



Lactose Free School Pilot 2023-24 Full Year Report

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July 2024

Scope & Timing

The Cincinnati Public School pilot of lactose free shelf stable dairy milk began Sept. 5th with 3 test cells and 14 schools:

- Cell 1: 4 Elem. schools offered lactose free White **but only** to students with a documented medical need.
- Cell 2: 6 Elem. schools offered lactose free chocolate to all students
- Cell 3: 4 Sr. High schools offered lactose free chocolate to all students
- Cell 4: *The Fall pilot was so successful that Cell 3 was extended and expanded (Cell 4) to include 10 additional High Schools for Feb.-May.*
- **Gable top fat free white and chocolate remained. Lactose free was a new 3rd item.**
- The impact of the pilots was measured by comparing dairy milk and meal quantities to the same timeframe in the prior year and also comparing vs. the control group – schools not in the pilot.



Acknowledgements

- The pilot was coordinated and underwritten by Dairy Management, Inc., American Dairy – Mideast and diversified Foods, Inc. within Cincinnati Public Schools. The pilot was led by Ms. Lauren Marlow, Manager of Student in Nutrition Dining Services.



- diversified Foods, of Metairie, LA., spearheaded the development of the chocolate flavor formulation, and contributed the initial order of lactose free shelf stable product that was produced by Mountaintop Dairy in Morgantown, WV.
- Prime Consulting of Venice, FL., was engaged by DMI to measure the results and provide project management for the pilot.

Executive Summary

This pilot in Cincinnati Public Schools made lactose free milk available to all students in a chocolate flavor and attractive shelf stable package. The pilot:

- brought equity to the milk offering.
- fit into the cafeteria operations with few adjustments.
- proved more than self-funding as meal participation grew.

The Cincinnati student population has high levels of lactose tolerance issues that were not being served. Many students were just taking water with their meals, as the process of a guardian getting a medical note and the district providing a nutritionally equivalent beverage were time consuming, costly, and only served a small portion of those children.

Results exceeded all projections with large increases in both milk consumption and meals served. The pilot schools exceeded the control schools trend change vs. YA:

- Elementary (K-8) milk use rose +16% and meals increased +10% above control schools.
- Senior High milk use rose +24% and meals increased +12% above control schools.

After seeing the results, the district committed to and announced the offering of shelf stable lactose free milk to all students (all the time) district-wide as schools open in August 2024.

Summary: Lactose Free Drove More Milk & Meals

During the Fall (1st semester) the addition of chocolate lactose free shelf stable dairy milk drove +7% incremental meal participation and +16% more dairy milk units, compared to the control schools (those not in the pilot).

The pilot extension and adding of additional high schools in the 2nd semester, saw further acceleration in schools that stayed ahead of the demand and were selling nearly every day. Some schools ran out-of-stock until the next order arrived (once a week deliveries).

A key learning was the need to carry “safety stock” especially in the early weeks before a consistent demand level was established. In a good number of the schools, the amount of chocolate lactose free shelf stable being selected by students kept rising, making it difficult to project demand.

Schools that stayed in-stock outperformed both the control schools and those with out-of-stocks.

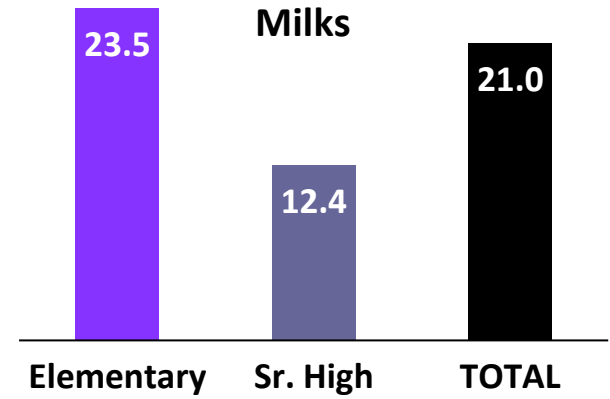
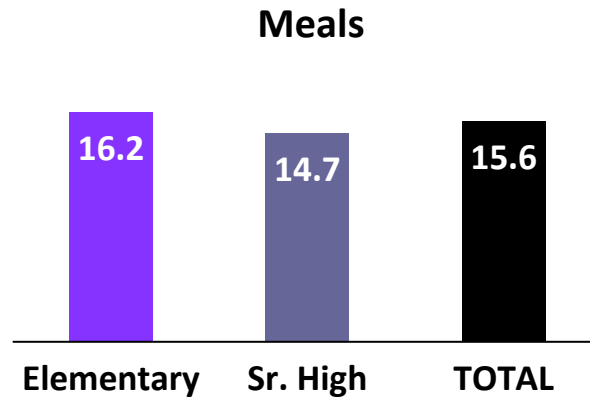
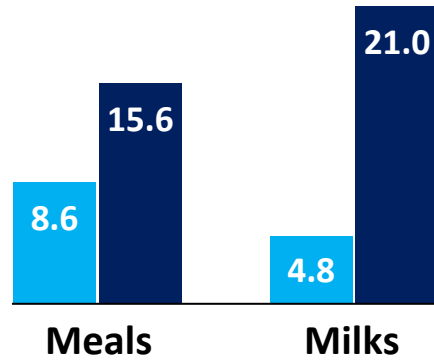
The full year results for schools without inventory challenges was +10% incremental meal participation, and +20% more dairy milk units. By contrast, control schools saw meals outgrow milk by 2 points.

Fall Semester: Chocolate Lactose Free Shelf Stable Drove Incremental Meals & Dairy Milk Units

FALL

% Change vs. YA

Control Schools
Pilot Schools



Meal Participation
Pilot vs. Control

+7.0 pts

Milk Servings
Pilot vs. Control

+16.2%

In pilot schools,
which grew more?

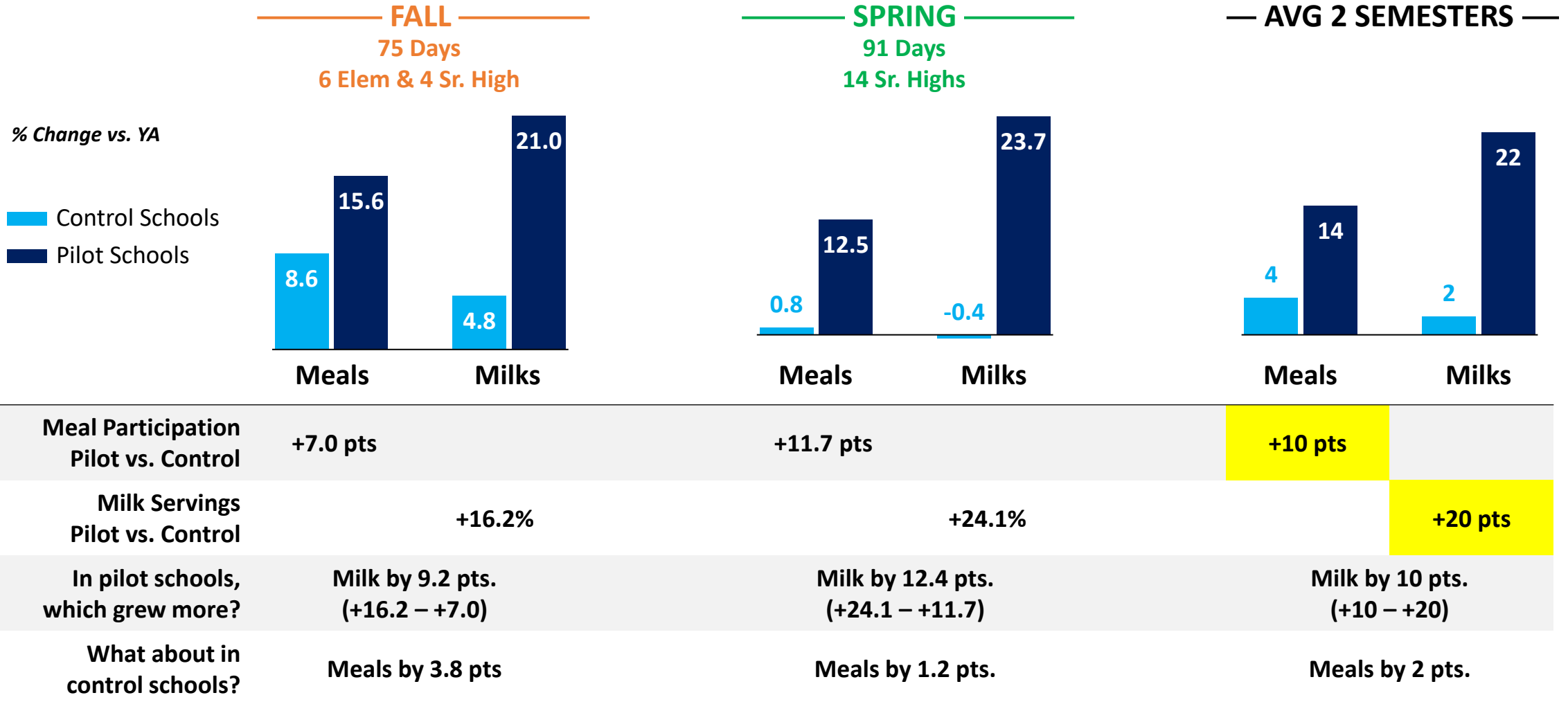
Milk by 9.2 pts.
(+16.2 – +7.0)

What about in
control schools?

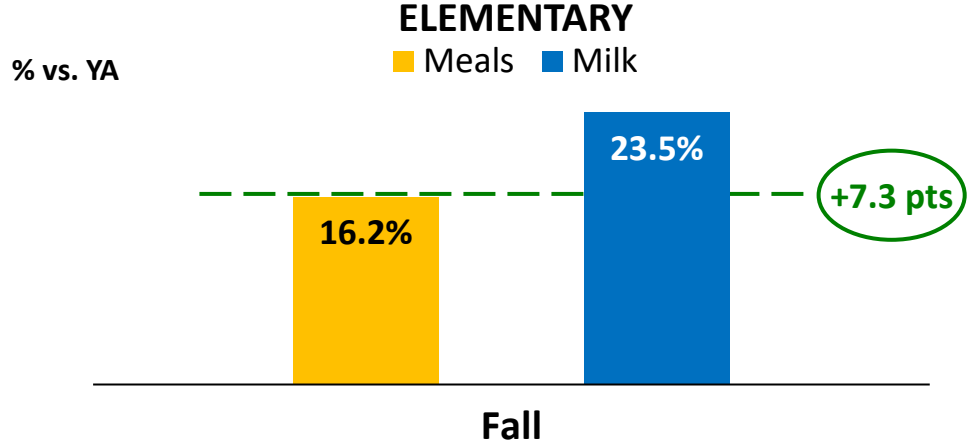
Meals by 3.8 pts

In the initial 15 weeks, Elementary excelled and Sr. High was also strong.

2nd Semester: Results Became Stronger

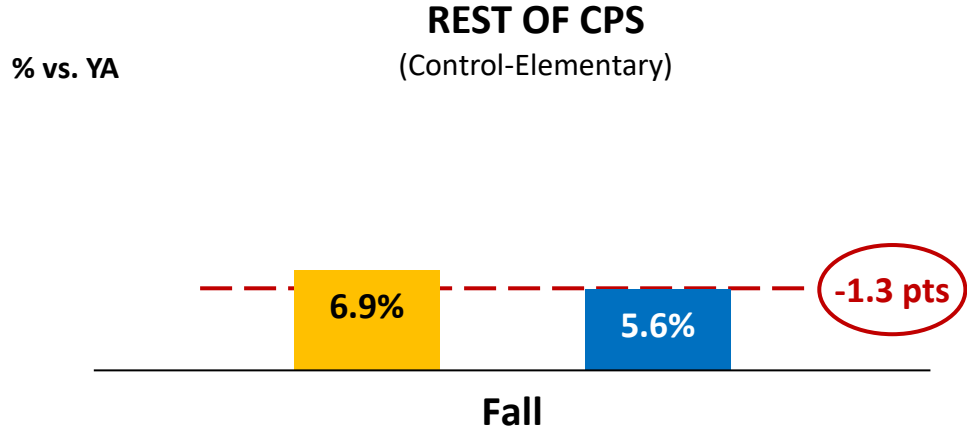


Elementary: Chocolate Lactose Free Delivered a 6-9 Point Milk Improvement



Adding chocolate lactose free shelf stable as a 3rd line item in the milk box energized both milk consumption and meal participation.

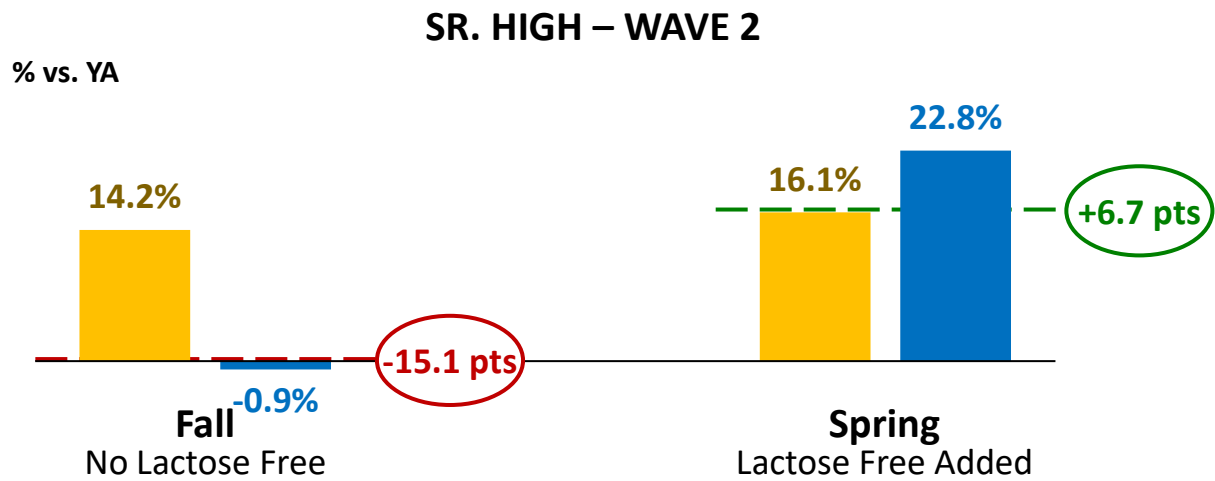
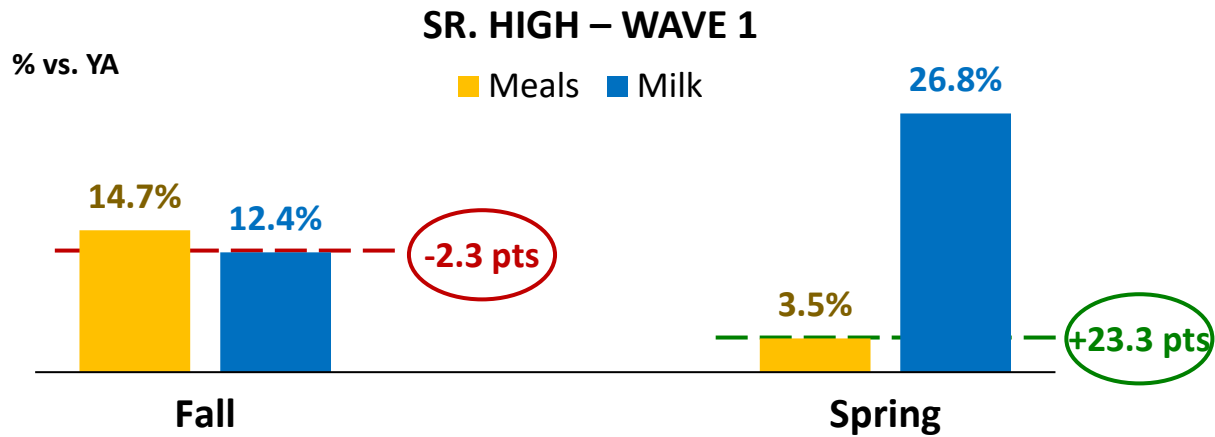
- Milk growth exceeded meal growth in the pilot schools, while in control schools, meals outgrew milk units.



	Fall
Pilot	+7.3 pts
Control	-1.3
Net Impact	+8.6 pts

In the control elementary schools, meal participation change exceeded milk by 1.3 points in the Fall.

Sr. High: Chocolate Lactose Free Improvement Accelerated in 2nd Semester



Adding chocolate lactose free shelf stable as a 3rd milk line item in Sr. Highs improved the milk trend vs. meals.

