

Enzymes To Improve Texture & Prolong Softness In Healthier Tortillas

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Fall 2025, Orlando, Florida



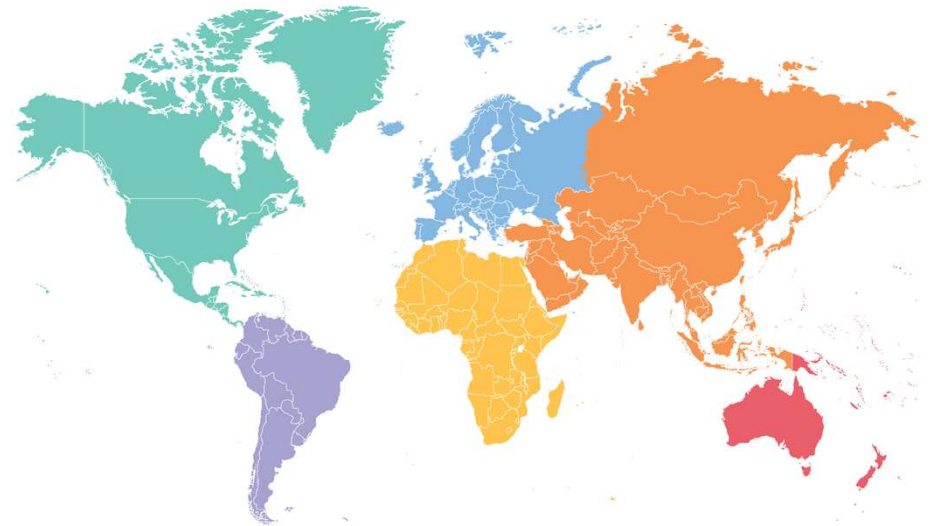


Content

- ◆ Current Industry Trends
- ◆ Understanding Healthier Tortilla
- ◆ Challenges in Healthier Tortilla Making
- ◆ Our Solutions
- ◆ Performance & Results
- ◆ Conclusion

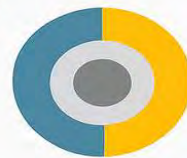
Tortillas: Loved Around the World

- ◆ Main reasons for the tortilla industry's strong growth : low cost, ease of preparation, and wide range of available options
- ◆ Popular everywhere: easy to use, work well in many dishes, make great wraps
- ◆ Customers want: soft & flexible with long shelf life
- ◆ Growth in the market is mainly due to new and exciting flavors, healthier options, and convenient small tacos that are easy to eat.



Current Trends in Tortilla Market

GLOBAL TORTILLA MARKET 2022-2026



Key purchase criteria



Tortilla Market



Adoption rates



www.technavio.com

Why the Tortilla Market is Growing

◆ People Want Quick and Healthy Food

Tortillas are easy to make and good for a balanced diet.

◆ More People Live in Cities

58.5% of people live in cities in 2025, expected to reach 6 billion by 2045.

◆ More Time Spent Working

41% women, 80% men in 2025 → less time to cook →
higher demand for convenient foods

◆ Tortillas are a Good Choice

Fast to prepare, lower in calories, salt, and fat,
and sold in stores and restaurants.



Understanding Healthy Tortillas



Health-Focused Formats

- Low carb
- High fiber
- Gluten free
- Probiotics



Flavor & Ingredient Innovation

- Manufacturers have introduced new flavors & ingredients



Grain-Free & Allergen-Friendly



Refrigerated Formats

- 7.3% growth in refrigerated tortilla sales
- 2.4% growth in overall tortilla market



Why Healthier Tortillas?

In the U.S.:



5% of consumers get enough fiber each day



74% of adults are overweight



60% have at least one diet-related chronic disease



40% are living with obesity; 9% have severe obesity



38% are pre-diabetic; 11.3% are diabetic



34% of adults have metabolic syndrome

What are Healthier Tortillas?



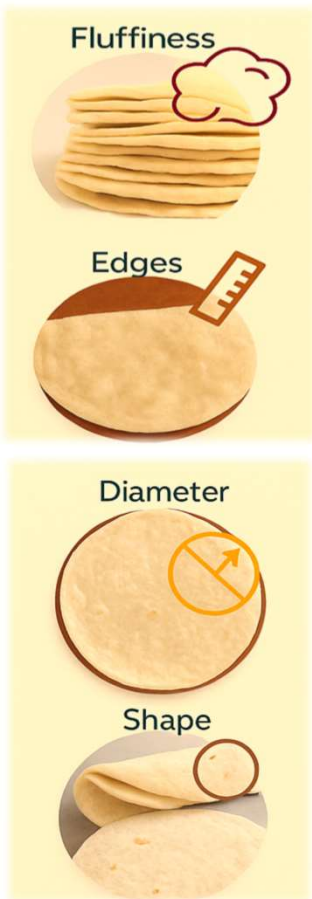
Reduce

- ◆ Fat
- ◆ Sodium
- ◆ Sugar
- ◆ Chemicals

Add

- ◆ Fiber
- ◆ Whole Grains
- ◆ Protein
- ◆ Probiotics

Challenges of Making Healthier Tortillas



Tortillas with enzymes are soft, delicious & healthier

Our Solutions for Healthier Tortilla Making

	Products	Generic Enzymes	Benefits
High Fiber Tortillas	SEBake Fresh Ultra™	High Performing Maltogenic Amylase	Prolong Softness, Extend Shelf Life, Improve Resilience & Foldability
	SEBake CLX™	Cellulase	Hydrate Fiber & Improve Softness
	SEBake PF™	Phospholipase	Increase Rollability
	SEBake FX Ultra™	Hemicellulase / Xylanase	Hydrate Fiber & Improve Softness

Our Solutions for Healthier Tortilla Making

	Products	Generic Enzymes	Benefits
High Protein Tortillas	SEBake Fresh Ultra™	High Performing Maltogenic Amylase	Prolong Softness, Extend Shelf Life, Improve Resilience & Foldability
	SEBake PP™	Papain	Dough Relaxation, Improved Spreadability

	Products	Generic Enzymes	Benefits
Tortillas with Probiotics	SEBake Fresh Ultra™	High Performing Maltogenic Amylase	Prolong Softness, Extend Shelf Life, Improve Resilience & Foldability
	SEB LBSC™	<i>Bacillus coagulans</i> LBSC	Support Gut Health

