

Higher Fat Milk Pilot – Phase I

Preliminary results*, Spring 2026

* As a national research and education checkoff organization, Dairy Management Inc./National Dairy Council provides science-based information but does not and cannot seek to influence government policy.

Executive Summary

- **Pilot Purpose:** The Higher Fat Milk Pilot was designed to assess student preference for a higher-fat unflavored milk option alongside existing milk offerings and to better understand how these products fit within established school meal programs.
- **Pilot Timing:** The pilot was conducted from **March through May 2026**.
- **Pilot Scope:** Participating districts introduced one additional whole or 2% unflavored milk option at lunch. The pilot focused exclusively on higher-fat unflavored milk varieties due to regulatory and product availability constraints.
- **Student Interest:** Across **six* diverse school districts**, higher-fat unflavored milk consistently accounted for approximately **5% to 12% of total milk selections**, demonstrating measurable student interest when an additional choice was available.
- **Overall Consumption:** Total milk consumption remained largely unchanged, providing insight into student preferences rather than increasing overall milk intake.

** DMI/NDC contracted with four districts in total: Bartow, GA; Killeen, TX; Tucson, AZ; and Eden Prairie, MN. Dairy MAX conducted two additional pilots and allowed their results to be included in these findings: Brenham, TX and Jefferson County, CO.*

Executive Summary (cont.)

- Preference for higher fat unflavored milk among unflavored milk drinkers was strong, with a few district grade levels showing a clear preference for the higher fat option when given the choice
- **Impact on Existing Milk Choices:** The higher-fat unflavored milk option had minimal impact on students' preference for flavored milk.
- **Additional Observations*:**
  - Higher-fat unflavored milk appeared to resonate with some **student athletes**.
  - The offering aligned with preferences observed in certain **cultural communities**.
  - Student interest was **sustained beyond the initial trial period**, suggesting appeal extended beyond novelty.
- **Key Takeaway:** The pilot demonstrated that higher-fat unflavored milk can **successfully expand student choice** while integrating seamlessly into existing school meal programs, providing valuable insights into student milk preferences and substitution patterns.

**Observations via one-on-one interviews with District leads.*

Pilot Structure

- **Timing:** March 1 – May 31, 2026
- **Districts**: Bartow, GA; Brenham, TX; Eden Prairie, MN; Jefferson Co., CO; Killeen TX; and Tucson, AZ
- **Intervention:** Offer one additional higher fat unflavored milk during lunch periods during pilot period
- **Data Collected (pre- and post-implementation):**
  - Daily point-of-sale lunch participation reports
  - Daily lunch milk counts by SKU
  - Staff interviews for operational feedback
- **Analysis**
  - Lunch participation: Pre- vs. Post-Implementation
  - Daily milk selection by SKU: Pre- vs. Post-Implementation

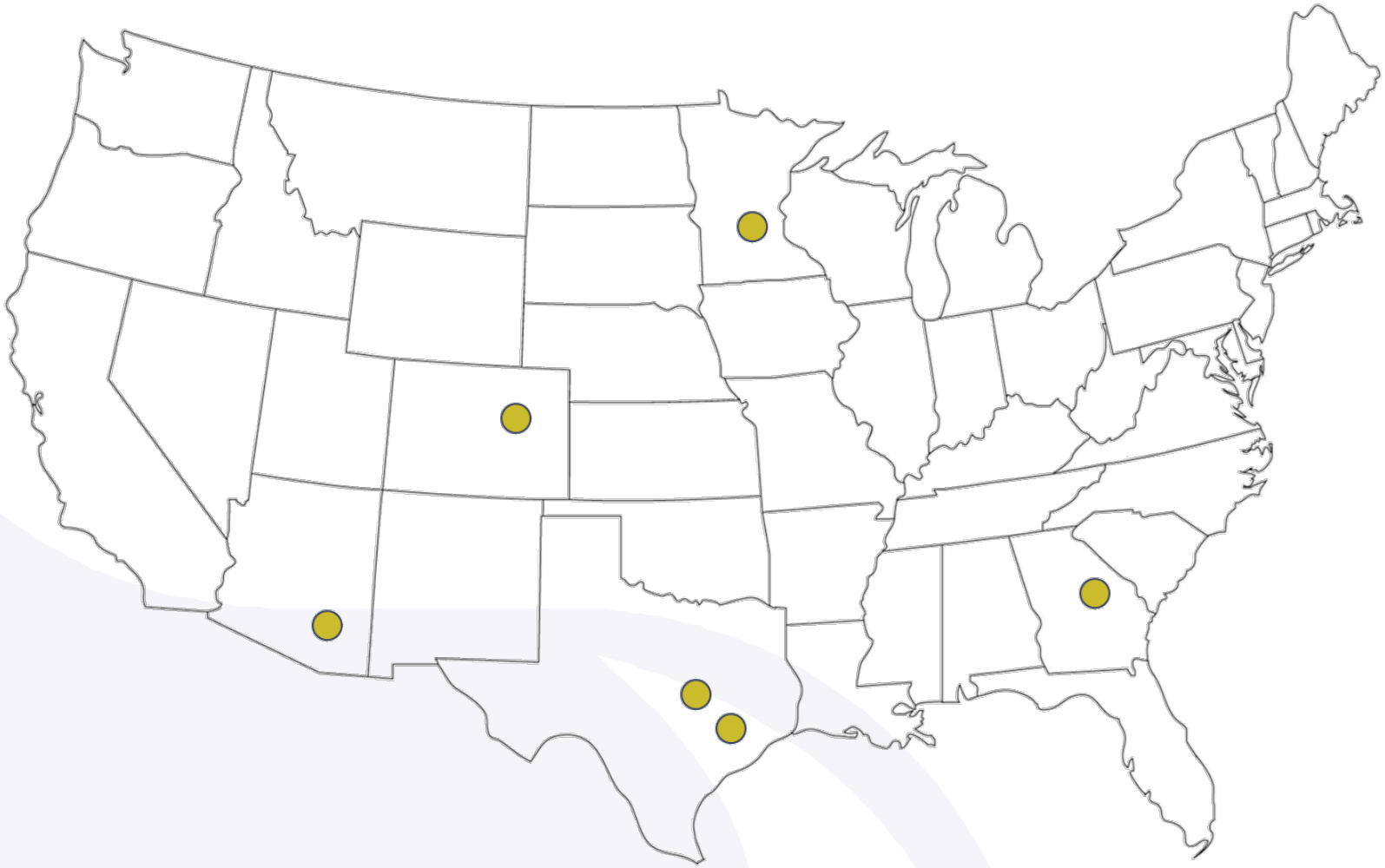
*Research & Analysis Support:

Scott Richardson, PhD, MBA
Co-founder and Partner
Northbound Ventures Consulting, LLC

*See index for more about Northbound Ventures

Study design overview

Pre/post cluster-randomized trial across 6 districts



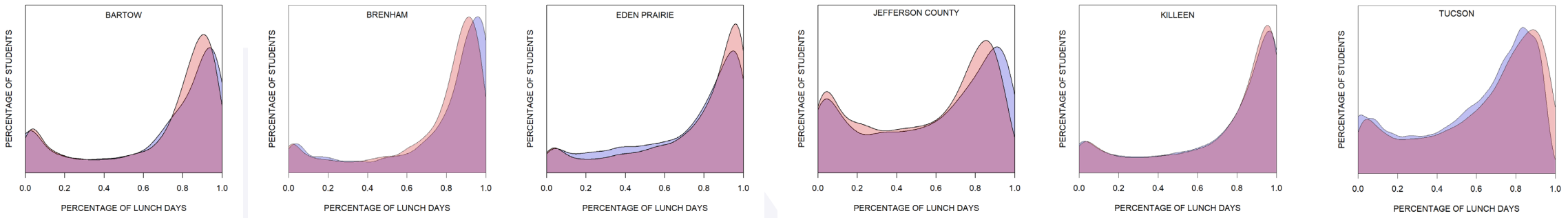
- Bartow, GA
- Brenham, TX
- Eden Prairie, MN
- Jefferson Co., CO
- Killeen, TX
- Tucson, AZ

Study design overview (cont.)

DISTRICT	STUDY DESIGN	INTERVENTION	TOTAL SCHOOLS IN SAMPLE	TOTAL STUDENTS IN SAMPLE	STUDY PERIOD
BARTOW, GA	PRE/POST WITH CONTROLS	OFFER WHOLE MILK	6 INTERVENTION 6 CONTROLS	5,866	PRE-INTERVENTION: 3/2 – 4/3 (25 DAYS) POST-INTERVENTION: 4/13 – 5/22 (30 DAYS)
BRENHAM, TX	PRE/POST WITH CONTROLS	OFFER WHOLE MILK	3 INTERVENTION 2 CONTROLS	4,349	PRE-INTERVENTION: 3/2 – 4/2 (19 DAYS) POST-INTERVENTION: 4/7 – 5/8 (24 DAYS)
EDEN PRAIRIE, MN	PRE/POST, NO CONTROLS	OFFER WHOLE MILK	10 INTERVENTION	8,148	PRE-INTERVENTION: 3/2 – 4/10 (24 DAYS) POST-INTERVENTION: 4/13 – 5/15 (24 DAYS)
JEFFERSON CO., CO	PRE/POST WITH CONTROLS	OFFER WHOLE MILK	5 INTERVENTION 5 CONTROLS	4,786	PRE-INTERVENTION: 3/2 – 4/3 (19 DAYS) POST-INTERVENTION: 4/6 – 5/28 (36 DAYS)
KILLEEN, TX	PRE/POST WITH CONTROLS	OFFER WHOLE MILK	6 INTERVENTION 6 CONTROLS	10,087	PRE-INTERVENTION: 3/2 – 4/2 (18 DAYS) POST-INTERVENTION: 4/6 – 5/8 (24 DAYS)
TUCSON, AZ	PRE/POST WITH CONTROLS	OFFER 2% MILK	20 INTERVENTION 20 CONTROLS	16,580	PRE-INTERVENTION: 3/23 – 4/6 (10 DAYS) POST-INTERVENTION: 4/7 – 5/21 (33 DAYS)

Pre/post study population stability

- Individual student milk selection data were not collected in this study phase. Study population stability was assessed using student-level point-of-sale records.
- **There was strong consistency in the student population composition across the study period:**
  - Day-to-day overlap in student population mixes averaged in the 70-75% range
  - Student-level pre/post lunch participation rates showed strong, statistically significant correlations across all districts.

