

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 Complex - 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	1.5
Sweet Aromatic Complex	1.5	1.5	2.0	1.0	2.5	1.0
Caramelized	1.0	0.5	1.0	1.0	1.5	0.5
Honey	0.5	1.0	1.0	1.0	1.0	0.5
AROMATICS						
Total Aromatics	5.0	7.0	6.0	5.0	7.5	7.0
Primary Fruit - Cooked	4.0	7.0	4.0	4.0	5.0	4.5
Stone Fruit Complex - Cooked	1.0	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

Working in overall for - 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



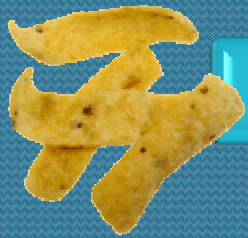
Resulting in interpreting consumers' rapid responses and snap judgments

Corn Bread

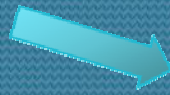
- Research Objective:
 - Develop an improved corn bread and muffin mix that competes directly with the leading mix
- Methodology
 - Two qualitative sessions each 2 ½ hours in duration
 - 6 – 8 females per group, aged 30 – 60 years, with kids in household
 - 1 group born and raised in the Carolinas, 1 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



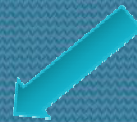
Stepwise Process



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
<i>even color</i>	sweet vs. not sweet	<i>easy to swallow</i>
<i>flat</i>	no aftertaste	<i>firm</i>
<i>light yellow</i>	<i>sweet corn</i>	<i>small grains</i>
<i>light brown</i>	<i>corn flavor</i>	<i>soft</i>
<i>white</i>	<i>toasted, roasted corn</i>	<i>smooth</i>
<i>air pockets</i>	<i>corn off the cob, fresh</i>	<i>creamy</i>
<i>dark bottom, edges</i>	<i>not artificial sweet</i>	<i>chewy</i>
<i>uneven color</i>	<i>not burnt</i>	<i>cake texture</i>

Most important attributes in bold



Regional differences were identified

Leading Competitor

Descriptive Results

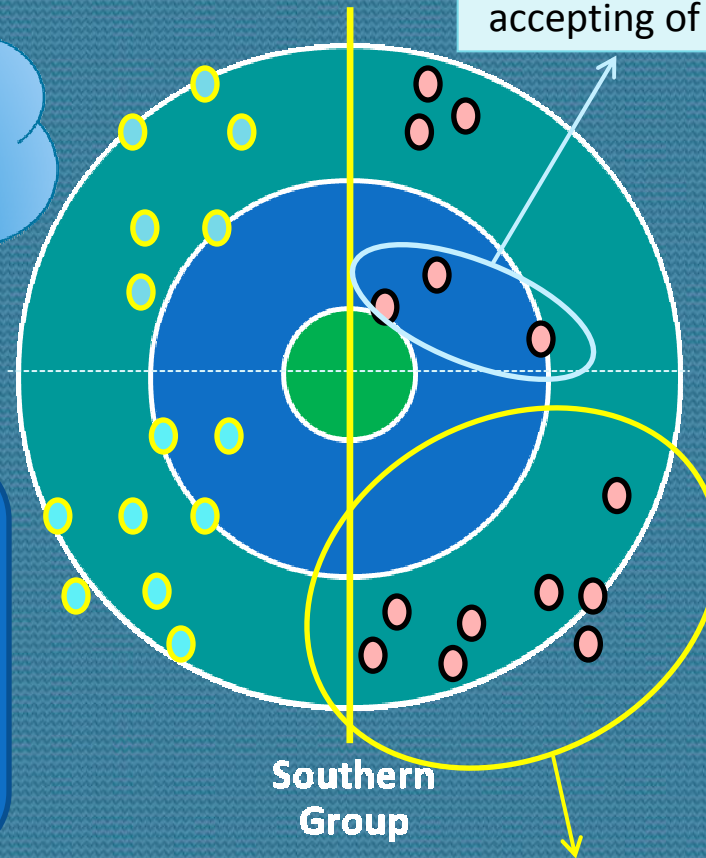
- Flavor: Sweeter, cooked corn
- Texture: Crumbly, not cohesive, grainy mass