Our Solutions for Healthier Tortilla Making

	Products	Generic Enzymes	Benefits
Reduced Shortening	SEBake LO™	Enzyme Blend	Reduce Shortening up to 33%
	SEBake Fresh Ultra™	High Performing Maltogenic Amylase	Prolong Softness, Extend Shelf Life, Improve Resilience & Foldability



High Fiber Tortilla Study



High Fiber Tortillas

Benefits of Fiber

- ◆ Improves Digestive Health
- ◆ Lowers Blood Cholesterol
- ◆ Weight Management
- ◆ Diabetes Management
- ◆ Sugar Reduction

Challenges with Adding Fiber

- ◆ Harder Texture & Dry
- ◆ Bitterness
- ◆ Stiffer Dough
- ◆ Increased Water Absorption



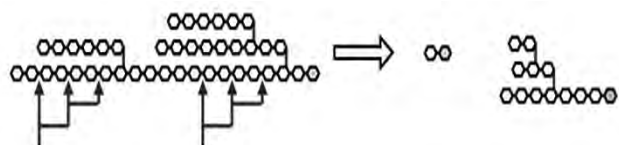
SEBake Fresh Ultra™

What does SEBake Fresh Ultra™ do?

Helps tortillas stay soft, moist, rollable, resilient & fresh longer

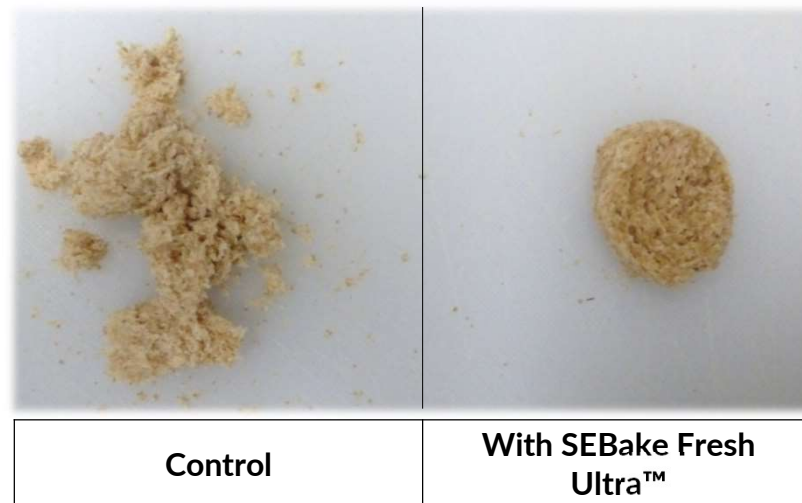
How does it work?

Converts starch into simple sugars (maltose & glucose) & helps keep baked goods soft



Benefits

- ✓ Holds more water → tortilla feels moister
- ✓ Keeps tortillas softer, rollable, resilient & elastic
- ✓ Delays staling → extends shelf life
- ✓ Improves overall texture & quality



SEBake CLX™ & SEBake FX Ultra™

Fiber Modification

SEBake CLX™ (Xylanase)

Benefits

- ◆ Helps make baked goods softer
- ◆ Improves dough machinability & quality

Function

- ◆ Modifies fiber in flour

SEBake FX Ultra™ (Cellulase)

Benefits

- ◆ Improves dough handling
- ◆ Softens baked goods

Function

- ◆ Modifies fiber in flour

SEBake Fresh Ultra™ in High Fiber Tortillas

Ingredients	Products	Benefits
Whole Wheat Flour	SEBake Fresh Ultra™	Prolong Softness, Extend Shelf Life



