The Impact of Serving Presentation on Consumer Acceptance of Sour Cream

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Introduction

- Consumer or affective sensory testing plays a critical role in research and marketing.
- There are two main types of testing locations
  - Central Location Testing (CLT's)
  - Home Usage Testing (HUT's)
- There are some distinct advantages and disadvantages of CLT's and HUT's (Meilgaard et al. 1999).

CLT's	HUT's
• Sensory attributes only	• Actual context
• High percentage of return responses	• More questions
• Numerous samples	• Time consuming
• Artificial conditions	• Costly
• Limited questions	• Smaller sample size

Importance:

- Consumer overall liking has been used as a key product indicator in consumer product testing.
- Depending on the type of food product, some products have multiple applications (ingredient or topping) and other products only have a single application (like a beverage).
- Is it fair to evaluate condiment or ingredient products alone or should these products be presented with a neutral flavored food (i.e. bland) normally associated with them?

Hypotheses: Overall liking and attribute liking scores for sour cream would be different when products were presented with foods associated with these products..

Materials and Methods

- Sour cream has a very delicate flavor and is often served as a topping or used as an ingredient in dips for chips or vegetables; therefore, sour cream was selected to evaluate different serving platforms during central location testing.
- Four sour creams with different flavor and texture profiles were selected (Figure 1A and 1B).

A. B.

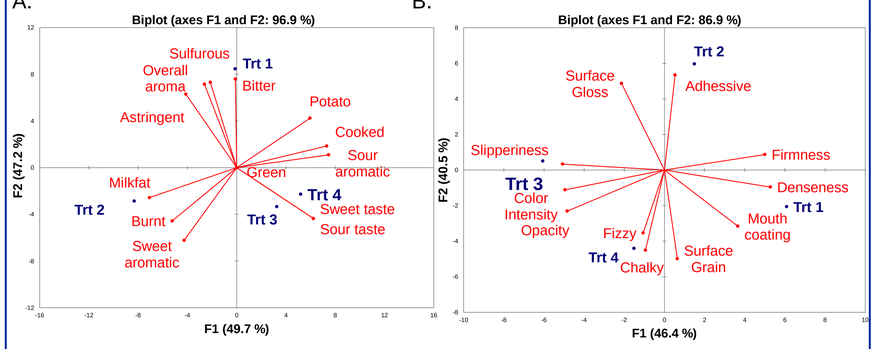
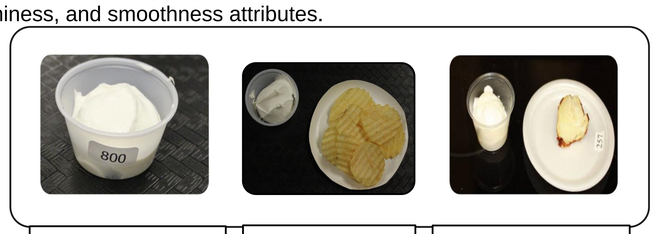


Figure 1. Principal component (1 and 2) biplots of descriptive analysis of sour creams (A) flavor and (B) texture.

- Consumer testing (n=154) was conducted on three separate days with different plateforms (Figure 2).
- Samples were scored for overall liking and other sensory attribute liking questions using the 9pt hedonic scale.
- A 5pt just about right (JAR) scale was also used to evaluate sour taste, thickness, creaminess, and smoothness attributes.



Day 1	Day 2	Day 3
2oz Sour Cream	Lay's Original	¼ Warm Potato
All Consumers	Chip Dipper	Potato Toppers
(n = 154)	(n = 78)	(n = 76)

Figure 2. A schematic of serving presentation during a CLT with plain sour creams.

- Data were evaluated by analysis of variance with Fisher's means separation using XLSTAT and penalty analysis was applied to the JAR questions (Version 2007.7, Addinsoft, NY)
  - Uppercase letters denote differences across platforms ($p<0.05$)
  - Lowercase letters denote differences across treatments within a platform ($p<0.05$)

Results and Discussion

- Overall liking score patterns were consistent, regardless of presentation format. Fewer differences in attribute liking were noted when presented on chips compared to presentations of as-is and baked potato. (Figure 3).
- All sour creams scored higher in overall liking and attribute liking, except for thickness attribute, when served with foods associated with sour cream (baked potato or chip) compared to when evaluated alone ($p<0.05$) (Figures 3-8).
- Penalty analysis revealed that when sour cream was evaluated alone the treatments were penalized for specific attributes such as sour taste, creaminess, and smoothness (data not shown).
- However, when evaluated with a baked potato or with a chip, no treatments were penalized for any attributes, suggesting that consumers are more critical when the product is evaluated alone.
- Purchase intent scores of sour creams samples were similar for as-is and with a baked potato, but there was no difference in sour cream samples when evaluated with a potato chips (data not shown).

