilot conditions:</i></p> <p>i. What is the average number of days offered per week?</p> <p>ii. How are foods (fruits and vegetables) prepared?</p> <p>iii. Are condiments added or offered (i.e., herbs, spices, dressings) during preparation?</p> <p>iv. What is the MyPlate cup equivalents serving size (on serving day)?</p>	School Daily/weekly menu	<p>Percentage of schools daily meal and FFVP snack menus offering CFD fruits and vegetables by number of days per week</p> <p>Percentage of schools daily meal and FFVP snack menus offering CFD fruits and vegetables by preparation method (e.g. cooked vegetables from fresh or frozen)</p> <p>Percentage of schools daily meal and FFVP snack menus offering CFD fruits and vegetables with condiments and/or seasoning used in preparation</p> <p>Mean cup equivalents of fruits and vegetables offered at daily meals and FFVP snack by type and form (fresh, canned, frozen, or dried)</p>	<p>School-level Reimbursable Fruit and Vegetables Form</p> <p>Reimbursable Fruit and Vegetables Form (Observations)</p> <p>School and FFVP menus</p>	<p>Descriptive cross-tabulations comparing fall vs. spring</p>
Study Objective 4. Measure and describe the acceptance of the pilot project by key stakeholders				
<p>4a. What is the level of acceptance of the pilot?</p>	Stakeholders	<p>Acceptance measures comparable to those used in the prior FNS FFVP evaluation, for example,; staff, parent, and student overall opinions of FFVP; staff and student opinions about quality of fruits and vegetables; and student satisfaction with FFVP</p> <p>Percentages of schools and districts that perceive fewer barriers to participation and access, for example, inadequate quality, variety, amounts, or storage space for fruits and vegetables; high prices, level of preparation effort; purchasing rules</p> <p>Percentages of schools and districts that perceive fewer costs with the pilot, overall and by reason</p>	<p>Surveys of: State CN Directors, SFA directors, food service managers, principals, parents, students, and teachers</p> <p>Qualitative interviews</p>	<p>Comparison of spring pilot data to FNS-published data</p> <p>Descriptive tabulations of spring pilot surveys</p>

^aGeneral information on applications for, and participation in, the pilot will be available from the State CN Director Survey.