

SECTION 3: EFFECT OF NATIONAL IMPLEMENTATION ON SCHOOL MILK CONSUMPTION

3.1 Pilot Test Results

Findings from the pilot study provide the basis for estimating the national impact on school milk consumption. Percentage changes in ADP and in the volume of milk sold per 1,000 ADP between the base period and the test period are summarized in Table 4. As indicated, there were modest differences between control and test schools in ADP. ADP increased slightly more in elementary control schools than in test schools (+2.0% vs +1.2%) and decreased somewhat less in secondary test schools compared to control schools (-1.5% vs -5.9%).

Differences between test and control schools in the volume of milk sales were more pronounced. Differences from 6% to over 30% were evident in both elementary and secondary schools with test schools consistently reporting higher sales per 1,000 ADP. This finding was similar across all test panels.

Table 4. Percent Change in ADP and the Quantity of Milk Sales per 1,000 ADP by Schools Participating in the School Milk Pilot Study

Panel	Change in ADP (percent)	Change in milk sales (percent)
Elementary:		
Control	+2.0	-3.6
Test 1/3	+1.2	+10.3*
Secondary:		
Control	-5.9	+1.9
Test 2	-3.6	+19.8*
Test 4	-0.5*	+12.8**
Test 5	-	+26.0**
Test 6	-1.7	+34.9**
Test 7	-2.1	+25.5**
Total Test ¹	-1.5**	+25.2**

¹ Weighted average.

* Difference in percent change from control schools statistically significant at the 90 percent confidence level.

** Difference in percent change from control schools statistically significant at the 95 percent confidence level.

Source: Roper ASW and Beverage Marketing Corporation

The combined test school results (with results between test and control schools netted out) indicate that students in the elementary test schools purchased 15 percent more milk per 1,000 ADP than students in control schools while secondary test school students purchased 22 percent more per 1,000 ADP.¹

3.2 Milk in the School Meals Programs

Before estimating the national impact of these measures, a few words of background on the school meals programs and the role of milk in them might be useful. Schools participating in the National School Lunch Program and the School Breakfast Program, collectively referred to in this report as the “school meals programs”, are required to serve meals that meet prescribed nutritional standards. For many years, USDA’s meal program standards have been designed to deliver a portion of the Recommended Dietary Allowances (RDAs) of the National Research Council.² These standards establish goals of providing, on average, one-third of a student’s daily nutritional needs at lunch and one-fourth at breakfast. Age appropriate levels of calories, protein, vitamin A, vitamin C, calcium, and iron are included in the standards.

Beginning in School Year 1996/97, under a reform of these programs called the School Meals Initiative, these standards were broadened to include the recommendations provided in the *Dietary Guidelines for Americans*. Their inclusion brought a significant new dimension to the programs. In addition to the RDAs, the new requirements call for meals that emphasize fruits, vegetables, and whole grains, are low in saturated fat and moderate in total fat, and include beverages and foods that moderate the intake of sugars.

The performance of school meals programs in achieving these dietary goals has been periodically studied. With few exceptions, these studies have found that the programs have successfully met the goals associated with the RDAs. However, the School Nutrition Dietary Assessment Study (SNDA-I) conducted in SY 1991/92 found that school meals were not meeting some elements of the Dietary Guidelines, standards that

¹ Percent changes calculated by Roper ASW after converting change in sales per 1,000 ADP in base and test periods to index values.

² The Recommended Dietary Allowances have recently been replaced by a new set of updated standards, the Dietary Reference Intakes (DRIs), though USDA’s meal program standards continue to be based on achievement of the RDAs.

did not exist when the NSLP was developed. In response to these findings, key recommendations in the *Dietary Guidelines for Americans* were incorporated in the NSLP regulations.

Another study (3), based on 1994-96 data, examined the relationship of school meal participation and dietary intake, both in-school and out-of-school. It found that children who participated in the school meals programs had higher mean intakes of food energy and many nutrients, including calcium, phosphorous, magnesium, zinc, thiamin, riboflavin, and vitamins B₆ and B₁₂. The study also found that school meal participants had higher mean intakes of total fat, saturated fat and sodium than non-participants, though this study too pre-dated adoption of the new standards.

A follow-up study, the School Nutrition Dietary Assessment Study II (SNDA-II) conducted in SY 1998/99 after adoption of the new standards, found that school meals had become substantially healthier since the early 1990s. Levels of fat and saturated fat were lower and carbohydrates higher, relative to the caloric intake.

As part of the School Meals Initiative reform described above, schools are required to use one of four prescribed systems in planning their menus. Two of the systems use computerized nutrient analysis and USDA-approved software. The other two systems are food-based in the sense that meals are defined in terms of specific types and quantities of food. Regardless of the menu planning used, all school meals are required to satisfy the RDA requirements and the recommendations in the Dietary Guidelines. The standards vary by meal (lunch/breakfast) and by grade and/or age groupings. The minimum nutrient standards currently in use in school meals appear in Table 5 below.

Table 5. Minimum Nutritional Standards Defined in Current School Meals Regulations

Lunch	Grade Groupings	
	Grades K-6	Grades 7-12
Calories	664	825
Total fat (as % of calories)	30	30
Saturated fat (as % of calories)	10	10
Protein (gm)	10	16
Vitamin A (mcg RE)	224	300
Vitamin C (mg)	15	18
Calcium (mg)	286	400
Iron (mg)	3.5	4.5
	Grades K-12 (minimum)	Grades 7-12 (optional)
Breakfast		
Calories	554	618

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Total fat (as % of calories)	30	30
Saturated fat (as % of calories)	10	10
Protein (gm)	10	12
Vitamin A (mcg RE)	197	225
Vitamin C (mg)	13	14
Calcium (mg)	257	300
Iron (mg)	3.0	3.4

Source: Food and Nutrition Service, USDA.

