UNDERSTANDING CONSUMER SHIFTS FROM ANIMAL-BASED TO PLANT-BASED FOODS IN THE RETAIL ENVIRONMENT

PLANT-BASED FOODS MIGRATION ANALYSIS AND CONSUMER RESEARCH REPORT

NOVEMBER 2022

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PLANT BASED FOODS INSTITUTE

Kroger

84.51°

OVERVIEW

Recent years have seen a dramatic increase in plant-based sales, with the total U.S. market growing from $4.8 billion in 2018 to $7.4 billion in 2021.[1]

Plant-based food companies are on the cutting edge of this growing demand, creating innovative, delicious food for all occasions, and thanks to forward-thinking retailers who are adjusting their strategies to provide consumers with the foods they want, together, the industry is firmly establishing a foundation for continued growth.

Plant-Based Sales

$4.8
BILLION in 2018
to
$7.4
BILLION in 2021

While the sales growth of plant-based foods is well documented, the purpose of this research is to answer the question: Are plant-based consumers indeed purchasing fewer animal-based foods as their engagement with plant-based foods in retail increases?

To answer this question, leading U.S. retailer **Kroger** collaborated with the **Plant Based Foods Institute (PBFI)**, sister non-profit to the Plant Based Foods Association, to conduct a broad, two-part research study to understand plant-based shopper behavior and sentiment, leveraging **84.51°** data science and insights expertise. The Plant-Based Foods Migration Analysis, part one of the research, measured how plant-based customers changed their spending in animal-based and plant-based foods across five categories – milk, refrigerated and frozen meats, frozen meals, cheese, and yogurt, and reveals plant-based consumer shifts in engagement within each grocery segment. The comprehensive research evaluated purchases by nearly **eight million households** over two years and categorized shoppers into five segments, ranging from shoppers new to the plant-based category to shoppers leaving the category. These segments are: **New, Increasing, Maintaining, Decreasing,** and **Leaving** plant-based foods.

Part two, a comprehensive Plant-Based Foods Survey, explored plant-based consumer motivations for these shifts.

This collaboration between PBFI, Kroger, and 84.51° demonstrates unprecedented commitment from industry leaders to inform long-term strategy, predicated on listening to their customers. Ultimately, the results of the research will help the industry determine the appropriate amount of shelf space to dedicate to plant-based foods to meet the needs of customers in terms of assortment and findability.

[1] SPINS "plant-based positioned" product attribute, customized by PBFA and GFI to include private label and custom categories, 52-weeks ending December 26, 2021, from the SPINS Natural Enhanced and Conventional Multi Outlet (powered by IRI) grocery channels.

KEY TAKEAWAYS

A key finding of the research from Year Two of the analysis (2021) demonstrated that almost all households that engaged with the plant-based product groups (except for households new to plant-based foods) decreased their overall animal-based product group spend. This trend in context of the overall study illustrates **growing consumer commitment to plant-based foods**, as well as the opportunity for retailers to understand which plant-based categories serve as entry points. Additionally, Kroger gained net new plant-based households in 2020 and continued to grow net new households in 2021, demonstrating continued momentum during pandemic shopping and beyond. It is also worth noting that 20% of plant-based shoppers were new to the category.

Looking at the Plant-Based Shopper Survey, not only did Plant-Based Increasers indicate they were actively purchasing plant-based foods in place of their animal-based counterparts, but they listed interest in health and convenience as their top motivation for doing so. *

This research serves as the benchmark study that will be conducted each year to evaluate consumer interactions with plant-based foods and animal-based foods to better understand the shifts between them.