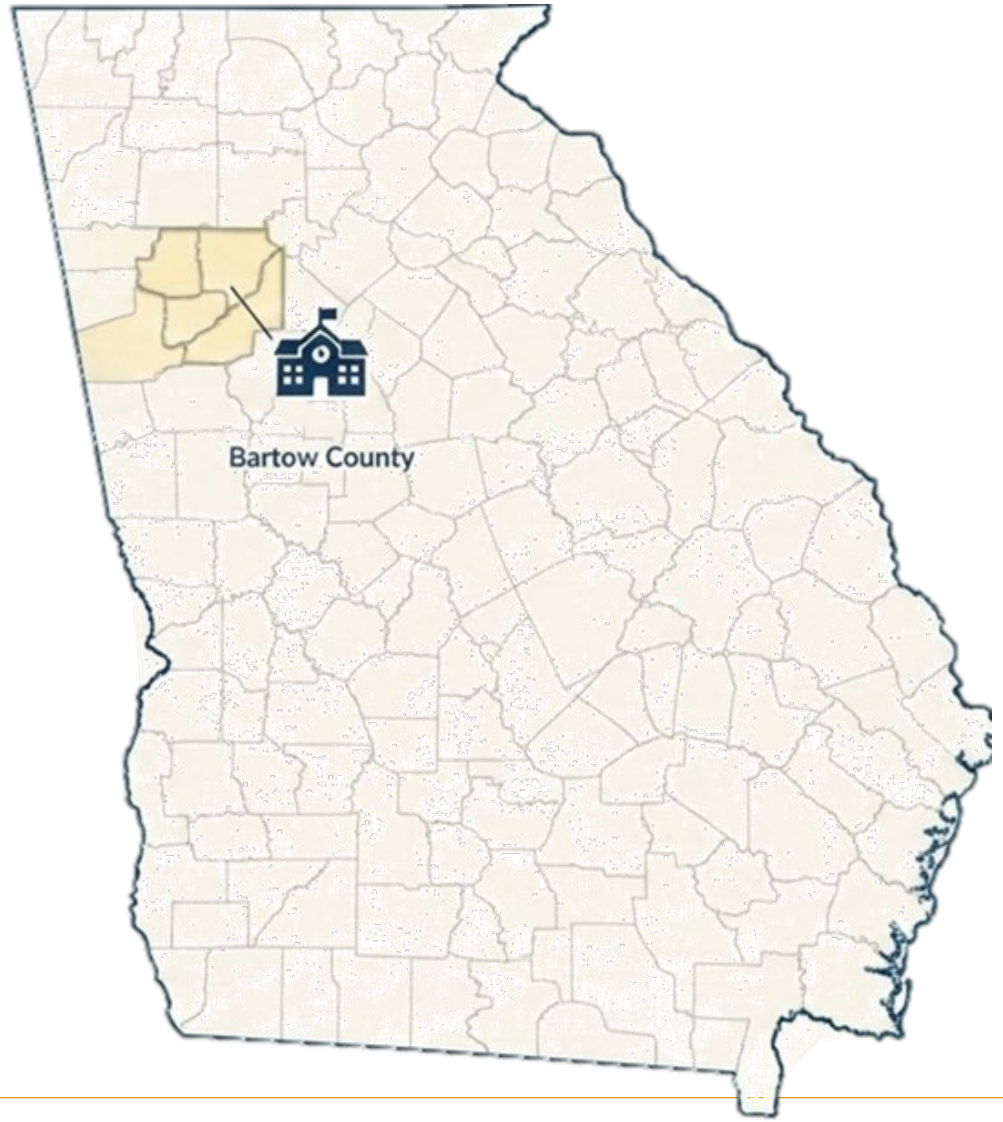


Bartow County, GA

Individual District Findings

About Bartow County

- Mid-sized **rural-fringe district** serving approximately 14,000 students across **19 schools**
- Nearly **20% Hispanic** enrollment, with a growing Hispanic student population
- Approximately **50% of students economically disadvantaged**
- Stable, **moderately affluent** community
- Represented a **rural Southeastern district** and produced one of the highest rates of higher-fat milk adoption in the pilot
- Provided evidence that higher-fat milk could gain meaningful traction without disrupting flavored milk demand or lunch participation



Sources: U.S. News Education; National Center for Education Statistics (NCES) | IES

Bartow County results

- No change in overall lunch volumes.
- Overall milk selection increased by an average of 17 cartons per school per day.
- While flavored milk remained the dominant choice overall, whole unflavored milk accounted for approximately 70% of unflavored milk selections.
- Flavored milk volume was unaffected by the introduction of whole unflavored milk but declined slightly as a percentage of total milk selected.
- 1% unflavored milk selection dropped significantly upon the introduction of whole unflavored milk.

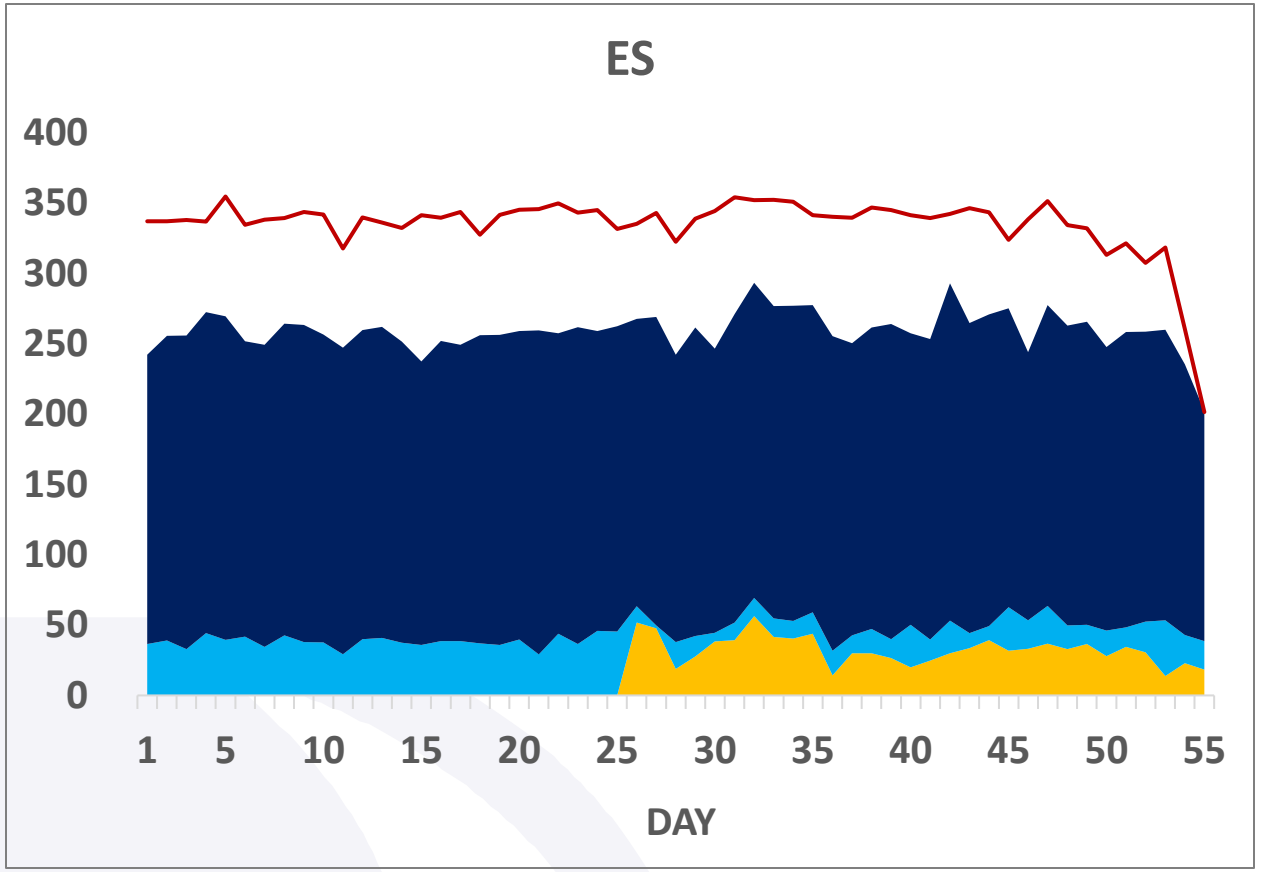
MILK TYPE	ES	MS	HS
TOTAL MILK	+16.6[b]	–	–
WHOLE UNFLAVORED	+38.2[c] +14.1%[c]	–	–
FLAVORED	-0.9 -4.1%[c]	–	–
UNFLAVORED (1%)	-23.6[c] -10.1%[c]	–	–

[a] p<0.05 [b] p<0.01 [c] p<0.001

Note: Results are per school, per day cartons and % of total milk volume averages.

Bartow County results (cont.)