Control

50ppm SEBake Ultra-Fresh™

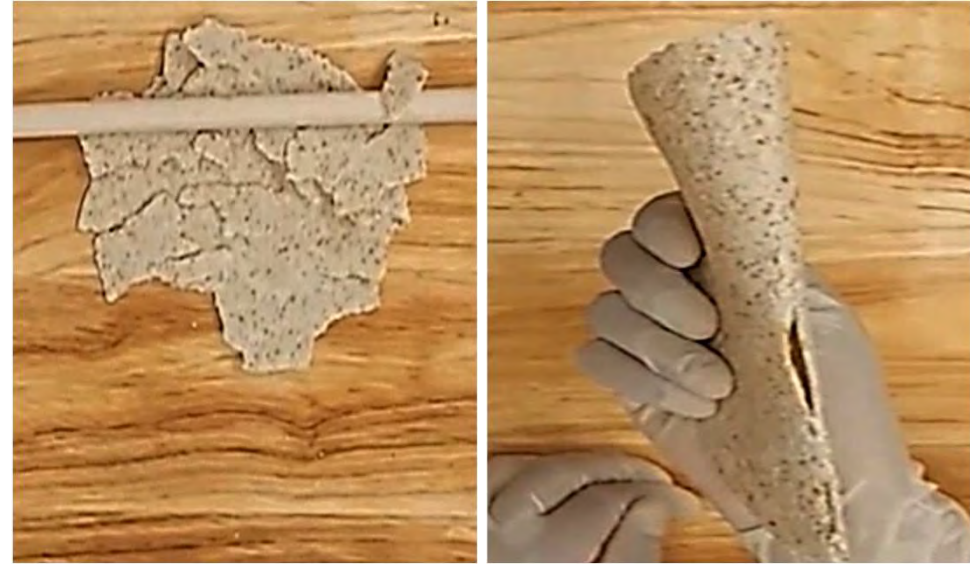
100ppm SEBake Ultra-Fresh™



SEBake Fresh Ultra™ - Improved Rollability



SEBake Fresh Ultra™

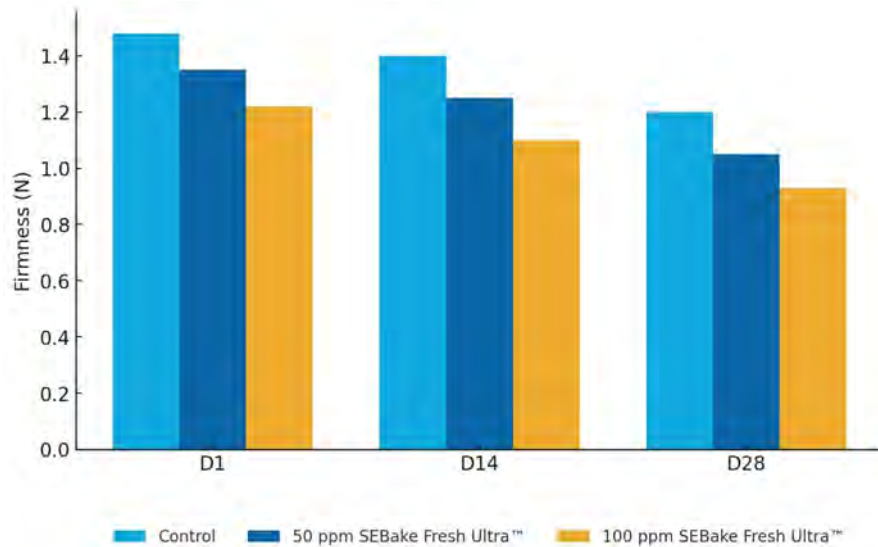


Control

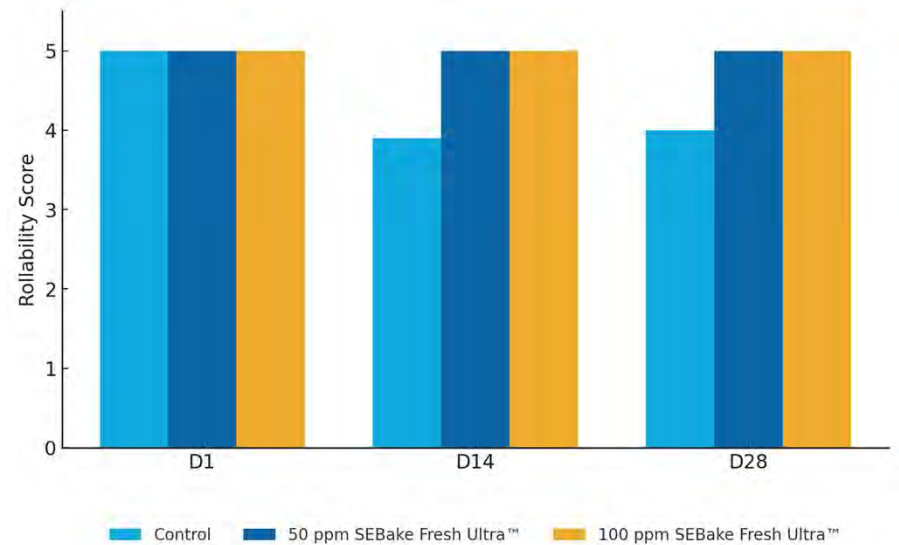
High-fiber corn tortillas on day 28 (8.6g fiber per tortilla)

SEBake Fresh Ultra™ - Improved Firmness & Rollability

Firmness



Rollability



- Tortillas stay soft for a longer time.
- Delays staling by enhancing softness and moisture retention
- 100ppm extends freshness & flexibility

- Tortillas remain flexible for 28 days
- Prevents staling & preserves rollability
- A 50–100 ppm dosage helps maintain Day-1 flexibility during storage.

SEBake Fresh Ultra™ - Improved Foldability



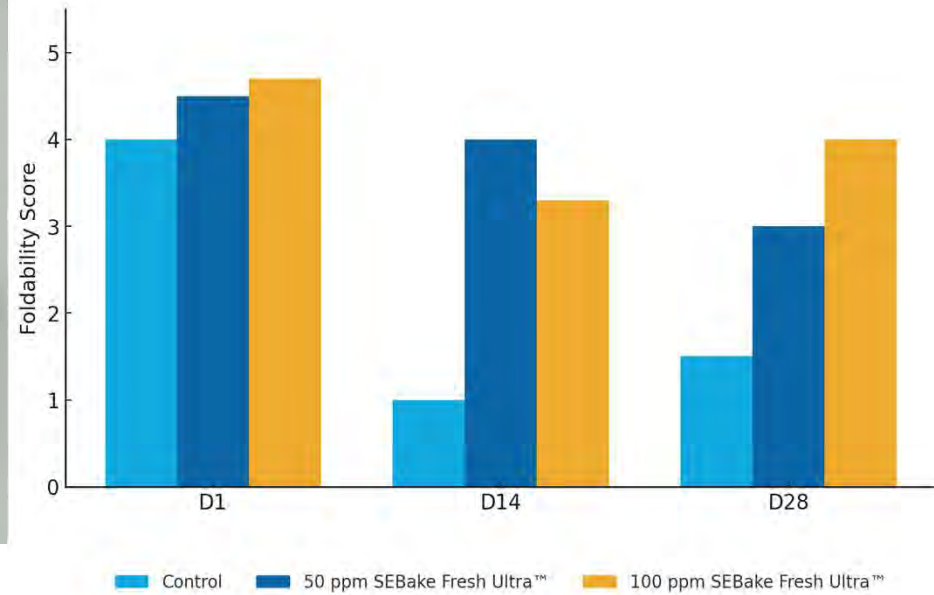
Day 0



Day 14



Day 28

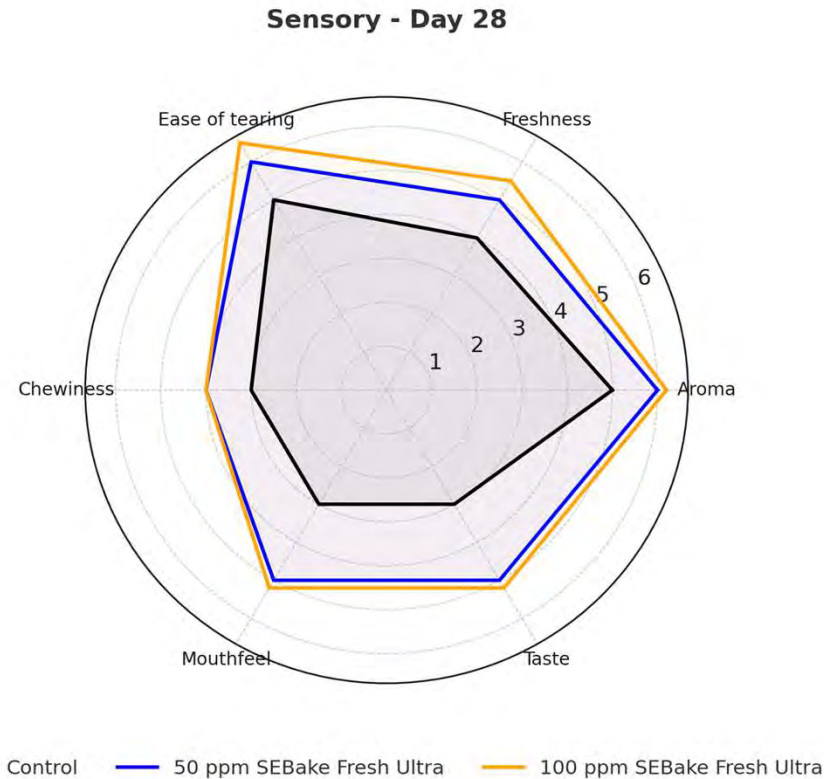


- ◆ After 28 days, tortillas are foldable & flexible with 100ppm SEBake Fresh Ultra™
- ◆ No cracks or brittleness