**Note that this is reflective of surveyed plant-based consumer beliefs/motivations.*

PLANT-BASED FOODS MIGRATION ANALYSIS

METHODOLOGY

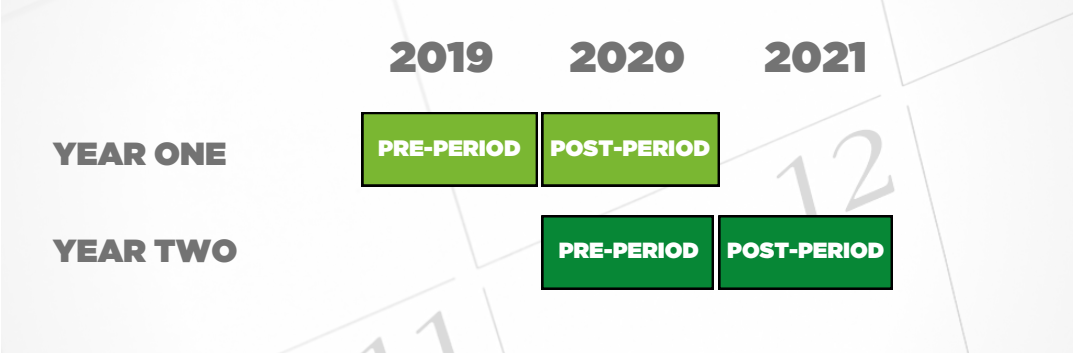
The goal of this research is to see how plant-based consumer households change their behavior over time for each target product and shopper group.

1. Key metrics include **dollar and unit sales** for the pre-period and the post-period for each household.
2. **Migration Segments:** Classify each household from each Target Group into a Migration Segment by comparing spend in the post-period to the spend in the pre-period.

MIGRATION SEGMENTS

NEW	Households with **$0** spend in the pre-period and **>$0** spend in the post-period
INCREASER	Households with **higher** standardized spend (by at least 10%) in the post-period compared to the pre-period
MAINTAINER	Households with standardized spend in the post-period **within 10%** of their standardized spend in the pre-period
DECREASER	Households with **lower** standardized spend (by at least 10%) in the post-period compared to the pre-period
LEAVER	Households with **>$0** spend in the pre-period and **$0** spend in the post-period

DATES OF ANALYSES



GEOGRAPHY/STORE COVERAGE

TOTAL KROGER UNIVERSE

Households: All households on the 104-week Continuous Panel as of the respective post-period end date.

YEAR ONE	~ 7.65M households
YEAR TWO	~ 7.78M households

PRODUCT TARGET GROUPS

Plant-Based Target Groups	Comparative Animal-Based Product Groups
Plant-Based Refrigerated Meat	Animal-Based Refrigerated Meat
Plant-Based Frozen Meat	Animal-Based Frozen Meat
Plant-Based Milk	Animal-Based Milk
Plant-Based Yogurt	Animal-Based Yogurt
Plant-Based Cheese	Animal-Based Cheese
Plant-Based Frozen Meals	Animal-Based Frozen Meals
ALL PLANT-BASED	**ALL ANIMAL-BASED**
	ALL PLANT-BASED*

** "All Plant-Based" group served as both a target group and product group. This was done to understand migration patterns from all plant-based foods as a whole, while also providing insights on how migration patterns from individual plant-based target groups impacted engagement with all plant-based products.*

PLANT-BASED MIGRATION ANALYSIS DYNAMICS: YEAR ONE

In 2020, new households entered key plant-based categories.

