Nuances
Using Snap Judgments to Make the Right Decision

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What have I learned?

Is the answer in the Nuances?

Product Design using Nuanced Observational Skills

As Malcolm Gladwell, author of <u>Blink</u> shares with his readers, consider "how we think without thinking, about changes that seem to be made in an instant - in the blink of the eye – aren't as simple as they seem." As sensory scientists we've "perfected the art of 'thin-slicing' – filtering the very few factors that matter from an overwhelming number of variables."

Paul Gregutt reviews for <u>Wine Enthusiast</u> and describes a particular Champagne as: "This ubiquitous bottle looks, smells and tastes like Champagne should. It is a well-made, rock-solid effort, with the expected flavors of green apples and light citrus. Safe and dependable, it lacks only the extra defining nuances that add excitement to the best bruts."
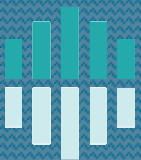
Join the excursion into understanding nuances for rapid product development. . . .

Detail Versus Simplicity

When put together drive product development success

- Two examples:
  - What do you see?
  - Simplifying perception

- Sensory case studies – where using our skills to make rapid fire assessments and snap decisions based on key criteria

  - Descriptive Analysis
    - → Uncovering the nuances for beverages
    - → Rapid product development using an iterative process
  - Consumer Research
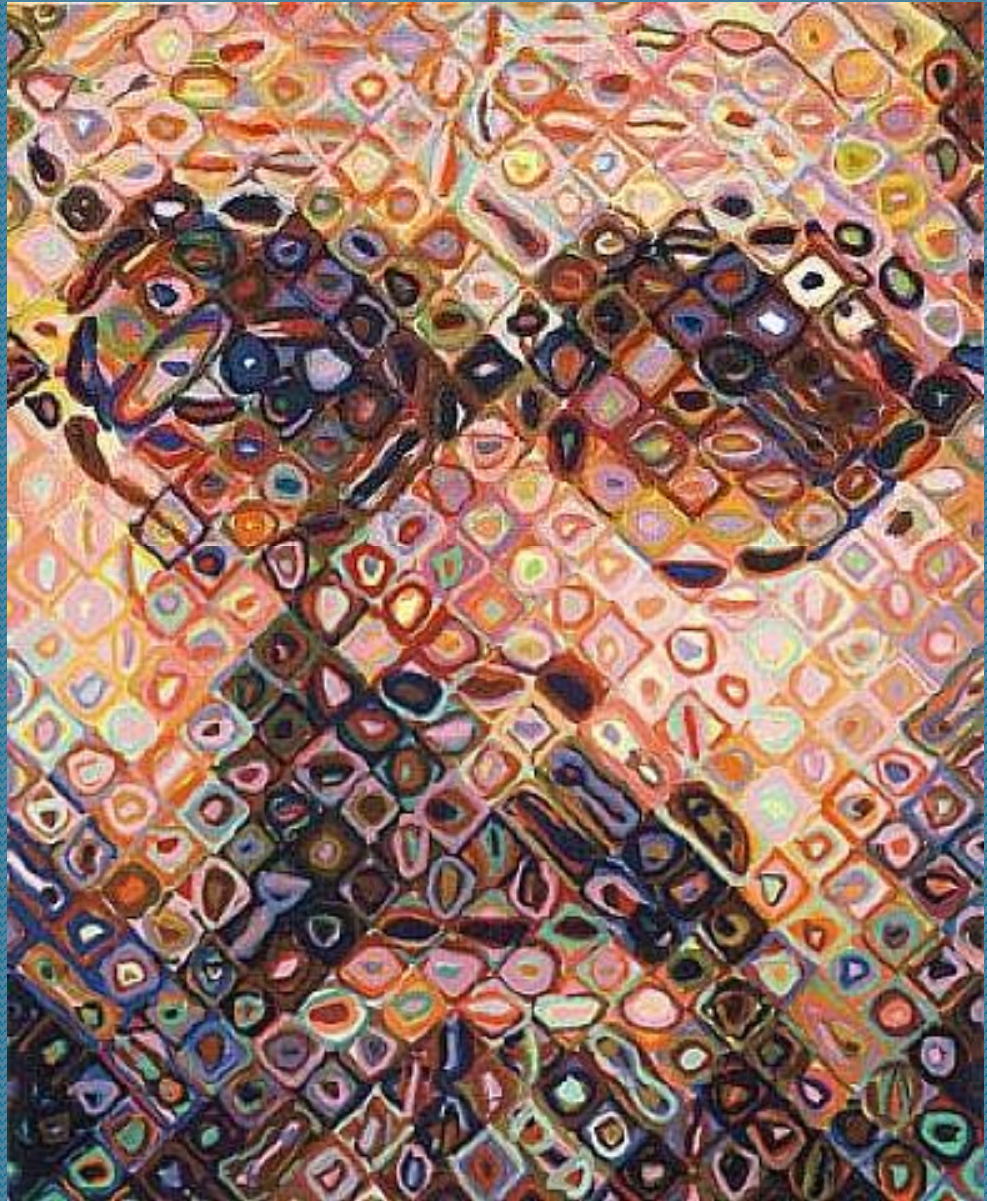   - → Qualitative research goes beyond the quantitative with corn bread and muffins