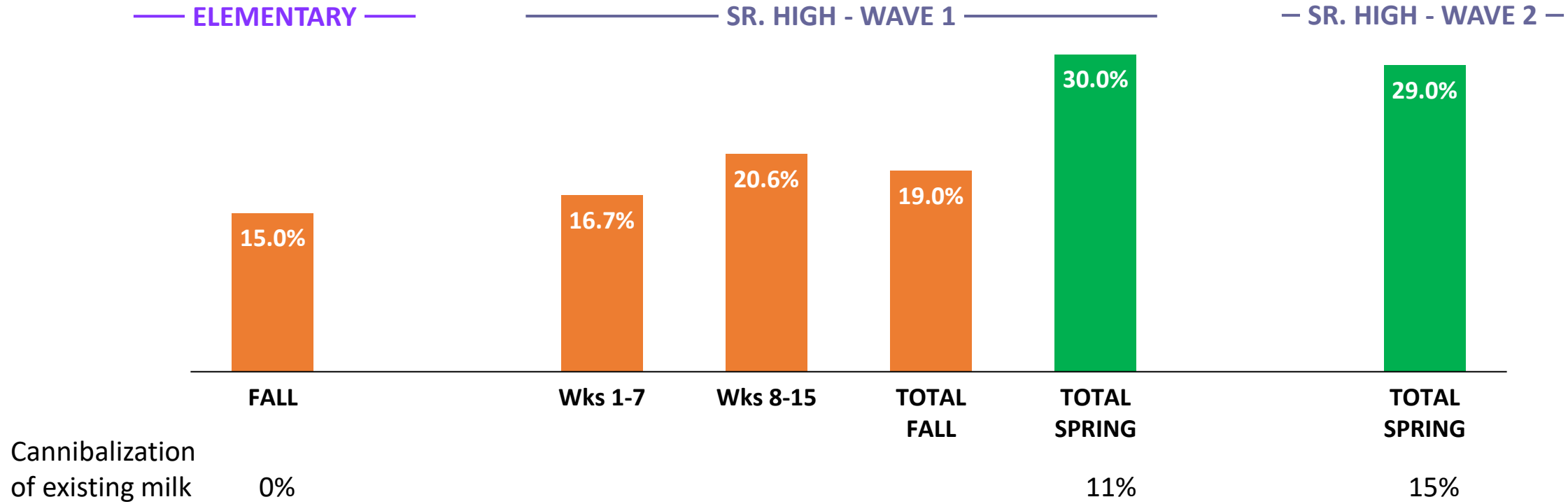
	Fall	Spring	Spring vs. Fall Change
Pilot	-2.3 pts	+23.3 pts	+25.6
Control	-15.1	Pilot +6.7	+21.8
Net Impact	+12.8 pts		

In the Fall pilot, Sr. Highs outperformed their control by 12.8 pts.

In the Spring, there was no control as the remainder of the Sr. High schools began offering the new product. Both groups improved vs. their own Fall milk vs. meal change.

- Original (Wave 1) by +25.6 pts
- Newly Added (Wave 2) by +21.8 pts

Student Adoption of Chocolate Lactose Free Continued to Grow



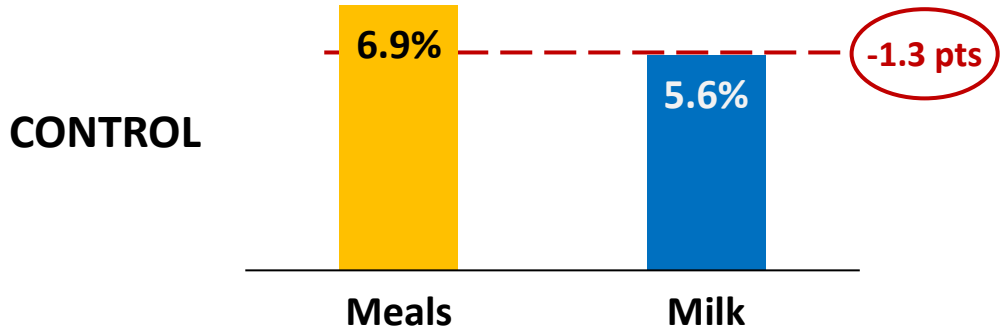
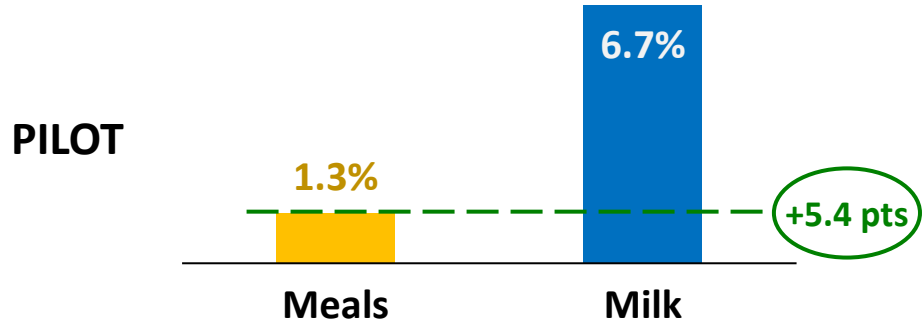
HOW HIGH WILL LACTOSE FREE SHARE OF MILK GO?

- We have not seen lactose mix plateau when the product is available. To date:
 - Elementary is at 15%
 - Sr. High is at 29-30%
- Be sure to order enough, as we did not see a plateau.

Learning Related to Ordering & Making Lactose Free Available

- During the Fall portion of the pilot (Sept.-Dec.) managers kept regular watch over cafeteria activities to insure the product, which was sourced and delivered through the district's third-party distributor, was in-stock and students had the product daily.
- In the second semester, short staffing and higher than normal levels of illness hindered site managers ability to keep product ordering ahead of demand. The ever rising quantities were a challenge to stay ahead of with supply.
- This led to some gaps in lactose free availability just as with other items in the meal offering when staffing is below needed levels. Persistent out-of-stock periods (over 4 consecutive days) were removed from the analysis. Once the constraints ended (illness, etc.) volumes returned to prior levels.
- We encourage schools maintain some level of safety stock to minimize the impact from these unforeseen constraints.

The Cell with White Lactose Free Added Did Grow Milk Use, But Growth was Not Lactose Free Driven



This pilot cell provided White Lactose Free milk to students with a medical note requesting an alternate beverage. It was not available to all students.

Lactose free was only 14% of the increase, as breakfast menu changes drove most of the milk increase (full lactose white and chocolate).

This cell did outperform the control schools, but the increase was not lactose free driven. Menu changes drove the favorable results, not milk.

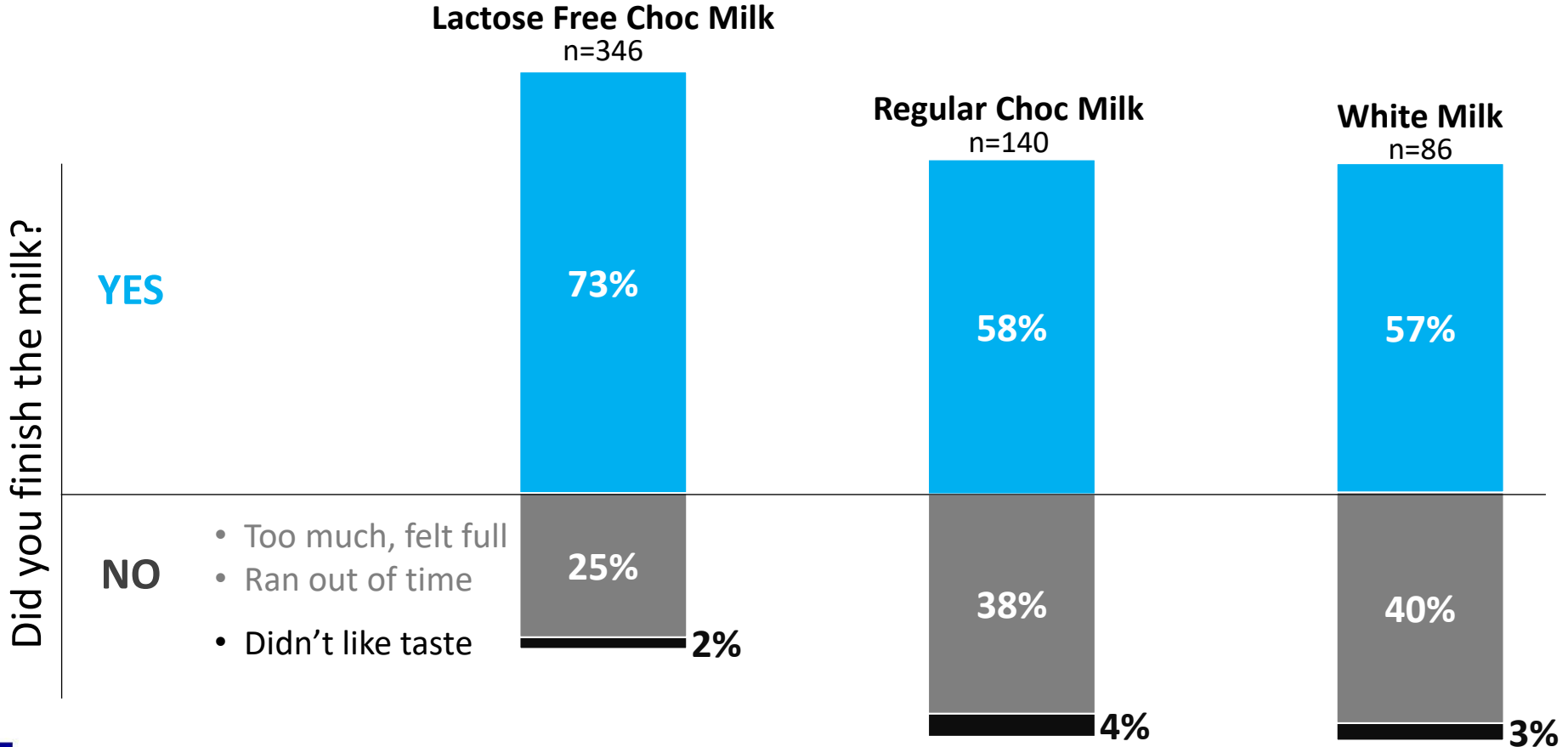
The conclusion was that limiting white Lactose Free to students with a medical note only produces a small impact compared to offering flavored Lactose Free shelf stable to all students

Student Survey Key Findings

- Lactose free chocolate appealed to a sizeable portion of students, a number of whom did not drink regular milk due to a perception or diagnosis of lactose intolerance.
- Better taste was the most frequently cited reason for lactose free chocolate preference.
- A larger portion of lactose free chocolate drinkers (than regular milk drinkers) reported fully drinking the 8 oz., leading to a sizeable reduction in waste.
 - Among Sr. High milk drinkers, 73% of lactose free chocolate drinkers report emptying the container vs. 58% for regular chocolate and 57% for white milk. This translates to a 36% reduction in milk left in the container and wasted.
 - Among Elementary students, the reported drinking of all 8 oz. was 66% among lactose free chocolate drinkers, compared to 60% for regular milk, translating to a 15% reduction.
- Shelf stable format/package was reported as positive and more favorable vs. gable top by 2:1 for those (half) with a preference.
- 28% of students reported some level of lactose free milk consumption at home, reinforcing the importance of making lactose free more widely available in schools.
- School was the primary source of milk for 20% of High schoolers, and 49% of Elementary students.

Lactose Free Chocolate was More Likely to be Finished than Regular Chocolate or White – translates to 36% reduction in milk wasted

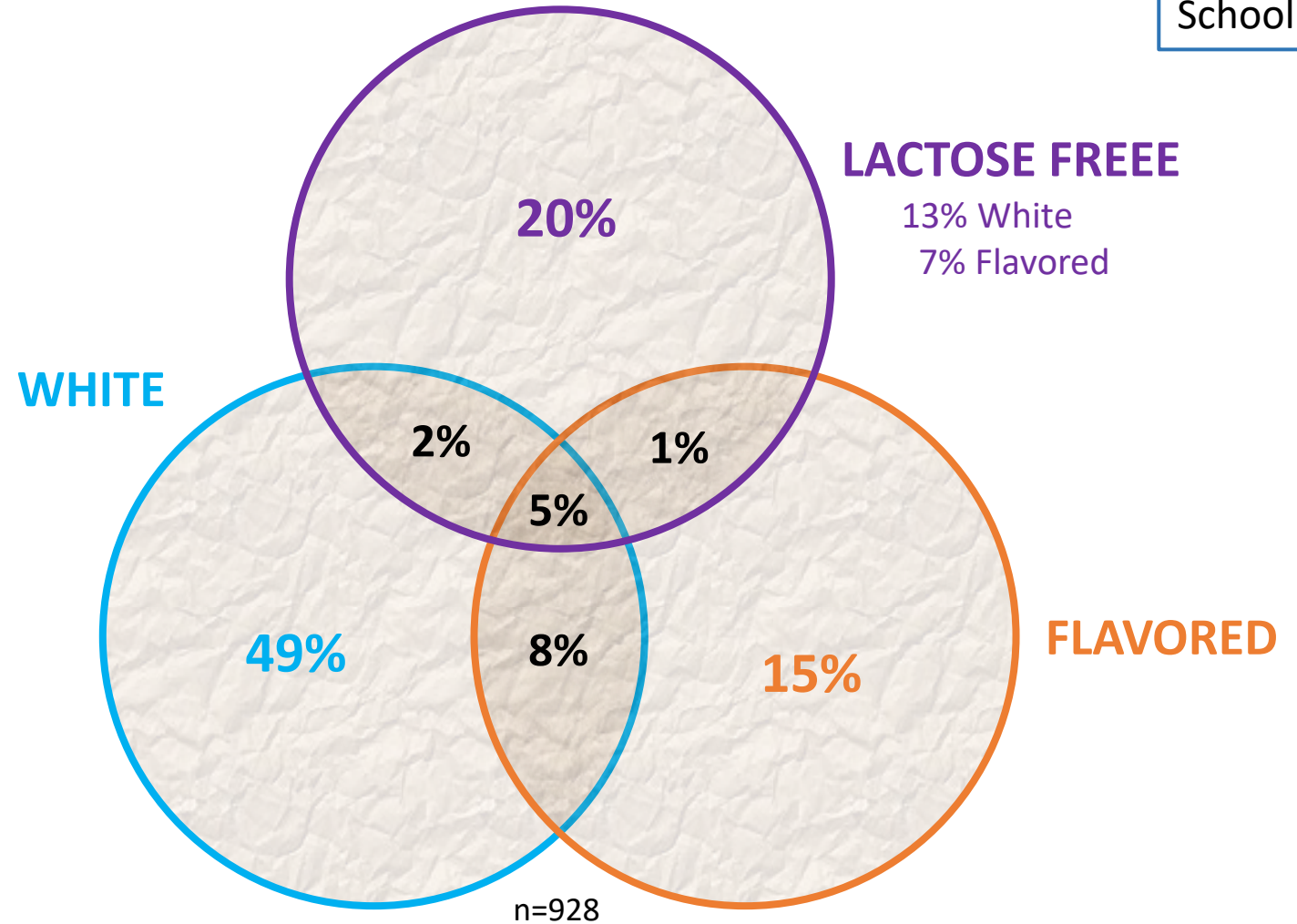
1. What did you drink with lunch today?



28% of Home Milk Drinkers Report Some Level of Lactose Free Consumption

High School

- 20% report lactose free only, and another 8% alternate between lactose free and full lactose.
- Emphasizes the importance of making lactose more widely available.
- This was consistent with syndicated panel data reporting 25% of households with 1+ child purchased lactose free in the past year.



NOTE: Total Sample n=1,160
Non-milk drinkers n=232 (20%)
Some level of milk n=928 (80%)







Implications & Next Steps

- This pilot represented several firsts:
 - Offering of chocolate lactose free in schools.
 - Offering that product in shelf stable form, alongside existing gable top product.
- Results show that making chocolate lactose free milk available fills a need for students with real or perceived lactose intolerance.
- A good portion of High school students appear willing to come back to dairy milk when chocolate lactose free shelf stable was made available.
 - Likely from the combination of lactose free and the shelf stable format/package.
- The study suggests an opportunity to convert existing chocolate to lactose free chocolate dairy milk.
- ADP increase (lunch and breakfast) was sufficient to fund the added expense of lactose free dairy milk. Lactose Free shelf stable dairy milk was less expensive than the alternatives often provided.