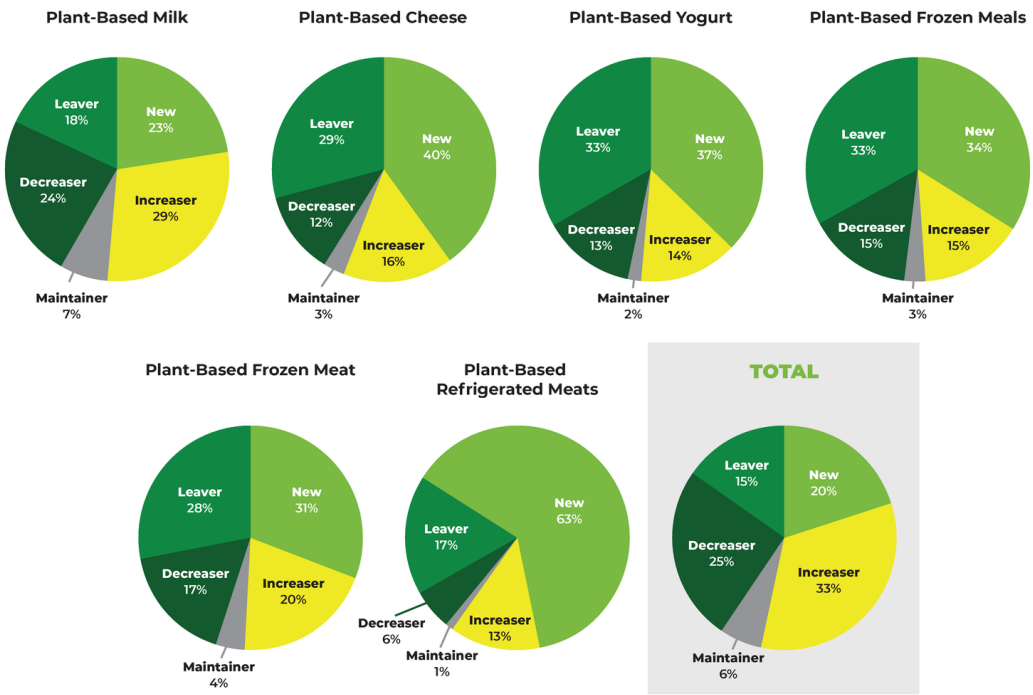
During Year One, the influence of COVID "pantry loading" was evident in consumer buying patterns. Households that were increasing or decreasing their spend in plant-based categories also increased their spend in animal-based categories.

In Year One, we observed new households **trying different categories** of plant-based foods. Plant-based meat had the largest portion of New households in 2020, with 63% of households classified as New. Plant-based cheese was the second highest with 40% of households classified as New.

Growth in plant-based New and Increaser households from 2019-2020 translated to **sales growth across plant-based categories**. Most categories witnessed double-digit percent growth, with plant-based refrigerated meat seeing increases of over 200%.

All Plant-Based Categories Experienced an Influx of New Households in 2020

In addition to the shopper segment dynamics shown here, plant-based food sales increased in 2020, led by refrigerated meat at +205%.

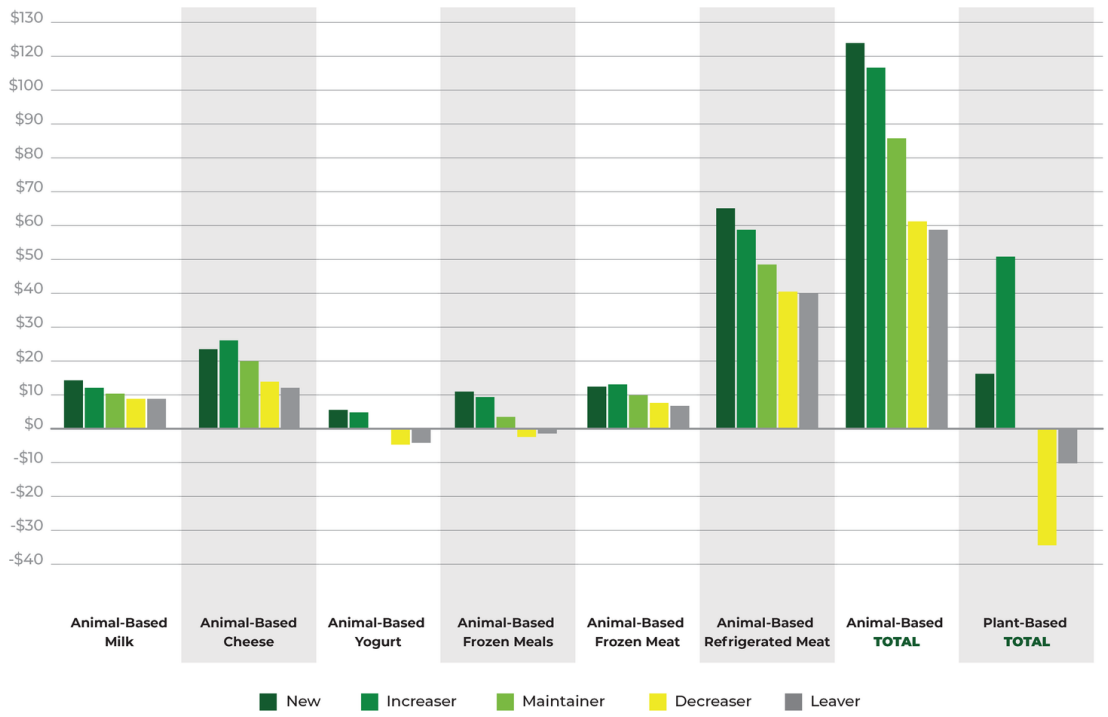


Source: Plant Based Migration Analysis, 84.51° Insights, Kroger Shopper Data, 2020