Milk plays a unique role in the NSLP and the SBP. It is the only specified food that must be offered as part of all reimbursable meals, both lunch and breakfast. At a minimum, it must be offered in 8-ounce quantities. Prior to 1994, schools were required to offer whole milk. They are now required to offer types of milk consistent with the types consumed the previous year, provided that types constituting less than 1 percent the previous year don't have to be offered. In SY 1998/99, more than 95 percent of all NSLP menus included two or more types of milk with a median of three options offered (2). In lunch menus, the most commonly offered types were 1% flavored (67 percent), 1% plain (53 percent) and whole plain (50 percent).

As a key component of school meals, milk is an important source of several nutrients. In the SNDA-II study, milk was found to account for 53.9 percent of the calcium, 30.3 percent of the vitamin A, 24.0 percent of the protein, and 20.7 percent of the carbohydrate contained in NSLP served lunches (2).

Beyond serving milk as part of the reimbursable meal, most schools offer it as an a la carte item as well. In SY 1998/99, 92 percent of all schools offered milk a la carte, far more than offered any other food (2). The next most frequently offered foods were juice (44 percent) and cookies (41 percent).

Although milk is offered as part of all school meals, most schools permit their students to decline one or two food items (depending on whether it is breakfast or lunch and depending on the menu planning system in use) and still qualify as a reimbursable meal. Called "offer versus serve", this approach is required for lunches served in high schools but is optional at lower grade levels.

In SY 1996/97, the offer versus serve approach was being used in 85 percent of all NSLP school districts. This means that although milk is always included among the foods offered as part of a school meal, it doesn't have to be accepted and often isn't. In the SNDA-II study (2), it was found that 6 percent of all elementary school lunches and 16 percent of lunches served in secondary schools did not include milk, though it was offered. Findings from the student surveys conducted as part of the SMPT (20), surveys that were conducted among both school meal participants and non-participants, also found that many children do not drink milk with their noon meal at school. The

share who reported not drinking milk was: 4th through 6th grades – 29 percent, middle school – 45 percent, and high school – 71 percent.

3.3 Calculating the Impact on Fluid Milk Sales Nationally

The most recent large-scale national study of school food procurement, the School Food Purchase Study, was conducted on behalf of the USDA in SY 1996/97 (4). This study collected procurement data at the school district level. Thus, the national estimates that were derived represent a combined estimate of milk use in both elementary and secondary schools and in both lunches and breakfasts. This corresponds with the methods used in collecting sales data for the SMPT and therefore offers a comparable baseline for estimating national impact.

The School Food Purchase Study estimated national fluid milk purchases in SY 1996/97 of 2,521.9 million pounds. Divided by the number of reimbursable meals (4,560.8 million) served in SY 1996/97 in NSLP unified school districts yields an average of .553 pounds or 8.848 ounces per reimbursable meal. Recalling that the minimum required milk serving is 8 ounces, that some students eating a reimbursable meal do not select milk, and that this is offset in some degree by those students who purchase milk a la carte, this is a reasonable estimate of the average quantity sold per reimbursable meal.¹

However, this estimate is six years old and therefore out-dated given the continuing decline in the per capita consumption of fluid milk.² Extrapolating USDA's per capita consumption measures through 2000, we estimate that per meal sales of milk in schools in 2001/02 were down about 6.6 percent from 1996/97. As a result, the per meal level of milk sale in 2001/02 is calculated at 8.264 ounces. On the basis of USDA's report of 6.032 billion lunches and breakfasts served in SY 2001/02, we estimate that 3,115.5 million pounds of milk were marketed through public schools in SY 2001/02. This is equivalent to about 5.8 percent of total U.S. beverage milk sales in 2001.

Since the SMPT findings are reported separately for primary and secondary schools, the national estimate of school milk sales was converted to the same basis. Several steps were required in making this conversion. Participation rates were multiplied by the share of total enrollment in elementary and secondary schools to calculate the share of total enrollment that had participated. This calculation was made separately for lunch

¹ To the extent purchased milk was used as an ingredient in food preparation, this overestimates the average quantity sold per reimbursable meal for fluid consumption. Other milk products including buttermilk, evaporated milk, condensed milk, nonfat dry milk, and cream have been excluded from this estimate.

² Unpublished SIP data collected for Dairy Management, Inc. indicate that per capita milk consumption rose slightly in 2001. However, the most recent USDA estimate (2000) on which this calculation is based shows a continuing drop.

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and breakfast using findings from SNDA-II and The School Meals Initiative Implementation Study: Third Year Report (SMI-III). These shares were then used to allocate total meals (lunch and breakfast) by the share that was served in elementary schools and the share served in secondary schools. These shares, multiplied by the national estimate of school milk sales, yield the following breakdown between elementary and secondary schools:

Elementary	3,115.5	X	64.3%	=	2,003.3 mil. lbs.
Secondary	3,115.5	X	35.7%	=	<u>1,112.2 mil. lbs.</u>
Total					3,115.5 mil. lbs.

Applying the rates of growth in milk sales reported for the SMPT schools to these totals yields the following estimated impact:

Elementary	2,003.3	X	15%	=	300.5 mil. lbs.
Secondary	1,112.2	X	22%	=	<u>244.7 mil. lbs.</u>
Total					

= 545.2 mil lbs. or 63.3 mil. gal.