Implications on Milk Sales and Offering in High Intolerance Areas

- The incremental sales, from the **chocolate Lactose Free shelf stable** product, averaged:
 - 73 units/day per Sr. High and 55 units/day per Elementary school.
- Lactose Free chocolate was highly incremental as only 14% of sales came from existing white and chocolate milk in cartons.
- If flavored Lactose Free shelf stable was made available in 25% of the K-12 schools, focusing on high Free/Reduced and high lactose intolerance areas, similar results would result in incremental volume of 250-300 MM units each year. Since we did not find a leveling point, results could be higher.
- Broad sharing of these results are recommended to accelerate the availability of Lactose Free dairy milk flavors in schools for students at all meals.

Appendix: Cincinnati Public Schools Lactose Free Shelf Stable Pilot

No. Schools	Grade Levels	Access	EXISTING GABLE TOP +		FALL PILOT		SPRING PILOT	
			9/5	12/22	1/2	2/20	5/24	
4	Elementary – Access limited to those with Dr. notes	Limited						
6	Elementary	Open						
4	Sr. High	Open						
10	Sr. High – Control in Fall, added to pilot in Spring	Open						
33	Elementary – Control	None						





Chocolate Lactose Free Pilot Student Survey Report

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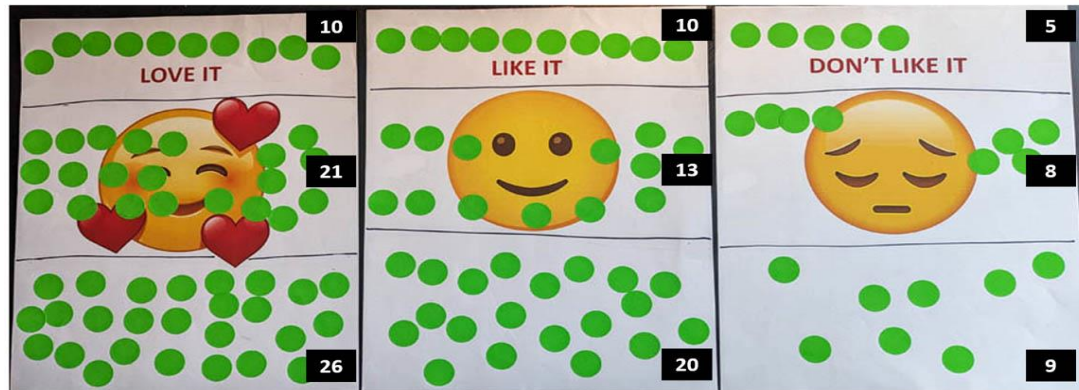
April 2024

Executive Summary: Process

As part of the Shelf Stable Lactose Free Chocolate pilot, students were surveying to evaluate their reaction to the new product. 2,516 students responded across all grades in 14 different schools.



The surveys ranged from placing stickers on poster boards for younger students (Gr. 1-3), to paper surveys for Gr. 4-8, and QR code survey links for smart phone surveying among High School students.



SCHOOL NAME: _____ GRADE: _____

- What did you drink with lunch today?

<input type="radio"/> White Milk	<input type="radio"/> Regular Chocolate Milk	<input type="radio"/> Lactose Free Chocolate Milk	<input type="radio"/> Water	<input type="radio"/> Nothing
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- How often do you drink milk at school?

<input type="radio"/> 2 times a Day (breakfast & lunch)	<input type="radio"/> Once Everyday	<input type="radio"/> 3-5 times a Week	<input type="radio"/> 1-2 times a Week	<input type="radio"/> Never
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- Have you tried the Lactose Free Chocolate milk? Yes No
- Do you like the "new" Chocolate milk? (In the box)

<input type="radio"/> Love It	<input type="radio"/> Like It	<input type="radio"/> It's OK	<input type="radio"/> Don't Like
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Why? (Check as many as you like)

<input type="checkbox"/> Tastes Better	<input type="checkbox"/> Don't Like Taste	<input type="checkbox"/> Easier on My Stomach	<input type="checkbox"/> Milk is Colder	<input type="checkbox"/> Like Drinking from This Package
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Are you likely to drink more milk at school now that you can drink Lactose Free? Yes No

- How often do you drink milk at home on school days? (only check 1)

<input type="radio"/> Every Day	<input type="radio"/> Almost Every Day	<input type="radio"/> Not Very Often	<input type="radio"/> I drink...	<input type="radio"/> Never
<input type="radio"/> Water	<input type="radio"/> Soda	<input type="radio"/> Juice	<input type="radio"/> Other	
- What kind of milk do you drink at home?

<input type="radio"/> White Regular	<input type="radio"/> White Lactose Free	<input type="radio"/> Flavored Regular	<input type="radio"/> Flavored Lactose Free	<input type="radio"/> Don't Drink Milk at Home
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- Have you ever had Lactose Free milk before? Yes No
- Did you finish your milk today?

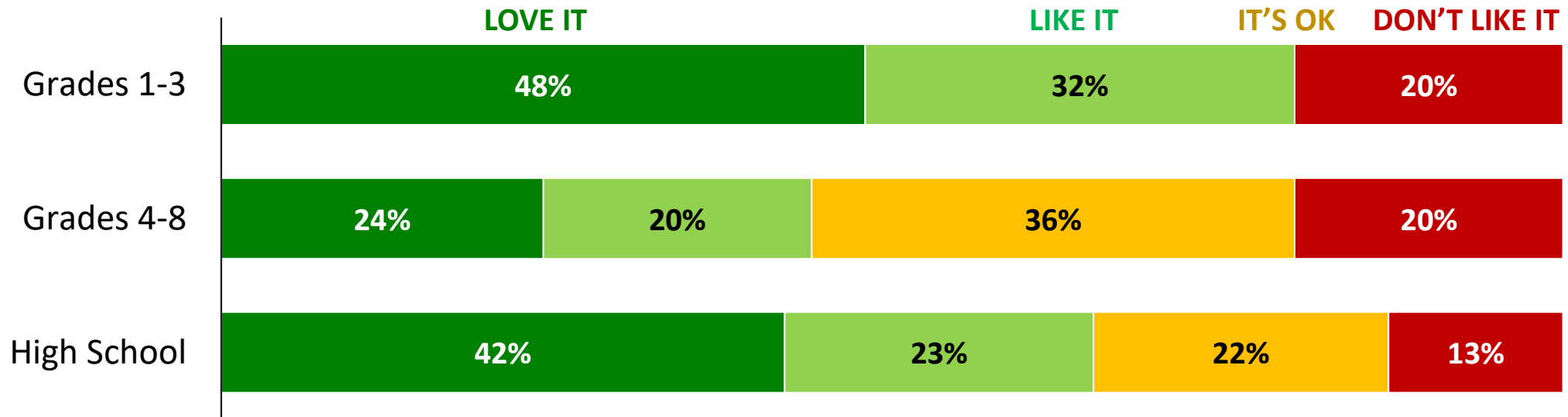
<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> No	<input type="radio"/> No	<input type="radio"/> No
	<input type="radio"/> Ran out of time	<input type="radio"/> Felt full	<input type="radio"/> Too Much	<input type="radio"/> Didn't like taste

THANK YOU - HAVE A GREAT DAY!



Student Survey Summary

Among students who tried Lactose Free Chocolate, the majority Liked or Loved the product.

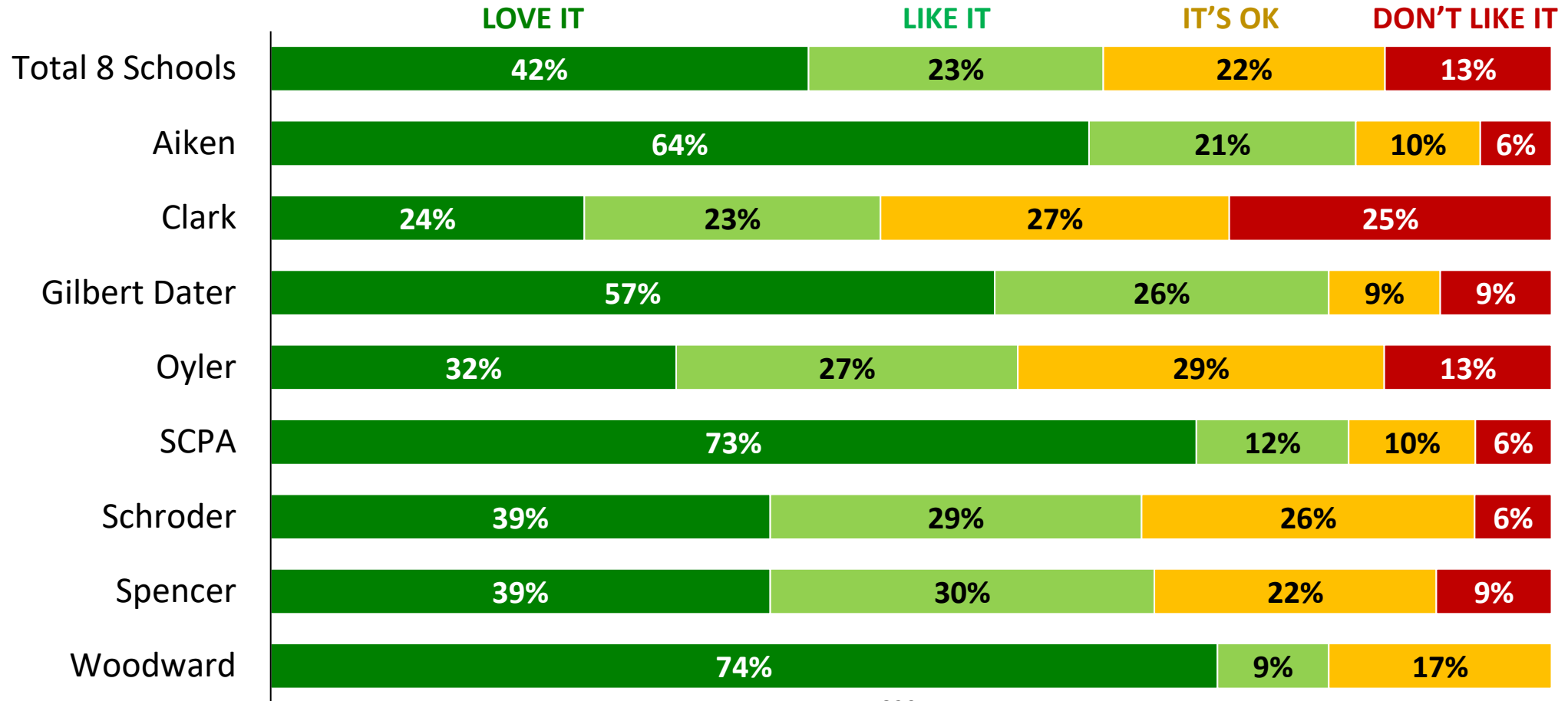


Senior High Schools:

- “Don’t Like It” was only 13% of the 1,160 responses.
- Among 8 surveyed high schools, only 2 exceeded 10% “Don’t Like It” responses.
- Love/Like exceeded 80% in 4 of the 8 high schools surveyed.

High Love/Like Rating by Sr. High Students

4. Among those who “tried” the Lactose Free Chocolate milk, 65% Love/Like the product.



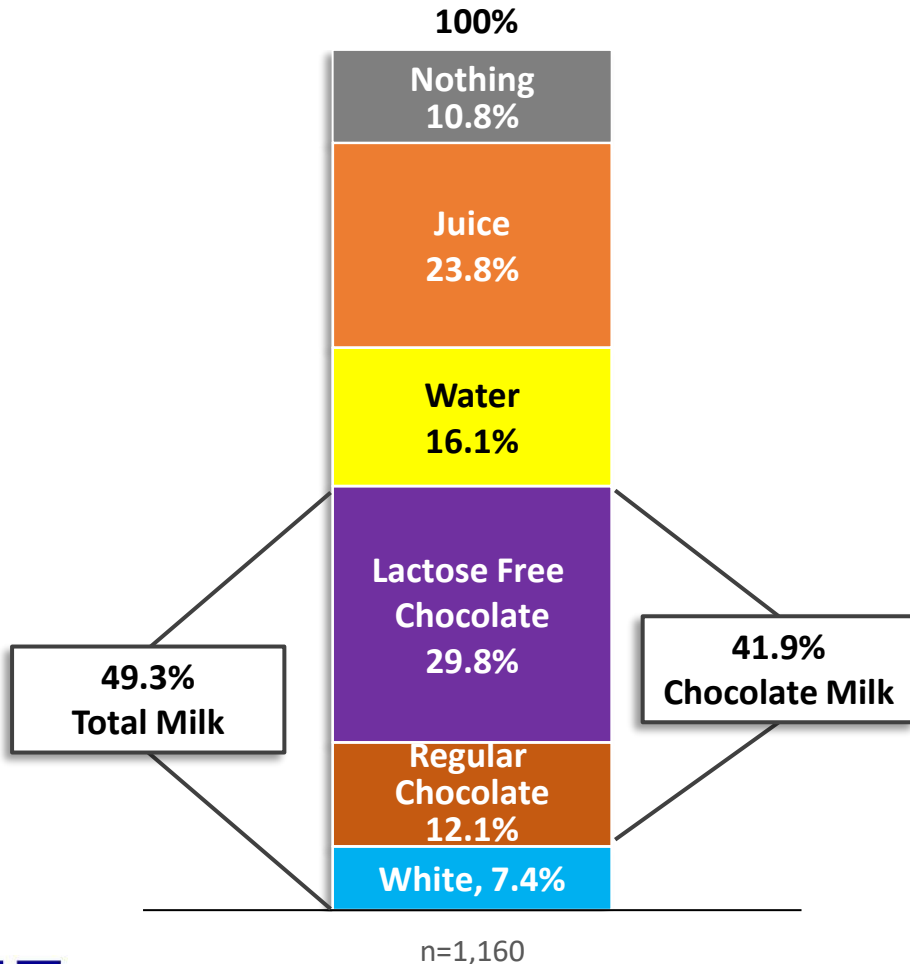
n = 829

Executive Summary: Key Learnings

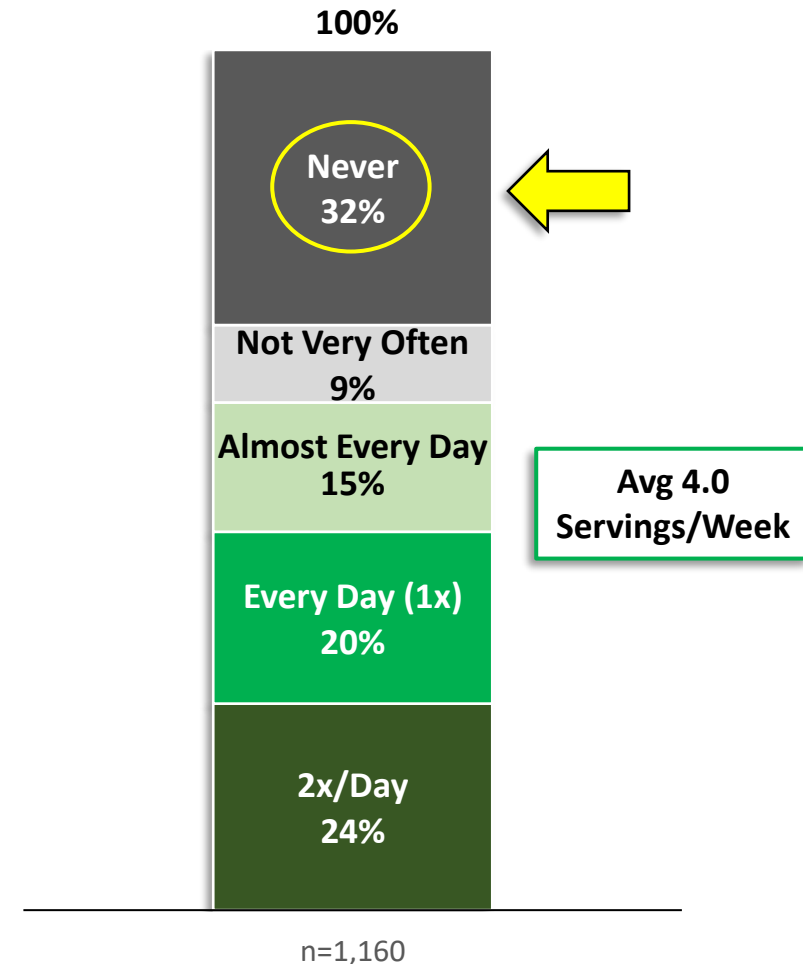
- Lactose free chocolate appealed to a sizeable portion of students, a number of whom did not drink regular milk due to a perception or diagnosis of lactose intolerance.
- Better taste was the most frequently cited reason for lactose free chocolate preference.
- A larger portion of lactose free chocolate drinkers (than regular milk drinkers) reported fully drinking the 8 oz., leading to a sizeable reduction in waste.
 - Among Sr. High milk drinkers, 73% of lactose free chocolate drinkers report emptying the container vs. 58% for regular chocolate and 57% for white milk. This translates to a 36% reduction in milk left in the container and wasted.
 - Among Elementary students, the reported drinking of all 8 oz. was 66% among lactose free chocolate drinkers, compared to 60% for regular milk, translating to a 15% reduction.
- Shelf stable format/package was reported as positive and more favorable vs. gable top by 2:1 for those (half) with a preference.
- 28% of students reported some level of lactose free milk consumption at home, reinforcing the importance of making lactose free more widely available in schools.
- School was the primary source of milk for 20% of High schoolers, and 49% of Elementary students.