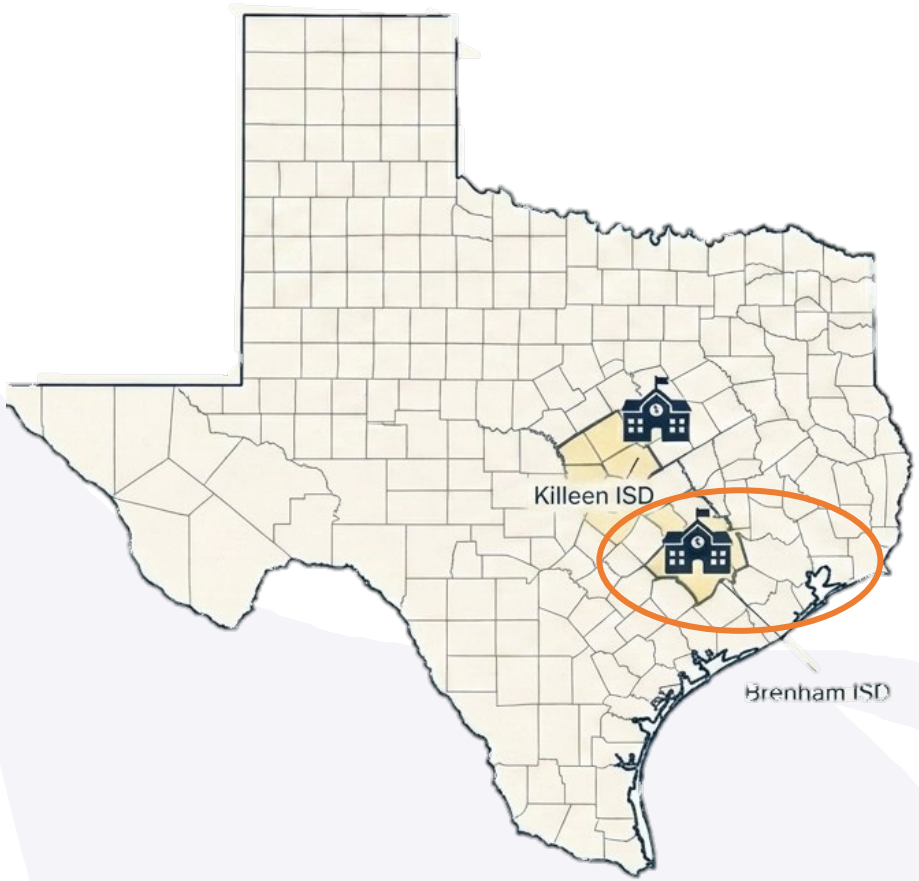
AVERAGE MILK CARTONS SELECTED IN INTERVENTION SCHOOLS



Brenham, TX

Individual District Findings

About Brenham ISD, TX



- **Small community district** serving approximately **4,800** students across **7 schools**
- **40% Hispanic** enrollment
- **Significant economic need,** with sources stating ranges from 45 to 72% of students being classified as economically disadvantaged
- Represents a small-town Texas district with a diverse student population
- Produced some of the highest higher-fat milk adoption rates observed in the pilot, demonstrating strong student acceptance when additional unflavored milk options were offered

Sources: Texas Tribune ; U.S. News Education

Brenham results

- No change in overall lunch volumes.
- Changes in overall milk selection varied by grade and were not statistically significant.
- Whole unflavored milk selection was moderate and sustained across all grades. A small, but statistically significant “novelty effect” was observed in elementary schools, where whole unflavored milk selection attenuated by 3 cartons per day after introduction.
- Flavored milk selection remained stable in middle schools, but dropped significantly in Krause Elementary.
- Unflavored 1% and skim milk selection dropped across both middle schools and Krause Elementary.
- Results suggest that whole unflavored milk primarily substituted for lower-fat unflavored milk selections while maintaining stable lunch participation.
- Brenham generated some of the highest rates of higher-fat unflavored milk adoption observed in the pilot, particularly at the elementary level.

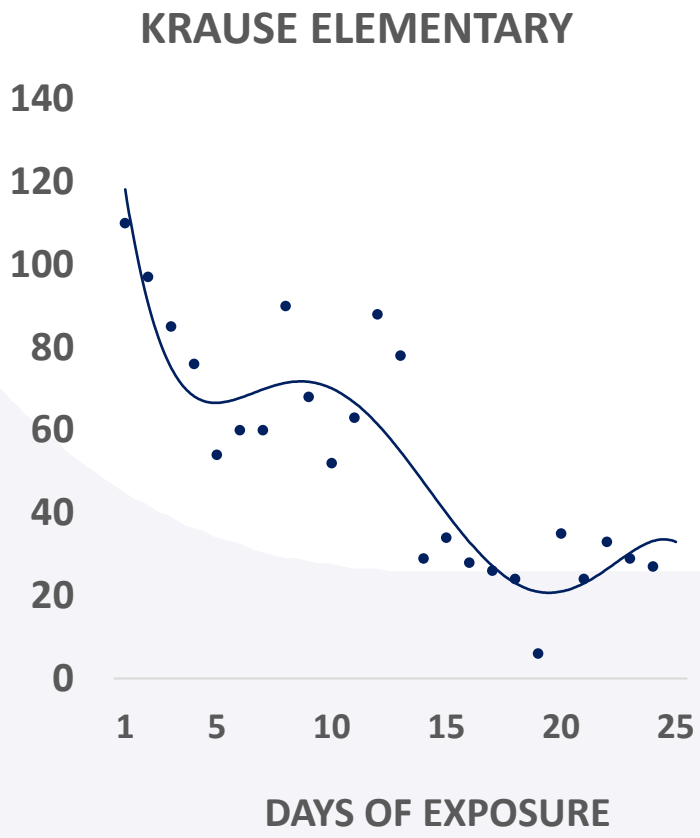
MILK TYPE	ES	MS	HS
TOTAL MILK	-29.6	+14.9	–
WHOLE UNFLAVORED	+94.9[c] +22.4%[c]	+48.5[c] +13.1%[c]	–
FLAVORED	-48.0[b] -6.5%[b]	+1.9 -3.2%[a]	–
UNFLAVORED (1%)	-72.6[c] -15.6%[c]	-33.0[c] -9.9%[c]	–

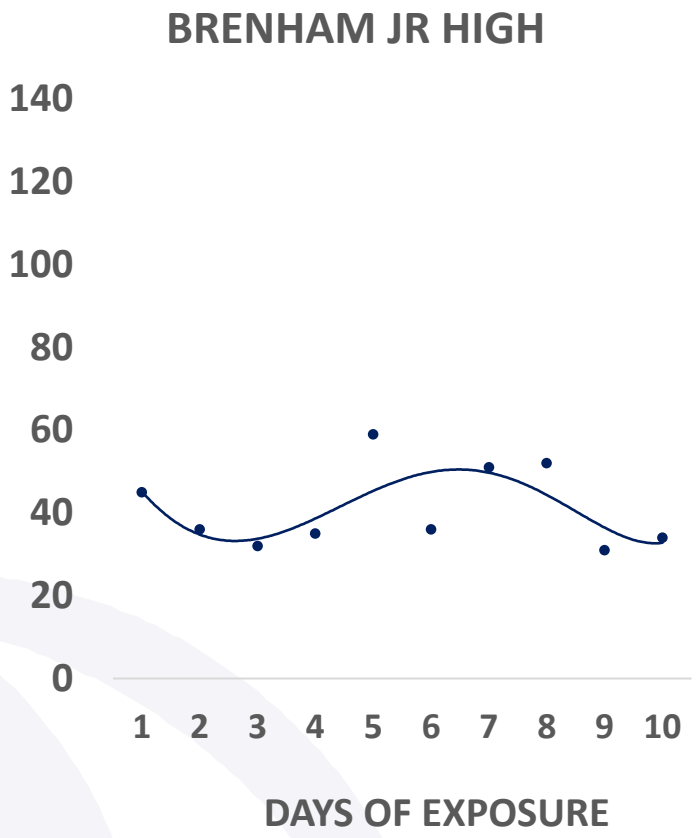
[a] p<0.05 [b] p<0.01 [c] p<0.001

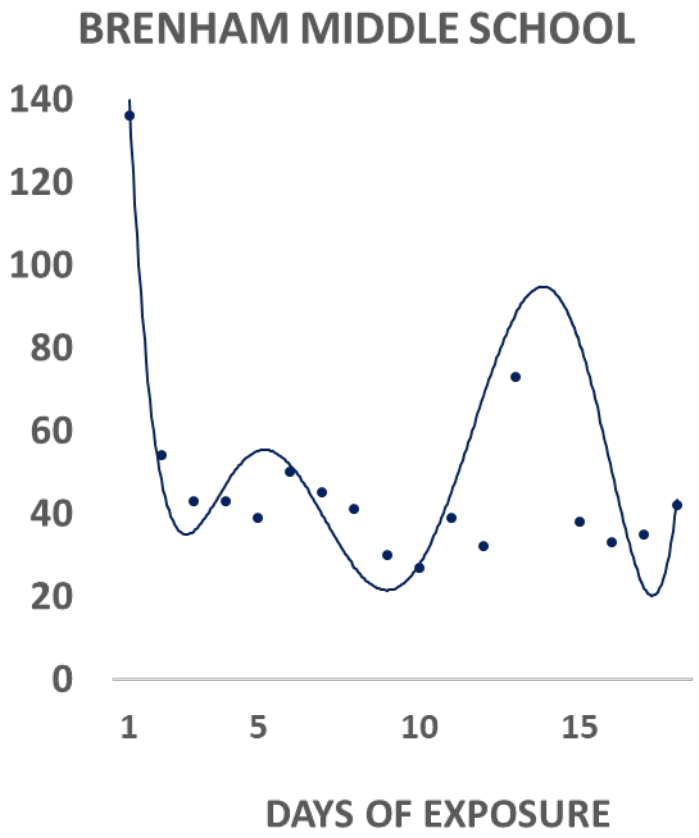
Note: Results are per school, per day cartons and % of total milk volume averages.

Brenham results (cont.)

