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Shelf Stable Milk Pilot Results

DALLAS
INDEPENDENT SCHOOL DISTRICT



PRIME
CONSULTING

August 4, 2022
Review and Discussion

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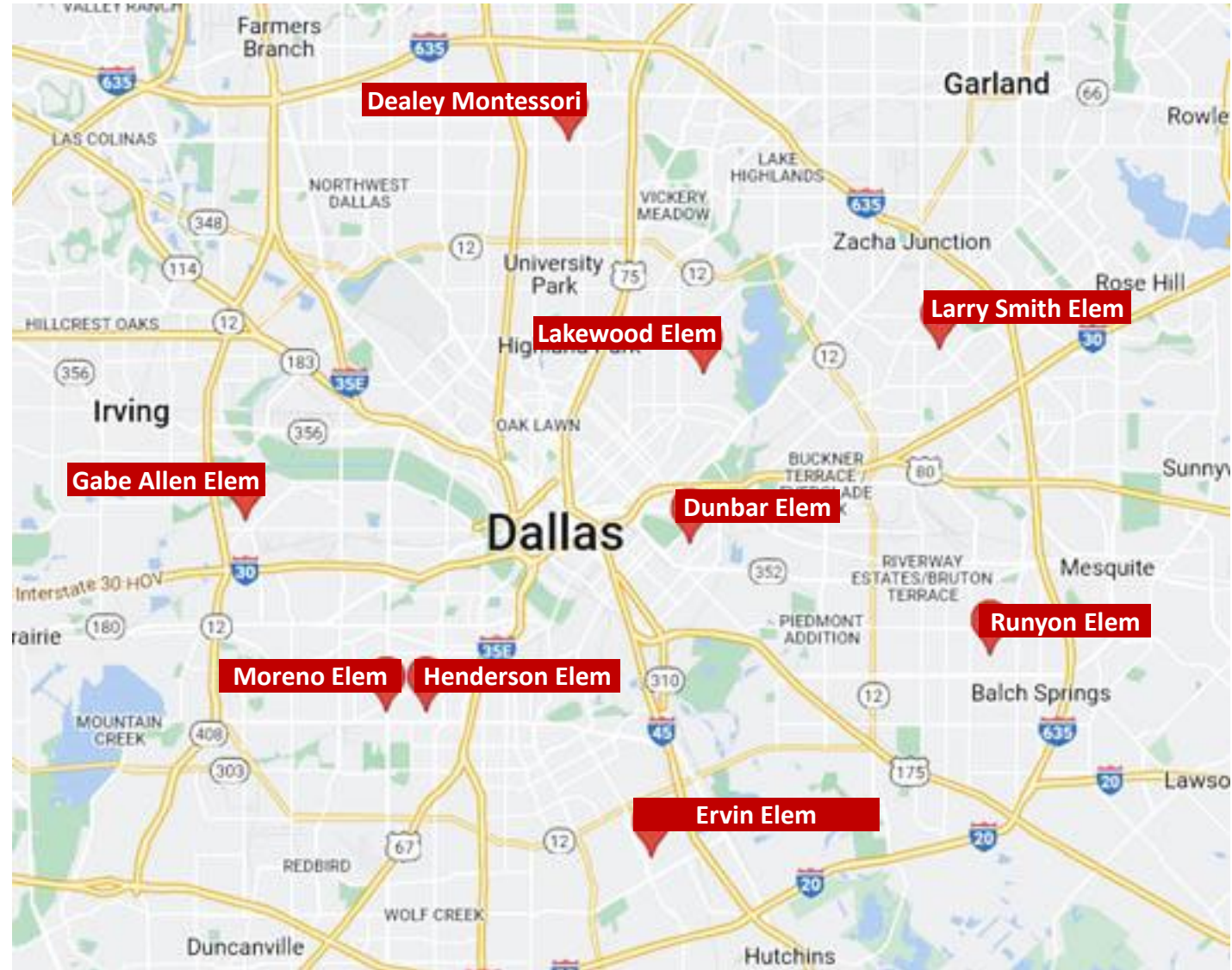
Shelf Stable Pilot

<p>9 Schools</p>	<ul style="list-style-type: none"> • All Elementary • Chosen by Dallas ISD Trustees – Each of the 9 selected 1 of their schools • Test has high visibility inside district
<p>Enrollment 5,013 Students</p>	<ul style="list-style-type: none"> • 43% Breakfast Participation • 65% Lunch • 7% Dinner
<p>Measurement</p>	<ul style="list-style-type: none"> • Sales – Ongoing • Waste – Gable Top 11/29 – 12/3 – Shelf Stable 3/21 – 3/25 • Operations – Product delivered through district warehouse/trucks 1x a week – Cost Modeling scenarios picked together with Dallas ISD Leadership

Pilot School Locations

Dallas ISD has 9 members of the Board of Trustees. Nutrition Services asked each Board member to pick a school to represent their region and thereby increase visibility and buy-in for the pilot.

The 9 schools were spread across the roughly 230 schools in the district.



Scope

The scope of the pilot was to test:

- student use of aseptic milk, instead of the traditional gable top carton packaging.
- Dallas ISD self-distributing from their central warehouse, instead of the Processor distributing directly to each school.

The original pilot of four schools began in early 2020 just two weeks before the pandemic driven shutdown of in-person instruction. ***Once in-person instruction resumed in Fall 2021, the pilot was restarted with 9 Elementary Dallas ISD schools in January 2022*** and continued through the end of the Spring term in early June 2022.

- Sales measurement: January-May '22 compared to August '21 to January '22.
- Waste measurement:
 - Cartons Nov. 29 – Dec. 3, 2021 5 Days
 - Aseptic Mar. 21-25, 2022 5 Days
- Operations evaluation throughout pilot period through staff surveys and calls.



Executive Summary

The shelf stable milk pilot in the Dallas Independent School District (Dallas ISD) was conducted in 9 schools during the spring semester of 2022. Schools were selected by the Board of Trustees – one school per Trustee region.

The nine schools saw meals served increase +9% (+55/day) during the pilot compared to +1% (+5) in the rest of the district. The student’s liking of shelf stable milk is cited as the reason for the increase in meals served (as no other changes were made to the meal service).

- Milk use increased +4%. Individual school results ranged from no change in one school to two schools with +22% and +38%. 7 of the 9 pilot schools reported more than +4% in meals.
- Milk waste declined by 5 pts. (-9 pts. for white milk and -2 pts. for chocolate).
- **The combination of more milk use and lower waste equaled +12% in consumption (vs. -2.4% for rest of district).**

Nutrition Services managers and school staff reported the pilot was successful. A large majority of cafeteria staff rate the change as favorable, even with the extra handling and product movement within the cafeteria. Self-distribution from the district central warehouse occurred with minimal start-up issues.