Figure 1

In 2020, households that increased or decreased spend in plant-based categories also increased spend in animal-based categories

Average change in spend per household per product group and migration segment



Source: Plant Based Migration Analysis, 84.51° Insights, Kroger Shopper Data, 2020

Figure 2

Despite the overall increase in animal-based foods, **plant-based food categories saw an increase in new households**. This can be attributed in part to the desire to try new products and other key themes demonstrated by shoppers engaging with plant-based foods due to the influence of the pandemic. While Year One saw households increasing spend in both plant-based and animal-based product categories concurrently, as is shown in the pages that follow, Year Two saw a reversal of this trend, with animal-based engagement for plant-based consumers remaining stagnant or dropping and plant-based engagement continuing to increase.

PLANT-BASED MIGRATION ANALYSIS DYNAMICS: YEAR TWO

In 2021, plant-based momentum grew with a steady flow of new households.

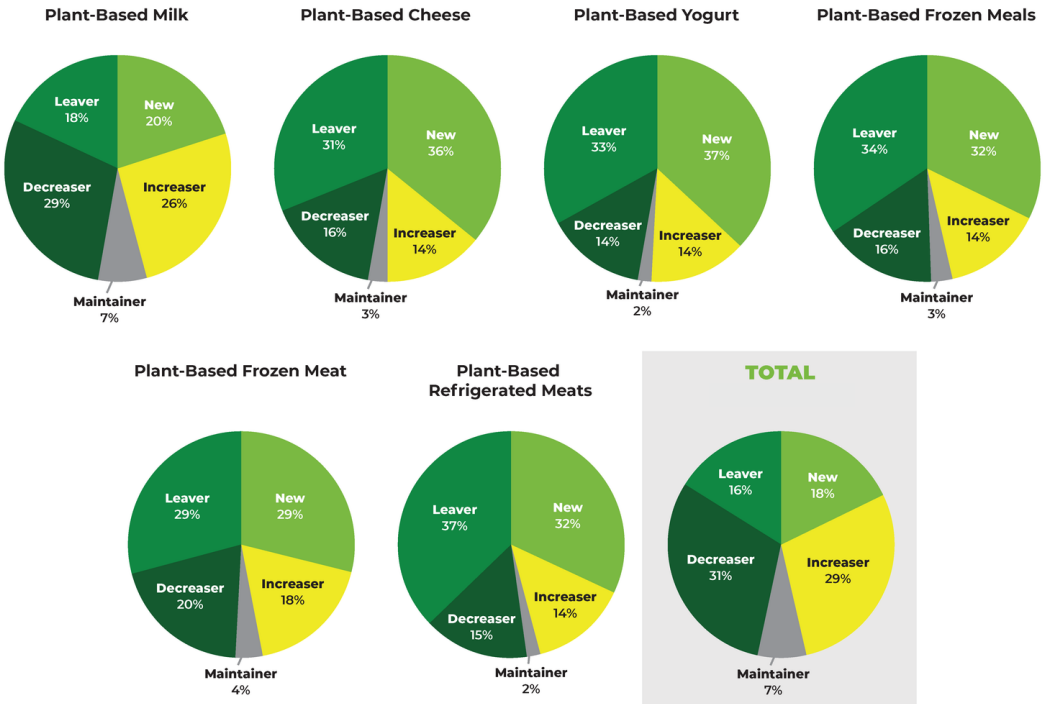
As the COVID purchasing noise began to slow down in 2021, a few key trends in plant-based category engagement emerged. Coming off a year with many new households across each plant-based category, New households continued to grow in 2021 and made up 18% of the migration segment across the total plant-based categories. This progression demonstrates that there is **continued interest in plant-based categories** building on the COVID bump from the year prior.