What do you see?

What do you see?

Detail Versus Simplicity

Is the simple view true? What is lost?

Demonstrate the subtle differences when one goes beyond the surface

. . . . to identify key sensory attributes present or missing from the aroma and flavor of beverages

- Example shows two rounds of testing beverages by a trained descriptive panel

- Highlights key attribute differences that if implemented would provide a subtle but important distinction

Round one product evaluation

Quick Screening	Current	Target	492	774	235
AROMA					
Total Aroma	4.5	7.5	6.0	6.8	5.8
Primary Fruit - Cooked	3.0	4.5	4.5	5.0	4.0
AROMATICS					
Total Aromatics	6.0	8.0	6.5	7.5	6.5
Primary Fruit - Cooked	4.0	5.0	5.3	5.0	3.0
Stone Fruit Compex - Cooked	1.0	4.0	2.0	2.0	3.0
Pear	1.0	4.0	2.0	2.0	3.0
Sweet Aromatic Complex	1.5	2.0	1.5	2.0	2.2
BASIC TASTES					
Sweet	11.0	9.5	10.0	9.0	11.0
Sour	3.5	3.5	4.0	5.0	3.0

- Recommendation to continue with prototype 774 if look at reduced set of attributes

Looking more closely at the aroma and flavor

- 774 in aroma is missing peach and has a stronger honey note

- In flavor stone fruit defined by pear is low and tropical is missing

- Recommend going back to the bench

Full Attribute List	Current	Target	492	774	235
AROMA					
Total Aroma	4.5	**7.5**	6.0	6.8	5.8
Primary Fruit - Cooked	3.0	**4.5**	**4.5**	5.0	4.0
Woody/Stems	0.0	0.0	0.0	0.0	0.0
Stone Fruit Compex - Cooked	1.0	**2.5**	2.0	2.0	**2.5**
Pear	1.0	**2.0**	**2.0**	**2.0**	2.5
Peach	0.0	**1.0**	0.0	0.0	0.0
Apple	0.0	0.0	0.0	0.0	0.0
Berry/Red Fruit Complex	0.0	0.0	0.0	0.0	0.0
Cherry	0.0	0.0	0.0	0.0	0.0
Strawberry	0.0	0.0	0.0	0.0	0.0
Tropical/Pineapple	0.0	**2.0**	0.0	0.0	0.0
Sweet Aromatic Complex	**1.5**	**1.5**	**1.5**	2.0	1.0
Caramelized	1.0	**0.5**	1.0	1.0	1.0
Honey	0.5	**1.0**	0.5	1.5	0.0
AROMATICS					
Total Aromatics	6.0	**8.0**	6.5	7.5	6.5
Primary Fruit - Cooked	4.0	**5.0**	5.3	**5.0**	3.0
Stone Fruit Compex - Cooked	1.0	**4.0**	2.0	2.0	3.0
Pear	1.0	**4.0**	2.0	2.0	3.0
Peach	0.0	0.0	0.0	0.0	0.0
Apple	0.0	0.0	0.0	0.0	0.0
Berry/Red Fruit Complex	0.0	0.0	0.0	0.0	0.0
Cherry	0.0	0.0	0.0	0.0	0.0
Strawberry	0.0	0.0	0.0	0.0	0.0
Tropical/Pinepple	0.0	**1.0**	0.0	0.0	0.0
Sweet Aromatic Complex	1.5	**2.0**	1.5	**2.0**	2.2
Caramelized	0.5	**1.5**	1.0	1.0	2.2
Honey	1.2	**1.0**	0.5	**1.0**	0.0
Off-note 1	0.0	**0.8**	0.0	0.0	0.0
BASIC TASTES					
Sweet	11.0	**9.5**	10.0	9.0	11.0
Sour	**3.5**	**3.5**	4.0	5.0	3.0