The district is strongly considering continuing shelf stable milk in the pilot schools to extend their experience and is very interested in expanding to the entire district.

Michael Rosenberger, the Executive Director of Food and Child Nutrition Services has been promoting shelf stable with local media and TX state officials.



Michael Rosenberger

Executive Director at Dallas ISD

- Michael comments have:
 - Focused on how much students like the shelf stable product.
 - Emphasized operational benefits from smoother/simpler supply chain.
 - Fewer deliveries/truck on road and miles driven.
 - More resilient response to unusual circumstances such as remote feeding, weather, etc.

“It’s ultra-pasteurized, has a long shelf-life,” Michael Rosenberger, Dallas ISD Executive Director of Food and Child Nutrition, said, “But all the nutrition, all the vitamins, all the reasons that we drink milk in the first place; they’re still there 100-percent.”

<https://www.nbcdfw.com/news/local/dallas-isd-pilot-testing-shelf-stable-milk-program/2896406/>

“Shelf-stable milk solves a lot of the issues, a lot of challenges that we have with regular fresh milk,” says Executive Director for Food and Nutrition Services Michael Rosenberger.

<https://www.foodservicedirector.com/operations/dallas-isd-tries-out-shelf-stable-milk>

Executive Summary: *Milk Consumption Rose +12% in Pilot Schools*

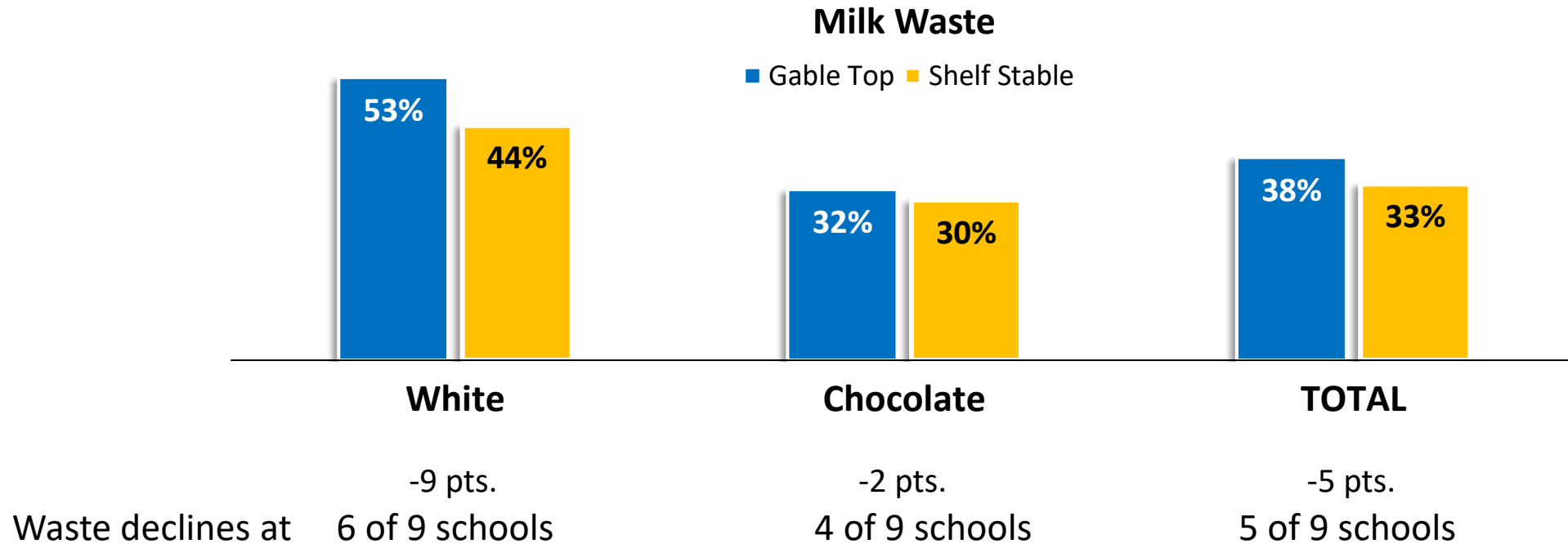
The Dallas ISD pilot of shelf stable milk with self-distribution was very successful.

- Milk consumption rose +12% compared to -2.4% for the rest of the district (a +14.4 pt. difference).
 - Milk purchases rose +6% and waste declined 5%.
- In addition, the district attributes the meal increase to the milk change as no other changes were made. Meals across the rest of the district were +1%, so + 8 points attributed to the pilot.

	CHANGE PILOT PERIOD VS. FALL 2021		
	<i>Pilot</i>	<i>Rest of District</i>	<i>Diff B/W*</i>
Milks Purchased	+3.6%	-2.4%	+6 pts
Milk Wasted	-5 pts	NC	+5 pts
Net Milk Consumption	+12%	-2.4%	+14.4 pts
Meals Served	+9%	+1%	+8 pts