WHOLE UNFLAVORED MILK "NOVELTY EFFECT" (CARTONS PER DAY) OBSERVED BY SCHOOL

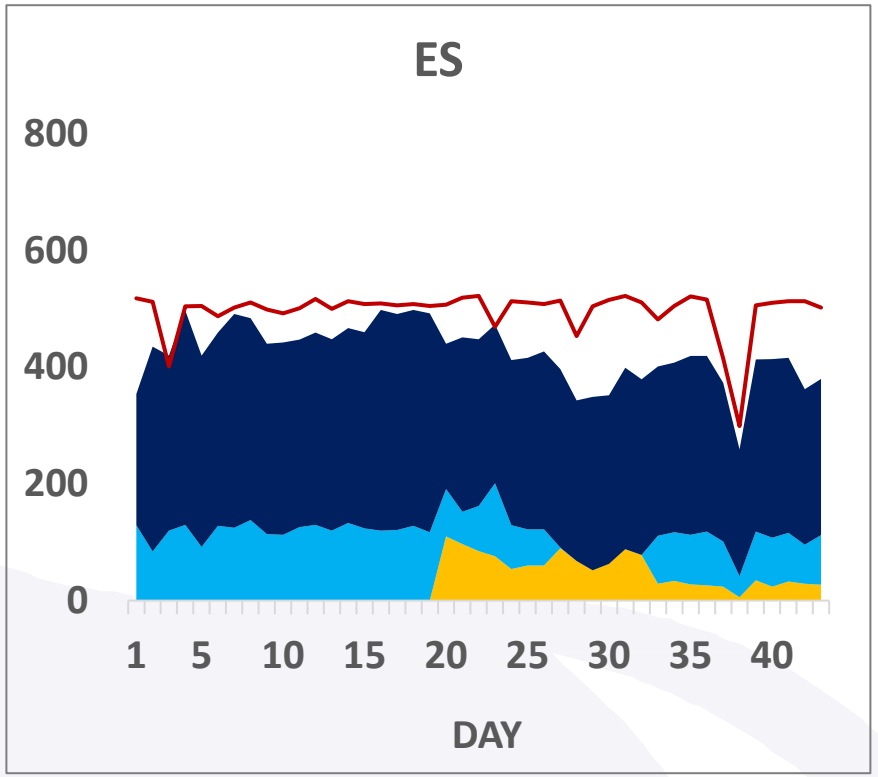


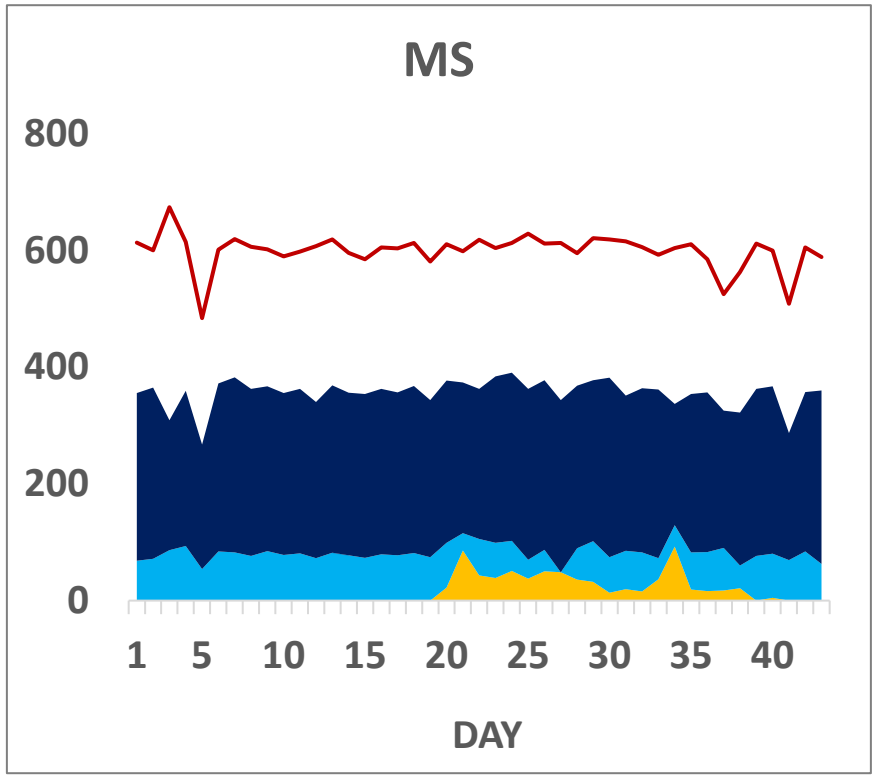




Brenham results (cont.)

AVERAGE MILK CARTONS SELECTED IN INTERVENTION SCHOOLS





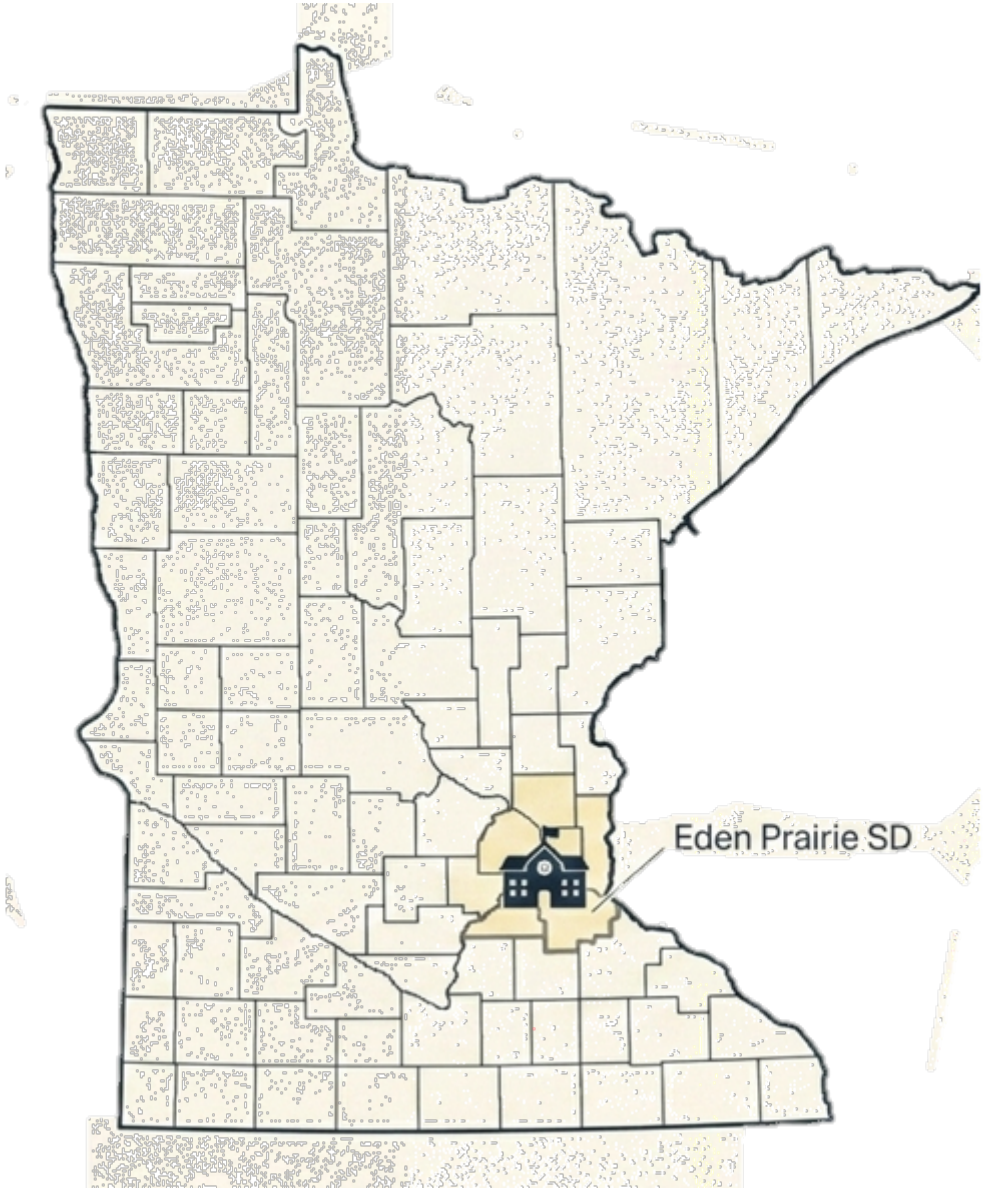
Lunches
Flavored
1%/skim unflavored
Whole
Unflavored

Eden Prairie Schools, MN

Individual District Findings

About Eden Prairie, MN

- A smaller suburban district with **13 schools**
- Enrollment: **9,352 students** (2024)
- **Fairly affluent**, with 22% of students classified as economically disadvantaged
- **51% minority** enrollment
- Located in the Minneapolis-St. Paul metropolitan area
- Provided insight into student preferences in a suburban Upper Midwest district, complementing findings from Texas, Georgia, Colorado, and Arizona



Sources: U.S. News Education; National Center for Education Statistics (NCES) | IES

Eden Prairie results

- No change in overall lunch volumes.*
- Changes in overall milk selection varied by grade and were statistically significant only in high schools.
- Whole unflavored milk selection was low in middle and high schools. There was an initial “novelty effect” observed in elementary schools that gradually attenuated by an average of 1.6 cartons per day.
- Flavored milk selection dropped significantly in high schools* but remained statistically stable in elementary and middle schools.
- Unflavored lower fat milk selection dropped in elementary and high schools* and remained stable in middle schools.
- Results suggest moderate but sustained interest in whole unflavored milk among elementary students.