Following a year of record sales growth, a slowdown in category sales was expected; however, a majority of plant-based categories continued to grow. Most significantly, plant-based yogurt saw the largest sales increase of the plant-based categories with 13.5% growth; in addition, 37% of households were from the New segment. These numbers suggest there were successful new items and/or innovations in this space that brought new households in and notably, increased sales.

In both 2020 and 2021, Increasers of plant-based cheese spent the most on plant-based foods in total compared to all other product groups by $66.97, with other categories seeing a change in spend ranging from $30-60, suggesting that these households are the most loyal and engaged in plant-based overall out of all the target groups. According to 84.51°, once you get households into plant-based cheese, you can assume that this group will be more loyal to and engaged with plant-based foods overall.

Increase in New Households Continued Across Categories in 2021

In addition to the shopper segment dynamics shown here, plant-based food sales continued to increase in 2021, led by plant-based yogurt at +13.5%.



Source: Plant Based Migration Analysis, 84.51° Insights, Kroger Shopper Data, 2021

Figure 3

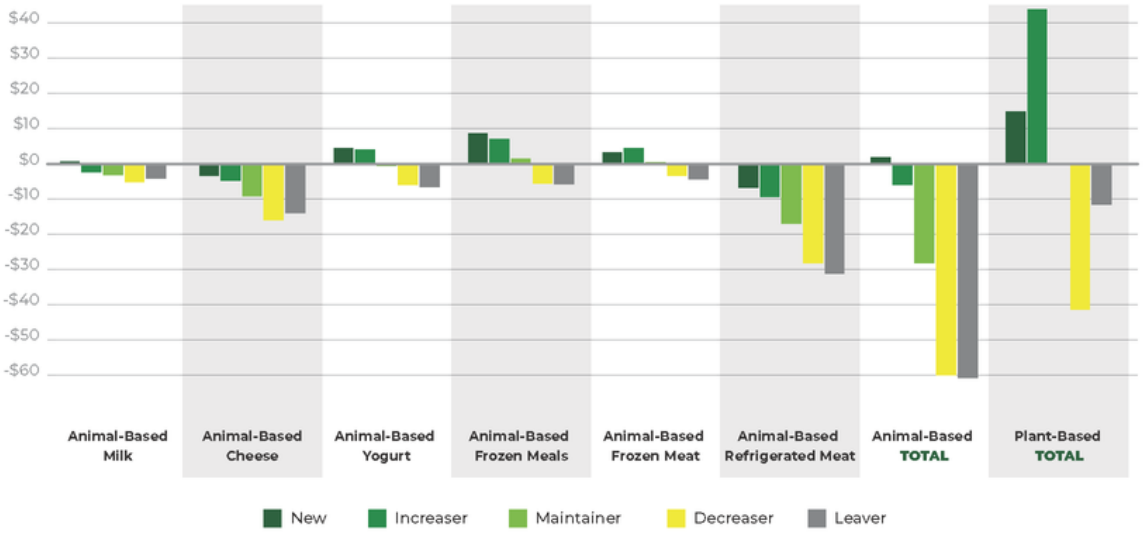
Households that increased plant-based spend ultimately lowered animal-based spend overall.

By category, **households that engaged with plant-based foods were found to decrease their spend by the highest amount in the animal-based meat product group**, with a change in spend decreasing by an average of $31 year over year.

The average household that maintained their total plant-based spend, decreased their total animal-based spend by an average of $28.21.

For Plant-Based Households, Animal-Based Engagement Either Decreased or Remained Consistent in 2021

Average change in spend per household per product group and migration segment



Source: Plant Based Migration Analysis, 84.51° Insights, 2021

Figure 4

According to 84.51° analysts, this suggests that **plant-based households continue to substitute more animal-based products with their plant-based alternatives**.

Even among consumers who lowered their spend with plant-based categories (Plant-Based Decreaser Households), their spend per household in animal-based foods decreased by a more significant degree, $60.48, than their decrease in plant-based spend, $41.71.