* B/W – Better/Worse

Student Waste Declined With Shelf Stable Package

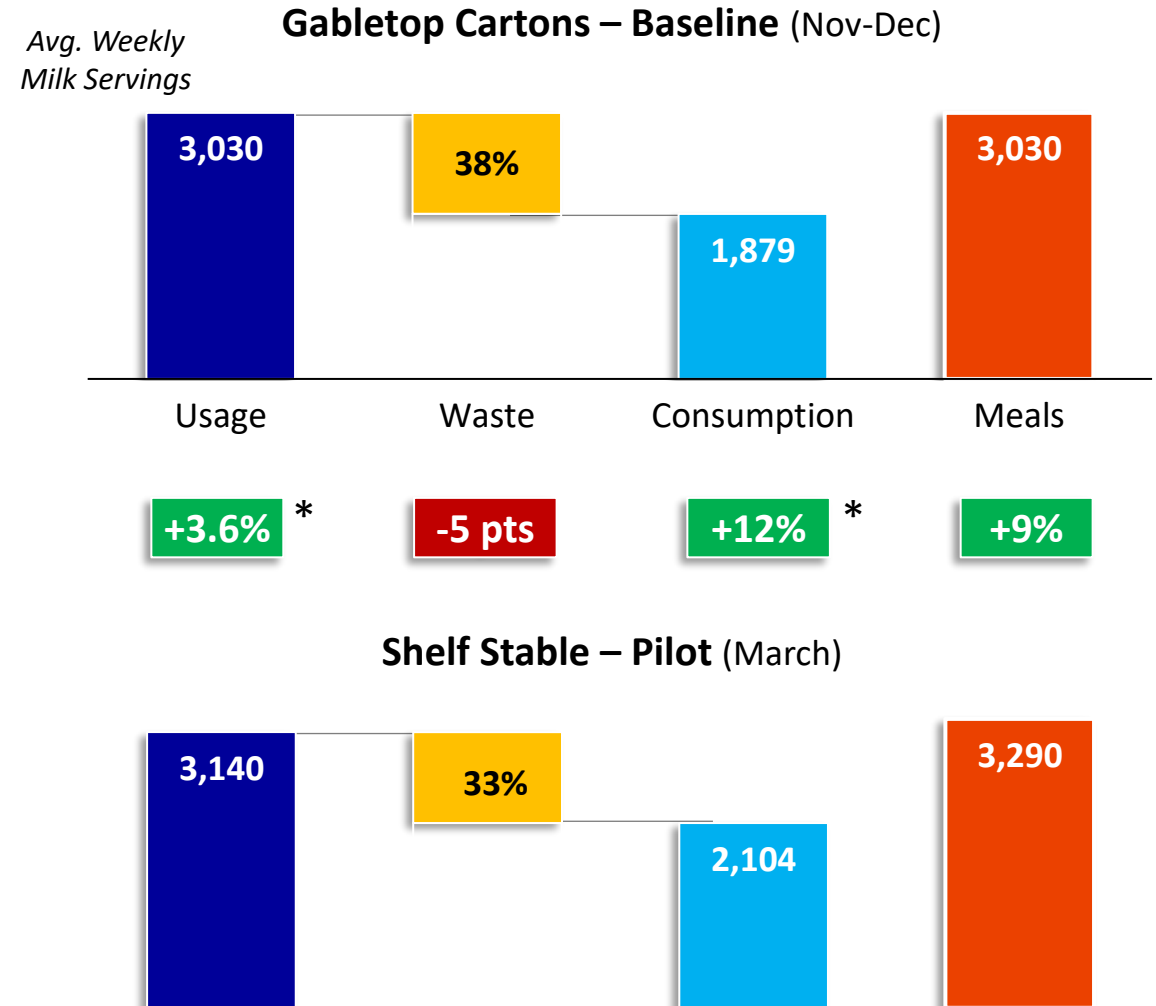


Milk Consumption Rose in Pilot Schools More Than Meals

Overall, milk volume used by students rose +4% during the pilot compared to the prior Fall. Meals served rose +9%.

The amount of milk wasted by students declined from 38% with gabletop cartons to 33% with shelf stable packages. That is the equivalent of one extra swallow-worth of milk.

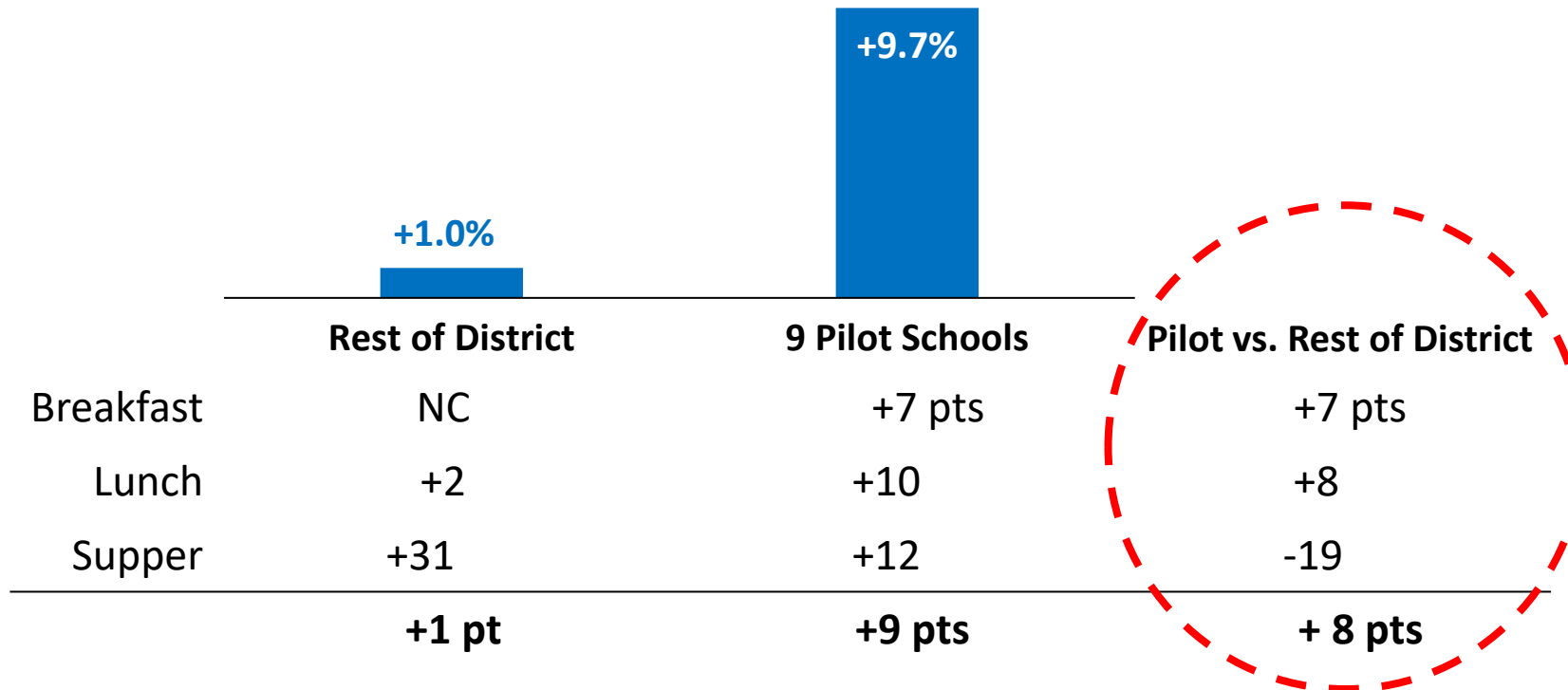
The net effect was a +12% increase in milk consumption during the pilot. The district attributes students embracing of shelf stable milk with the +55 increase in meals per day.



* Comparing the Pilot (Shelf Stable) period to the Baseline (Gabletop carton) period

Shelf Stable Delivered an Incremental +8 points in Meals

The Pilot Schools experienced a 8 point increase in meals during the pilot, while the rest of the district experience a +1 point change overall. Favorable performance of the pilot schools was +7-10 points for breakfast and lunch respectively. This was a very large increase and has increased the Nutrition Services enthusiasm for a shelf stable milk offering ongoing.



