# Package InSight

## What Eye-Tracking Tells Us About Pouches on Retail Shelves

Consumer Behavior Report
Daisy
July 13th, 2017

# Table of Contents

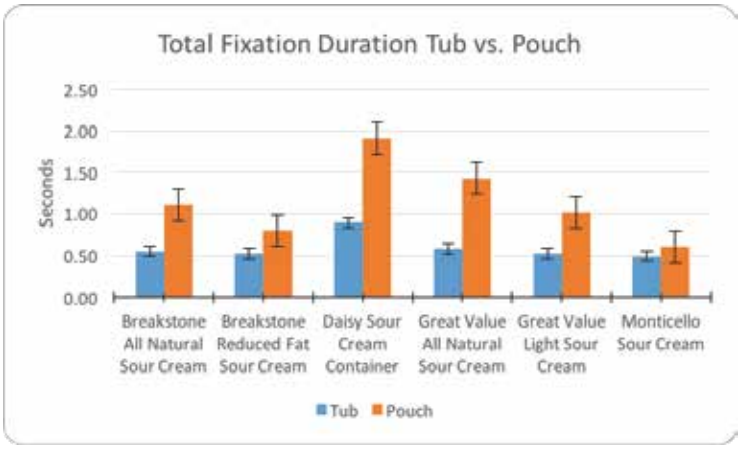


# Appendices

# Summary of Results

A consumer resarch project was conducted on Clemson University's campus in early July 2017 to test quantitative and qualitative aspects of the Daisy Sour Cream pouch variation on the shelf. The study was conducted within the in-context environment "CUshop" retail laboratory - where Daisy and locally competitive products were shelved inside backlit reach-in refrigeration. Approximately 60 participants shopped the competitive planograms; half way through the Daisy Sour Cream tub was swapped out for a pouch variation. Statistical differences in measured behavior (eye tracking at 50 times per second) were analyzed to see if the different package styles significantly impacted consumer time and attention.






## Key Findings:

Quantitative:

- Daisy Sour Cream pouch was purchased more readily than the tub as well as the entire complete array.
- Daisy Sour Cream pouch was not only looked at significantly longer (TFD) than the tub, but also significantly more times (FC) than the tub.
  - The pouch outperformed various brands within the competitive array for both the TFD and FC metrics.
- For the TTFF metric, the Daisy Sour Cream pouch was looked at quicker than the tub, though not significantly.
  - Daisy Sour Cream pouch performed the best within the competitive array for this metric and significantly outperformed its competitors.

Qualitative:

- Daisy Sour Cream pouch was reported to be purchased more readily than the tub by participants
  - Many participants preferred the pouch variation because of its ease of use, superior design, and squeezable nature.
- The pouch had the highest weighted average when compared to its competitors and was strongly preferred for its various attributes when compared to the tub variation.

## Conclusion:

- The Daisy Sour Cream pouch is not only proven to be friendly for the shelves and provide extreme brand differentiation in the category, but this study is the first of its kind to show quantitative and qualitative data to support the sales lift that this package has created and will continue to create.
- The sales data for this study demonstrates overwhelming preference towards the Daisy Sour Cream pouch as well as significantly increased attention compared to the tub and within the competitive array

# Research Overview

## Objective:

The objective of this study was to observe the shelf impact of the Daisy Sour Cream tub (A) compared to the Daisy Sour Cream pouch (B) that hit the market in 2015. All Daisy Sour Cream products were also tested within a competitive array to gauge the shelf presence of this brand compared to its competitors. Approximately 30 participants were tested for each variation with 100% being sour cream consumers.


Figure 1. Daisy Sour Cream tub design (A) and redesigned Daisy Sour Cream pouch (B)

# Methodology

## Participants:

60 participants (60% female, 40% male) participated in the study at CUshop™, located on Clemson University's campus. Participant ages ranged from 18 to over 65 with approximately 76% being between 18-44. They were mostly married (73%), and have two people in their household (38%). The majority of participants had Bachelor or Graduate degree or higher (76%). The vast majority of participants were employed earning a range of incomes

A full summary of the participants profile survey is available in Appendix A

## Planogram:

Package InSight collaborated with Daisy on the best approach to realistically present a typical sour cream planogram from local grocery stores. Various planograms from different grocery stores were used as a guideline to create the planogram to be used in CUshop™ (Figure 2). 30 participants shopped for the Daisy Sour Cream tub within the competitive array and 30 participants shopped for the Daisy Sour Cream pouch within the competitive array. The competitive array did not change between the two iterations, only the Daisy Sour Cream product changed. The two design options were not shown at the same time because it has been found that when a person sees multiple variations of the same piece, it alters their behavior. Participants look to see "what's changed" and this negatively impacts data. We have determined that, while showing products within a cluttered shelf, it is best practice for eye tracking studies that each person should see only the execution of the test brand (i.e. monadic study design).