MILK TYPE	ES	MS	HS
TOTAL MILK	+23.0	+49.5	-219.7*
WHOLE UNFLAVORED	+56.6[c] +9.4%[c]	+7.9[a] +1.2%	+3.7 +12.4%[c]
FLAVORED	+0.25 -3.9%[b]	+39.1 +0.5%	-168.4 -4.6%[a]
UNFLAVORED (1%, SKIM)	-34.5[c] -5.5%[b]	+3.1 -1.6%	-54.9[c] -7.8%c

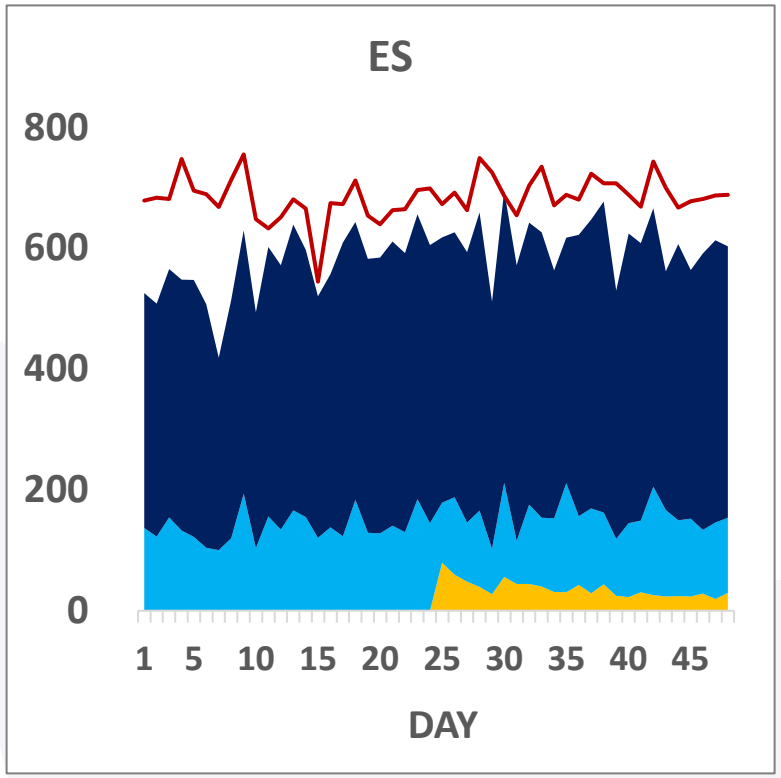
[a] p<0.05 [b] p<0.01 [c] p<0.001

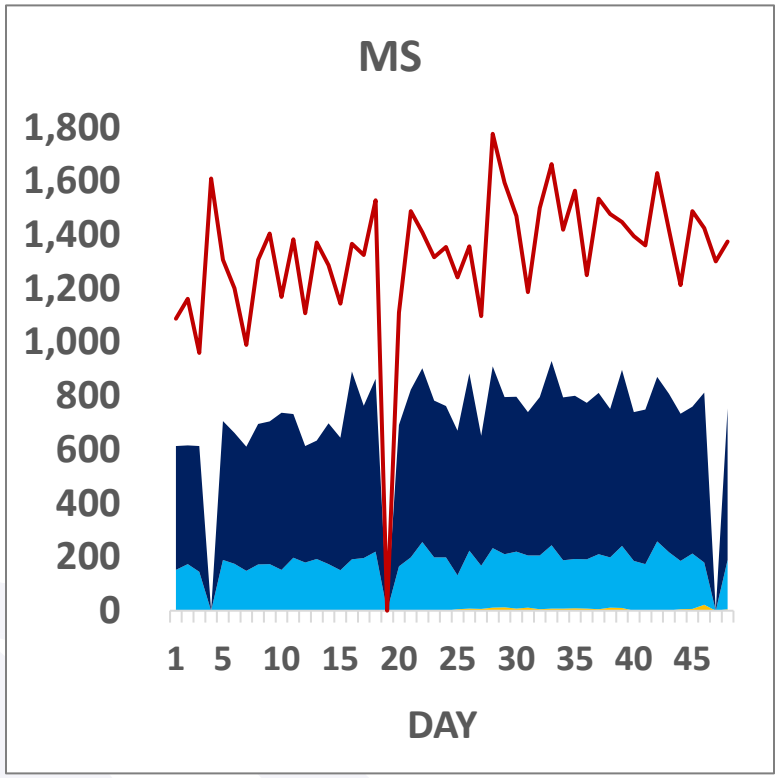
* Eden Prairie HS experienced uncharacteristically low lunch participation between 4/13 and 4/28 that appears to be unrelated to the intervention.

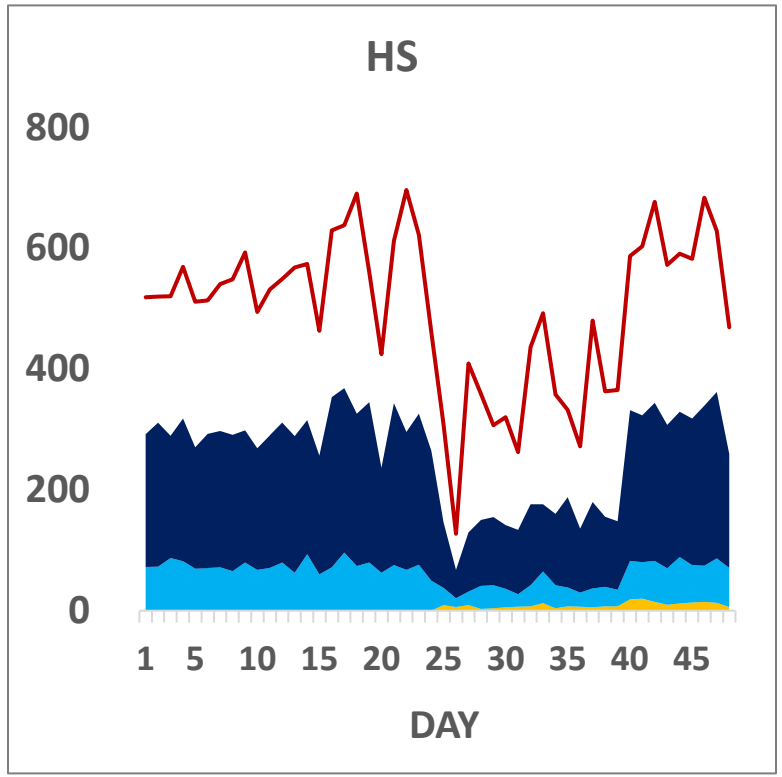
Note: Results are per school, per day cartons and % of total milk volume averages.

Eden Prairie results (cont.)

AVERAGE MILK CARTONS SELECTED IN INTERVENTION SCHOOLS







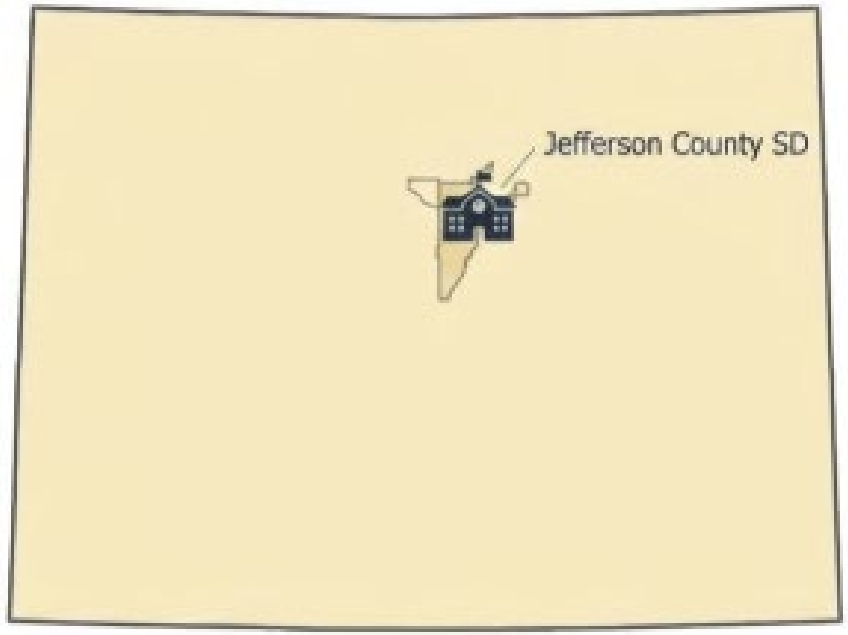
Lunches | Flavored | 1%/skim unflavored | Whole unflavored

Jefferson County, CO

Individual District Findings

About Jefferson County, CO

- Colorado's second-largest school district, serving **approximately 74,000 students** across more than **140 schools** and programs
- Approximately **27% Hispanic** enrollment
- About **31% of students eligible for free/reduced-price meals**
- Mix of suburban, urban, and mountain communities in the Denver metropolitan area
- Represents a large Western school district with broad geographic diversity
- Demonstrated that higher-fat milk could be incorporated into a large, complex school nutrition operation while maintaining stable participation and milk selection patterns



Source: SchoolView: School and District Data

Jefferson County results

- No change in overall lunch volumes.
- Changes in overall milk selection varied by grade and were statistically significant only in elementary schools. Total milk volume attenuated by 0.8 meals per day to baseline, indicating a small novelty effect.
- Whole unflavored milk selection was moderate across all grades, with a small, but statistically significant novelty effect observed in elementary schools.
- Flavored milk selection volume remained level across all grades. A statistically significant percentage point drop was observed in elementary related to the uptake of whole milk.
- Lower fat unflavored milk selection dropped slightly in elementary and middle schools.
- As a percentage of unflavored milk selected after pilot implementation, whole milk accounted for 25% of high school (n=1) selections, 32% of middle school selections (n=1), and 50% of elementary school (n=3) selections, indicating meaningful demand for the option.