* Excludes After School Snacks

Average School Grew +55 Meals per Day

The meal increase was spread across all meals, with lunch growing by 36 meals each day per school.

This was during a period when all children had access to free meals – during the pre and pilot periods.

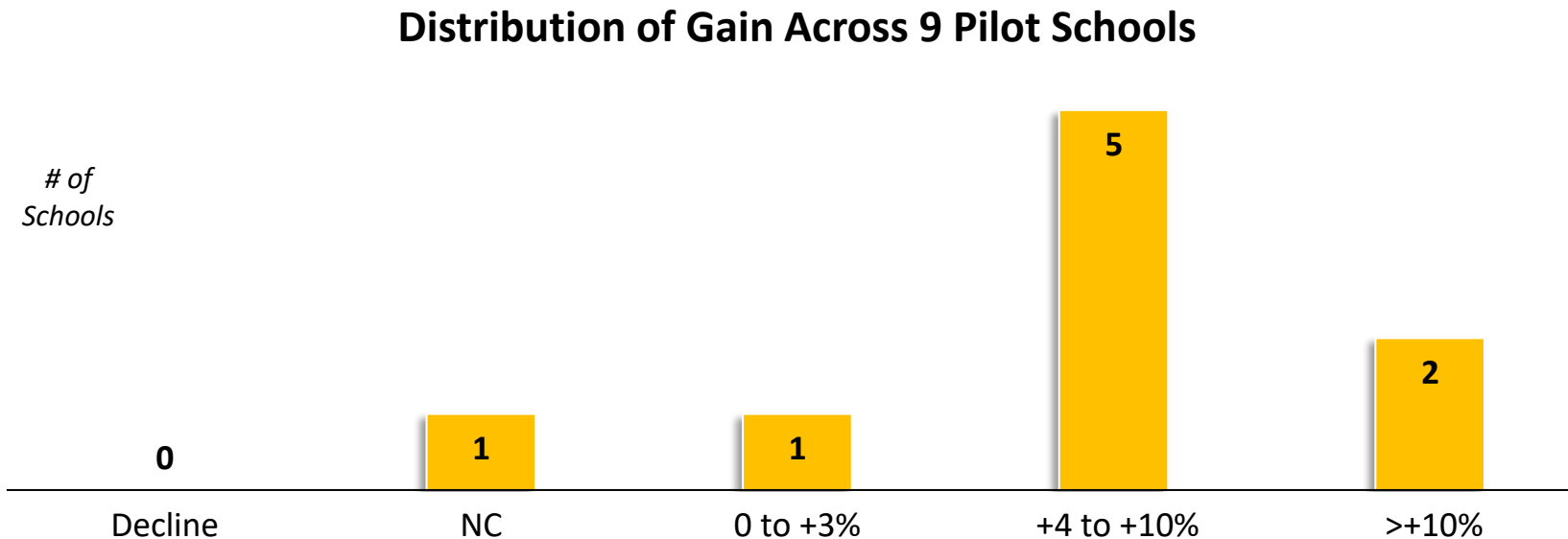
	Gable Top (Pre)	Shelf Stable (Pilot)	CHANGE	
			Meals	%
Breakfast	237	252	+16	+7%
Lunch	369	406	+36	+10%
Supper	26	29	+3	+12%
Avg. Pilot School*	606	658	+55	+9%



* Totals include a small number of 'snack meals'.

Strong Growth was Widespread

- None of the 9 pilot schools experienced a decline. One school was unchanged.
- The majority of pilot schools grew +4 to +10 points.



Operations Observations

Overall: Students and staff like the shelf stable milk package and adapted to the different operations without any ongoing challenges.

The Dallas ISD warehouse and delivery teams were able to deliver the shelf stable milk to each pilot school as part of their ongoing deliveries to the schools. The cafeteria staff were comfortable/ preferred handling the milk in one-way cases rather than two-way crates.

No delivery or in-cafeteria handling issues were surfaced beyond typical start-up items and the need for a different approach to ordering to look 5 days out.

Nutrition Services staff has noticed the pilot school outperformed the rest of the district. They attribute the +5% to +10% increase in meals to the change in milks.

Dallas ISD would like to expand shelf stable milk to all schools once a more local production/distribution option is available.

Cafeteria Staff Reactions

OUT OF 13 STAFF INTERVIEWED:

- 62% (8 out of 13), said students “liked” or “definitely liked” the shelf stable package. 31% (4) said students were “indifferent”.
 - Same reporting about student reaction to taste.
- Only 1 of 13 reported a negative reaction (and that was a personal reaction).

	Favorable/Positive	Indifferent	Negative
Student Reaction to Package	62%	31%	7%
Student Reaction to Taste	62%	31%	7%
Staff Personal Opinion	70%	23%	7%
Teachers/Administration	38%	55%	7%

- 38% of staff perceived they served more trays/meals as a result of the shelf stable milk.

Cafeteria Staff Reactions

TOP 2 THINGS YOU PREFER ABOUT ...

GABLETOP

- ✓ Easier to load in milk box (crates)
- ✓ Delivery daily is easier – Amount we need
- ✓ Easier to store
- ✓ Easier to count (1 crate = 50 units)
- ✓ 'Nothing'

SHELF STABLE

- ✓ Easier to open
- ✓ Fewer/smaller spills
- ✓ Product is better for children
- ✓ Clean
- ✓ Has a straw – Easier for students
- ✓ Longer date – Keeps longer
- ✓ The look

Supply Chain Cost: *Plant to Student* (Projected for Dallas ISD)