PLANT-BASED MIGRATION SUMMARY

SHIFTS IN DOLLAR SPEND FROM ANIMAL-BASED TO PLANT-BASED

- For plant-based households, animal-based engagement either decreased or remained nearly consistent from 2020-2021.
- The average household that maintained its total plant-based spend, decreased its total animal-based spend by $28.21 on average.
- Among all households, plant-based sales increased 24.1% in 2020, followed by continued growth of 1.5% in 2021.

PLANT-BASED CATEGORY STANDOUTS

Consumers who increased their plant-based cheese purchases also increased their engagement with plant-based foods the most each year and were less engaged with animal-based foods.

Plant-based refrigerated meat and plant-based milk accrued the most net new households in Year One and Year Two, respectively.

Plant-based yogurt experienced a higher increase in net new households in Year Two than in the COVID time period of Year One.

CONSUMER PROFILE INSIGHTS

Compared to total plant-based households, new plant-based households:

- **Over-index in high convenience (138) and under index in low convenience (67).**
- **Over-index in low health (164) and under-index in high health (61) according to consumer belief.**
- **Over-index in High Price Dimension/Sensitivity (121) and under-index in Low Price Dimension/Sensitivity (79).**

The research shows that perceived convenience and health benefits attract new households to plant-based categories. These households new to the category are also more price-sensitive compared to total plant-based households.

This presents a potential opportunity for the plant-based frozen food category to capitalize on the desire for convenience coming from new plant-based households. From a brand perspective, this also demonstrates potential promotional opportunities across all plant-based product groups that target new households and reward them for increased plant-based consumption, effectively helping to shepherd and build engagement with plant-based while also increasing shopper loyalty.

PLANT-BASED FOODS SHOPPER SURVEY

METHODOLOGY

In addition to the migration analysis, PBFI, Kroger, and 84.51° conducted **consumer research surveys** for households in the **"Plant-Based Engager Segment."** The goal of these was to understand shopper attitudes and sentiments among the sub-segments of plant-based Increaser and Decreaser household segments to better anticipate future trends for the plant-based category.

The qualitative survey was executed online using the 84.51° Consumer Research Real-Time Insights. A sample of 150 behaviorally-targeted Kroger shoppers for each of two targets were surveyed.

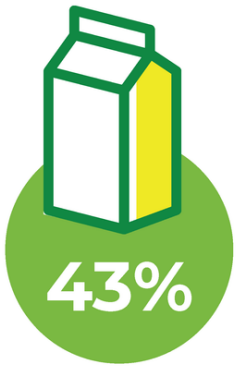
- **Increaser Segment (or Households)**: The first target included behaviorally-validated Kroger customers who were **increasing** their plant-based spend by more than **10%** versus the prior year.

- **Decreaser Segment (or Households)**: The second target included behaviorally-validated Kroger customers who were **decreasing** their plant-based spend by more than **10%** versus the prior year.

UNDERSTANDING PLANT-BASED SHOPPER MOTIVATIONS

The primary finding of the survey is that **plant-based households are indeed purchasing plant-based foods instead animal-based foods**, quantified below, and that 95% of the surveyed Plant-Based Engager segment state that they are **increasing or maintaining their plant-based consumption** compared to the year prior, showing intent to continue engaging with plant-based foods.

Among the group of Plant-Based Increasers:



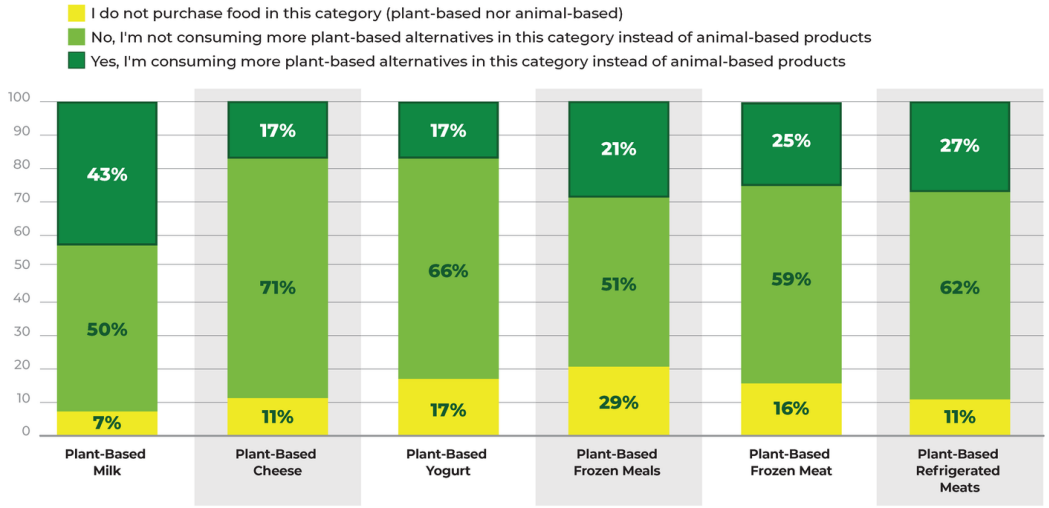
report they are choosing plant-based milk instead of animal-based milk.