Figure 2. CUshop™planograms- Daisy Sour Cream tub (A) competitive planogram (left) Daisy Sour Cream pouch (B) competitive planogram (right)
*Refer to these planogram pictures for Figures 3-7

## Package Design Purchase Decisions:

All packages on the retail shelves were assigned numbers. These numbers were written down by the participants simulating which products of each category they would 'purchase.' Participants were instructed to shop for sour cream along with a few other grocery items, to avoid making it evident which product was being tested. The shopping data was combined to show how the Daisy tub compared to the pouch and how Daisy as a brand compared to the competitive array (Figure 3).

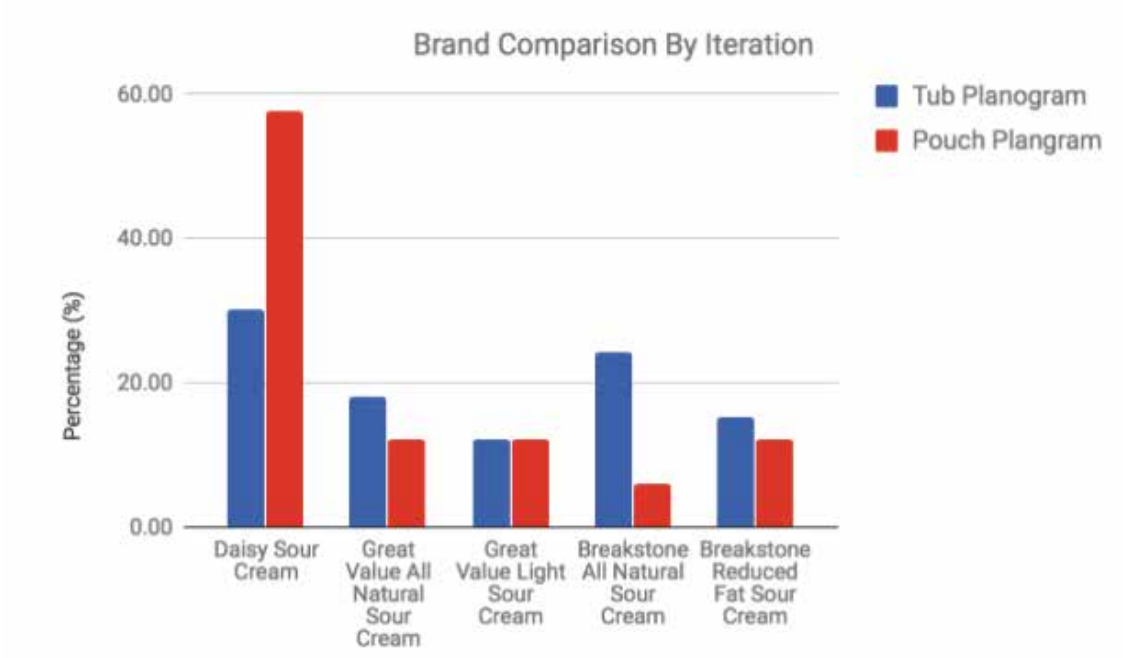



Figure 3. Purchase decisions for Daisy variations

## Key Findings:

**It is evident from this graph that participants purchased the Daisy Sour Cream in the pouch variation more readily than the tub. The pouch was purchased 27% more than the tub. Daisy Sour Cream as a brand performed the best within the the competitive array for both iterations. Especially for Iteration B, Daisy Sour Cream in a pouch performed staggeringly higher than every one of its competitors, especially Breakstone All Natural Sour Cream at a 51% increase in sales.**