| Full Attribute List	Current	Target	628	739	840	273
AROMA						
Total Aroma	4.5	**7.5**	6.5	5.5	7.0	5.5
Primary Fruit - Cooked	3.0	**4.5**	4.0	4.0	4.0	3.5
Woody/Stems	0.0	**0.0**	0.0	0.0	0.0	0.0
Stone Fruit Compex - Cooked	1.0	**2.5**	**2.5**	1.5	1.0	1.5
Pear	1.0	**2.0**	**2.0**	1.5	1.0	1.5
Peach	0.0	**1.0**	1.0	0.0	0.0	0.0
Apple	**0.0**	**0.0**	0.5	**0.0**	**0.0**	**0.0**
Berry/Red Fruit Complex	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	0.0
Cherry	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Strawberry	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Tropical/Pineapple	0.0	**2.0**	2.0	1.0	1.2	
Sweet Aromatic Complex	**1.5**	**1.5**	2.0	1	2.5	1
Caramelized	1.0	**0.5**	0	1	5	0
Honey	0.5	**1.0**		1.0		
AROMATICS						
Total Aromatics			6	0	7.5	7.0
Primary Fruit - Cooked	4.0		4.0	4.0	5.0	4.5
Stone Fruit Compex - Cooked		**4.0**	2.5	1.5	1.5	1.5
Pear	1.0	**4.0**	2.0	1.5	1.5	1.5
Peach	0.0	**0.0**	0.0	**0.0**	**0.0**	**0.0**
Apple	**0.0**	**0.0**	1.0	**0.0**	**0.0**	**0.0**
Berry/ Red Fruit Complex	**0.0**	**0.0**	**0.0**	**0.0**	1.0	**0.0**
Cherry	**0.0**	**0.0**	**0.0**	**0.0**	0.0	**0.0**
Strawberry	**0.0**	**0.0**	**0.0**	**0.0**	0.0	**0.0**
Tropical/Pineapple	0.0	**1.0**	1.0	0.0	1.2	1.5
Sweet Aromatic Complex	1.5	**2.0**	1.5	1.5	2.0	2.0
Caramelized	0.5	**1.5**	1.0	1.0	1.0	0.5
Honey	1.2	**1.0**	0.5	0.5	1.0	1.5
Off-note 1	**0.0**	**0.0**	0.5	1.5	**0.0**	**0.0**
Off-note 2	0.0	**0.8**	0.0	0.0	0.0	0.0
BASIC TASTES						
Sweet	11.0	**9.5**	10.5	11.0	**9.5**	10.5
Sour	**3.5**	**3.5**	3.0	3.0	3.0	2.0

Satisficing

A second round of evaluations

...king in overall fl...r - some products match Target for certain attributes and miss on others

- Rapid feed back demonstrates that matching nuances is a challenge with no resolution at this point

Using Consumers to define product direction – Authentic Product Process

- Utilizes a step wise qualitative research process, where consumers are commissioned to participate in defining key product features that drive product liking both positively and negatively.