Sensory Evaluation

- ◆ Enzymes enhance tortilla freshness, taste & mouthfeel over 28 days
- ◆ Best sensory experience with 100ppm

Better sensory quality after 28 days of storage



SEBake CLX™ - Whole Wheat High-Fiber Tortillas

Ingredients	Products	Benefits
Whole Wheat Flour	SEBake CLX™	Improve Machinability for High-Fiber Tortillas



Control

SEBake CLX™ (25ppm)



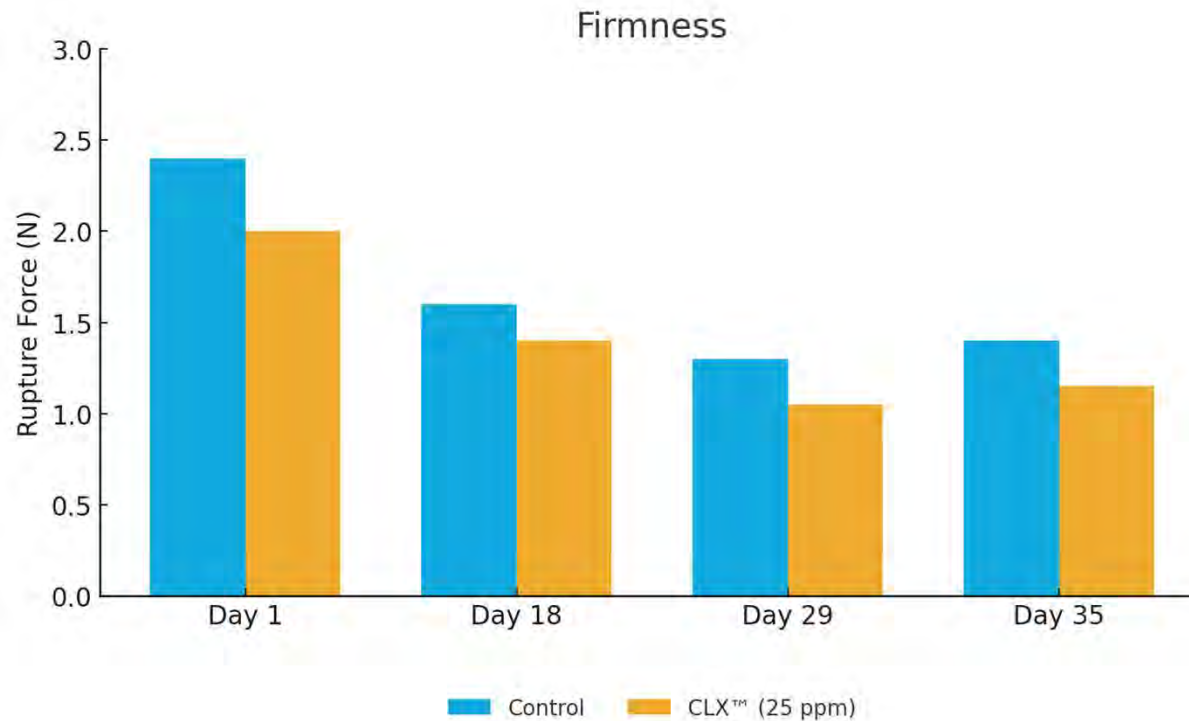
DR2 Add fiber percentage

Dipak Roda, 9/26/2025

E8 its same, this flour is whole wheat that meant the flour has high fiber but we have fiber persentage from it.