# Research Overview

| Metric Name | Description | Data |
|---|---|---|
| Purchase Decision (PD) | How many participants chose to buy the item | Higher the better |
| Total Fixation Duration (TFD) | The time, in seconds, spent on avg by participants fixating on this item | The higher the number, the better the package performed |
| Time to First Fixation (TTFF) | The time, in seconds, from when a product first enters field of view until they fixate on it | The lower the number the better the package performed |
| Fixation Count (FC) | The total number of times a participant's scan of the planogram crossed into a particular area of interest | The metric needs to be reviewed in context as it can have multiple meanings, for example a decision making process |

To analyze these metrics, a variety of well-known statistical measures can be used. We briefly describe these here:

- Arithmetic mean – the arithmetic mean, also referred to as an average, is the central tendency of a collection of numbers, calculated by dividing the sum of the numbers by the size of the collection.

- Analysis of Variance (ANOVA) – ANOVA is a statistical test that reveals whether two or more means are equal. In particular, it measures the variance (how far samples vary from the arithmetic mean) when compartmentalized by different factors. ANOVA can tell us if a particular factor or variable caused a significant effect in the results or not.

- Pearson's product-moment correlation coefficient – The correlation coefficient, r, tells us how closely correlated two variables are. If two variables are correlated, this means that when one increases or decreases, so does the other. This coefficient ranges between -1 and 1. At 1, the variables are perfectly correlated, and at -1, they are perfectly negatively correlated. In general, if r is larger than 0.5, we have a good positive correlation, and if larger than 0.8, we have a strong positive correlation.

- Wilcoxon signed-rank test – is a non-parametric hypothesis test used in comparing two related or matched samples. It can be used alternatively to the student's t-tests and matched t-test when the population is determined not to be normal. With samples sizes of 30 commonly seen in our studies, it is acceptable to use both t-tests and Wilcoxon signed rank test to determine if sets of data are significantly different from each other. Significance is reported in the form of a p-value (see below).

- Welch's t-test – Welch's t-test is a variant of the student's t-tests used when samples have unequal variance. A t-test is a statistical test used to tell if two means are equal. This means that a t-test can tell us if two groups are statistically different or not.

- p-value – ANOVA and t-tests both result in something called a p-value. This is the probability that the results were obtained by chance. If we have a p-value less than 0.05 (5%), we can say that the results are statistically significant. This means that we can attribute the results solely to the experiment and not luck.

# Key Eye Tracking Metric Results:

## Total Fixation Duration (TFD)

This metric measures the sum of the duration for all fixations within an AOI (or within all AOIs belonging to an AOI group), thus the N value used to calculate descriptive statistics is based on the number of recordings. The comparison of the pouch and the tub within their respective competitive arrays and