Cincinnati Senior High School Lactose Free Milk Survey

1. What did you drink with lunch today?

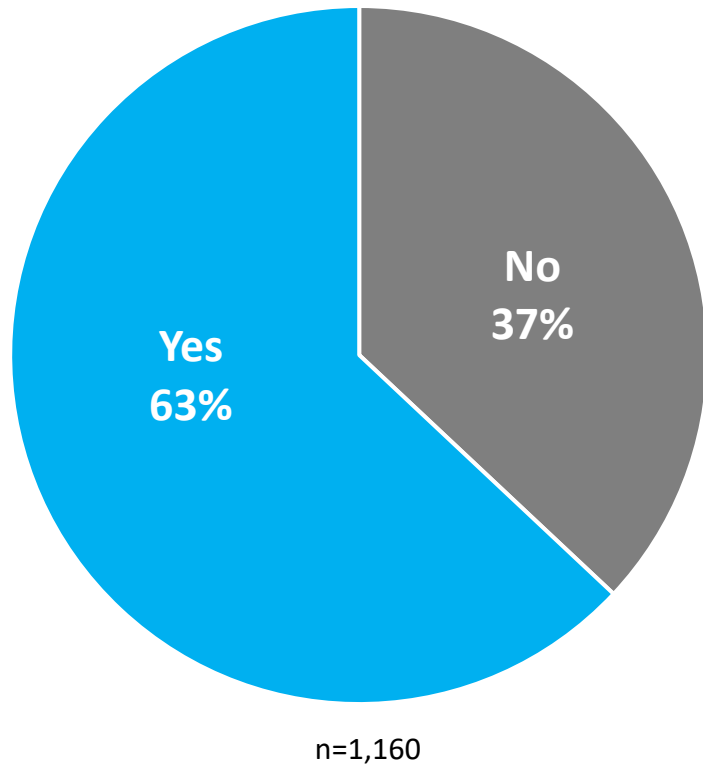


2. How often do you drink milk at school?



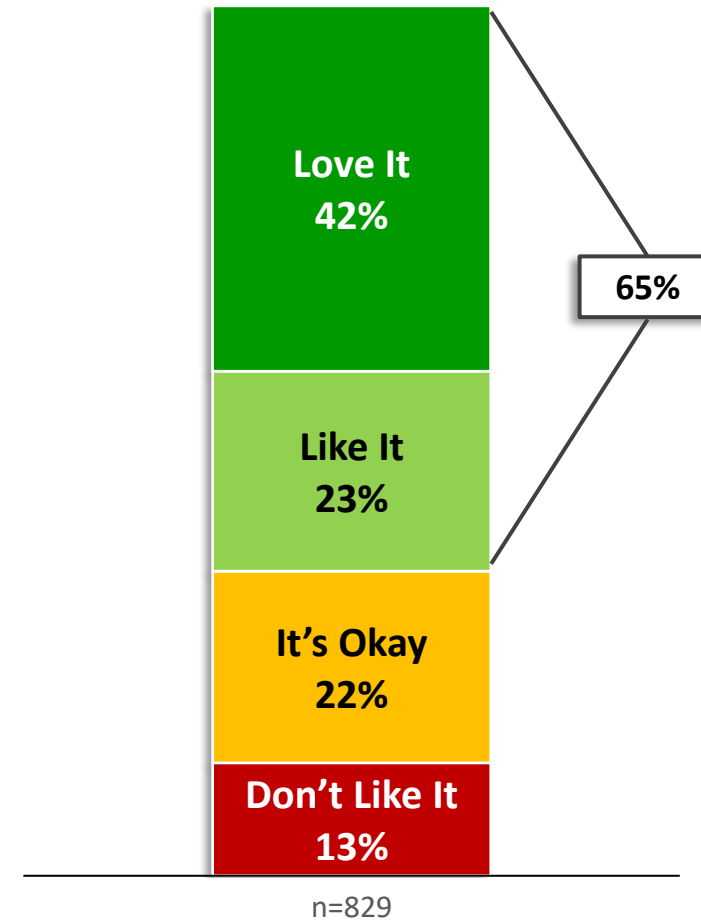
63% of High School students report trying the Lactose Free Choc. milk. Among triers, 65% said they Loved/Liked It, while only 13% didn't like it

3. Did you try the new Lactose Free Chocolate?



4. Did you like the Lactose Free Chocolate?

% Who Tried (Q3 "Yes")



Taste was the Main Driver of Love/Like Respondents, Followed by Easier to Digest

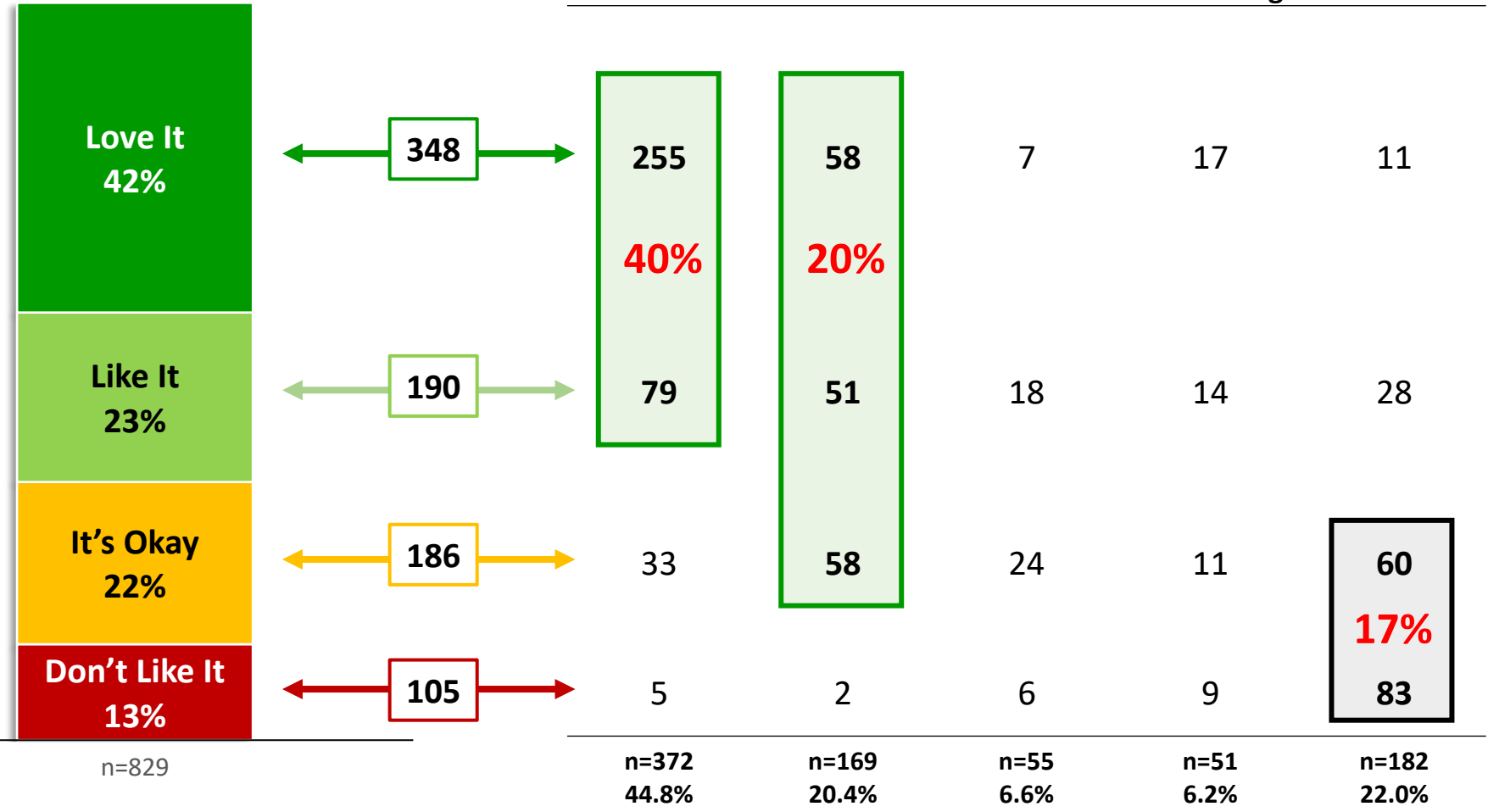
4. Did you like the Lactose Free Chocolate? ... 4a. Why? (Multiple responses)

Taste was the largest driver of student reaction to Lactose Free Chocolate, cited by 45% of respondents.

Easier to digest was selected by 20% of respondents.

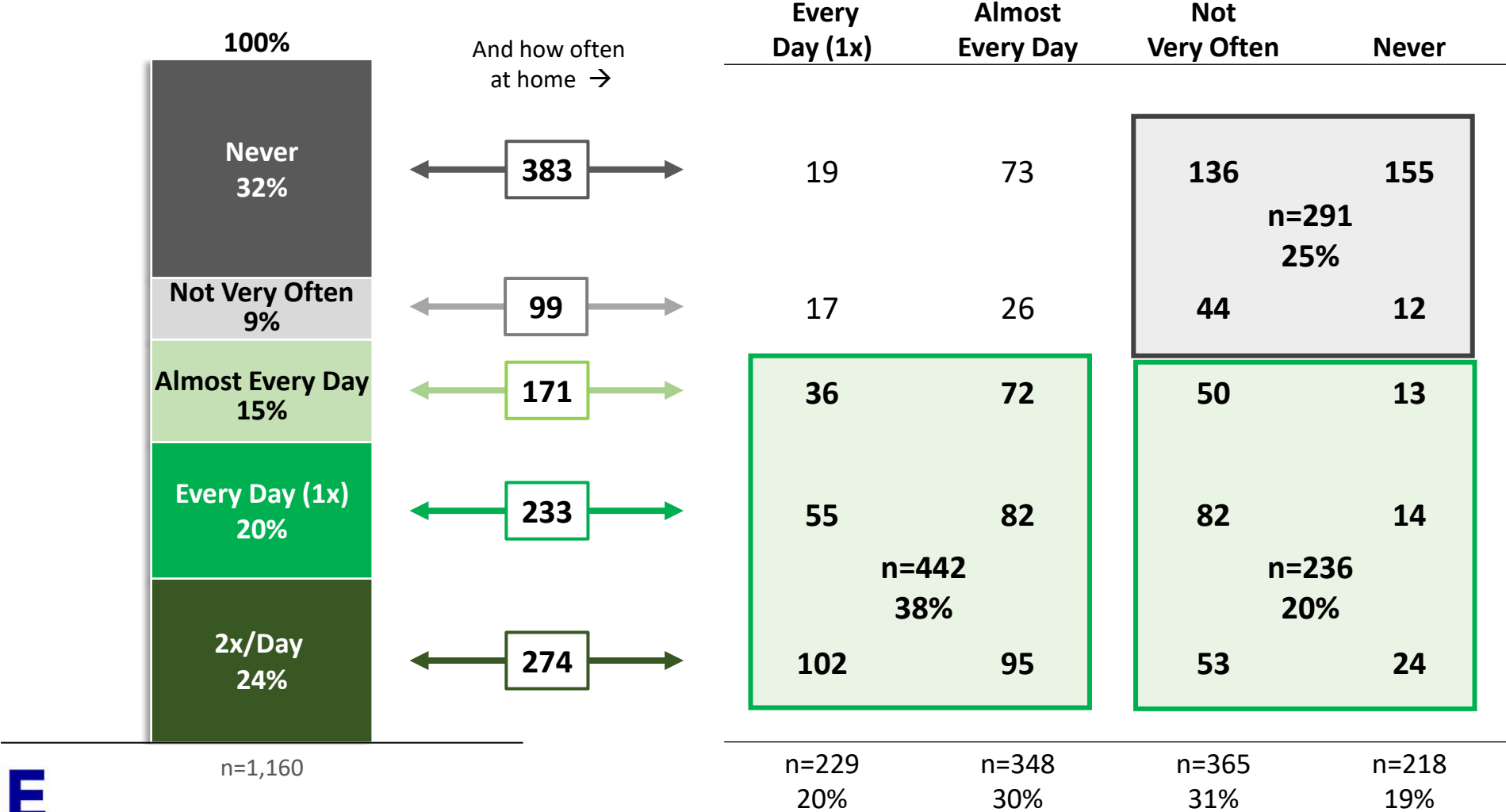
Temperature and package received 6-7% selection, down from 18% and 14% among younger students.

% Who Tried (Q3 "Yes")



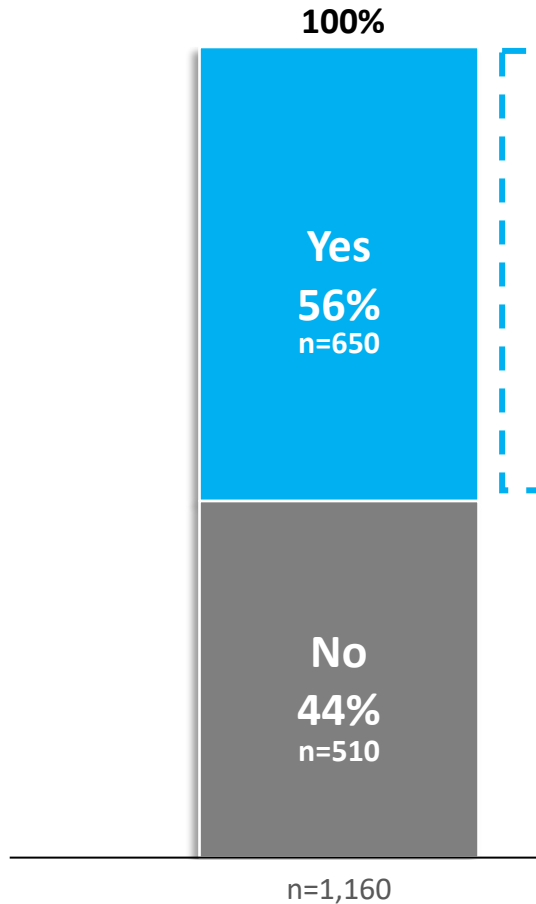
25% Rarely or Never Drink Milk at School or Home, 38% Drink Milk Very Frequently at School & 20% Drink Milk Often at School but Rarely at Home

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

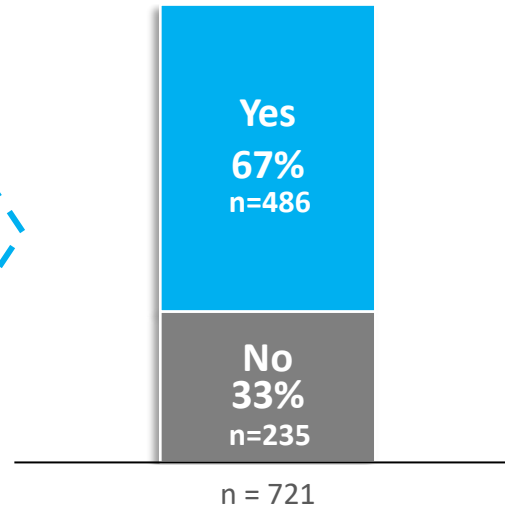


56% Said they Drink More Now that Lactose Free is Available

4b. Will you drink more milk now that Lactose Free is available?