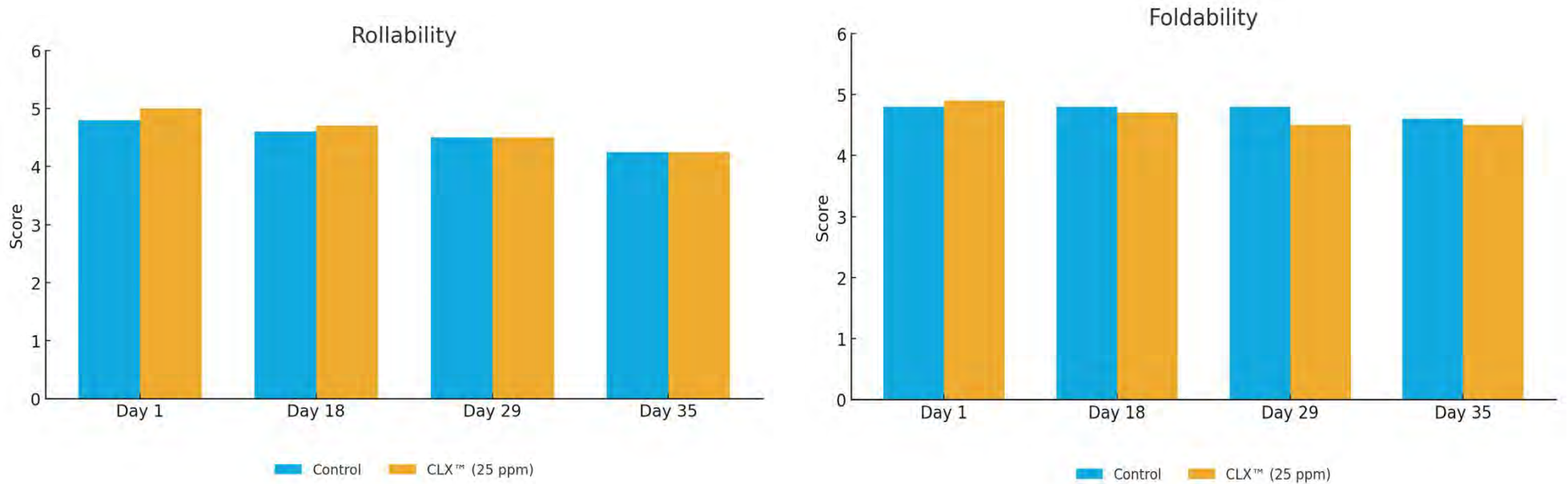
EILab, 9/30/2025

SEBake CLX™ - Improved Firmness



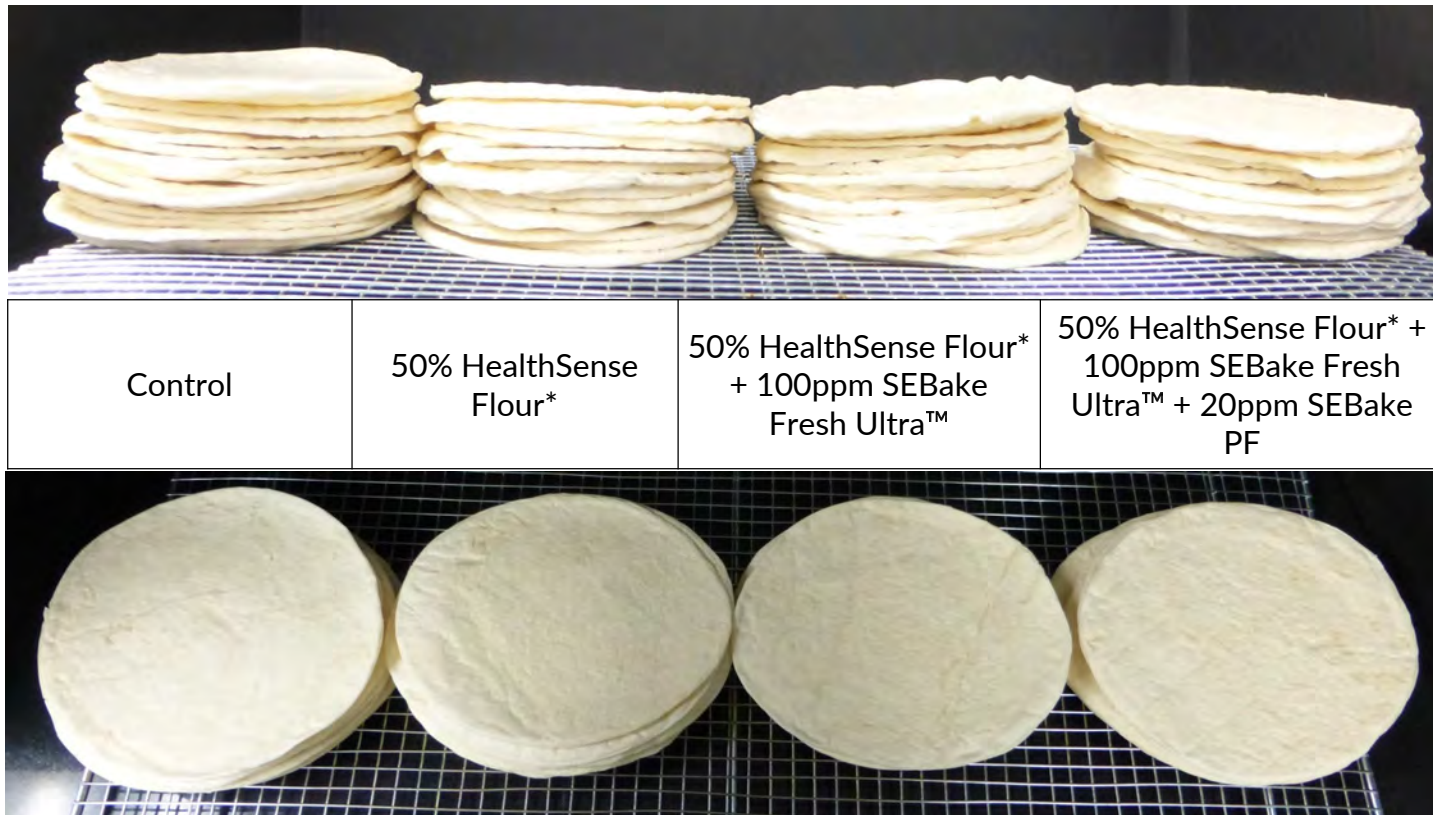
- The tortilla with enzyme treatment was 16% softer than control by day 35
- Maintained rollability & foldability
- 25ppm ideal for extending shelf life

SEBake CLX™ - Improved Foldability & Rollability



Tortillas with SEBake CLX™ demonstrated rollability & foldability comparable to control