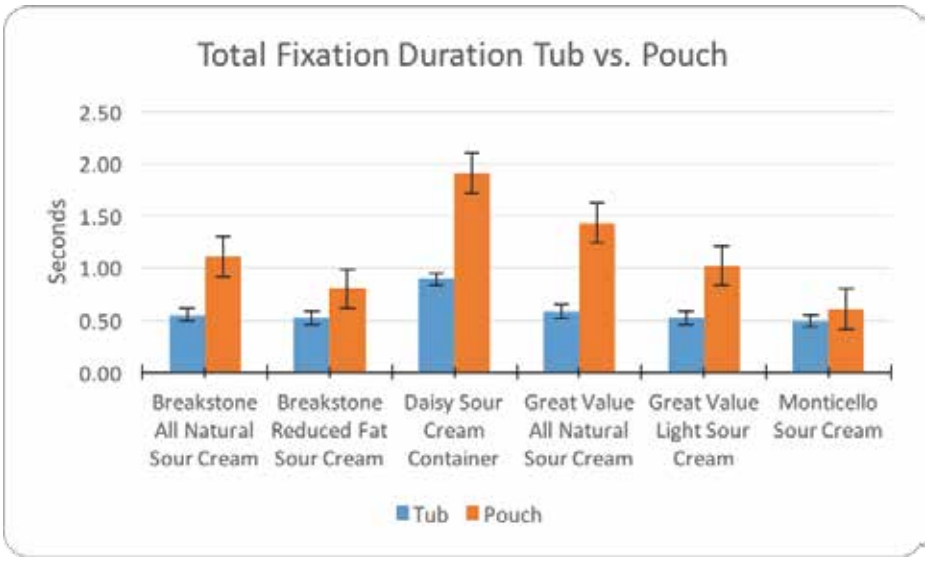



Figure 4. Total Fixation Duration (TFD) comparing to the pouch and tub

# Key Findings:

When investigating the TFD metric, it was found that the Daisy Sour Cream in a pouch was looked at significantly longer (p=0.0246) than the Daisy Sour Cream in the tub (Figure 4). The pouch was looked at 53% longer than the tub. The Daisy Sour Cream in the tub performed the best within its competitive array, however, the Daisy tub was not looked at significantly longer than any other SKU within the competitive array. On the other hand, Daisy Sour Cream in the pouch performed the best within the competitive array and was looked at significantly longer than the Breakstone, Great Value (Light), and the Monticello brand.

## Time to First Fixation (TTFF)

This metric measures how long it takes before a test participant fixates on an active AOI or AOI group for the first time. The time measurement starts when the media containing the AOI is first displayed. For AOI groups, the time measurement starts when any of the media containing an AOI member of the group is first displayed. The AOIs do not have to be active for the time measurement to start. Time measurement stops when the participant fixates on the AOI if the AOI is active. For AOI groups, the time measurement stops when the participant fixates on any of the active AOIs belonging to the group. The comparison of the pouch and the tub within their respective competitive arrays and compared to each other for the TTFF metric is illustrated in Figure 5.

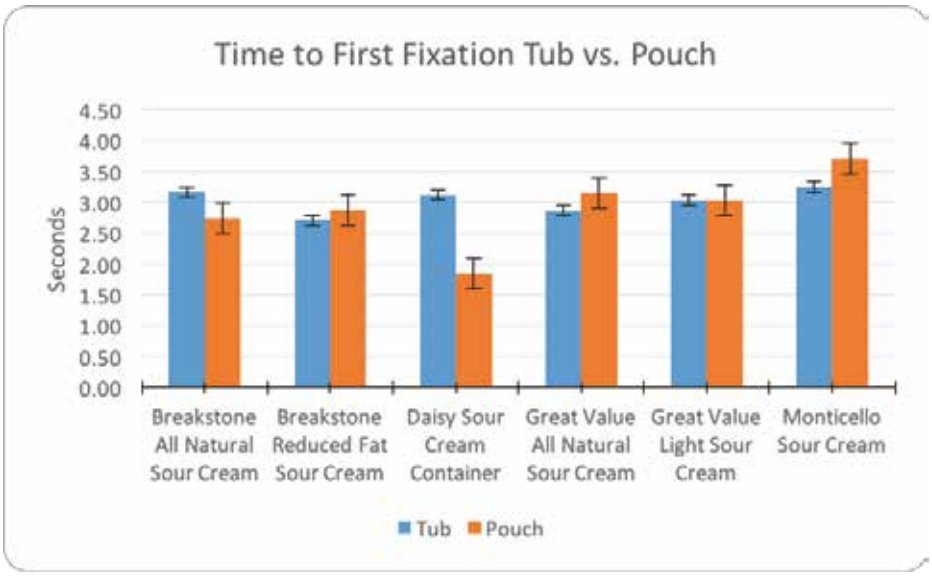



Figure 5. Time to First Fixation (TTFF) comparing the pouch and tub

## Key Findings:

When investigating the TTFF metric, it was found that the Daisy Sour Cream in the pouch was looked at 40% quicker than the tub and just missed significance, using an alpha of 0.05 (p=0.0774). The Daisy Sour Cream in the tub performed equivalently to its competitors, however the tub was not looked at significantly quicker than any other SKU in the array. On the other hand, Daisy Sour Cream in the pouch performed the best within the competitive array and significantly outperformed every single one of its competitors.

## Fixation Count (FC)

This metric measures the number of times the participant fixates on an AOI or an AOI group. If, during the recording, the participant leaves and returns to the same media element, then the new fixations on the media will be included in the calculations of the metric. If, at the end of the recording, the participant has not fixated on the AOI, the Fixation Count value will not be computed and the recording will not be included in the descriptive statistics calculations (i.e. when computing N). The comparison for the FC metric of the pouch and the tub within their respective competitive arrays and compared to each other is illustrated in Figure 6.