- Each step builds on each other so that consumers are able to
  1. Dial in on the sensory properties
 2. Uncover interrelationships
  3. Zero in on desired levels
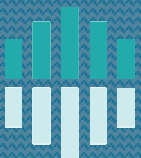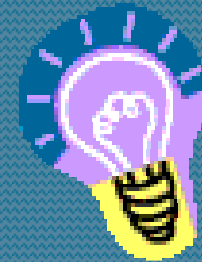
Resulting in interpreting consumers' rapid responses and snap judgments

Corn Bread

- Research Objective:
  - Develop an improved corn bread and muffin mix that competes directly with the leading mix

- Methodology
  - Two qualitative sessions each 2 ½ hours in duration
  - 6 – 8 females per group, aged 30 – 60 years, with kids in household
  - 1 group born and raised in the Carolinas, 1 group moved to the Carolinas from the north within the last 5 years
  - Purchased and eaten prepared cakes, muffins, mixes past 3 months; corn bread past month
  - Screened for articulation and creativity

Stepwise Process
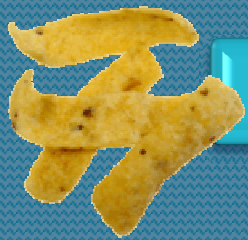
Initial Exposure

Paired Comparison

Deep Dive
Flavor and Texture

Deep Dive
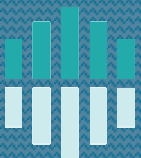Appearance

Inspiration

Product Direction

Depth and breadth of information

- Consumers are able to distinguish among all samples tested using language appropriate for corn bread and muffins
  - Appearance >20 terms
  - Flavor >24 terms
  - Texture >24 terms
- Key attributes are listed in decreasing order of importance

Consumer Language		
Appearance	**Flavor**	**Texture**
golden, deep yellow	**buttery**	**buttery crisp bottom, sides**
shiny, moist surface	**flavorful**	**moist**
surface cracks	**buttermilk, sour cream**	**crumbly**
pieces of corn	**balanced savory**	**breaks apart nicely**
thick risen	**cookie dough**	**dense, heavier mouthfeel**
even color	**sweet vs. not sweet**	*easy to swallow*
flat	**no aftertaste**	*firm*
light yellow	*sweet corn*	*small grains*
light brown	*corn flavor*	*soft*
white	*toasted, roasted corn*	*smooth*
air pockets	*corn off the cob, fresh*	*creamy*
dark bottom, edges	*not artificial sweet*	*chewy*
uneven color	*not burnt*	*cake texture*

Most important attributes in bold

Regional differences were identified

Leading Competitor

Current

Northern Group

North more accepting of flavor

Descriptive Results
- Flavor: Sweeter, cooked corn
- Texture: Crumbly, not cohesive, grainy mass

Descriptive Results
- Flavor: Less sweet, grainy, toasted corn, baking soda
- Texture: Moist, cohesive, gummy