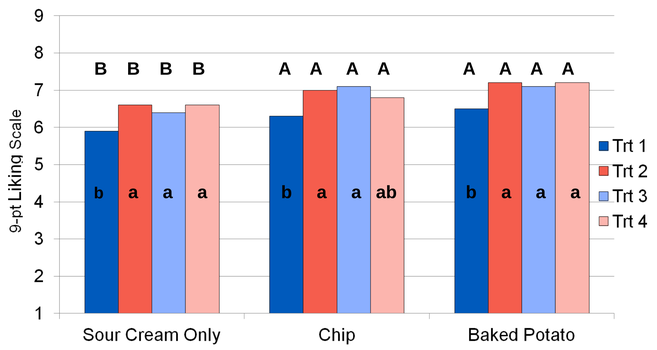


Figure 3. Overall liking of sour creams with different serving presentations

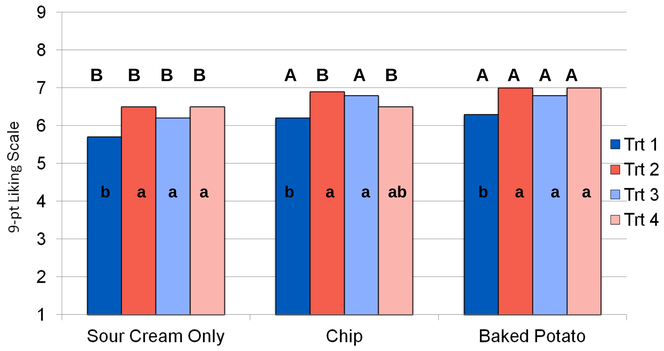


Figure 4. Flavor liking of sour creams with different serving presentations

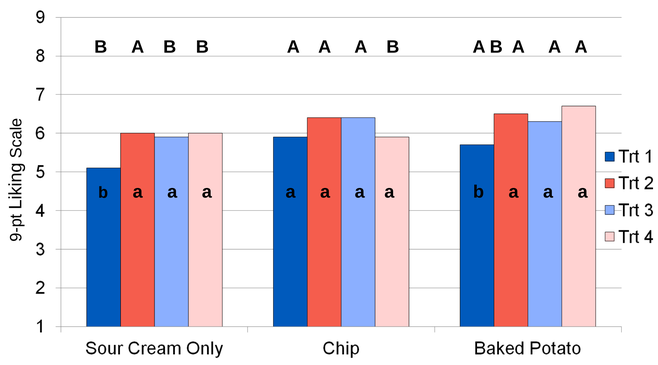


Figure 5. Sour taste liking of sour creams with different serving presentations

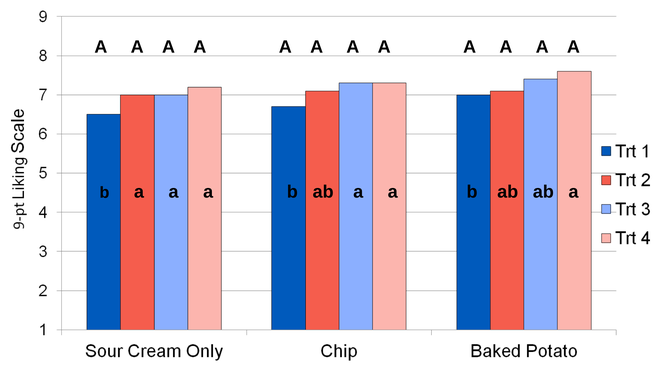


Figure 6. Texture liking of sour creams with different serving presentations

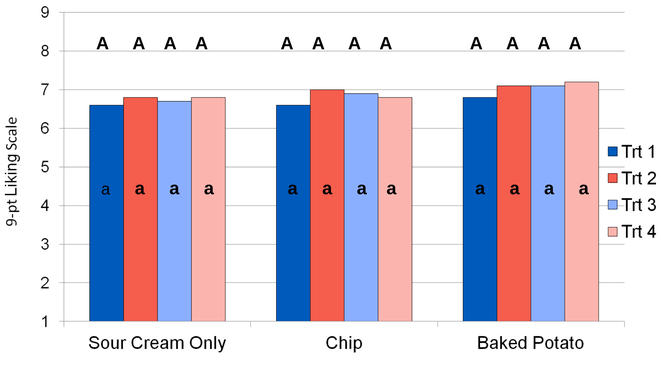


Figure 7. Thickness liking of sour creams with different serving presentations

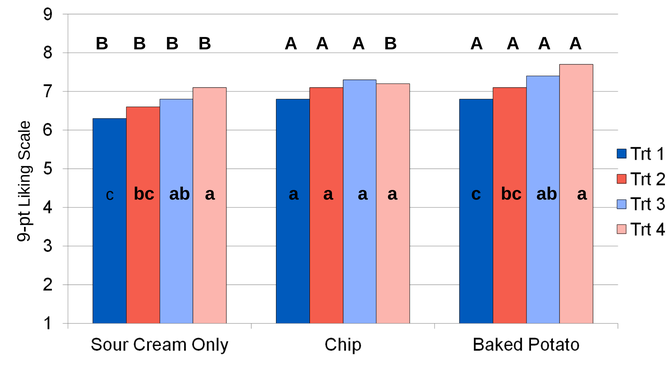


Figure 8. Smoothness liking of sour creams with different serving presentations

Conclusions

- Serving format influences product acceptance, and is dependent of how consumers use the condiment on products.
- This study also suggests that acceptance testing of sour cream served alone, while not a typical consumer behavior, provides actionable conservative liking results.

Acknowledgment

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