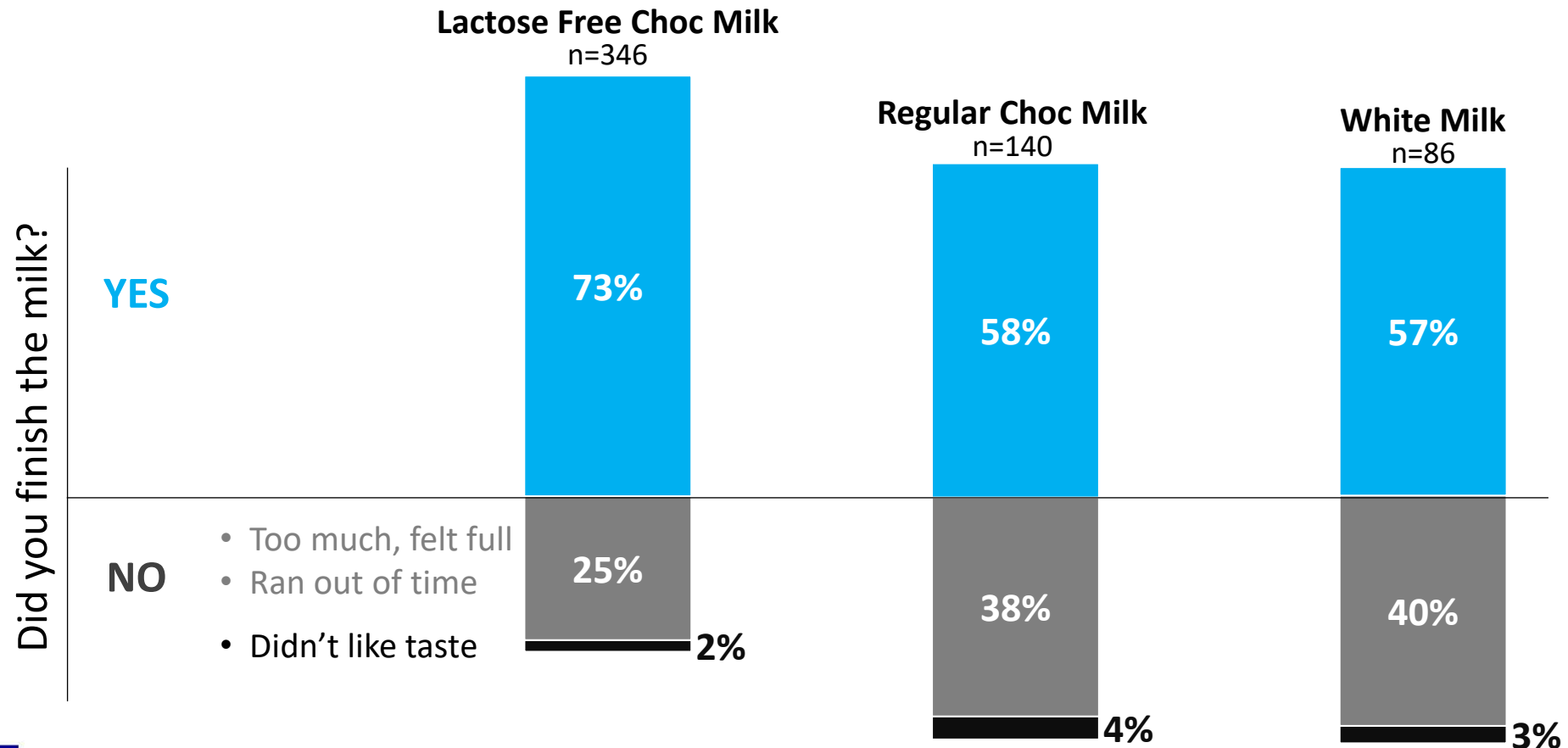
7. Had you ever had Lactose Free milk before?



Over half of students who tried the chocolate lactose free product indicated they would drink more with this product available. Among those, 67% had consumed lactose free milk previously. This suggests the product is addressing an unmet need more than cannibalizing full lactose chocolate.

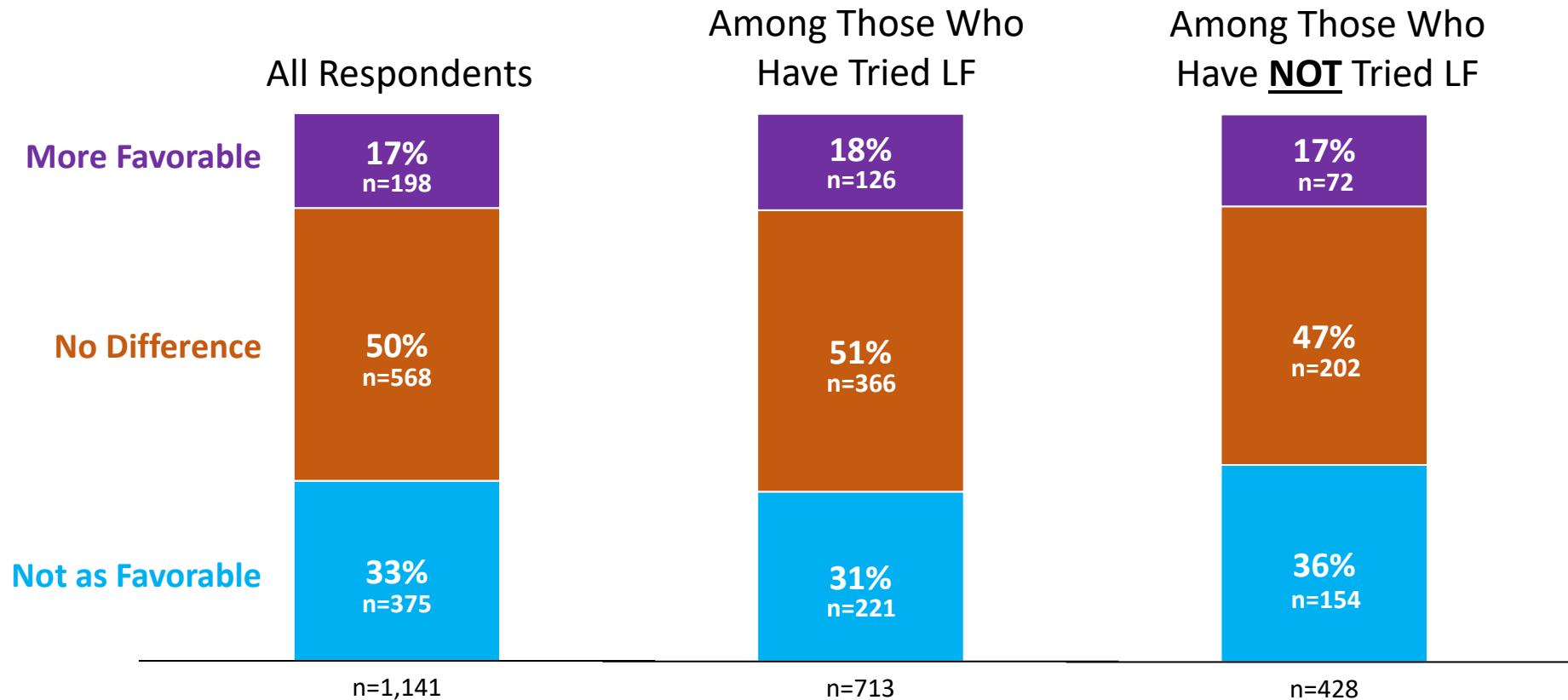
Lactose Free Chocolate was More Likely to be Finished than Regular Chocolate or White

1. What did you drink with lunch today?



Shelf Stable Package Preferred Over Gable Top 2:1 for the Same Product

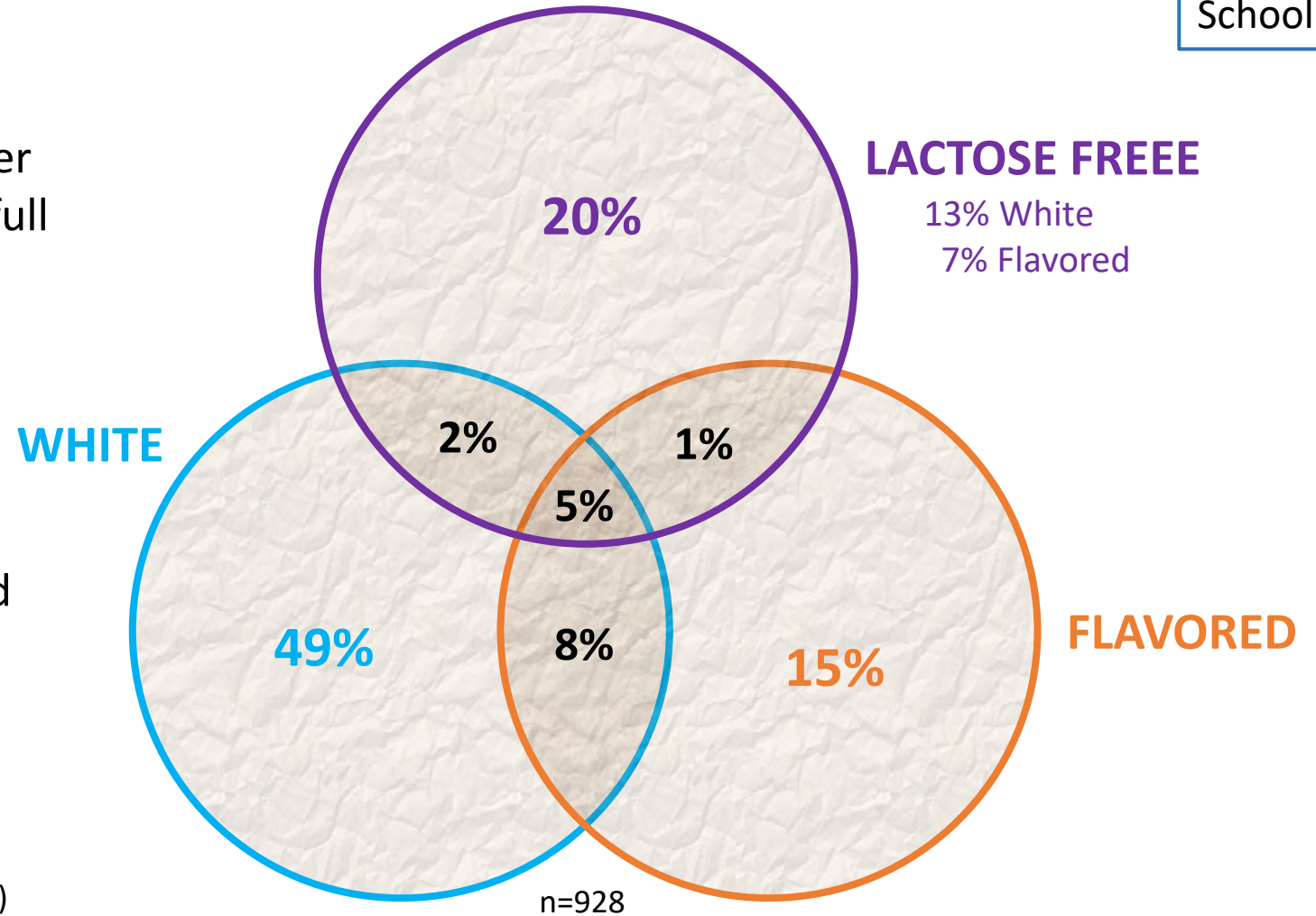
11. If the Lactose Free Chocolate were offered in a gable top package would your reaction be:



28% of Home Milk Drinkers Report Some Level of Lactose Free Consumption

High School

- 20% report Lactose Free only, and another 8% alternate between Lactose Free and full lactose.
- Emphasizes the importance of making lactose more widely available.
- Consistent with syndicated panel data showing 25% of Households with 1+ child purchased Lactose Free in the past year.



NOTE: Total Sample n=1,160
Non-milk drinkers n=232 (20%)
Some level of milk n=928 (80%)

High School Lactose Free Chocolate Milk Survey Winners*



\$3,000 – Oyler School
424 Entries



\$2,000 – Clark Montessori
314 Entries



\$1,000 – Spencer Center
89 Entries

HELP WIN DOLLARS FOR OUR SCHOOL

Scan the QR Code below and answer a short survey about the new lactose free milk and you could help win dollars for our school!

The schools with the most completed surveys (as a percent of total enrollment) will win:

- 1st place: \$3,000
- 2nd place: \$2,000
- 3rd place: \$1,000

USDAIRY.COM || n@survey entry per person. Survey closes Friday, April 19 at 5 pm

marcel's modern pantry™
1% LACTOSE FREE CHOCOLATE MILK
8g PROTEIN | A&D Vitamins
PANTRY FRESH™ Grade A MILK

UNDENIABLY DAIRY™

* Entries as a % of total enrollment

CPS ELEMENTARY SCHOOL SURVEY ANALYSIS (Cell 2)

SCHOOL NAME: _____ GRADE: _____

1. What did you drink with lunch today?

White Milk Regular Chocolate Milk Lactose Free Chocolate Milk Water Nothing

2. How often do you drink milk at school?

2 times a Day (breakfast & lunch) Once Everyday 3-5 times a Week 1-2 times a Week Never

3. Have you tried the Lactose Free Chocolate milk? Yes No

4. Do you like the "new" Chocolate milk? (in the box)

Love It Like It It's OK Don't Like

Why? (Check as many as you like)

Tastes Better Don't Like Taste Easier on My Stomach Milk is Colder Like Drinking from This Package

Are you likely to drink more milk at school now that you can drink Lactose Free? Yes No

5. How often do you drink milk at home on school days? (only check 1)

Every Day Almost Every Day Not Very Often Never I drink ... Water Soda Juice Other

6. What kind of milk do you drink at home?

White Regular White Lactose Free Flavored Regular Flavored Lactose Free Don't Drink Milk at Home

7. Have you ever had Lactose Free milk before? Yes No

8. Did you finish your milk today?

Yes No Ran out of time No Felt full No Too Much No Didn't like taste

THANK YOU – HAVE A GREAT DAY!

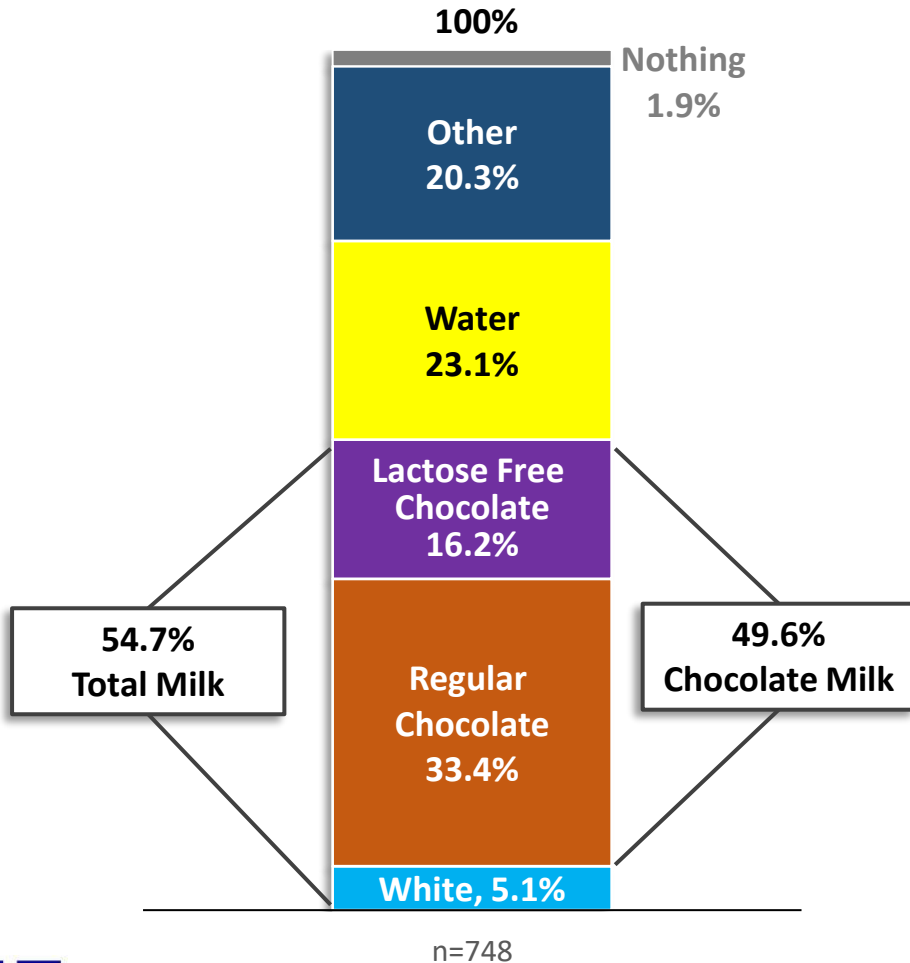


Grade 4-8 students completed a paper survey in the middle of the pilot.