are choosing refrigerated plant-based meat and frozen meals instead of animal-based in the same categories.

are choosing plant-based cheese and yogurt instead of animal-based in the same categories.

Consumer Research of Migration Segments Revealed Plant-Based Increaser Households are Choosing Plant-Based Foods Instead of Animal-Based Foods

43 percent of Increaser households are purchasing plant-based milk instead of animal-based milk, while nearly 30% are choosing plant-based meat and nearly 20% plant-based cheese and yogurt instead of their animal-based counterparts.



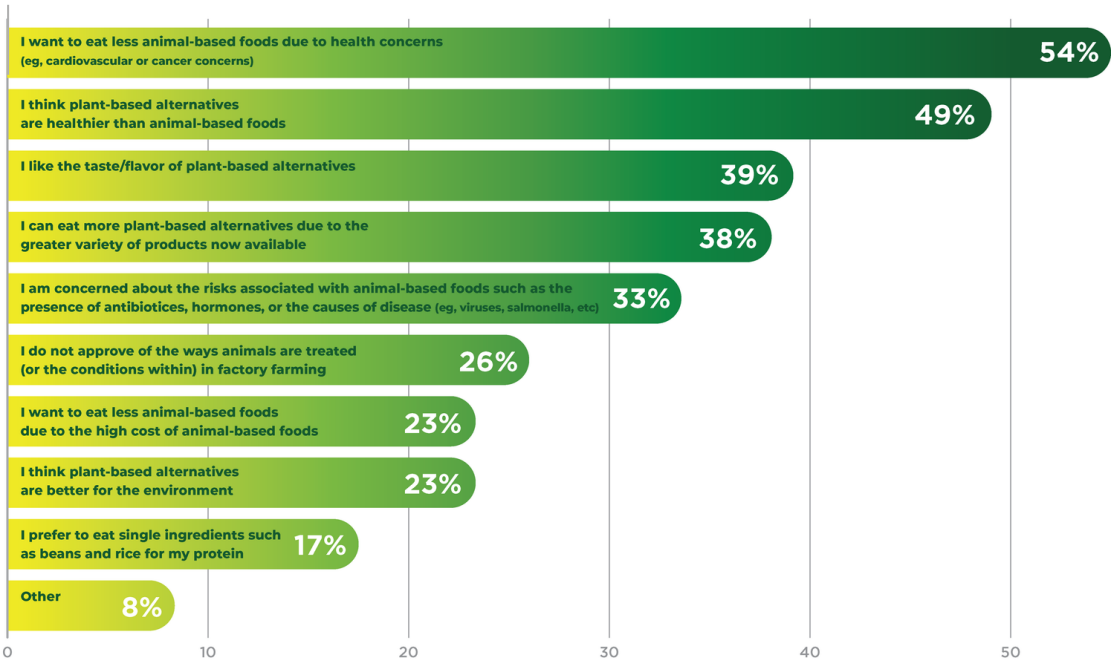
Source: Real Time Insights Custom Survey 5, 84.51° Insights, 2022

Figure 5

Surveyed Plant-Based Increaser households attribute health as the leading reason why they are increasing their plant-based consumption, with 54% citing **personal health concerns** (such as cardiovascular or cancer concerns) and 49% stating they believe **plant-based alternatives are healthier** than animal-based foods.*

**Note that this is reflective of surveyed plant-based consumer beliefs/motivations.*

Reasons Why Shoppers are Decreasing Animal-Based Food Consumption In Favor of Plant-Based Foods



Source: Real Time Insights Custom Survey 5, 84.51° Insights, 2022

Figure 6

Among Plant-Based Decreasers that were asked what would make them more likely to consume plant-based, 64% say **lower pricing** and/or **more frequent sales and coupons**, and 58% say **better taste and/or texture**.