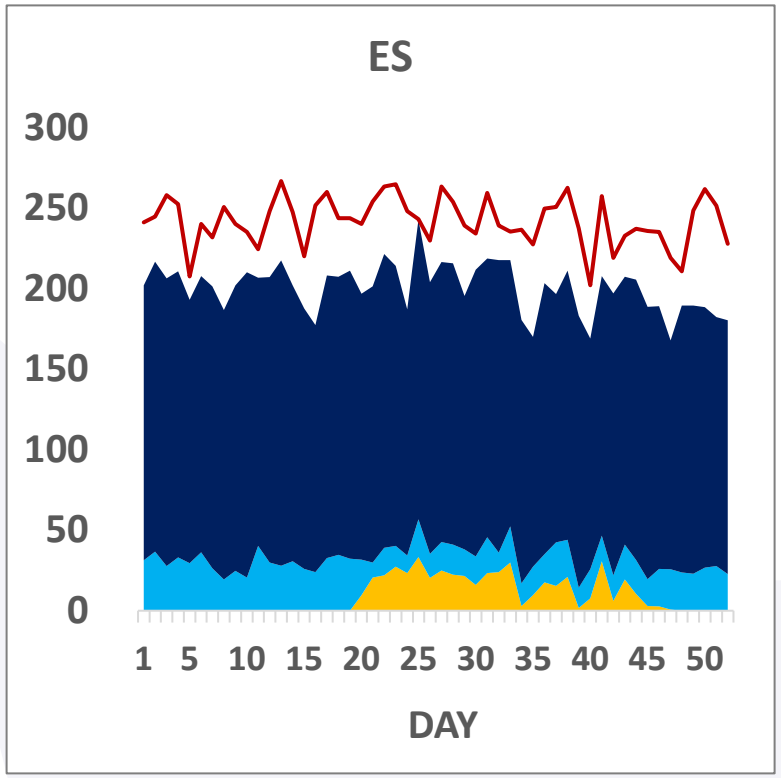
MILK TYPE	ES	MS	HS
TOTAL MILK	+17.1[b]	-4.4	-1.3
WHOLE UNFLAVORED	+22.0[c] +10.4%[c]	+10.0[c] +5.2%[c]	+6.9[c] +2.8%[c]
FLAVORED	+3.6 -4.9%[c]	-3.4 -0.1%	-4.4 -1.2%
UNFLAVORED (1%, SKIM)	-9.4[c] -5.5%[c]	-10.7[a] -5.2%[a]	-3.7 -1.6%

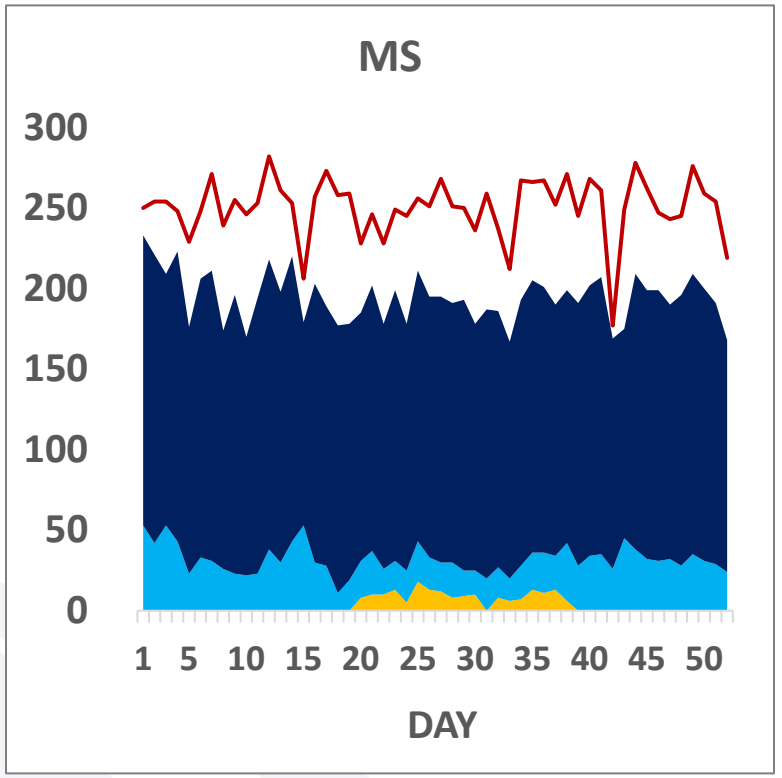
[a] $p<0.05$ [b] $p<0.01$ [c] $p<0.001$

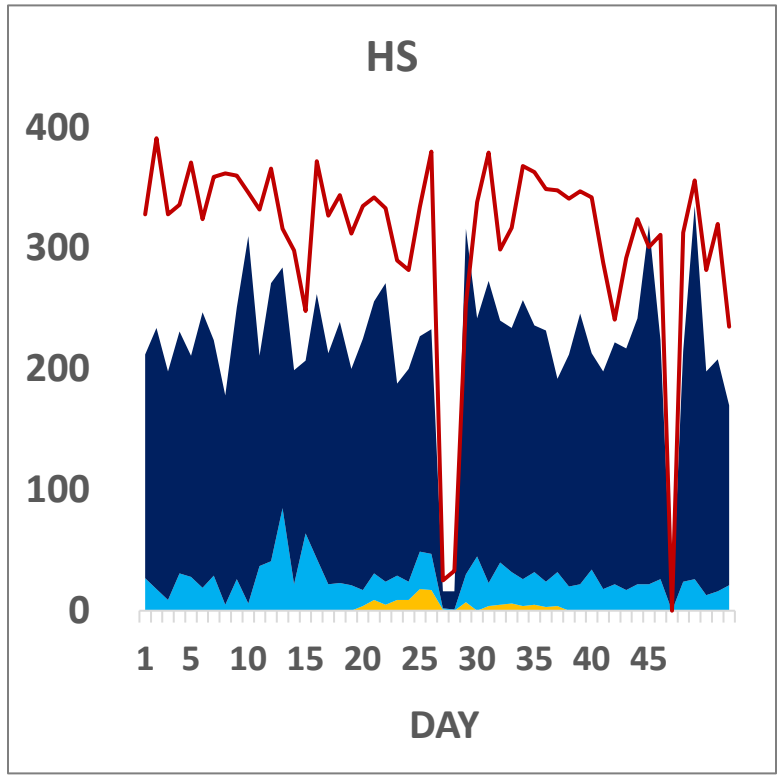
Note: Results are per school, per day cartons and % of total milk volume averages.

Jefferson County results (cont.)

AVERAGE MILK CARTONS SELECTED IN INTERVENTION SCHOOLS





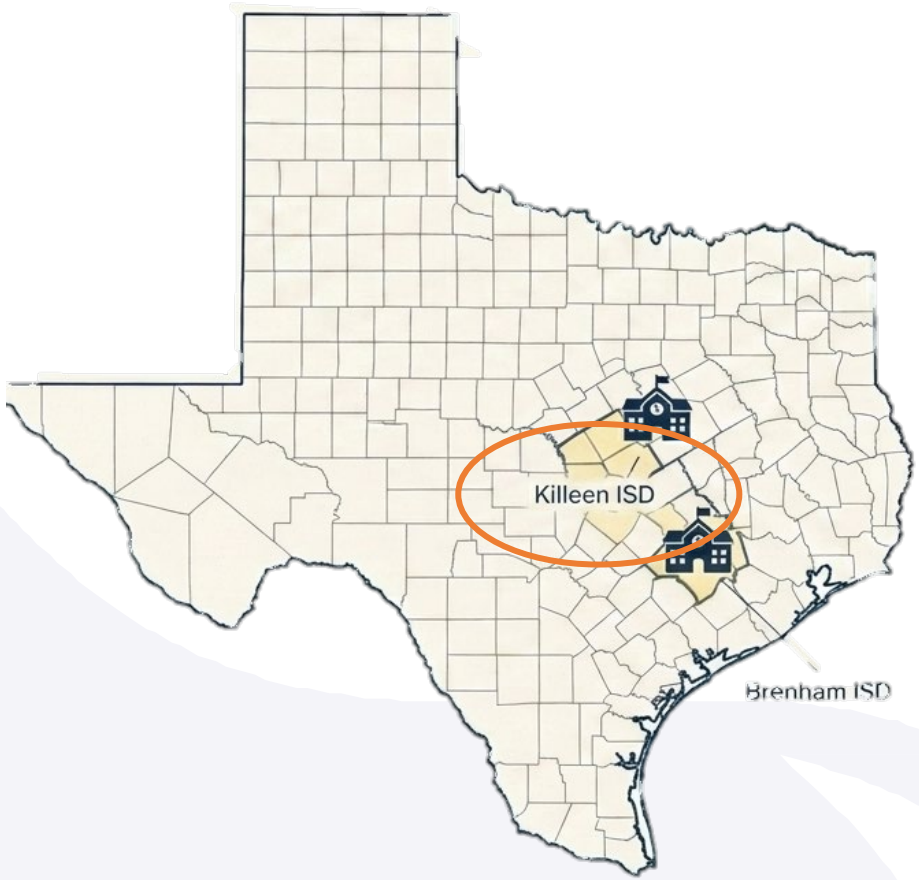


Lunches | Flavored | 1%/skim unflavored | Whole unflavored

Killeen ISD, TX

Individual District Findings

About Killeen ISD, TX



- One of the largest school districts in Central Texas, serving **40,000+ students** across **50 schools**
- **Highly diverse** student population, with more than 80% minority enrollment
- Majority of students classified as **economically disadvantaged**
- Strong military-connected student population due to proximity to Fort Cavazos
- Represents **a large, diverse, urban-suburban district**
- Produced the pilot's **most unique findings,** with many students switching from flavored milk to whole milk rather than from lower-fat unflavored milk options

Sources: Texas Tribune Schools Explorer; U.S. News Education; https://www.killeenisd.org/

Killeen results

- No change in overall lunch volumes.
- Changes in overall milk selection varied by grade and were not statistically significant.
- Whole unflavored milk selection was moderate and sustained across all grades.
- Flavored milk selection dropped across all grades, but only reached statistical significance in high schools.
- Lower fat unflavored milk selection dropped across all grades, but only reached statistical significance in high schools.
- Results suggest that whole unflavored milk became a preferred option for many students, drawing selections away from both flavored and lower-fat unflavored milk.