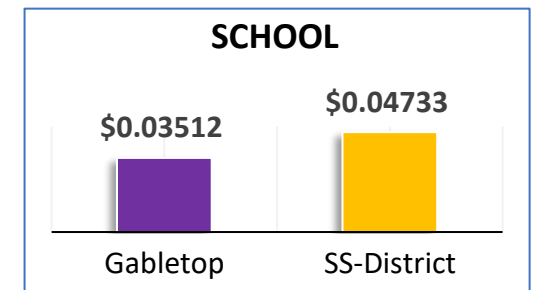
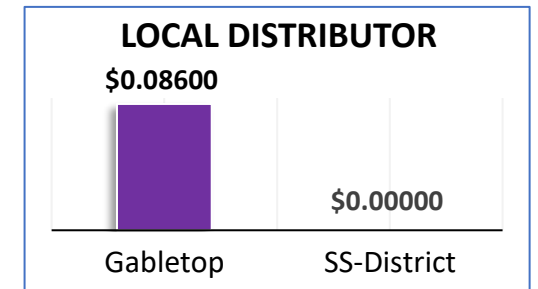
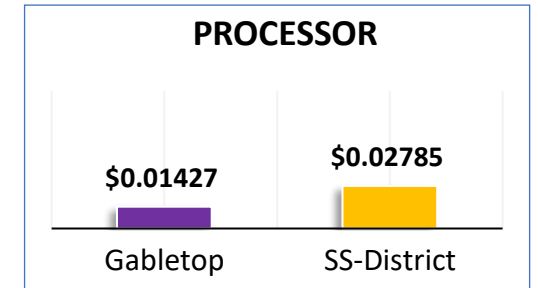
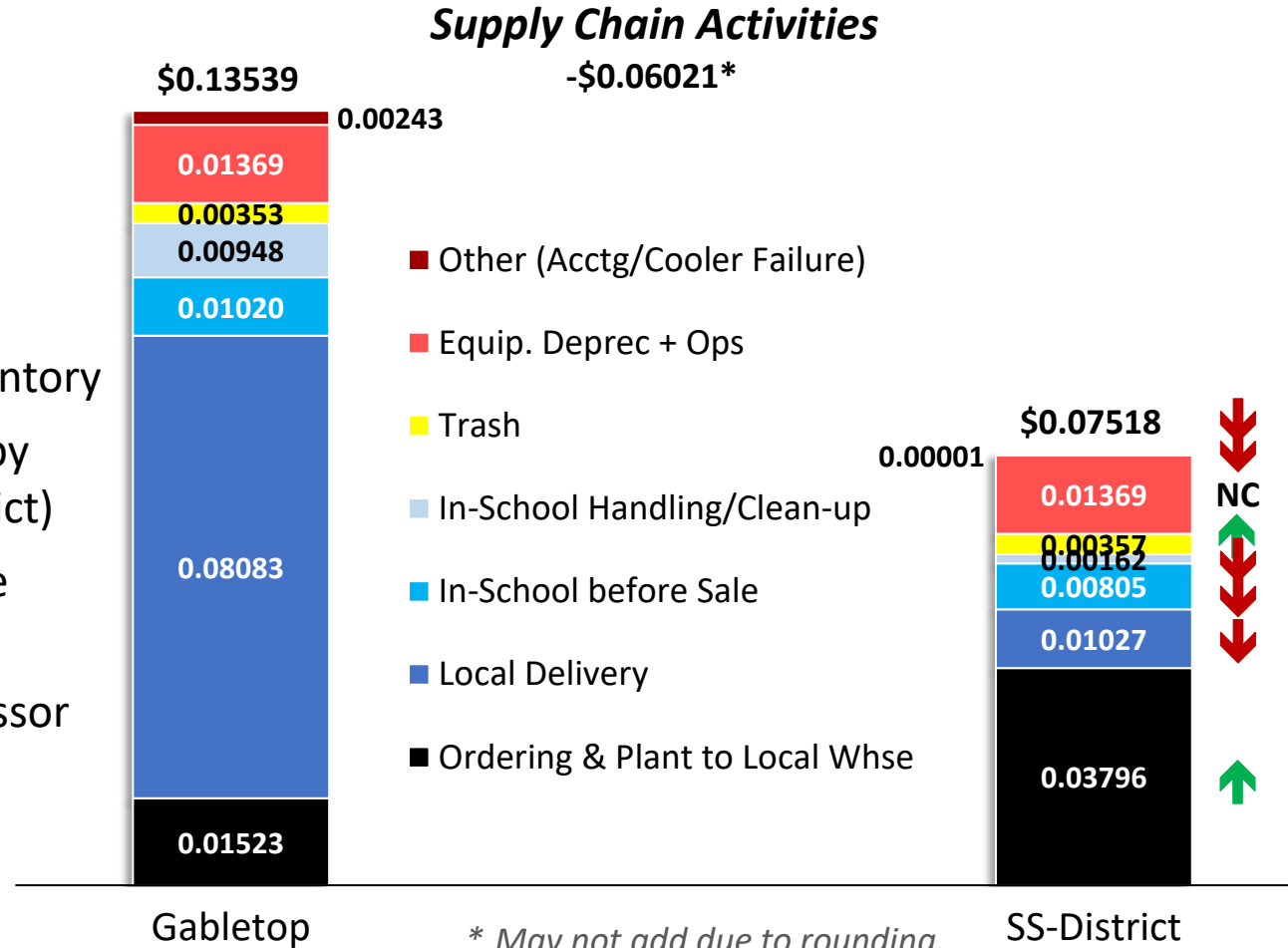
- Pilot measurement included projecting supply chain cost changes from gabletop cartons to shelf stable packages.
- **The supply chain for this modeling was defined as plant loading dock to student.** The analysis includes 23 sets of activities that are grouped into 7 clusters/nodes for reporting:
 - Ordering and plant to local warehouse distribution.
 - Delivery to the school under different scenarios.
 - In-school handling – before the sale.
 - In-school handling and clean-up post sale.
 - Trash disposal.
 - Equipment depreciation and operating expense.
 - Misc. other costs such as accounting and equipment failure.
- The analysis does not include any difference in what the schools pay for the milk package.
- During the pilot, Prime collected cost and operations inputs to project cost for both gabletop cartons and shelf stable packages. In some cases, Prime used time study findings from other districts, as well as cost factors, developed over multiple modeling efforts around the country. The most important variables were gathered from Dallas ISD to approximate their specific situation.
- Dallas ISD findings may not be indicative of other districts, and therefore should not be used as industry averages. At the end of the *Improved School Milk Experience* project, aggregate results will be provided in the final report.

Supply Chain Cost: Plant to Student (Projected for Dallas ISD full rollout)

Shelf Stable and self-distribution combined save \$.06021/serving. Delivery frequency changed from dedicated 5x/wk direct to school by the processor to a shared deliver 2x/wk by the district.