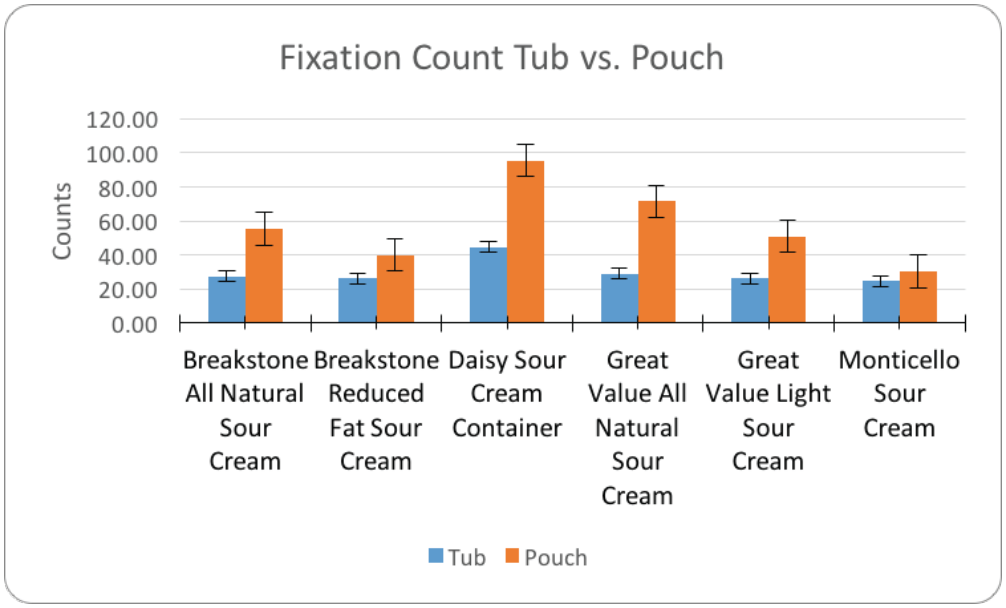



Figure 6. Fixation Count (FC) comparing the pouch and tub

## Key Findings:

When investigating the FC metric, it was found that the Daisy Sour Cream in a pouch was looked at significantly more times ($p=0.0255$) than the Daisy Sour Cream in the tub (Figure 6). The pouch was looked at 54% more times than the tub as well. The Daisy Sour Cream in the tub performed the best within the competitive array, however, the Daisy tub was not looked at significantly more times than any other SKU within the competitive array. On the other hand, Daisy Sour Cream in the pouch performed the best within the competitive array and was looked at significantly more times than the Breakstone, Great Value (Light), and the Monticello brand.

# Qualitative Results

## When consumers are shopping this category which products are they looking at?

Although the shopping list shows us what consumers chose, they do not give us much indication for why they chose certain items. Eye movement metrics can help us bridge this gap. We will first examine eye movement metrics qualitatively beginning with data visualizations. We refer to these as qualitative because they do not account for statistical significance.

The following images (Figure 7) overlay a heat map on an image of the planogram, showing our participants aggregate total fixation duration (TFD) for each variation on the shelf. These are interesting visuals that allow us to quickly discern hot and cold spots in a planogram – but they do not account for significance among the separate areas.

Figure 7. Heat map when the Daisy Sour Cream tub (left) and pouch (right) were placed on the shelf within the competitive array

## Survey Questions:

Participants were asked a series of questions to get more insight on the tub and pouch variations