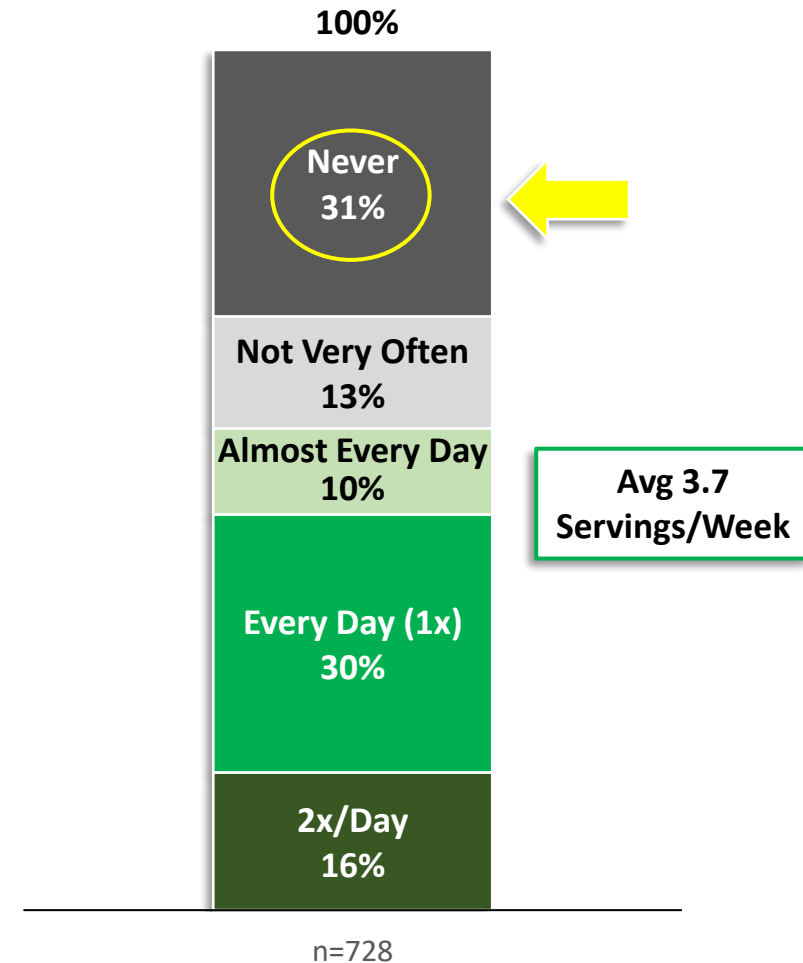
Younger students (Grades 1-3) completed a simpler survey whose results are shown after the older student results.

Cincinnati Elementary School Lactose Free Milk Pilot

1. What did you drink with lunch today?



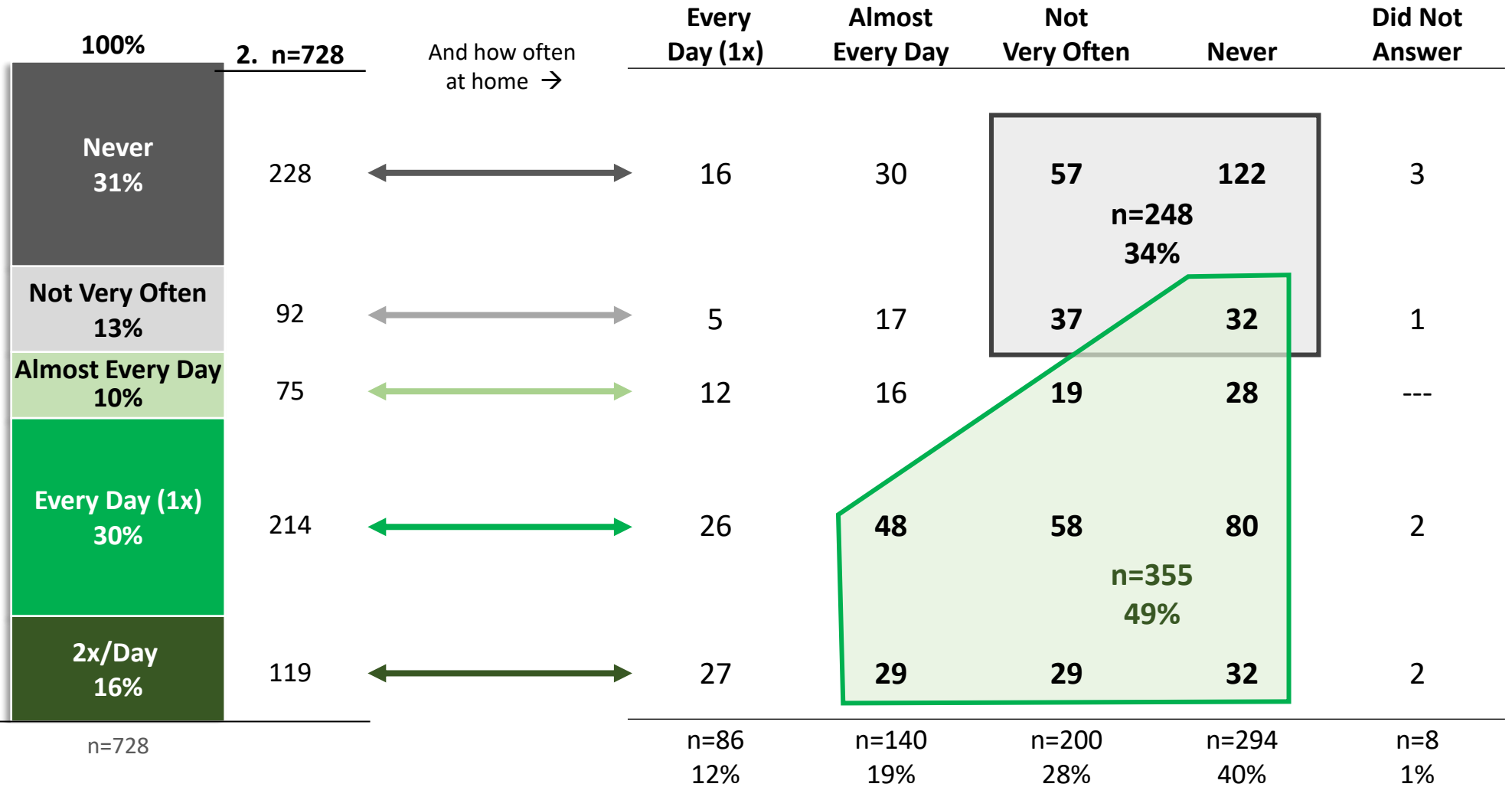
2. How often do you drink milk at school?



34% Rarely or Never Drink Milk at School or Home, 49% Drink Milk More Often at School than at Home

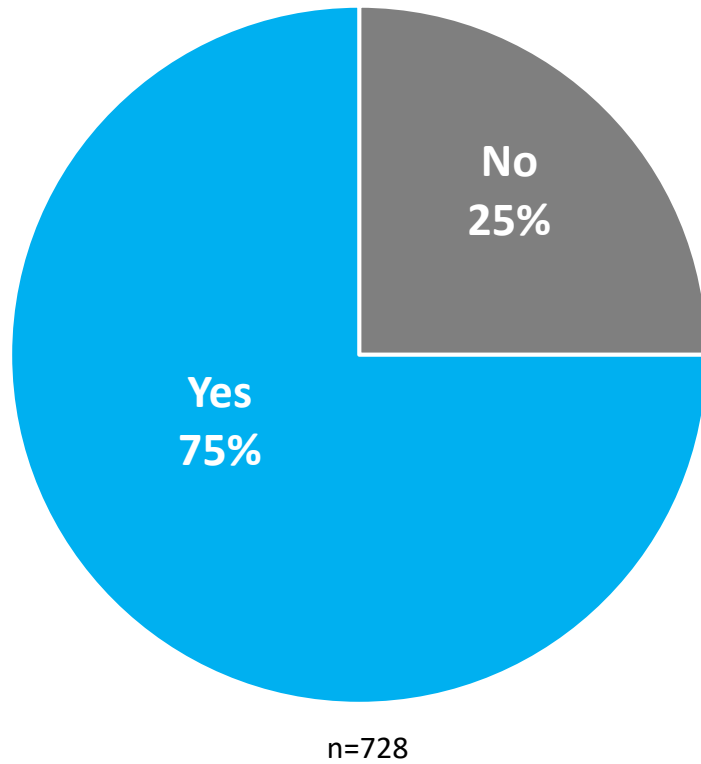
Elem.

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



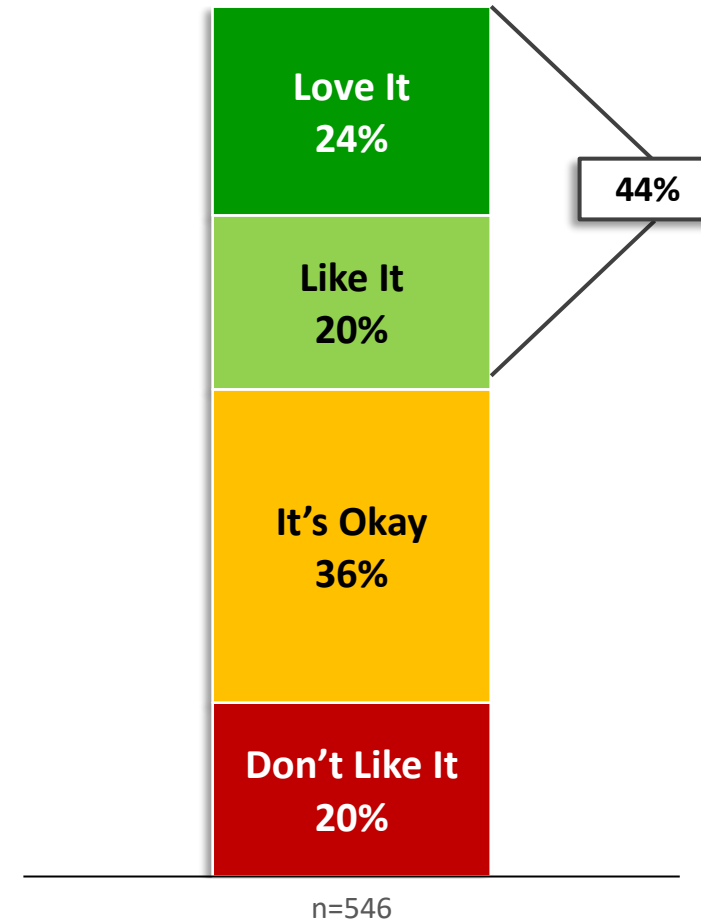
75% of students report trying the Lactose Free chocolate milk. Among those trying it, 44% said they Loved/Liked It, while only 20% didn't like it

3. Did you try the new Lactose Free Chocolate?



4. Did you like the Lactose Free Chocolate?

% Who Tried (Q3 "Yes")



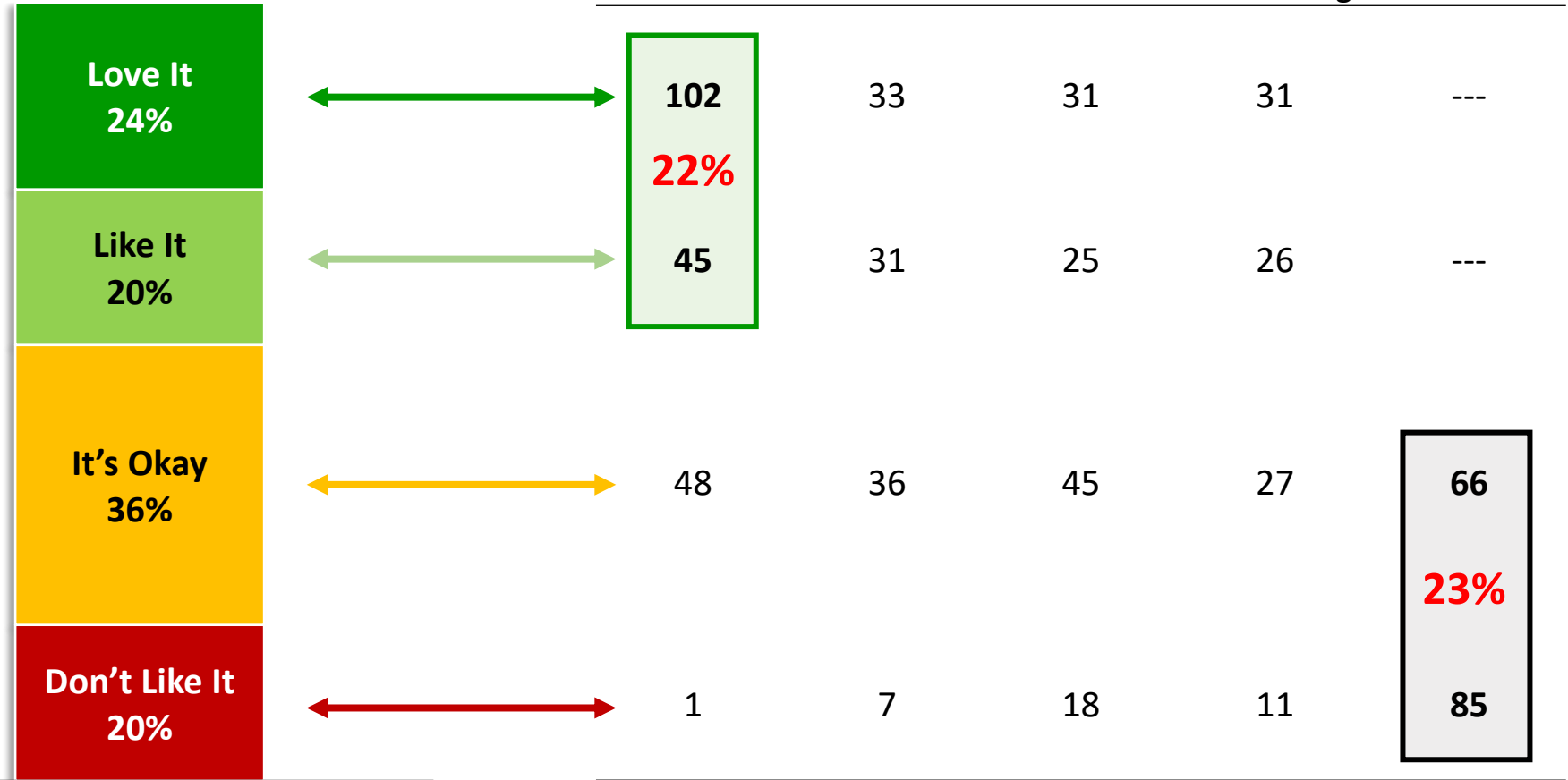
Taste was Equally a Driver of Love/Like & Don't Like Lactose Free

4. Did you like the Lactose Free Chocolate? ... 4a. Why? (Multiple responses)

% Who Tried (Q3 "Yes")

Taste was the largest driver of student reaction to lactose free chocolate.