Costs changes driven by:

- + Truckloads from longer distance
- + District holds more inventory
- Local delivery shift (5x by processor to 2x by district)
- One-way case/eliminate crates
- 98% reduction in processor invoices



Local Distribution & District Operating Cost: *Delivery Frequency*

Frequency of delivery to schools has a meaningful impact on overall cost, specifically these activities:

LOCAL PROCESSOR/DISTRIBUTOR	SCHOOL DISTRICT
Picking Order	Ordering, Receiving & Put Away
Driving to School	
Unloading at School	Processing Invoice
Return of/wash empty crates	
Invoicing	
Processing Payment	

Current delivery frequency to schools:

GABLETOP SHELF LIFE <i>18-20 Days</i>	SHELF STABLE (ASEPTIC) <i>Up to 365 days</i>
5x ... 2.5 ... 2.0 ... 1.0 per week <i>90% of Schools</i>	to Warehouse → Full Truckloads over more miles to Schools 1.0 ... 0.5 per week

District Operating Cost: *Accounting/Payables*

- Direct School Delivery (DSD) with a high degree of frequency, generates a high volume of invoices for the district to process and pay.
- Using Dallas Independent School District (Dallas ISD) as an example:

227	Schools
5	Deliveries per week
38	Weeks
<hr/>	
43,130	Invoices a Year for Milk
@	<u>2</u> Minutes Each <i>(ranges from 1-5 minutes in interviews)</i>
~1,438	Hours per Year
- These invoices require 1,438 hours per year, or 75% of a full-time position during the school year (\$53,930 in payroll/benefits). This translates to \$0.00184 per serving.
- Reducing delivery frequency, whether continuing DSD or district/3rd party delivered from a central warehouse, can reduce that cost significantly (along with other Processor and Districts costs).

District Operating Cost: *Shared Deliveries Reduces Costs & Miles Driven*

- Dedicated deliveries, where school milk is 90+% of the product delivered, add more cost to milk and are less sustainable than shared deliveries from a central warehouse.
- Using Dallas Independent School District (Dallas ISD) as an example:

227	Schools		
5	Deliveries per week		
38	Weeks		
<hr/>			
43,130	Deliveries a year dedicated to Milk	Local Delivery Cost per Serving	Miles Driven
		\$0.07076	517,560
8,626	Deliveries if once a week	0.01415	86,260
1,725	Equiv. deliveries if shared (Milk is 20% of the del)	0.00926	17,252

Reducing delivery frequency coupled with shared deliveries, provides significant cost reduction (\$1.5M in Dallas ISD's case) and reduces truck miles.

Sustainability Impact: *Opportunity to Reduce Miles Driven*

Changing from Gabletop to Shelf Stable can reduce the miles for distribution of milk by over 50%.

OVER-THE-ROAD	GABLETOP	SHELF STABLE	
Trailers	492	407	<i>Denser case pack</i>
Miles per Trip	x 200	x 500*	<i>Further distance</i>
Miles	98,400	203,500	
LOCAL DELIVERY			
Frequency per Week	5	1	<i>Reduced frequency</i>
Miles	12	10	
	x 227 Schools x 38 weeks		
	517,560	86,260	<i>If shared (20%) 17,252</i>
TOTAL SYSTEM MILES	615,960	289,760	220,752
		-53%	-64%

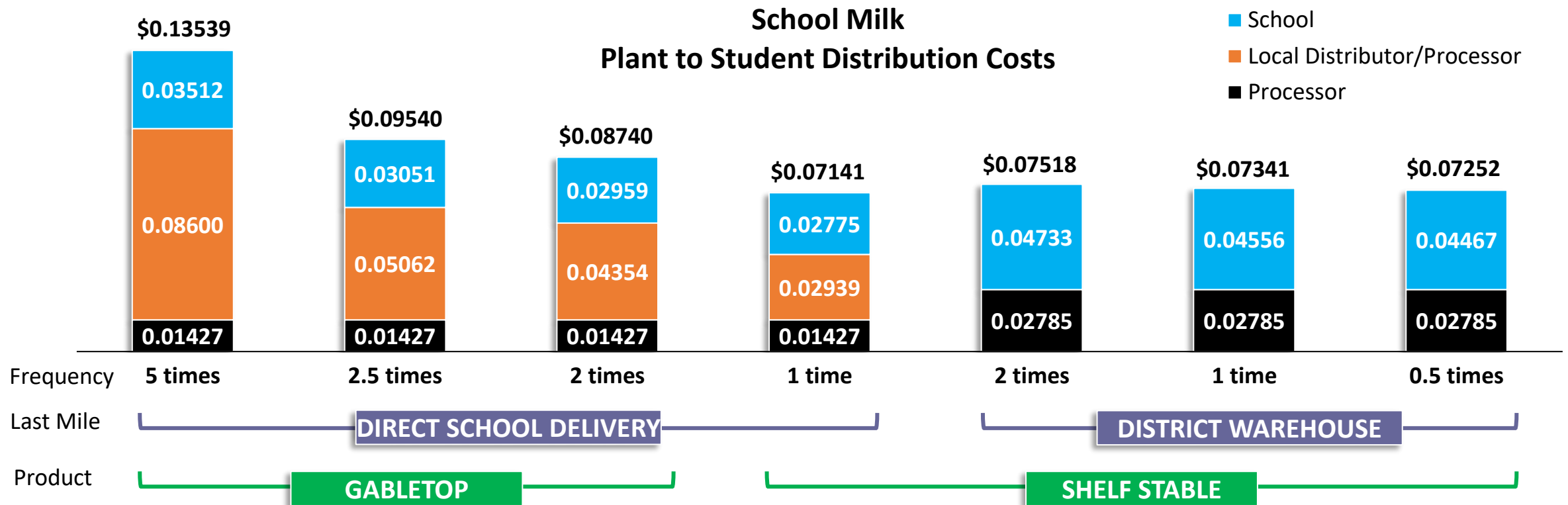
** Projected when additional plants come online.*

Dallas could source product today from 1,000 miles away (UT or NY) and still reduce overall miles.

Frequency & Last Mile Provider Influences “Plant to Student” Costs

Reducing delivery frequency and simplifying the last mile can reduce cost.

- Gabletop product cost reduction is largely from reducing delivery frequency.
- A further 1-1.5¢ / serving reduction can be realized when using shelf stable milk.