CONSUMER Language
- Appearance: Moist, shiny, air pockets
- Flavor: Sweeter, corn flavor
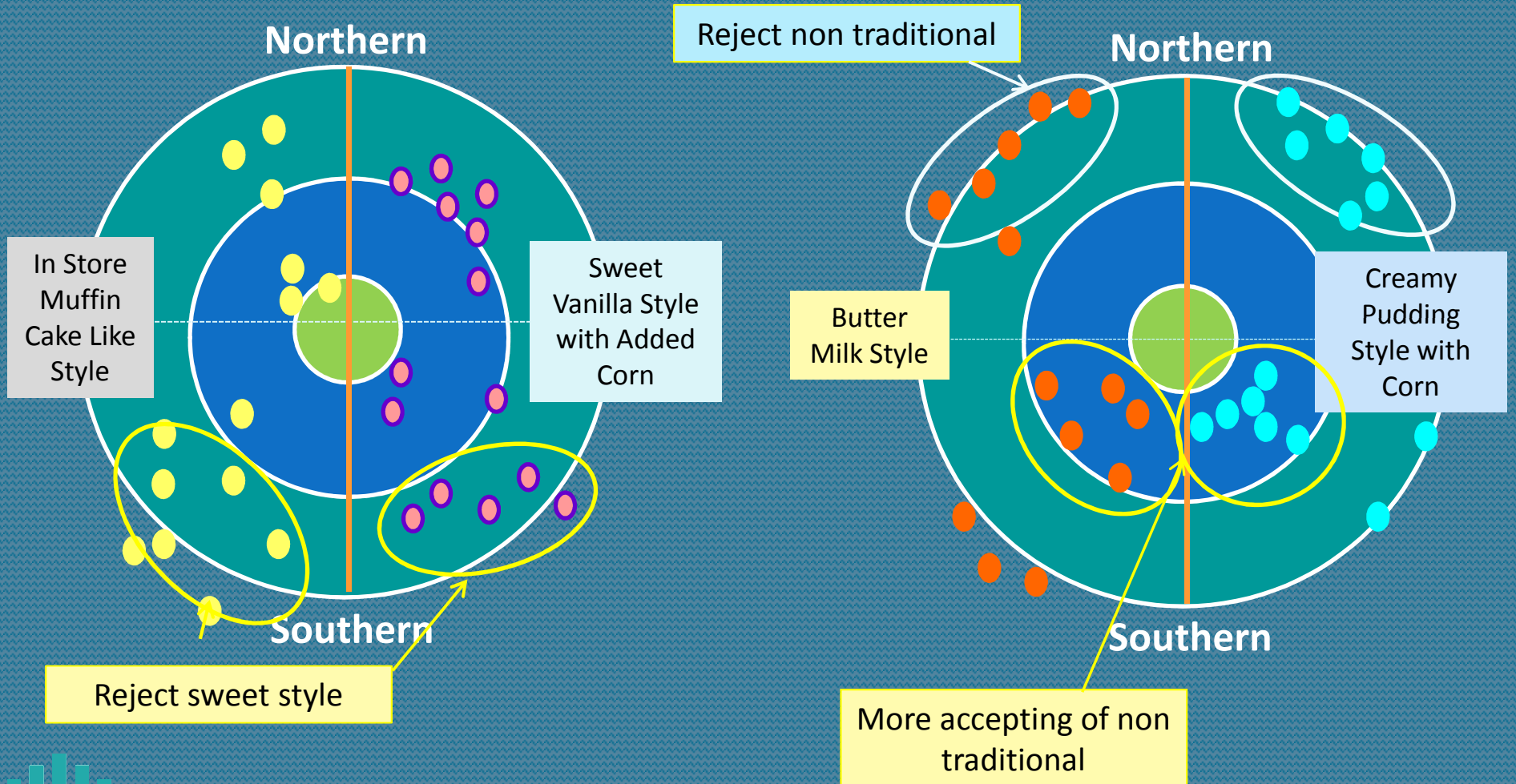- Texture: Grainy, dry, more crumbs

CONSUMER Language
- Appearance: Dull, no shine
- Flavor: More aroma, low flavor, baking soda, chemical aftertaste
- Texture: Cake like, dense, fine corn meal