Plant-Based Increasers

Leading reason why households are increasing their plant-based consumption

54%
cite personal health reasons

49%
believe plant-based foods are healthier

Plant-Based Decreasers

What would make households more likely to consume plant-based?

64%
say lower pricing and/or more frequent sales and coupons

58%
say better taste and/or texture

Plant-Based Increasers

How shopping could be made easier?

61%
say price promotions

29%
say recipes would be helpful

For Plant-Based Increasers, when asked how shopping could be made easier, 61% cited **price promotions** and 29% said that **recipes** would be helpful.

SUMMARY OF TOTAL FINDINGS

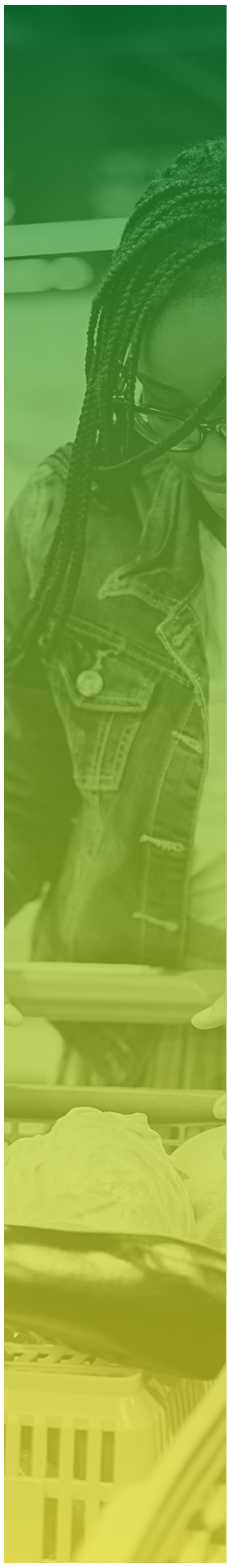
While the category is very dynamic overall, through this research we gained a deeper understanding of shopper buying behavior by quantifying the actual shifts in spend by household for multiple plant-based and animal-based categories. At the same time, we now understand at a granular level what motivates shoppers across all of these ten categories. There is no doubt we are seeing shifts between animal and plant-based households, and this migration analysis and consumer survey research delivered key insights into the multiple factors driving these shifts and illuminated the nuances of how various product categories behave differently.

- In 2021, plant-based shoppers generally decreased or maintained their level of spending on animal-based foods, which shows a reversal from year one (COVID timeframe) spending.
- 43% of Plant-Based Increaser customers chose plant-based milks instead of conventional dairy milk.
- 95% of plant-based consumers surveyed said they increased or maintained their plant-based spend versus the prior year.
- Customers who buy plant-based foods are motivated by personal health concerns (such as cardiovascular or cancer concerns) and 49% state they believe plant-based alternatives are healthier than animal-based foods.*

** Note that this is reflective of surveyed plant-based consumer beliefs/motivations.*

WHAT'S NEXT

Conducting this comprehensive research across multiple categories over an extended period of time illustrates Kroger's commitment to understanding shopping patterns through the analysis of both plant-based foods and animal-based foods. Given the dynamic nature of the plant-based foods industry and how rapidly it is evolving, the question of how best to merchandise plant-based foods becomes more challenging, requiring research to help the entire industry understand best practices and assess strategies for action. This research serves as the benchmark study that will be conducted periodically to evaluate consumer interactions with plant-based foods as a whole and animal-based foods to better understand the shifts between them.



CONTACT

Plant Based Foods Institute
4 Embarcadero Center, Suite 1400
San Francisco, California 94111
(415) 236-5048

www.pbfinstitute.org
info@plantbasedfoods.org
@pbfinstitute