SEBake PF™ - HealthSense Flour Tortillas



*HealthSense Flour contains 32% fiber

SEBake PF™ - Improved Foldability

Foldability - Day 24



Control



50% HealthSense Flour*

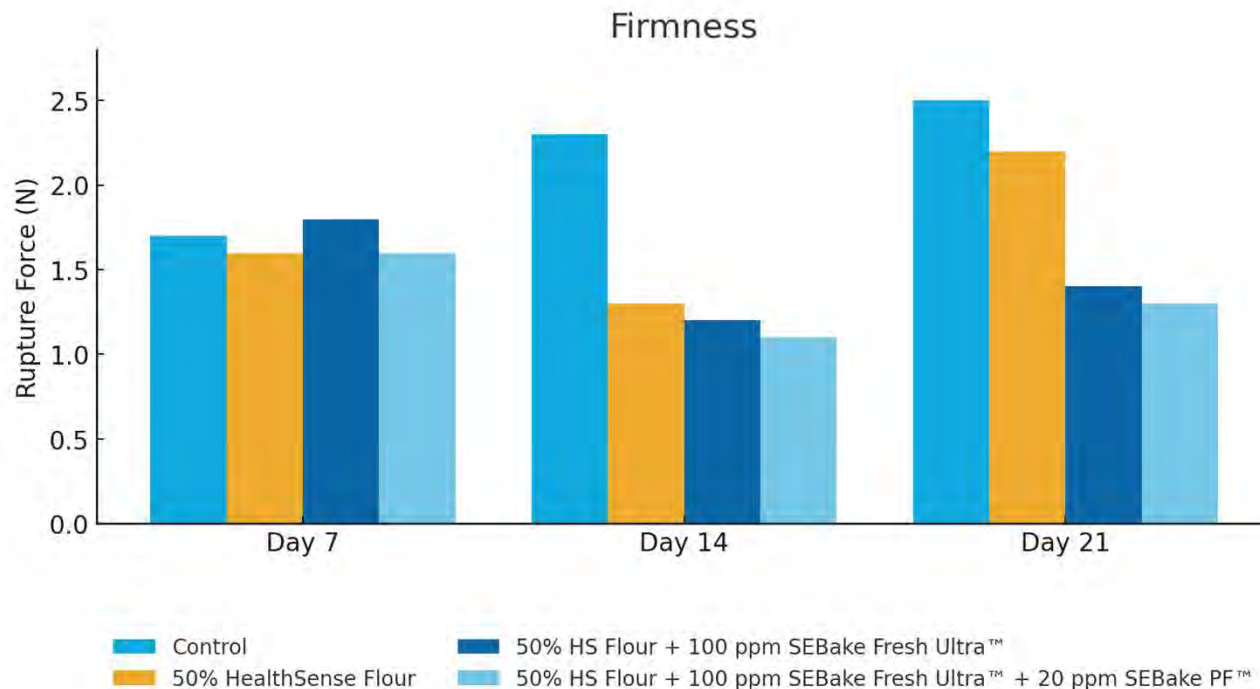


50% HealthSense Flour* + 100ppm
SEBake Fresh Ultra™



50% HealthSense Flour* + 100ppm SEBake
Fresh Ultra™ + 20ppm SEBake PF™

SEBake PF™ - Improved Firmness



- ◆ HealthSense Flour firms faster
- ◆ Added enzymes (SEBake Fresh Ultra™ + PF™) keep products soft & delay staling
- ◆ Best softness = HS + SEBake Fresh Ultra™ (+ PF™)



High Protein Tortilla Study



High Protein Tortillas

Benefits of Protein

- ◆ Builds Muscle
- ◆ Increases Energy
- ◆ Weight Management
- ◆ Support Nutrition
- ◆ Helps Regulate Blood Sugar
- ◆ Maintains Muscle

Challenges of Adding Protein

- ◆ Stiffer Dough
- ◆ Extra Water
- ◆ Smaller Tortillas

SEBake PP™ – Smoother Dough

Benefits

- ◆ Improves dough extensibility
- ◆ Can reduce mix times
- ◆ Increases diameter of tortillas
- ◆ Improves dough handling

Function

- ◆ Hydrolyzes gluten to lower molecular weight peptides & amino acids



Dough w/17% added protein



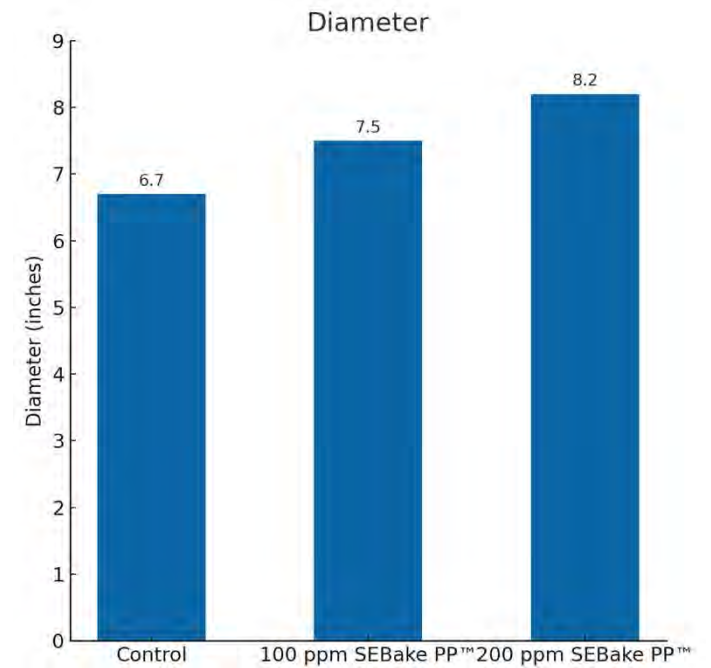
Dough w/17% added protein
+ SEBake PP™

SEBake PP™ - Increased Diameter

Whole Wheat Tortillas



Control	100ppm SEBake PP™	200ppm SEBake PP™
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Probiotic Study



Tortillas with Probiotics

Benefits of Probiotics

- ◆ Promote Gut Health
- ◆ Reduce Stress
- ◆ Support Allergy Relief
- ◆ Improve Sleep
- ◆ Boost Immune System
- ◆ Improve Mood

Challenges of Adding Probiotics

- ◆ Heat Sensitive
- ◆ May Require Refrigeration
- ◆ Sensory Impact
- ◆ Packaging Conditions

SEB LBSC™ - Spore-Forming Probiotic

FEATURES

- ◆ Spore-Forming *Bacillus coagulans*
- ◆ Pellet, Heat Stable & Shelf Stable
- ◆ Low Acid pH Stable
- ◆ Promotes Healthy Gut Microbiome
- ◆ Supports Healthy Vaginal Flora

USES

- ◆ Traditional Foods
- ◆ Functional Foods & Beverages
- ◆ Cereals
- ◆ Baked Goods

CLINICALLY SHOWN TO REDUCE

- ◆ Diarrhea
- ◆ Abdominal Pain
- ◆ Bloating
- ◆ IBS

CERTIFICATIONS

- ◆ GRAS No Objections Letter (Generally Recognized as Safe)
- ◆ Health Canada NPN Claims
- ◆ NSF-Certified Manufacturer
- ◆ Halal & Kosher Certified