Southern Group
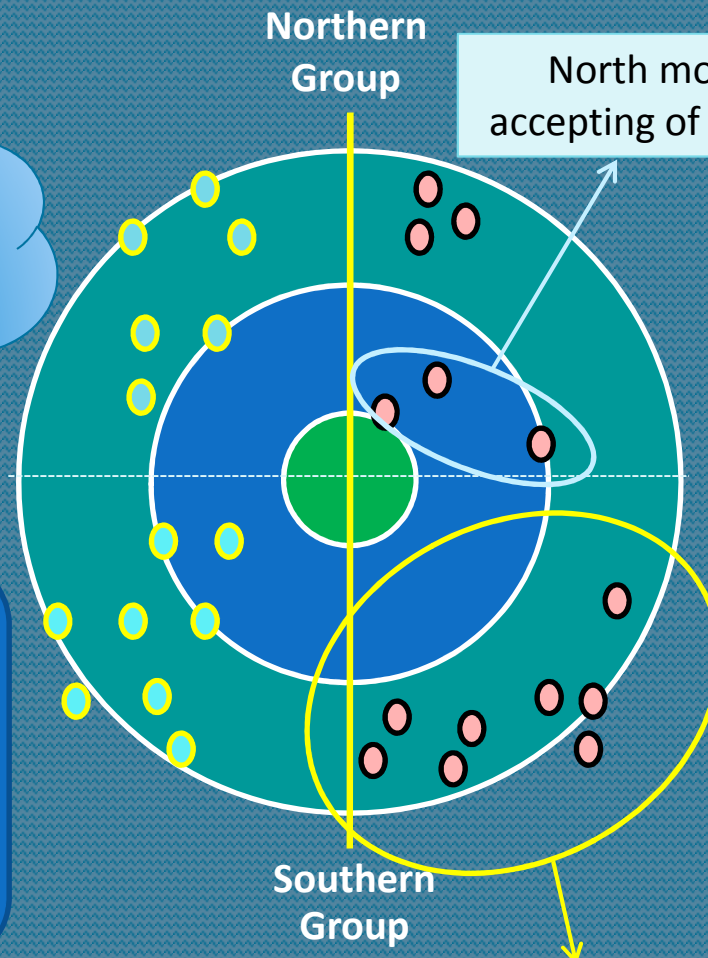
South rejects cake-like texture of current

Further differences emerge with the deep dive on 4 unique samples

Northern

Reject non traditional

Northern

In Store Muffin Cake Like Style

Sweet Vanilla Style with Added Corn

Butter Milk Style

Creamy Pudding Style with Corn

Southern

Reject sweet style

Southern

More accepting of non traditional

Appearance completes the story

Golden color with shiny, moist surface are most important

Surface cracks imply homemade

Dark and light highlights, presence of grains

Dark edges

Consumer Product Inspiration

Ingredient	Tasting Notes	Comments	Yes / No
Corn chips	Roasted, toasted corn with fried oil	Eliminate fried oil	Yes
Creamed corn	Not suitable, not sweet corn flavor desired	Good kernel size	No for flavor Yes for kernel size
Canned corn	Sweet corn, not fresh corn on the cob	Expected flavor, combine with roasted	Yes
Buttermilk	Soured milk, liquid sour cream	Too sour Familiar	No for Northerners Yes for Southerners
Corn meal	Grits, corn flour, roasted corn	Bland, low flavor	No
Cookie dough	Sweet, vanilla, muffin taste	Blends well with salt of corn chips	Yes for Northerners No for Southerners

Design a product to be

Appearance	Flavor	Texture
✓ Dark golden color that implies more flavor ✓ Shiny moist surface suggests less dry ✓ Surface cracks imply homemade ✓ Golden highlights on surface and edge ✓ Relatively flat with little rise or	✓ Blend of fresh sweet corn and roasted corn ✓ Hint of buttery flavor and buttermilk ✓ Avoid a raw, floury taste ✓ Keep grain flavor associated with corn at a minimum ✓ Eliminate chemical taste and feel associated with baking soda ✓ Line extension - corn pieces with "authentic" in corn taste	✓ Two textures, external crispy shell with a soft moist crumb ✓ Easy to break down without being overly dry ✓ Presence of corn grains/ grits that are soft and small ✓ During chew, mass is to be creamy without hard grits or pieces of corn ✓ As a line extension, corn pieces the size of creamed corn

Northern →

Meet in the middle ~

will maintain traditional but opt for simplicity to fit into busy lifestyle

← **Southern**

Message to Product Development

By studying nuances and applying rapid prototyping to

understanding product sensory features in both descriptive

terms and consumer terms

one is able to lead product development to the Authentic

Product

Acknowledge and Thank

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Crystal Hopwood   sensoryspectrum

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