Easier to digest, temperature and package were each responsible for 14-18% each of the reasons students gave for liking or not liking lactose free.



n=546
n=668 reasons

n=196
29%

n=107
16%

n=119
18%

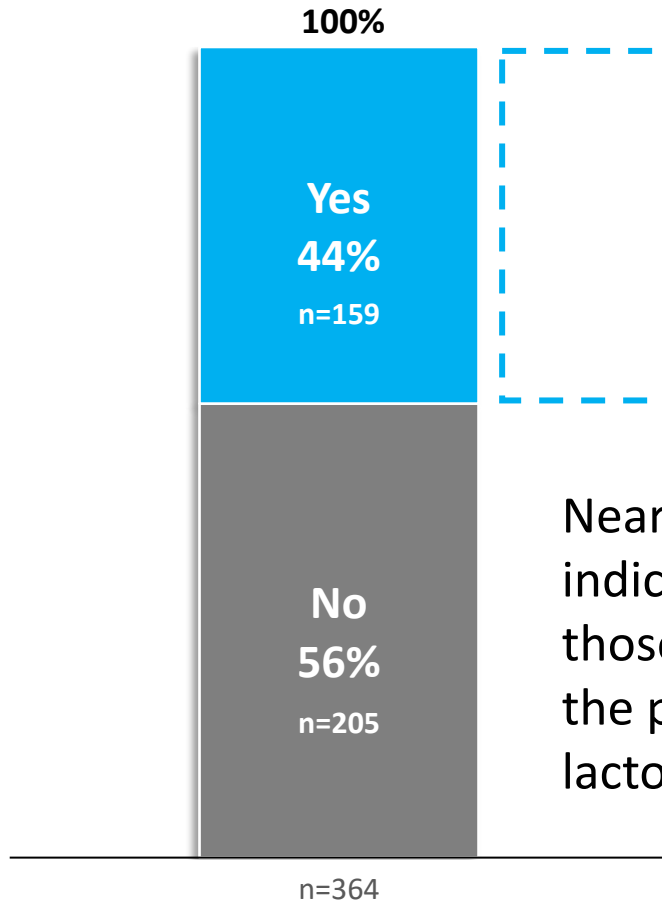
n=95
14%

n=151
23%

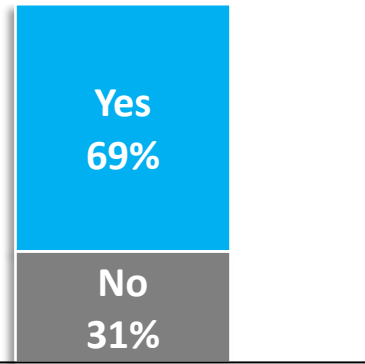
Non-Taste Reasons Cited

Nearly Half Said they Drink More Now that Lactose is Available

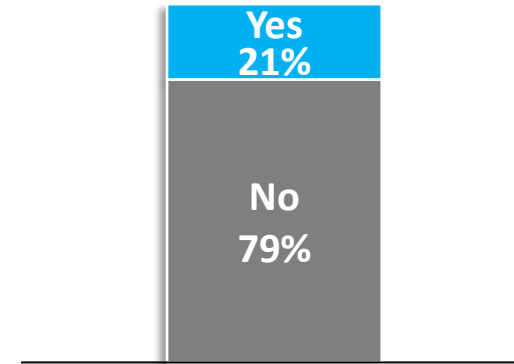
4b. Will you drink more milk now that Lactose Free is available?



7. Had you ever had Lactose Free milk before?



6. Do you regularly drink Lactose Free milk at home?

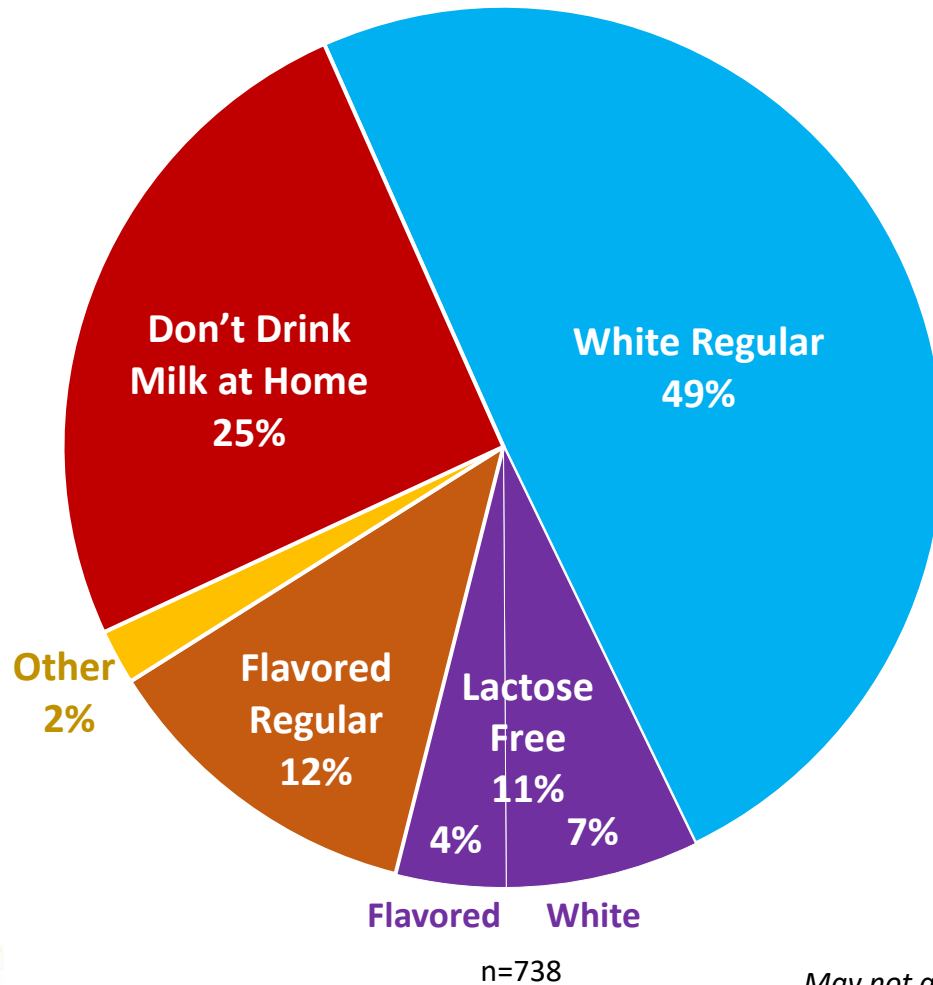


Nearly half of students who tried the chocolate lactose free product indicated they would drink more with this product available. Among those, 69% had consumed lactose free milk previously. This suggests the product is addressing an unmet need more than cannibalizing full lactose chocolate.

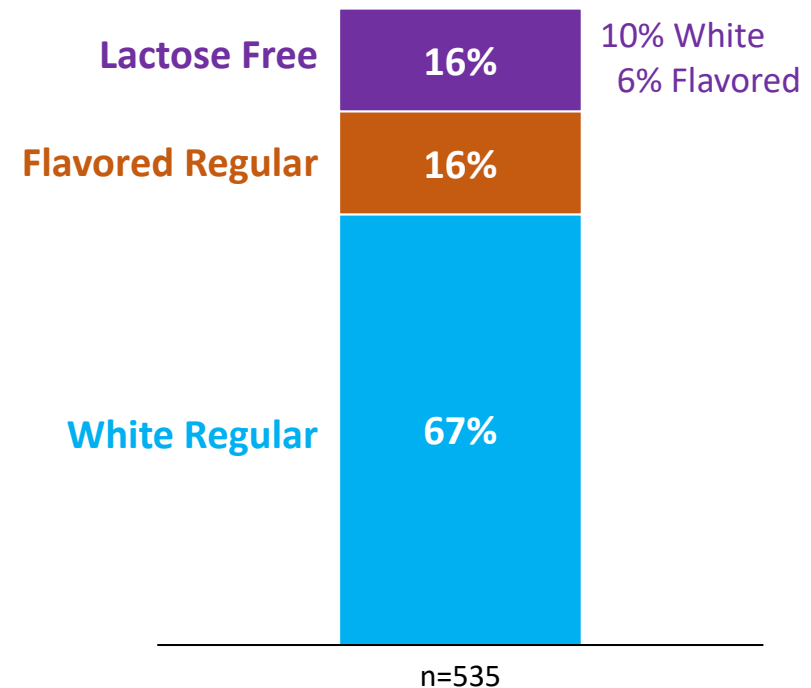
11% of Students Report Drinking Lactose Free Milk at Home, 16% Among Those Drinking Milk

Elem.

6. What kind of milk do you drink at home?

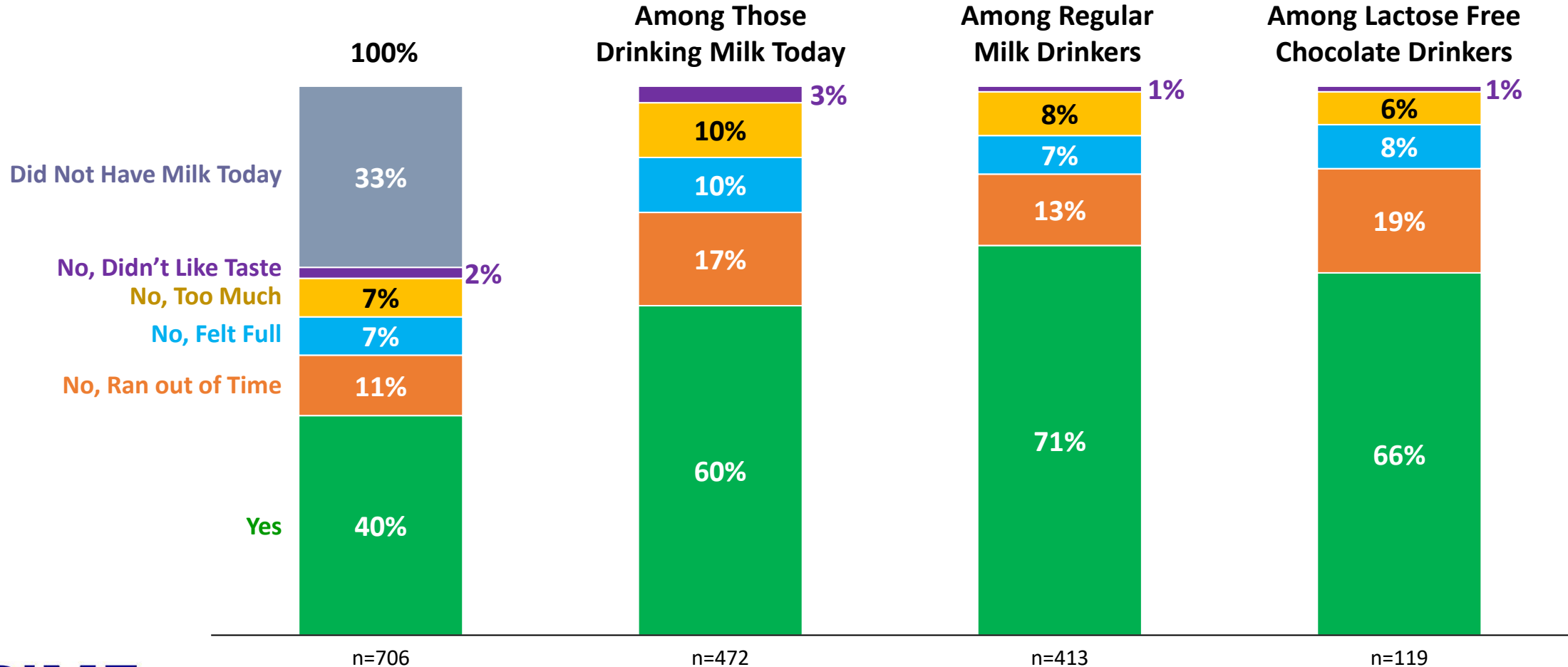


Among Milk Drinkers



The Milk Serving is Finished by a Higher Portion of Regular Milk Drinkers & Those Drinking Lactose Free Chocolate

8. Did you finish your milk today?



Younger Students (Grades 1-3) ...

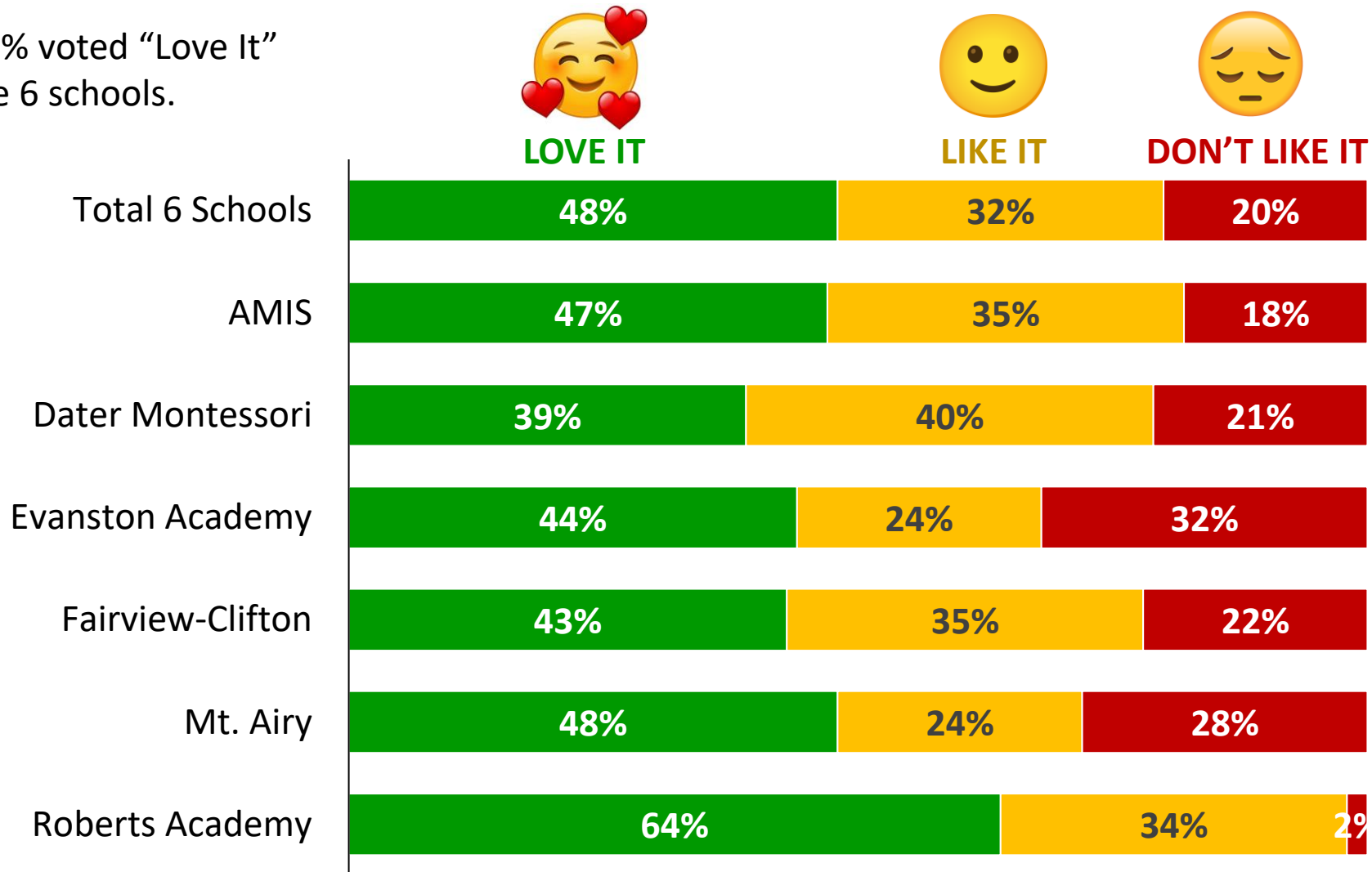
Sticker boards were provided for all 6 of the elementary schools offering lactose free chocolate for grades 1-3 to express how they felt about the new shelf stable milk.

CPS felt this was an easier and more effective way than the full survey given to grades 4-8.



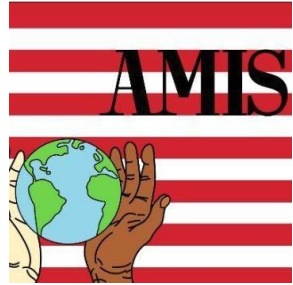
80% of Younger Students Loved/Liked the Lactose Free Chocolate Milk

Nearly 50% voted "Love It" across the 6 schools.

