

# The Impact on Student Milk Consumption and Nutrient Intakes From Eliminating Flavored Milk in Schools

## OBJECTIVE

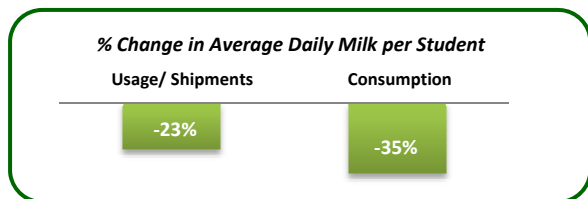
The objectives of this MilkPEP study were to:

- Quantify the change in school children’s milk consumption and nutrient intake as a result of changing the availability of flavored milk in schools. This occurred by measuring consumption in schools that independently decided to eliminate flavored milk:
  - completely - all days of the week.
  - certain days of the week, with only white milk offered the remaining days of the week.
- Understand the reasons and attitudes for limiting or eliminating flavors.
- Model the implications on nutrition delivery and cost.

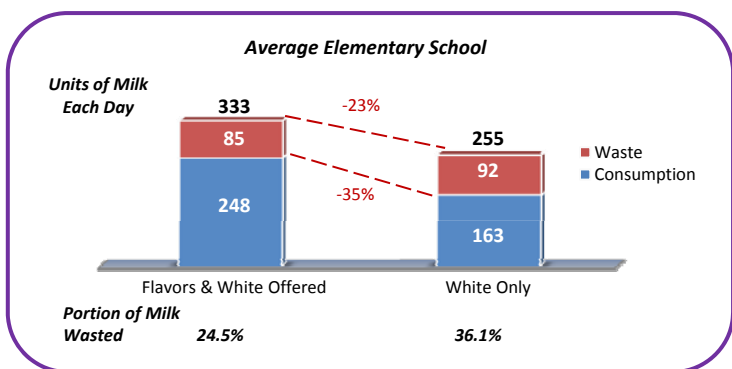


## EXECUTIVE SUMMARY

**When flavored milk was eliminated, elementary student milk consumption dropped dramatically, an average of 35%.** The drop came from a combination of fewer students selecting milk and more milk being discarded.



The schools and milk suppliers saw a 23% drop in the amount of milks used. What they couldn’t see, unless they measured the waste, was that more milk was thrown away when only white milk was available. Taken together, the fewer milks selected and the higher waste level resulted in the 35% decline in consumption.



The average elementary school in the study sample experienced 36% waste when only white milk was available. Actual consumption by students declined from 248 to 163 servings of milk each day per school, a loss of 85 servings worth of milk’s nutrients.

In the nationwide survey of Nutrition Directors, the desire to curb added sugars and calories was behind the majority of flavor reductions; 93% of the Directors were not in favor of these reductions, yet they are often not the final decision makers.

## Nutrients Down the Drain

“It’s important for parents and school professionals to recognize the implications of removing chocolate milk from school meals,” said Rachel K. Johnson, PhD, RD, a professor of nutrition at the University of Vermont who reviewed the study and provided consultation on the impact of the flavored milk changes on the children’s intakes of key shortfall nutrients. “As the study demonstrated, there could be well-meaning but negative consequences of limiting the availability of flavored milks.”

The results indicate that the essential nutrients lost from the decline of milk consumption with the elimination of flavors are substantial and not easily replaced by other foods.

The study found that replacing milk’s essential nutrients would require 3-4 different food items to match the nutrient contributions of milk – yet those foods would add back more calories and fat, and cost an incremental \$2,200 to \$4,600 more annually per 100 students.

The nutrition content of nearly two dozen commonly served foods were analyzed. **The study found that if a school were to eliminate flavored milk, they would be compelled to re-plan their menus to ensure they deliver the essential nutrients that are lost due to reduced milk consumption. Minor changes or supplementation of the core menu offering will not replace the nutrients.**



**MilkPEP**  
Milk Processor Education Program

For more information visit  
[www.milkdelivers.org](http://www.milkdelivers.org)

The study, funded by the Milk Processor Education Program (MilkPEP), was conducted by Prime Consulting Group. The Nutrient Modeling team included Ms. Rachel K. Johnson, PhD, RD; Ms. Gretchen Schulz, MEd, RD, LD, SNS; Ms. Linda Stoll, MPH and Prime Consulting Group.

## DISTRICT RESULTS

All seven districts in the study experienced declines in milk consumption when flavors were not available. On average, milk declined 35%. The smallest decline was 18%, while two districts experienced a 43% decline. Five individual schools saw a decline of more than 50%.