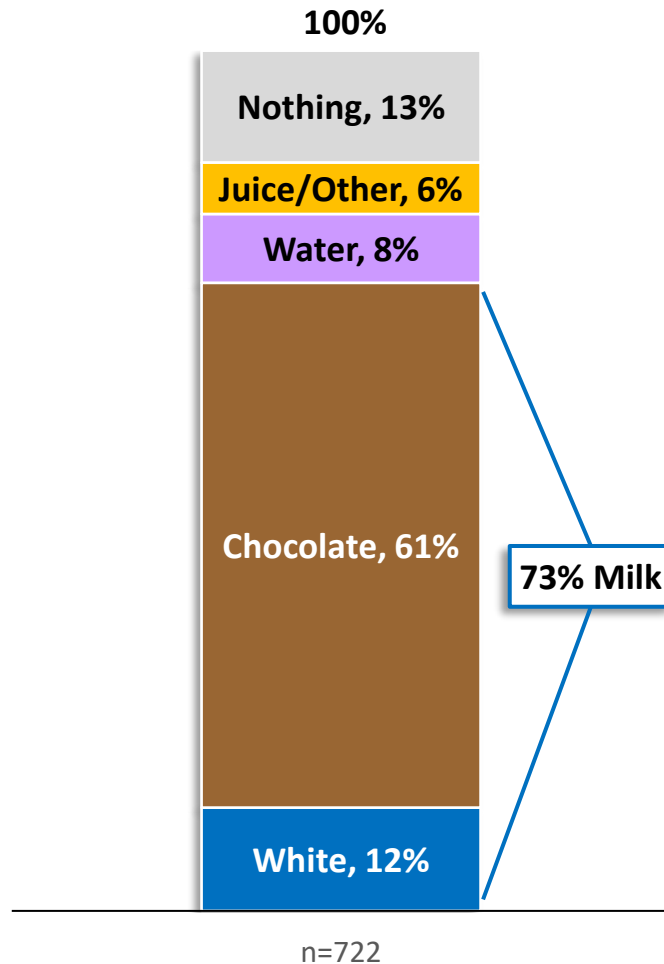
May not add due to rounding

Student Survey Summary

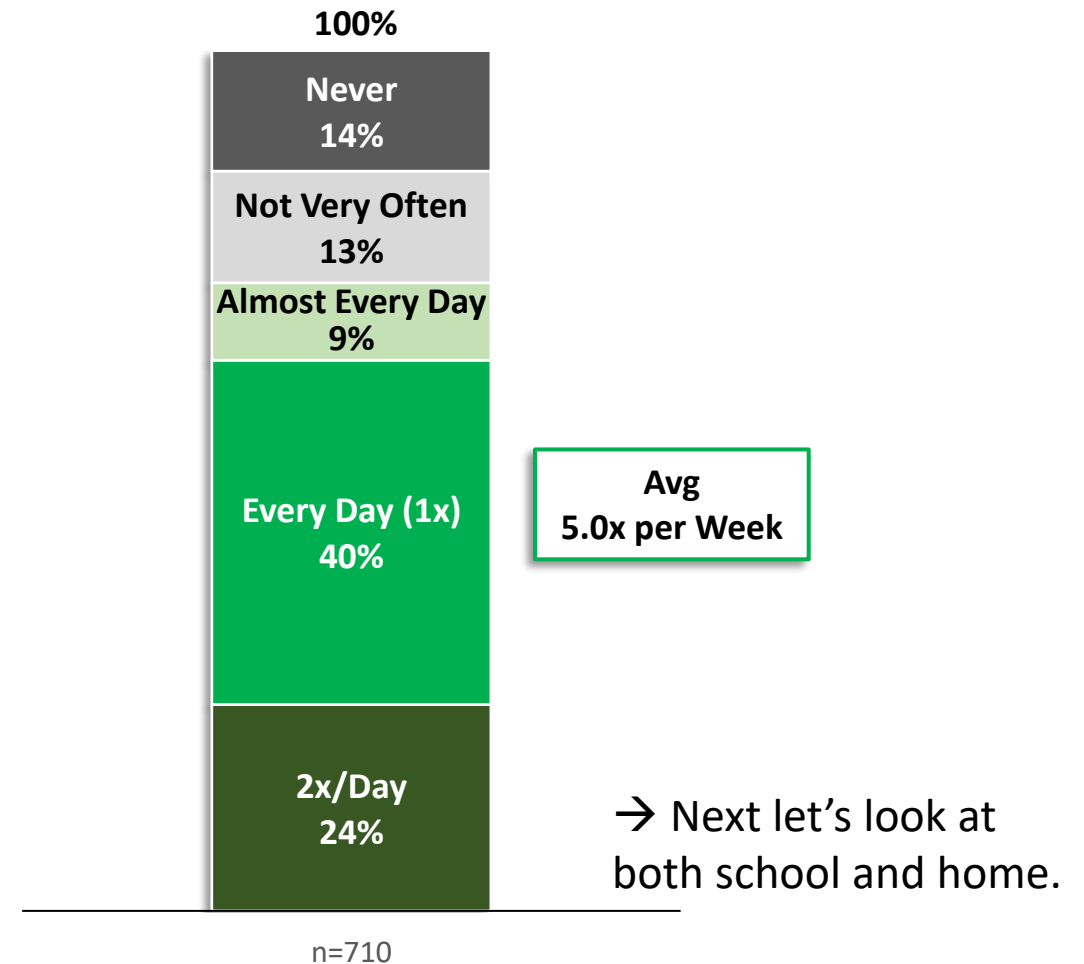
- **On the survey day,**
 - **73% of students drank milk with lunch on the survey day.**
 - **Only 14% of students report never drinking milk at school.**
- **Familiarity with aseptic milk was 76%.**
 - Higher than most areas. Still recommend some education at the start.
- **49% of students who periodically drink milk indicated they “liked” or “loved” the dispensed milk.**
 - Only 16% of students rated the shelf stable milk as “do not like it”.
 - **Portion rises to 57% when looking only at today’s milk drinkers.**
- **39% of students rely on school meals for their milk consumption.**

73% of Students Surveyed Drank Milk, while 14% Report Never Drinking Milk at School