Formulating with SEB LBSC™

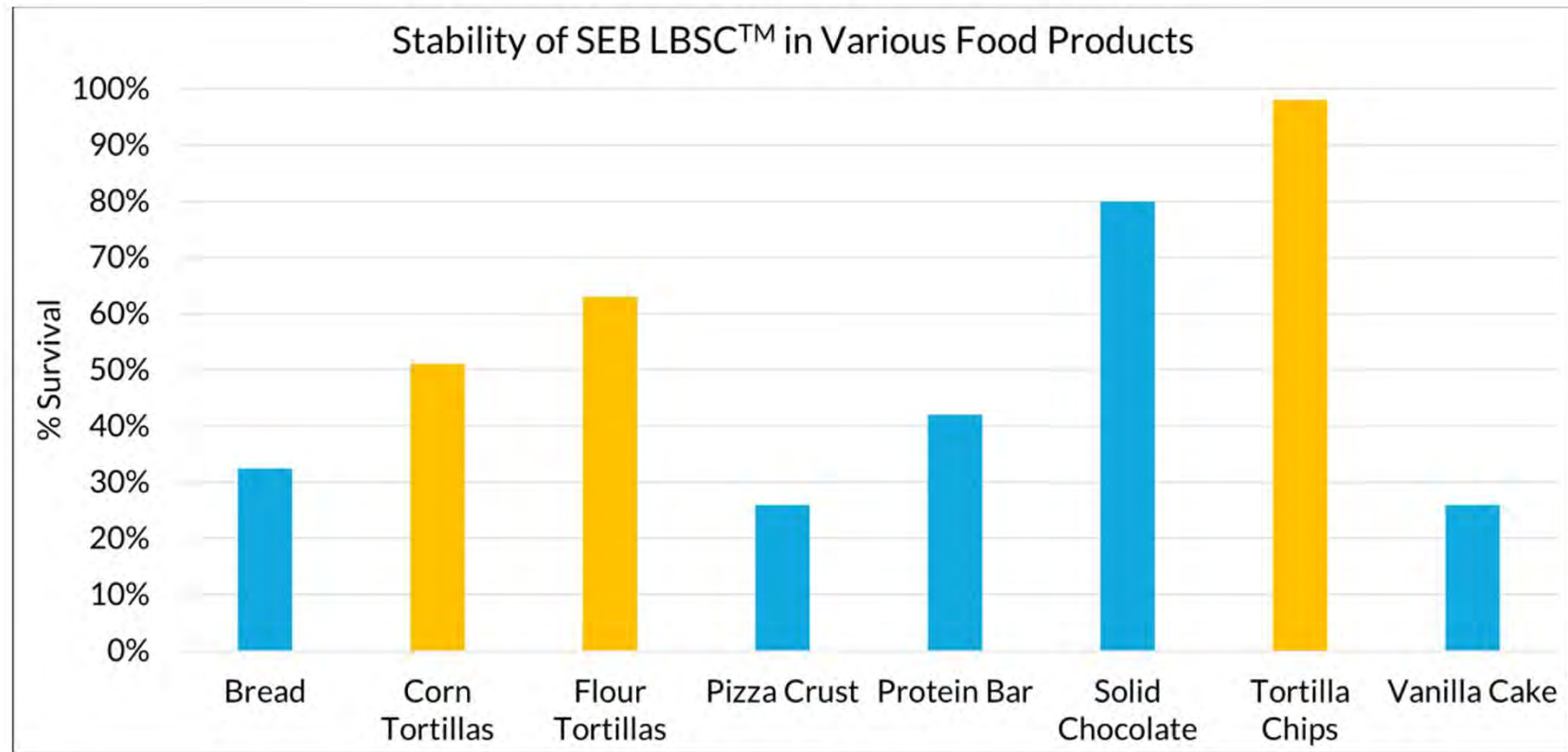
Ingredients	Products	Benefits
Corn Flour	SEBake Fresh Ultra™	Prolong Softness, Extend Shelf Life
	SEB LBSC™	Spore-Forming <i>Bacillus coagulans</i>



Control With SEB LBSC™

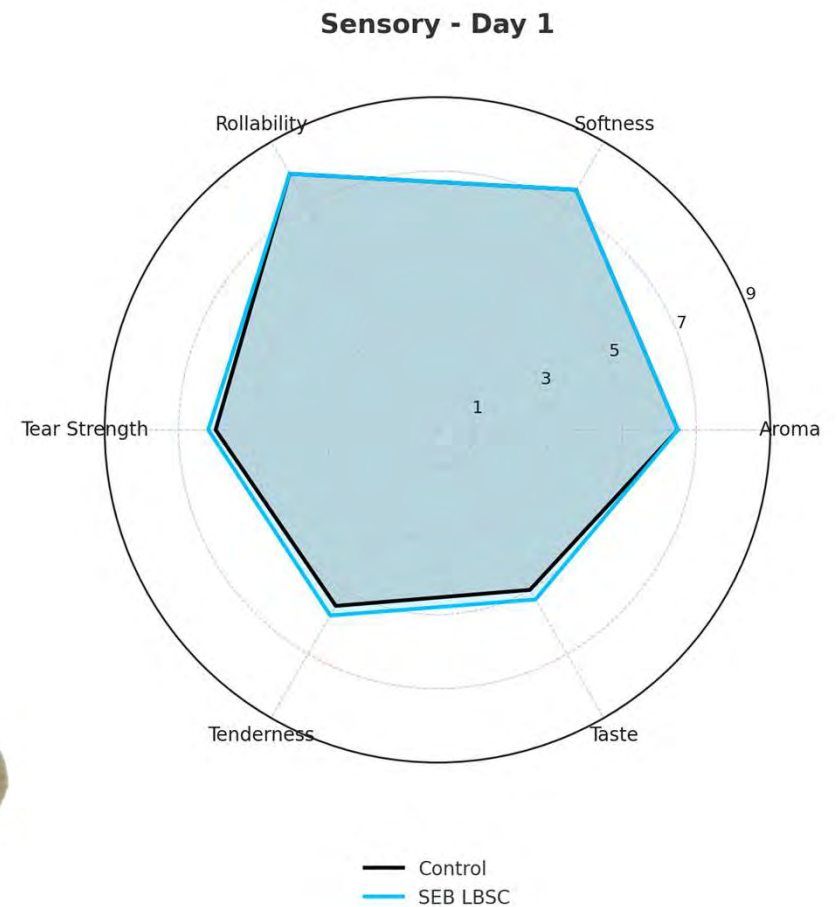
50% survival rate of SEB LBSC™ in corn tortillas

SEB LBSC™ - Stability in Various Foods



SEB LBSC™ - Sensory

- ◆ Same taste & quality as control
- ◆ Slight gains in texture & taste
- ◆ No quality loss





Shortening Reduction Study



Shortening Reduction in Tortilla

Benefits of Shortening

- ◆ Improves Texture
- ◆ Enhances Volume
- ◆ Extends Shelf Life
- ◆ Adds Flavor Richness
- ◆ Provides Stability
- ◆ Prevents Sticking
- ◆ Versatile Use