CONSUMER Language

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

Northern Group

North more accepting of flavor



Southern Group

South rejects cake-like texture of current

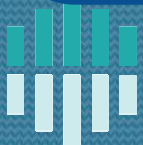
Current

Descriptive Results

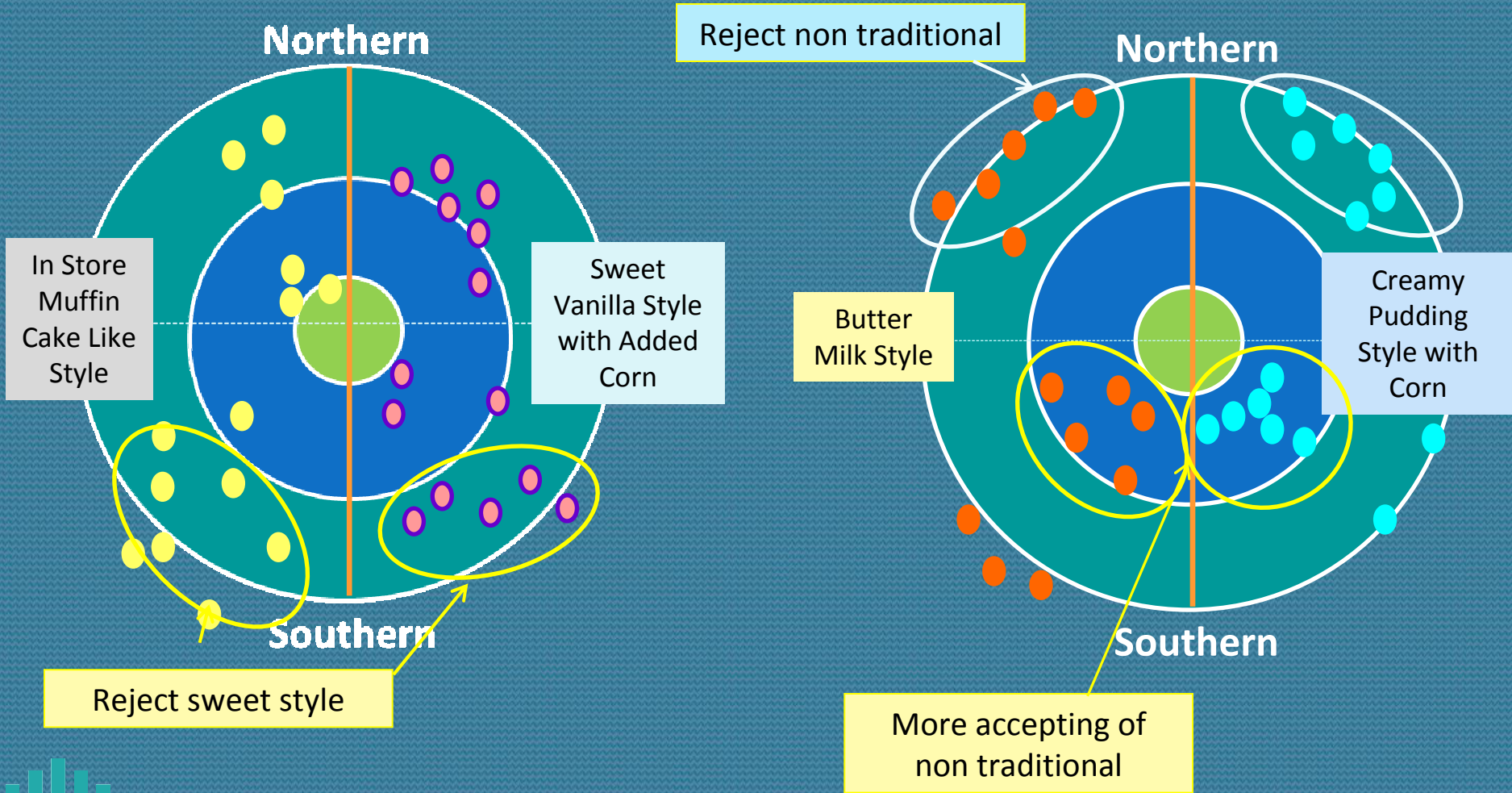
- Flavor: Less sweet, grainy, toasted corn, baking soda
- Texture: Moist, cohesive, gummy

CONSUMER Language

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

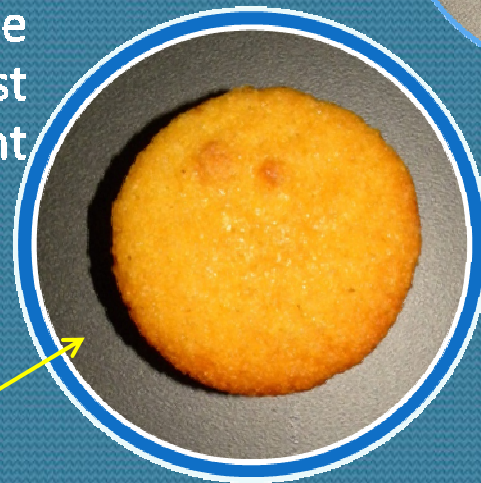


Further differences emerge with the deep dive on 4 unique samples



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



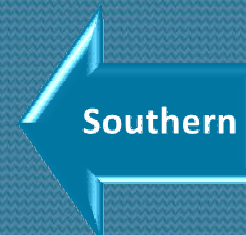
Ingredient	Tasting Notes	Comments	Yes / No
Corn chips	Roasted, toasted corn with fried oil	Eliminate fried oil	Yes
Creamed corn	Not suitable, not sweet corn flavor desired	Good kernel size	No for flavor Yes for kernel size
Canned corn	Sweet corn, not fresh corn on the cob	Expected flavor, combine with 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
<ul style="list-style-type: none"> ✓ 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 	<ul style="list-style-type: none"> ✓ 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 	<ul style="list-style-type: none"> ✓ 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



Meet in the middle ~
will maintain traditional but
opt for simplicity to fit into
busy lifestyle



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



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Crystal Hopwood



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