1. What did you drink with lunch today?

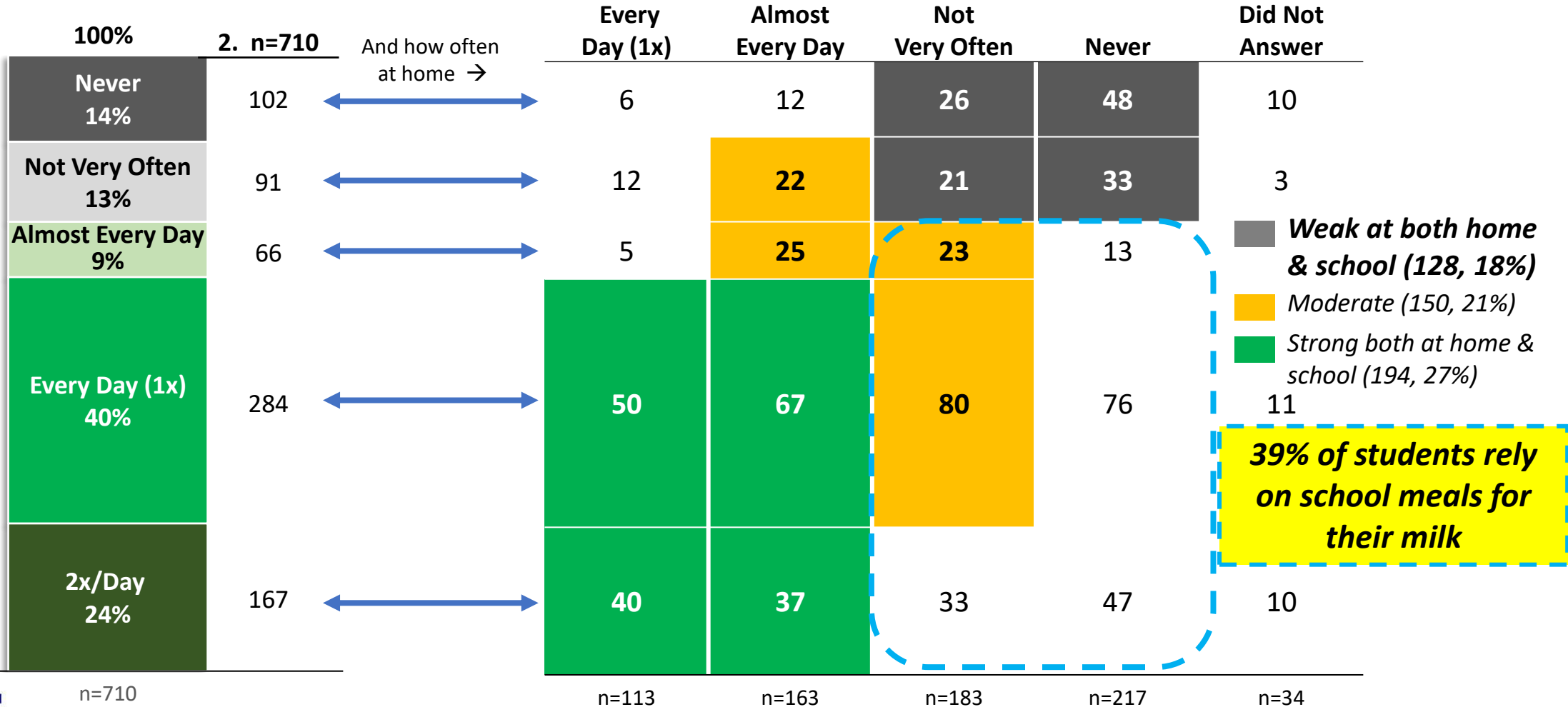


2. How often do you drink milk at school?



Most Who Rarely Drink at School Rarely Drink Milk at Home

2. How often do you drink milk at school? and ... 5. How often do you drink cow's milk at home or on school days?



Pilot Recap

- **The Dallas pilot in 9 schools was very successful on many fronts:**
 - **Student Meal consumption rose + 9%**
 - **Student Milk consumption rose + 12%, +14.4% vs. rest of district**
 - Milk purchased rose + 3.6 %
 - Waste declined by - 5 %
- **Staff reported students found the package easier to open and resulted in fewer spills.**
- **The district was successful in self-distributing from their central warehouse to individual schools, reducing local distribution miles driven and cost.**

Pilot Recap – Looking Forward

- The Shelf Stable Milk business model has now been proved in three major pilots across different states and operating environments. In each case:
 - Students have shown acceptance and enjoyment of the product.
 - Milk consumption has increased.
 - Changes to school distribution have yielded lower local distribution cost.
- For the Dallas ISD district, changing to shelf stable milk with self-distribution is projected to reduce cost by \$.06 per serving to put toward the higher cost of production and packaging.
- These districts have found they can incorporate milk into their self-distribution models and do so at a lower cost than Milk Processor dedicated deliveries multiple times each week.
 - Shelf stable enables ambient distribution and storage of inventory at the school, despite tight walk-in-cooler space.
 - For the districts with multi-year experience, they have realized additional benefits that reduce the ‘worries’ associated with short shelf life direct delivered milk. According to one director, these benefits have made our operations easier, are worth the change and provide good reason for some level of incremental product cost.

Strategic Considerations: *Changing the “Lens”*

Changing the “Lens” – Schools generally only focus on bid price. Internal costs are often not quantified, just addressed qualitatively.

- Example: A whole apple is the cheapest way to buy an apple. Yet districts now purchase pre-cut individually packaged apple servings. This costs roughly 15-20% more. Why?

Pre-portioned

Easy to merchandise

Don't have labor to slice/coat/package

Reduced spoilage

The shelf stable package is a separate/non-comparable milk offering (like the pre-cut vs. whole apple). Can the industry value these benefits differently?

Processor distribution scenarios show system savings of 3-5¢ per unit, shifting from 2 deliveries/ week to 1 every other week (this eliminates 3 out of 4 current deliveries).

District cost changes project 1.5-2.0¢ savings per unit using aseptic, depending upon the distribution and handling choices (processor/distributor DSD or self-delivery from a central warehouse).

A processor can only make shelf stable work through DSD with reduction in delivery frequency, and school employee moving the product from ambient to WIC to milk box.

Strategic Considerations: *Confidence Leads to Expansion*

All pilot districts, without prompting, used similar language to indicate that shelf stable milk “**reduces their worries and contingency planning**”. They each said that has value (“I have come to value that as justification to pay a bit more.” from a director via email).

In essence, **distribution experience has led to greater “system confidence and trust”**.

The “less worry and added benefit areas” include:

- Tightrope walk of too much inventory (out of code risk) and not enough, especially at start-up, calendar breaks and weather events.
- Managing code dates.
- Bad weather and missed deliveries.
- Processor reliability problems (enough drivers, weather caused interruptions, no back-up supplier, going concern questions, etc.).
- Breaks in the cold chain.
- Easier/reduced handling in school.
- Difficulty serving outside of the cafeteria (alternative breakfast, offsite, summer, etc.).

Greater confidence and trust has led each district to step-out. They each plan to:

- Continue to offer the shelf stable milk in their districts and fund the cost difference.
- Expand on distribution improvements to reduce cost and have more control.
- Experiment with in/out additional flavors if made available.

Next Steps

- The next steps are to communicate these pilot findings and continue to pilot different operating environments.
- This includes:
 - Rural environments where direct deliveries are increasingly at risk.
 - Different Processor direct and district local distribution models to learn how much integrating with other products can lower local distribution dedicated miles and cost.
 - By working together, this could offer substantial sustainability benefits for the milk industry and school districts.
 - Further consumption building activities such as:
 - In/Out flavor offerings.
 - Lactose Free (white and chocolate) across the entire school.
 - Seasonal use of shelf stable to eliminate end of calendar period inventory and availability difficulties.