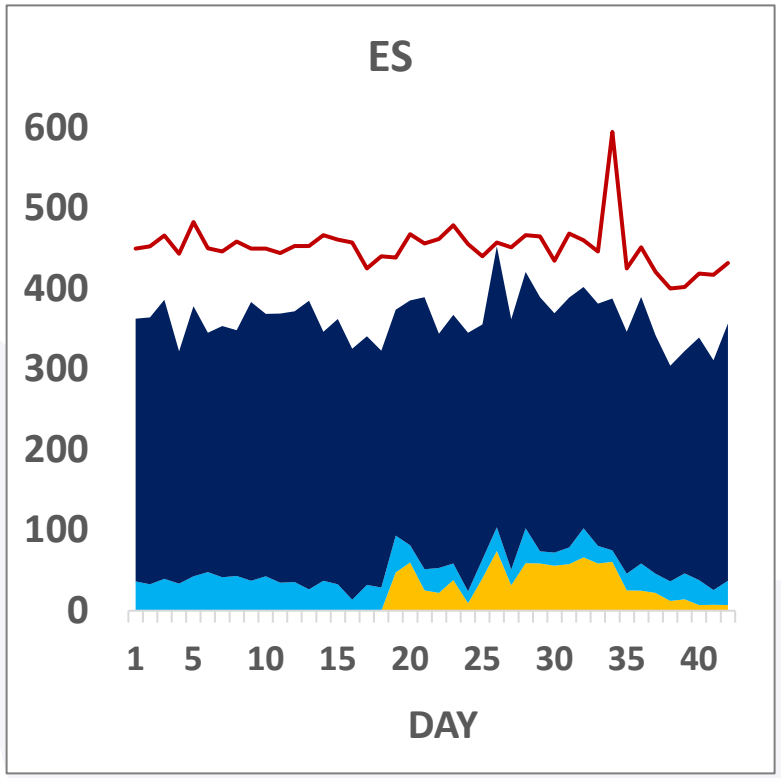
MILK TYPE	ES	MS	HS
TOTAL MILK	+19.8	-23.7	-9.2
WHOLE UNFLAVORED	+48.2[c] +12.0%[c]	+20.1[c] +5.6%[c]	+79.0[c] +14.4%[c]
FLAVORED	-19.2 -8.3%[c]	-38.3 -4.2%[a]	-66.3[a] -10.4%[c]
UNFLAVORED (1%, SKIM)	-10.4 -3.5%[b]	-4.5 -1.3%	-20.0[a] -4.0%

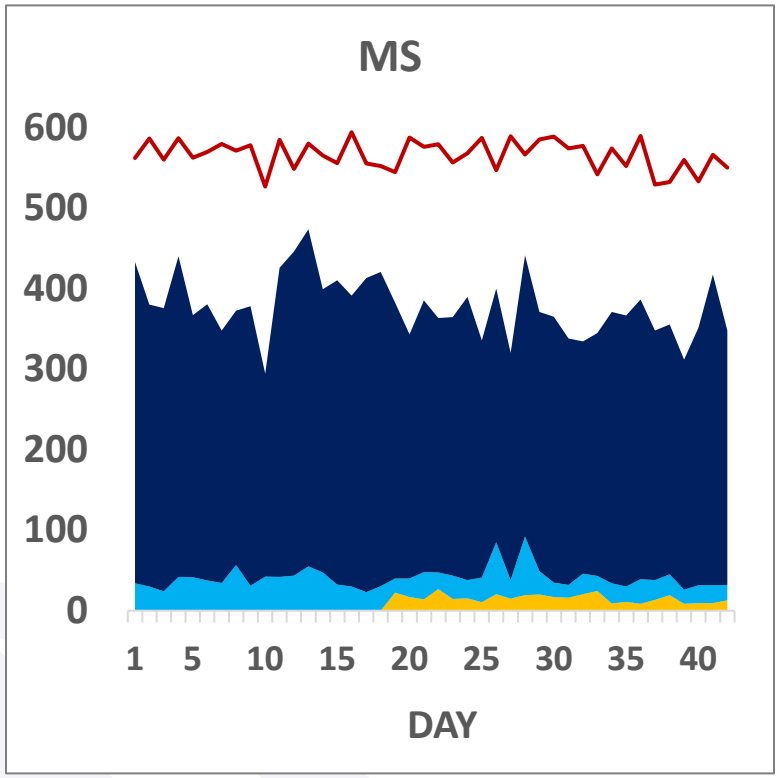
[a] p<0.05 [b] p<0.01 [c] p<0.001

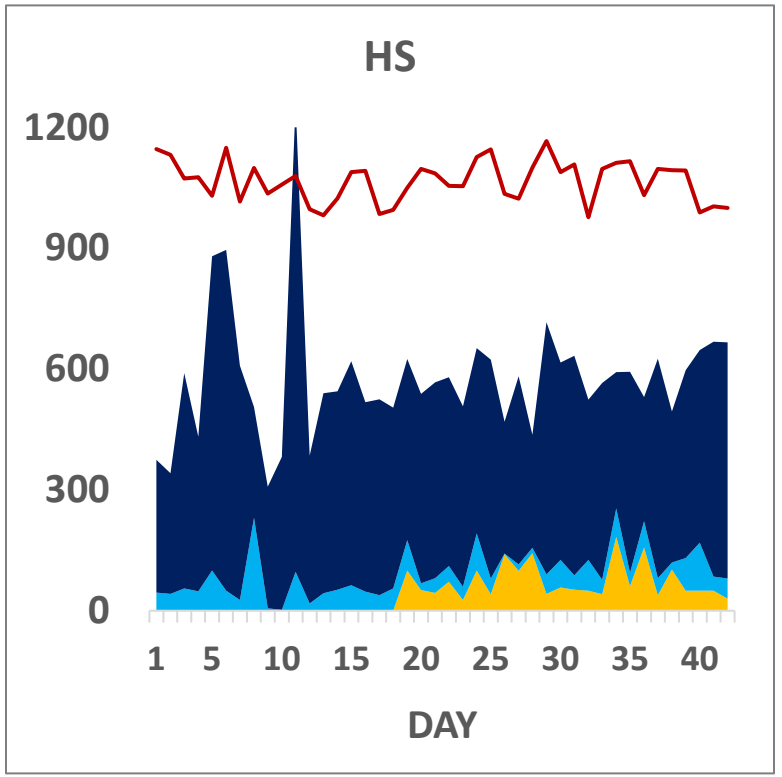
Note: Results are per school, per day cartons and % of total milk volume averages.

Killeen results (cont.)

AVERAGE MILK CARTONS SELECTED IN INTERVENTION SCHOOLS







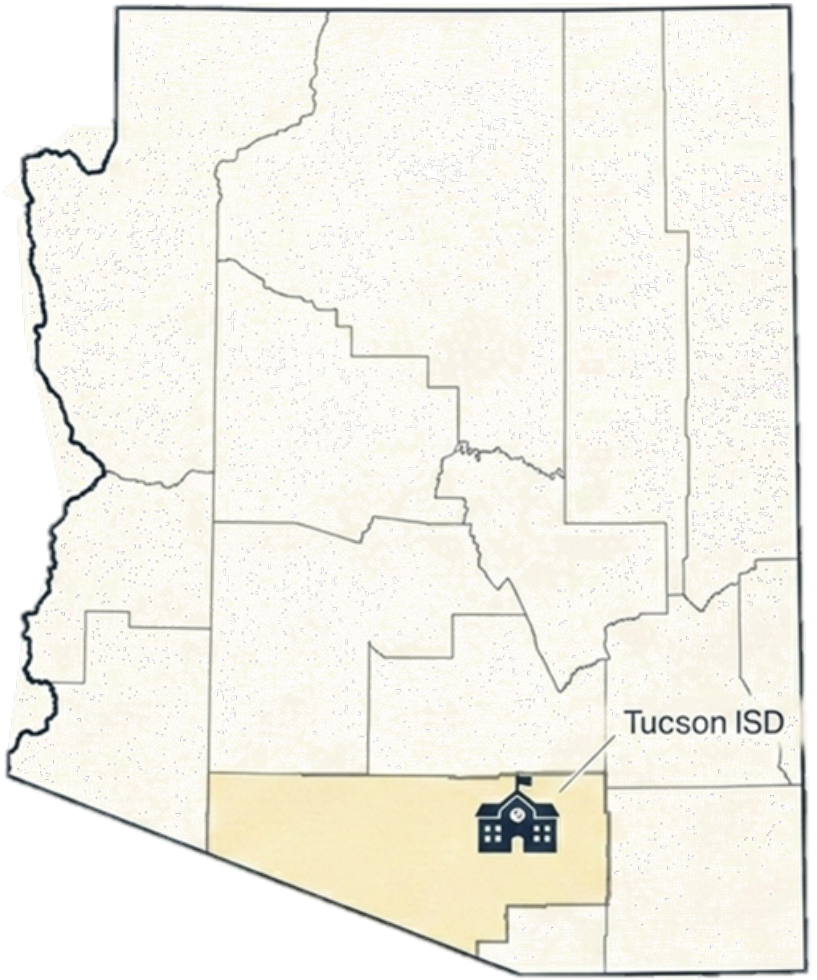
Lunches
Flavored
1%/skim unflavored
Whole unflavored

Tucson Unified Schools, AZ

Individual District Findings

About Tucson Unified School District

- One of Arizona's largest school districts
- Enrollment: **~41,500 students**
- Approximately **90 schools**
- **65%+ Hispanic** enrollment
- **82% minority** enrollment
- High levels of free/reduced-price meal eligibility
- Represents a large Southwestern urban district
- Provided insight into student acceptance of 2% milk and highlighted how expanded milk options may align with household consumption patterns and cultural preferences.



Sources: AZ School Report Cards; U.S. News Education

Tucson results

- No change in overall lunch volumes.
- Changes in overall milk selection were slight and varied by grade.
- Whole unflavored milk selection was moderate across all grades, with a small, but statistically significant novelty effect observed in elementary and middle schools.
- Flavored milk selection remained stable across all grades.
- Lower fat unflavored milk selection dropped slightly in elementary schools.