		% Change in Milk <sup>1</sup>		Free/ Reduced Rate of Measured Schools <sup>2</sup>	No. of Days per Week that Flavors were not Offered
		Usage	Consumption		
Participating Districts	A	-16%	-25%	65%	1
	B	-27	-35	56	1
	C	-16	-43	50	2
	D	-18	-29	64	4
	E	-22	-43	15	4
	F	-16	-18	22	5
	G	-30	-39	45	5
<b>STUDY AVERAGE</b>		<b>-23%</b>	<b>-35%</b>		

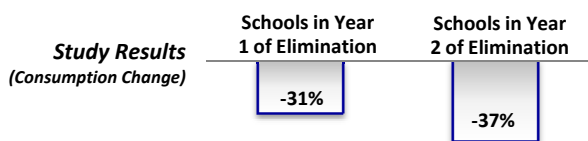
<sup>1</sup> Comparing "flavor days" with "white only" days. Usage is the number of milks taken by students. Consumption represents the amount actually consumed (usage less waste).

<sup>2</sup> Free/ Reduced rate represents the percent of students who qualify for federal financial support for meals at school.

The consumption declines were not explained by either the free/reduced rates in the measured schools, or by the frequency of not offering flavors. Other beverage offerings (water and in a few cases, juice) were not changed during the test. Adult encouragement to drink white milk may have influenced initial results, but did not overcome students' reaction to the elimination of flavors.

Many districts deciding to eliminate flavors think or believe that an initial drop in consumption will recover over time.

Contrary to expectations that students might adjust to drinking only white milk, milk consumption did not recover over a year's time. The 40 schools that were in the second year of a limited or no flavors policy did not see students moving to white milk. On average, students at those schools drank 37% less milk compared to when they had flavored milk available every school day.



## METHODOLOGY

The study incorporated three major research components: measuring actual consumption in a sample of schools, conducting a nationwide survey of Nutrition Directors attitudes/perceptions and nutrient modeling.

The in-school component of the study involved measuring actual milk consumption changes when flavored milk products were eliminated or only offered on certain days of the week. A sample of 58 elementary and secondary schools was recruited from 7 different schools districts across the country. These districts had already or were about to eliminate or curtail availability of flavors; 40 of the schools were in their second year of this policy and 18 made the change for Fall 2009.

Each sample school in the study followed the same measurement protocol, used the same measurement tools and was trained to perform the measurements by the study consultant. Schools measured milks used and waste (along with other environmental factors) on an average of 12 separate days during Oct.-Dec. 2009. In total, 689 measurement days occurred among the 58 sample schools. In addition, a control cell (flavors available all 5 days/week) of 18 schools was used to collect 211 measurement day for comparison purposes.

A nationwide survey of School Nutrition Directors was conducted. Nearly 2,000 Nutrition Directors were invited to participate and 499 (26%) completed the survey. Answers were compared to the larger sample from MilkPEP's Annual School Survey conducted in January 2009 (n=1,379 Nutrition Directors).

The nutrient modeling work translated the change in milk consumption into the change in nutrient intake and then evaluated potential foods to replace the nutrient gaps. Nutrient levels for individual foods were obtained from the USDA National Nutrient Database for Standard Reference.

## NUTRIENT IMPACT

**The essential nutrients lost from elimination of flavors were substantial and are not easily replaced by other foods.** The table below provides the essential nutrients that must be replaced **on a weekly basis** if flavored milk is not offered.

**Weekly Amounts per Student  
Essential Nutrients to be Replaced**

	Unit of Measure	Amount to be Replaced
Vitamin D	mcg	3.6
Vitamin D	IU	130
Calcium	mg	363
Potassium	mg	653
Magnesium	mg	50
Phosphorus	mg	382
Vitamin A	RAE	197
Vitamin A	IU	668
Protein	g	10.6

A variety of foods commonly served in schools were evaluated to see what it takes to replace milk's essential nutrients. To replace these nutrients:

- required 3-4 food items to match milk's nutrient contributions.
- added back more calories and fat than were being reduced.
- added back roughly half of the sugar, netting a savings of only 15-28 grams per week.
- cost an incremental \$2,200-\$4,600 annually per 100 students.

## NUTRITION DIRECTOR ATTITUDES

A nationwide survey of Nutrition Directors was conducted to understand their attitudes about flavored milk elimination; 499 Directors responded (26% response rate) to the online survey.

- 93% of School Nutrition Directors do not want to reduce flavored milk availability.
- 5% favor modest reductions and only 2% favor elimination.

*"It seems clear to me that there are far better ways to trim calories and added sugar from the menu than removing chocolate milk, which makes so many positive contributions to children's diets ... chocolate milk is just as nutrient-rich as white milk, and if it helps children drink more milk, then that's a positive strategy."*

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