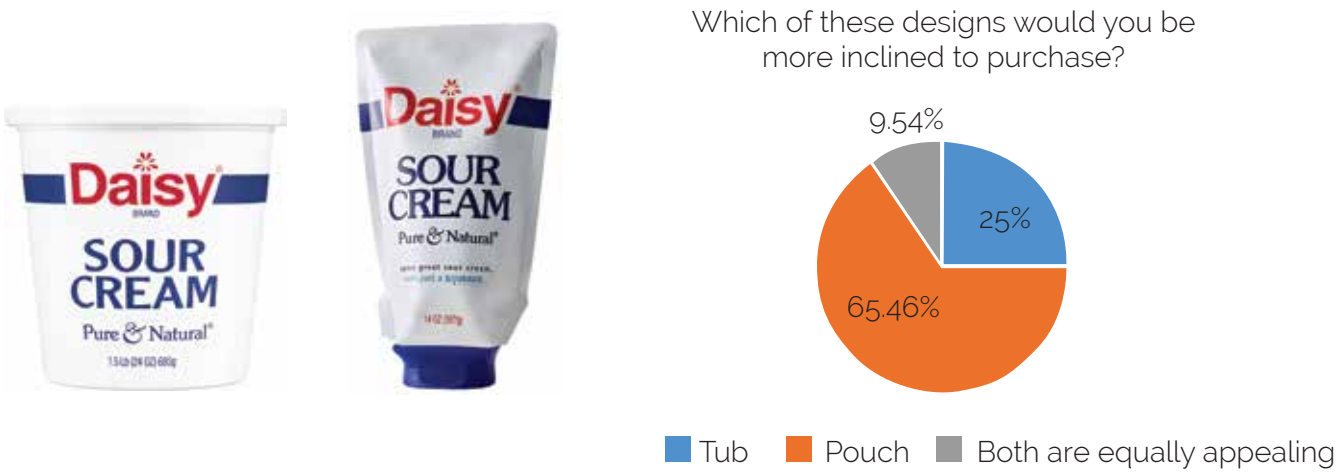



Figure 8. Qualitative question on preference of the tub or pouch variation

Participants were also asked to discuss why they selected the packages shown above. Below is a sampling of pertinent responses and all detailed responses are available in Appendix C.

- Love how it is flexible and fun (chose A)
- Easy to dispense, which I like because it minimizes waste (chose A)
- Prevents spoilage from spoons, food, and more (chose A)
- Superior design and better value than other squeezable packages on the market (chose A)
- Easy to use for the whole family, which is great because I have a family of 5!! (chose A)
- Grew up with Daisy and love the tub (chose B)
- Too flimsy, a prefer more of a rigid container (chose B)
- With so many kids at my house the flexible nature makes me fear a tear so we prefer more rigid structures (chose B)
- I do not care what the package is, as long as it contains good quality sour cream (chose both are equally appealing)
- I think both designs have their benefits and it honestly depends on what dish you are using the sour cream for, such that tacos work better with the pouch and casseroles containing larger amounts of sour cream work better with the tub (chose both are equally appealing)

When asked about which attributes on the package of the sour cream were the most important comparing the pouch to the tub (i.e. appealing, natural, delicious, importance, ease of reading, quality, ease of use, limited ingredients, value for price, artificial ingredients) participants said:

- The package makes the product look more appealing: 38.46% said B is much stronger
- The package makes the product look more natural: 25.64% said A is much stronger
- The package makes the product look more delicious: 33.33% said B is much stronger
- The package focuses my attention on things most important to me: 35.90% said B is a little stronger
- The package is easy to read: 34.21% said A is much stronger
- The package makes the product look high quality: 36.84% said B is a little stronger
- The package makes the product easier to use: 65.4% said B is much stronger
- The package suggests the product is made with limited ingredients: 47.37% said they were the same
- The package suggests the product is minimally processed: 60.53% said they were the same
- The packages suggests that you get a good value for the price: 55.4% said A is much stronger
- The package suggests that the product is made without artificial ingredients: 61.54% said they are the same

Participants were asked a question based on the Daisy Sour Cream pouch (most purchased option) compared to its competitors.


Figure 9. Qualitative question on preference of the pouch amongst competitors

When asked on a scale of 1 to 7, what is the package quality of each of the following sour cream packages:

- Daisy had the highest weighted average at 5.50 followed by
- Breakstone (4.97)
- Great Value (4.82)

# Conclusion

The Daisy Sour Cream is not only proven to be friendly for the shelves and provide extreme brand differentiation in the category, but this study is the first of its kind to show quantitative and qualitative data to support the sales lift this package has created and will create. The sales data for this study demonstrates overwhelming preference towards the Daisy Sour Cream pouch as well as significantly increased attention compared to the tub and within the competitive array. The pouch was also noticed the quickest compared to the tub and within the competitive array, which proves its eye catching qualities. Self reports indicate a high preference for the pouch form, especially those with families. The Daisy Sour Cream pouch was also reported by participants to have a better package quality than its competitors. Even though this innovative pouch began making its way into dairy aisles across the U.S in the spring of 2015, it already ranks among the top 10 sour cream items in sales, and this study helps solidify this product's strong shelf presence and promising future.