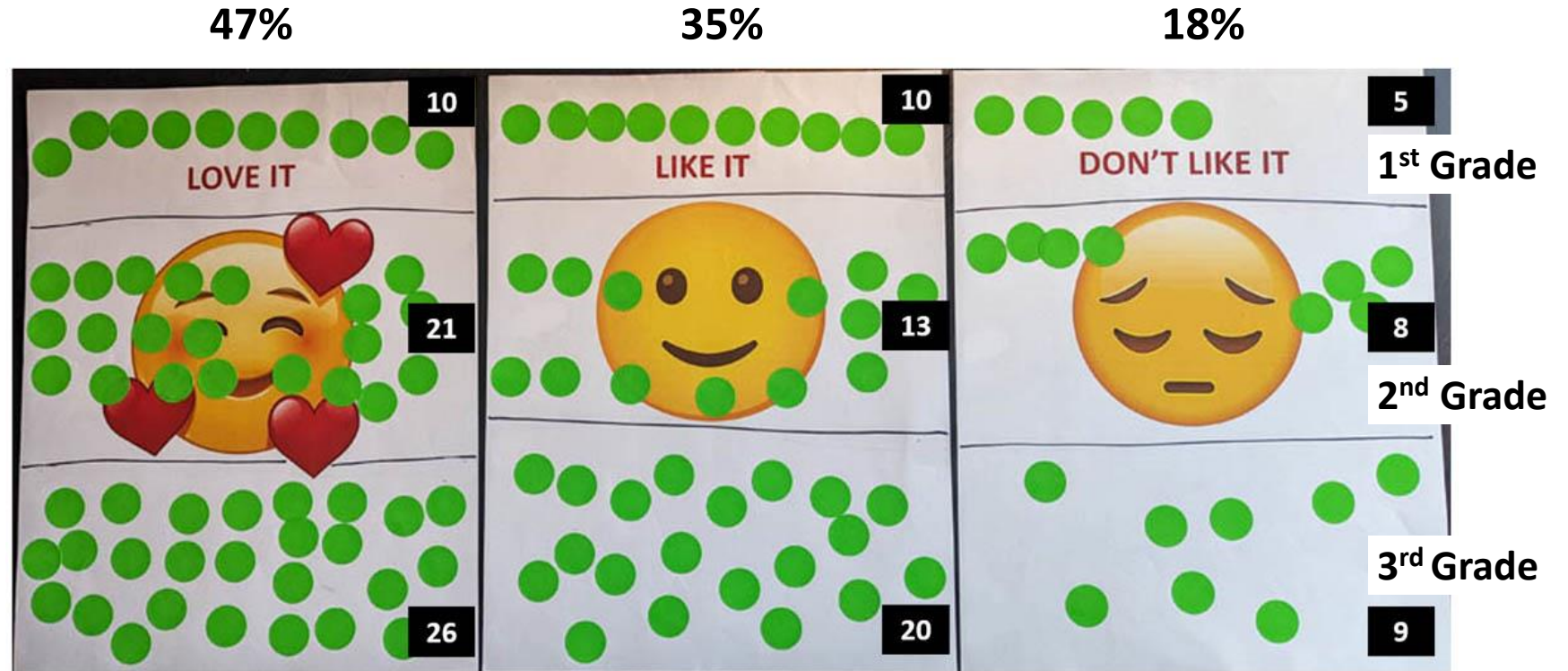


n = 608

82% of Younger Students Liked/Loved the Lactose Free Chocolate



AMIS students in the younger grades gave the lactose free chocolate the strongest Love/Like votes across the pilot schools.

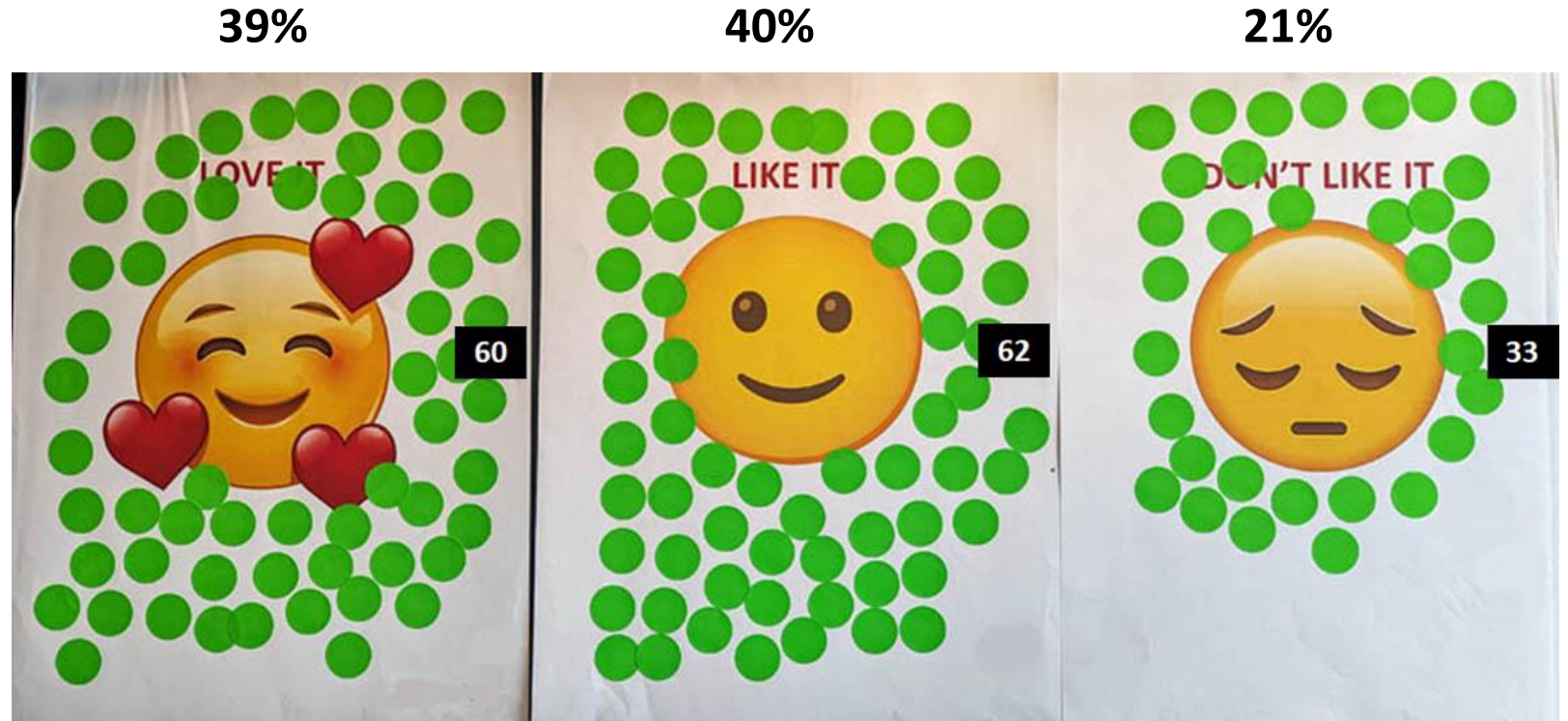


79% of Younger Students Liked/Loved at Dater Montessori



Only 21% of students indicated they did not like the lactose free chocolate.

Vast majority Loved/Liked the new offering.



n = 155

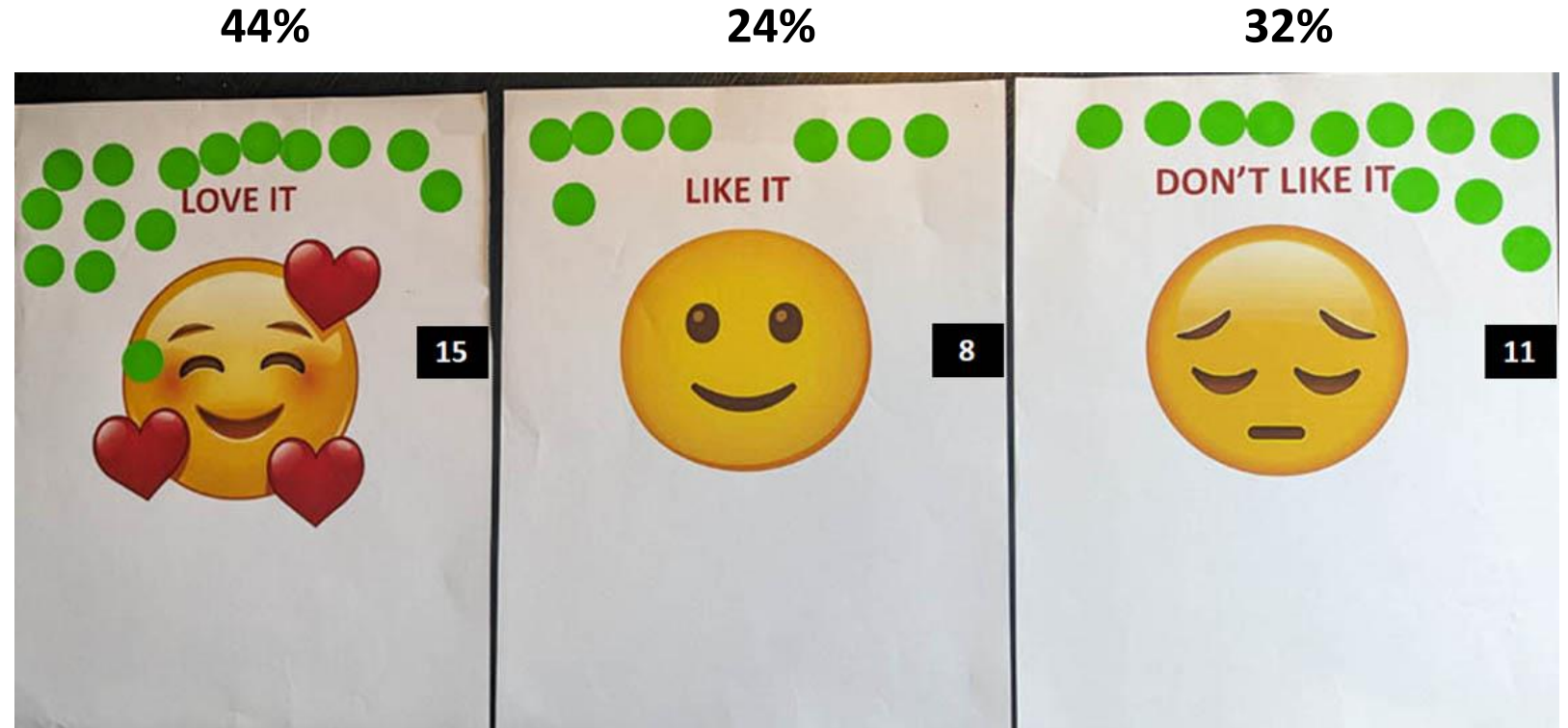
At Evanston Academy 44% Loved It, While 32% Did Not Like It



This elementary was the most polarized of the 4 schools surveyed.

- 44% Loved it
- 24% Liked It
- 32% Did Not Like it

This was also the school with the lowest number of respondents

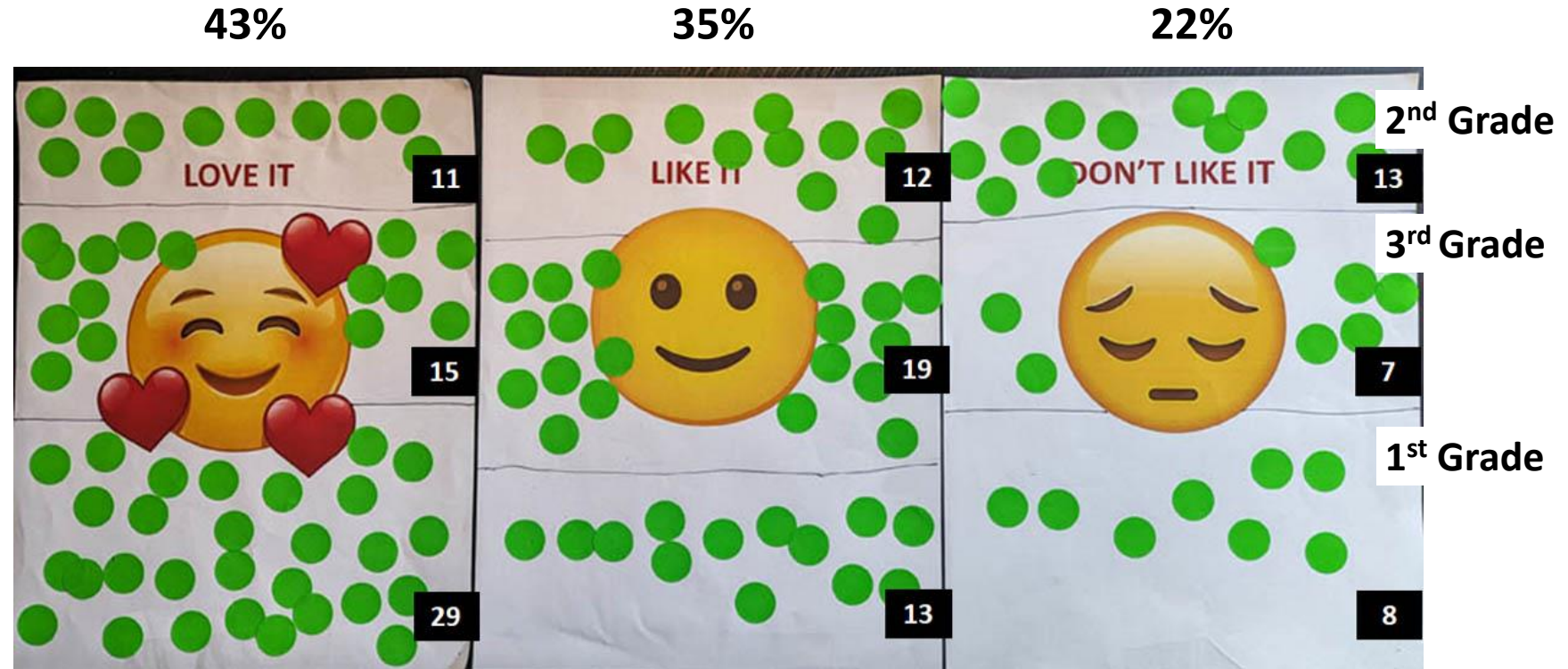


78% Indicated They Loved/Liked the Lactose Free Chocolate



At Fairview-Clifton, like AMIS and Evanston, “Love It” received the highest number of responses (55 out of 126 or 43%).

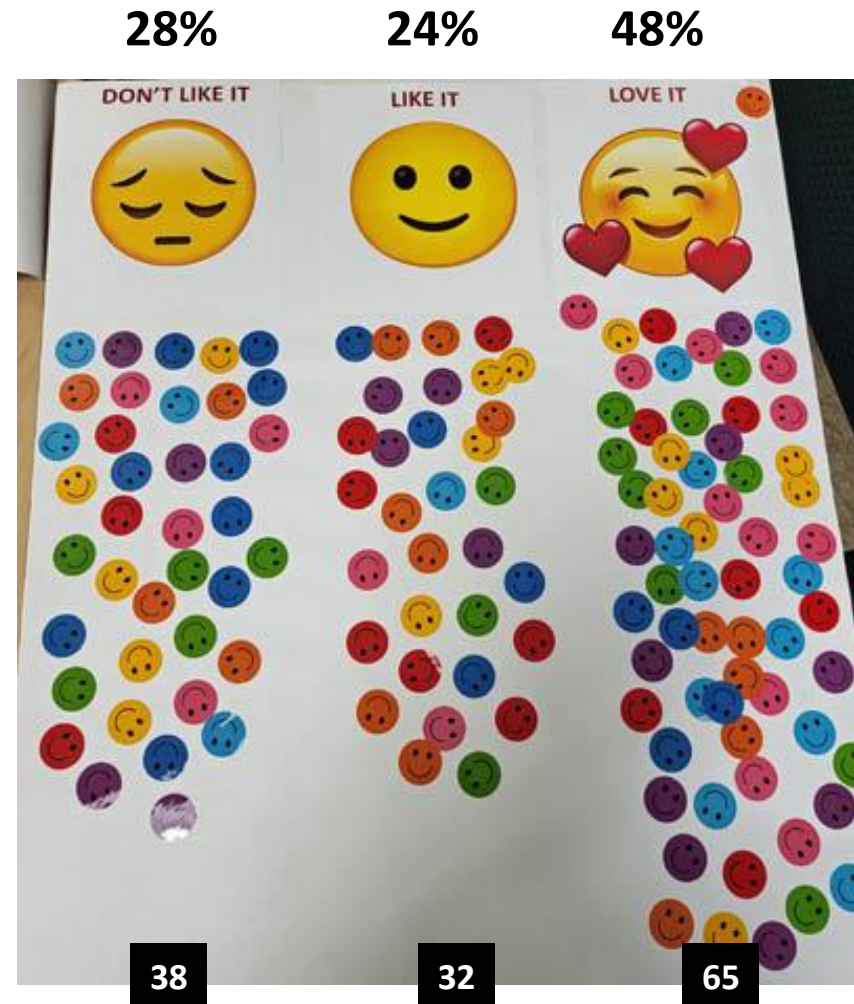
22% indicated they “Don’t Like It”.



72% Indicated They Loved/Liked the Lactose Free Chocolate



Mt. Airy younger students vote for Like/Love were slightly lower than the average. Even so, over 70% indicated they Liked/Loved the lactose free chocolate.



n = 135

98% Indicated They Loved/Liked the Lactose Free Chocolate



Roberts Academy Grades 1-3 scored the highest "Love It" vote with 64% of the 36 student votes.

Only one of the 36 votes were "Don't Like It", the lowest across the 6 schools.