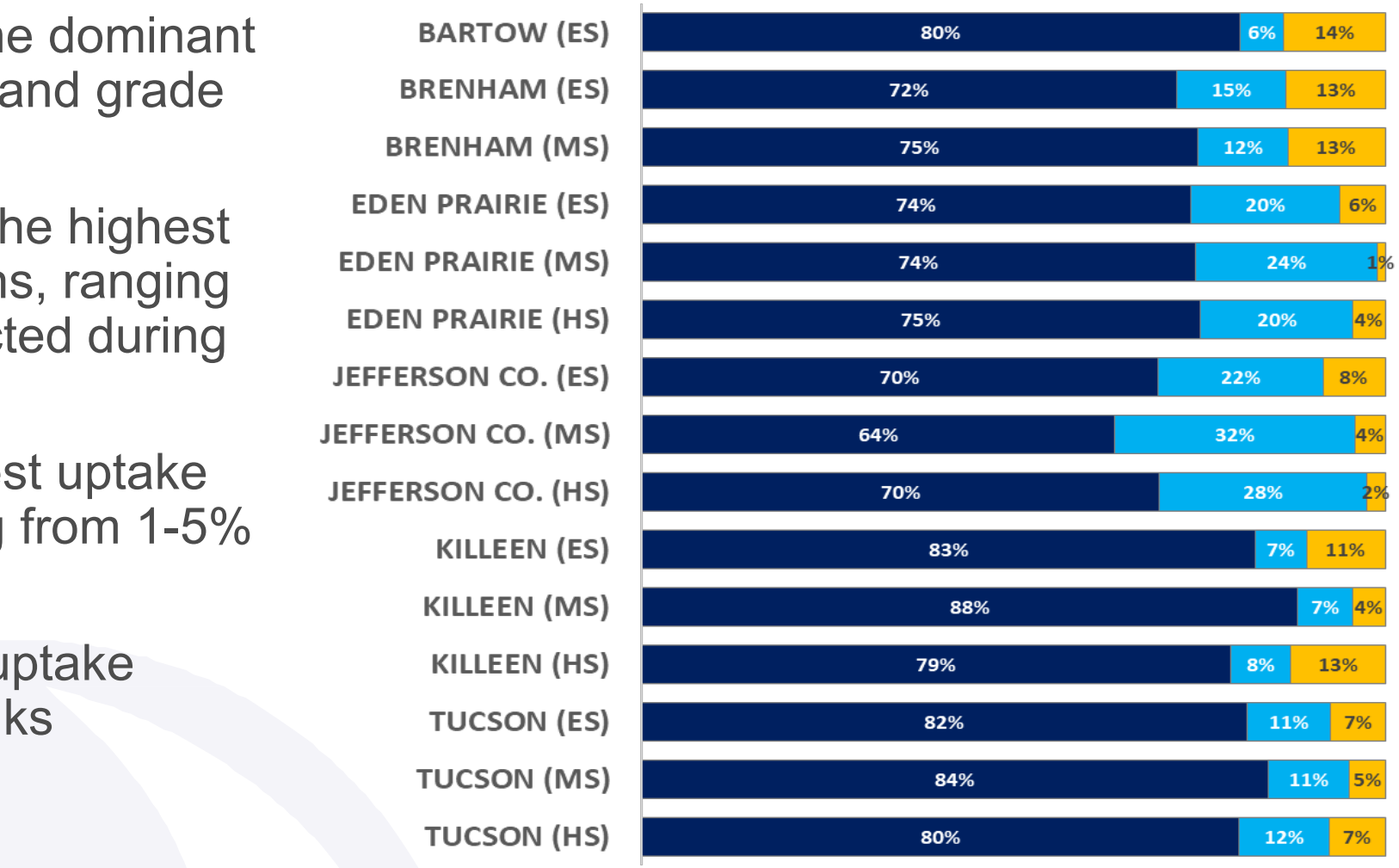
MILK TYPE	ES	MS	HS
TOTAL MILK	+9.25[b]	+1.2	+3.4
2% UNFLAVORED	+16.8[c] +8.8%[c]	+7.1[c] +6.5%[c]	+8.6[c] +5.4%[c]
FLAVORED	-1.2 -4.4%[b]	-4.3 +4.1%	-12.3 -2.9%
UNFLAVORED (1%, SKIM)	-6.7[a] -4.1%[b]	-1.8 -10.1%[b]	+6.1 -2.1%

[a] p<0.05 [b] p<0.01 [c] p<0.001

Note: Results are per school, per day cartons and % of total milk volume averages.

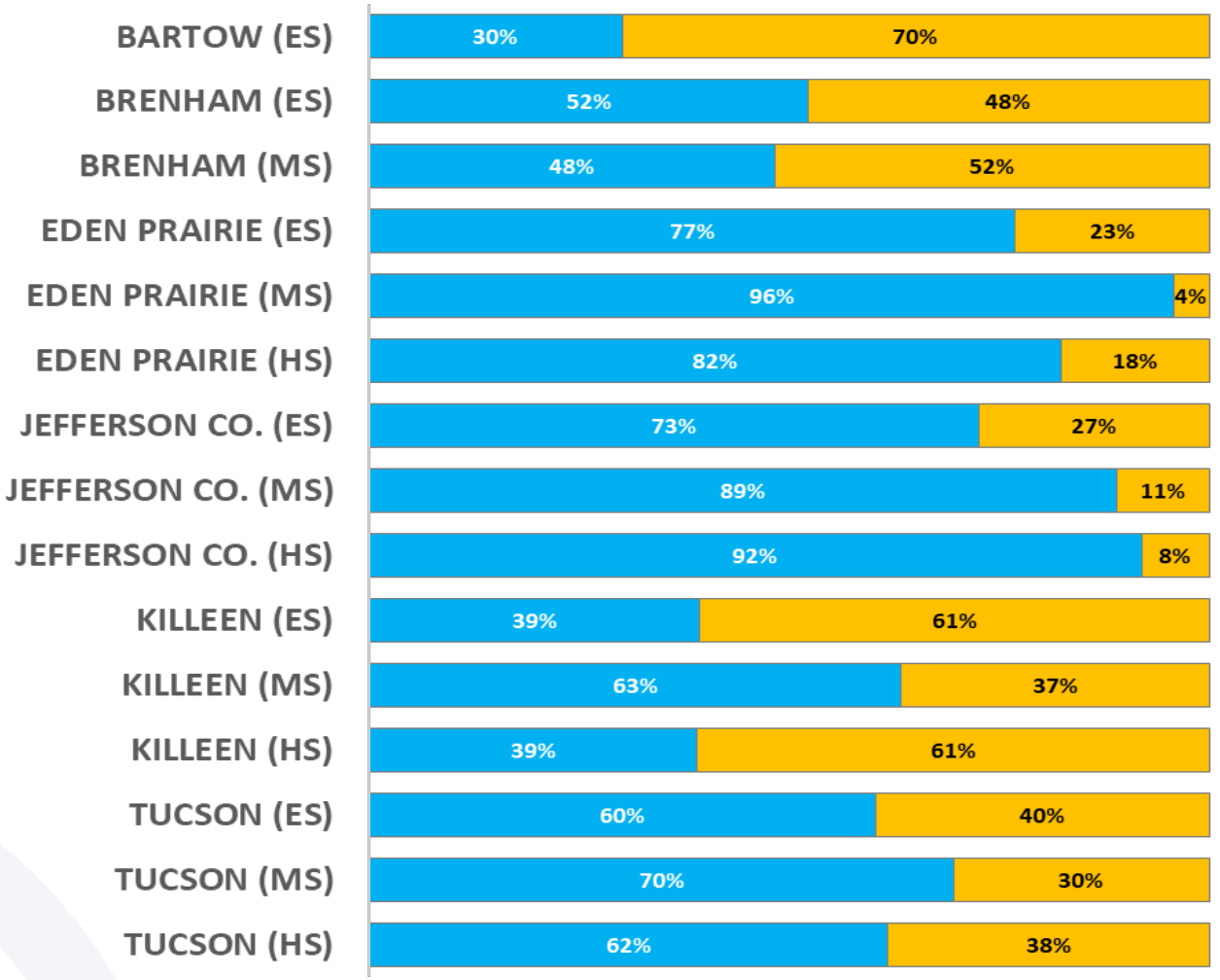
Pilot-period milk SKU preferences by district and grade

- Flavored milk remained the dominant choice across all districts and grade levels during the pilot.
- Elementary schools saw the highest uptake of higher fat options, ranging from 6-14% of milks selected during the pilot period.
- Middle schools saw modest uptake with most districts ranging from 1-5% of milks selected.
- High schools saw varied uptake ranging from 2-13% of milks selected.



Higher-fat options captured a significant share of unflavored milk

- Higher fat options captured a significant share of unflavored milk selections in most districts.
- Elementary schools saw the highest uptake, ranging from 23-70% of unflavored milks selected during the pilot period.
- Middle schools saw varied uptake ranging from 4-52% of unflavored milks selected.
- High schools saw varied uptake ranging from 8-61% of unflavored milks selected.



Verbatims:

- **On student adoption**: "High school athletes were early adopters seeking additional calories.“ – *Eden Prairie, MN*
- **On operational ease**: "The pilot process was straightforward and easier than expected.“ – *Bartow, GA*
- **On future viability:** Whole milk was viewed as "more nutritionally sound and fiscally responsible.” – *Killeen, TX*
- **On consumer behavior:** “ Students initially mistook the whole milk for a new flavored variety.” - *Multiple District Observation*
- **On maintaining flavored milk demand:** "Students demonstrated a clear preference for chocolate milk over whole milk.“ *Bartow County, GA*
- **On Familiarity:** “Students want to drink the same thing they drink at home and they are drinking higher fat at home.” *Tucson, AZ*

Appendix

About Northbound Ventures, LLC

Northbound Ventures Consulting, LLC, founded in 2013 and based in Montpelier, Vermont, supports strategic initiatives focused on food systems, population health, and community economic development. The firm works with institutions, governments, and nonprofit organizations to design and implement solutions that improve health outcomes and expand economic opportunity, particularly in underserved communities.

Core services include strategic planning, stakeholder engagement, research design, data analysis, and impact evaluation. Northbound Ventures also supports market analysis, feasibility studies, and program development to inform decision-making and advance system-level change.

Scott Richardson, PhD, MBA, co-founder and partner, leads work in research design, data analysis, and strategic modeling. His background includes leadership roles with Project Bread and advisory work with Boston Public Schools Food & Nutrition Services. His work focuses on leveraging data to improve access to healthy food, with contributions to national and regional food system research and modeling initiatives.

Scott holds a PhD in Population Health Sciences from Harvard University's T.H. Chan School of Public Health, an MBA from Babson College, a Professional Certificate in Sustainable Food Systems Leadership from the University of Vermont, and a BA from Rutgers University.