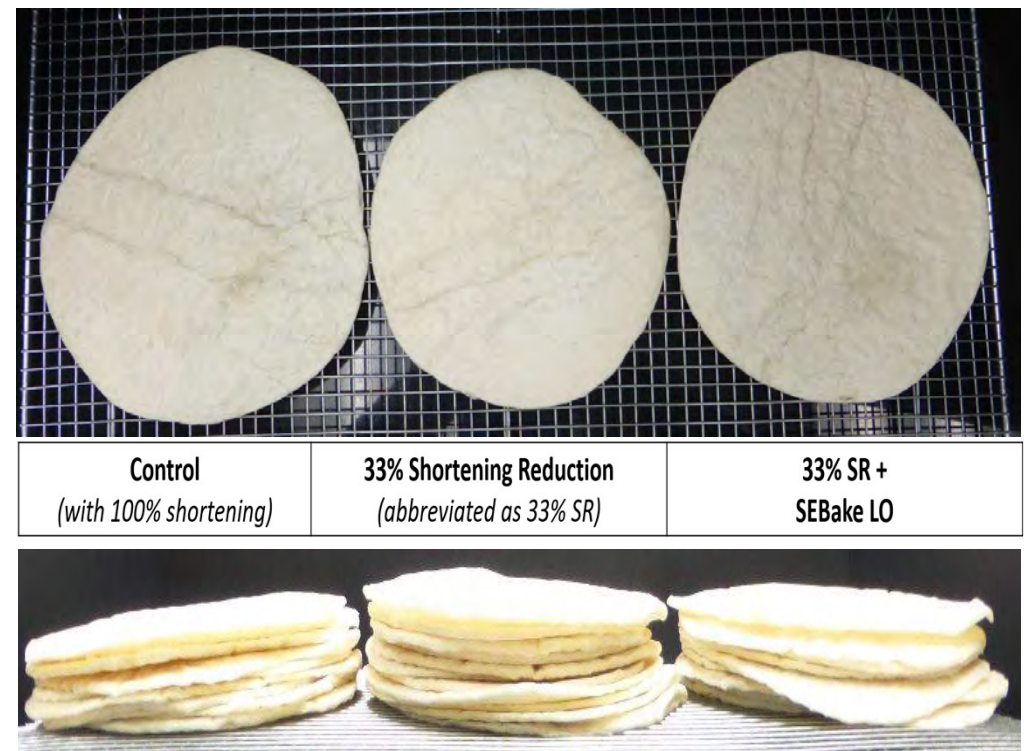
Disadvantages of Shortening

- ◆ High Fat Risk: Obesity, Diabetes, Heart Disease
- ◆ Rising Demand for Healthier Choices
- ◆ Regulatory Limits on Trans & Saturated Fats
- ◆ Reformulation, Alternatives Without Losing Function

Reducing saturated fats and using healthier oils—mono & polyunsaturated—are essential in baking

SEBake LO™ - Shortening Reduction

Ingredients	Products	Benefits
Wheat Flour	SEBake Fresh Ultra™	Prolong Softness, Extend Shelf Life
	SEBake LO™	Maintain Softness, Rollability & Diameter in Shortening-Reduced Tortillas



SEBake LO™ - Shortening Reduction



- ◆ Ensures that reduced-saturated-fat tortillas maintain their diameter
- ◆ Improves smoothness & extensibility of low-fat dough

SEBake LO™ - Improved Rollability

Day 1



Control



Day 20



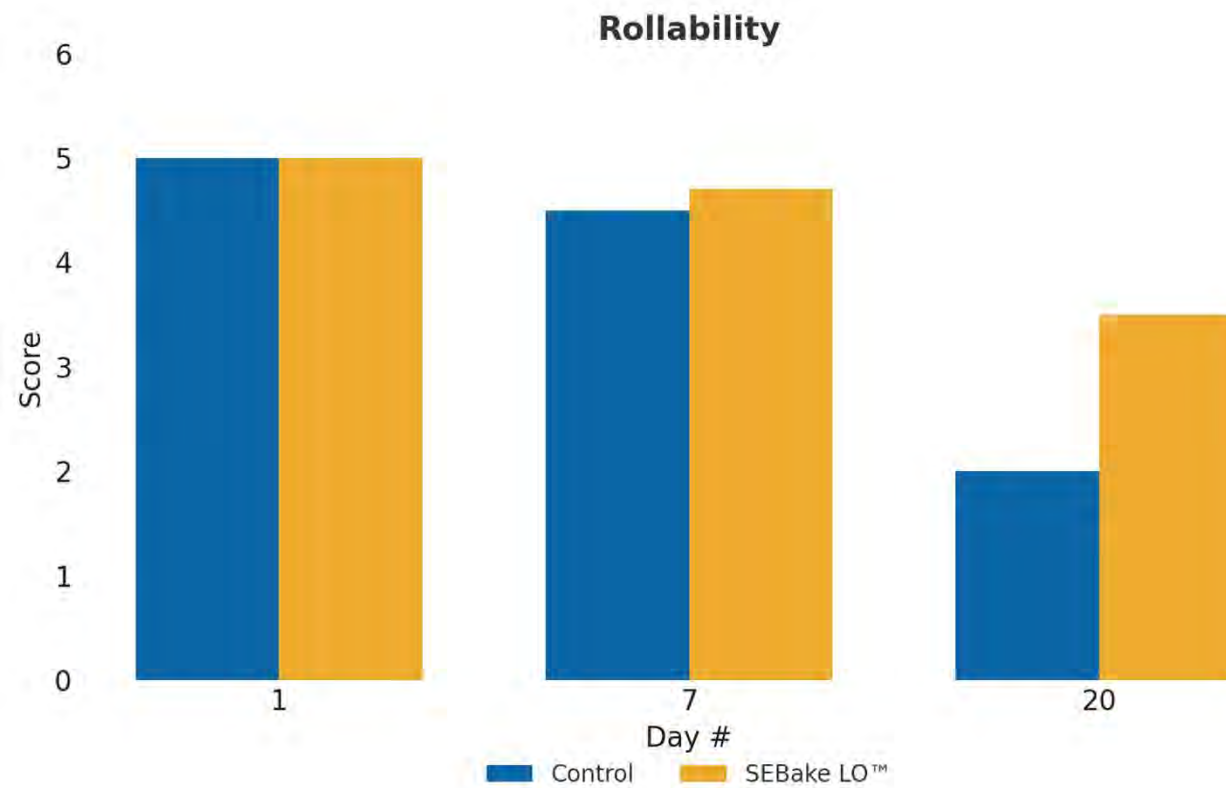
33%
Shortening Reduction



33% Shortening
Reduction
+
SEBake LO™



SEBake LO™ - Improved Rollability



Testing at El Baking Lab, Chino, CA, USA

Summary

Healthy Tortillas	Ingredient	Our Solution	Benefits
Fiber	Cellulase	SEBake CLX™	Improves dough handling, softens fiber
	Xylanase	SEBake FX Ultra™	Improves dough handling, softens fiber
Protein	Protease	SEBake PP™	Increases dough extensibility
		SEBake NP™	Relaxes dough
Probiotics	Spore-Forming Probiotic	SEB LBSC™	Improved gut health
Shortening Reduction	Enzyme Blend	SEBake LO™	Helps reduce shortening up to 33%
Softness & Shelf-life	Maltogenic Amylase	SEBake Fresh Ultra™	Prolongs softness & freshness, Improves rollability & resilience

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