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TORTILLA INDUSTRY ASSOCIATION TIA

Function First: A Comparative Look at Specialty Shortenings for Tortilla Manufacturers


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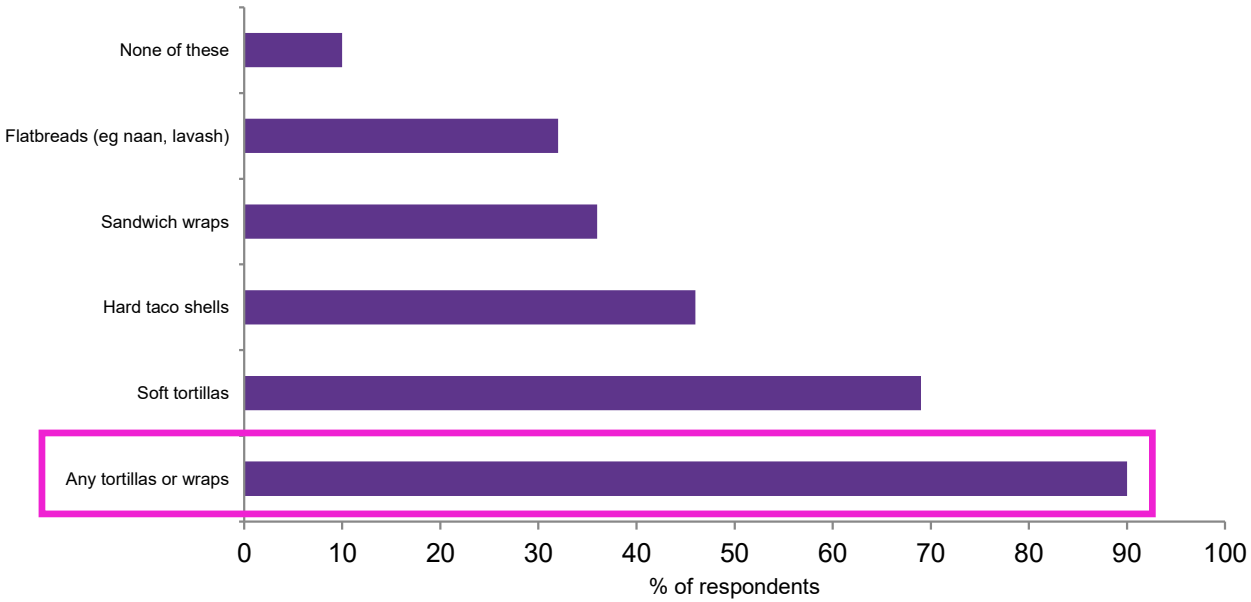
Tortillas: A Mature Category with Clear Paths to Value-Added Growth
Usage is high — differentiation comes from perception and formulation

Tortillas are a mature, high-penetration staple; growth comes from expanded usage

US: tortillas and wraps usage in the past six months, 2025



Base: 1,808 internet users aged 18+ who used tortillas and wraps in the past six months

- **90% of US consumers use tortillas or wraps**
- **25% expect to eat more in the next year**, driven by health motivations, convenience and budget-friendliness
- Used across multiple eating occassions: **meals, snacks, grab-and go**

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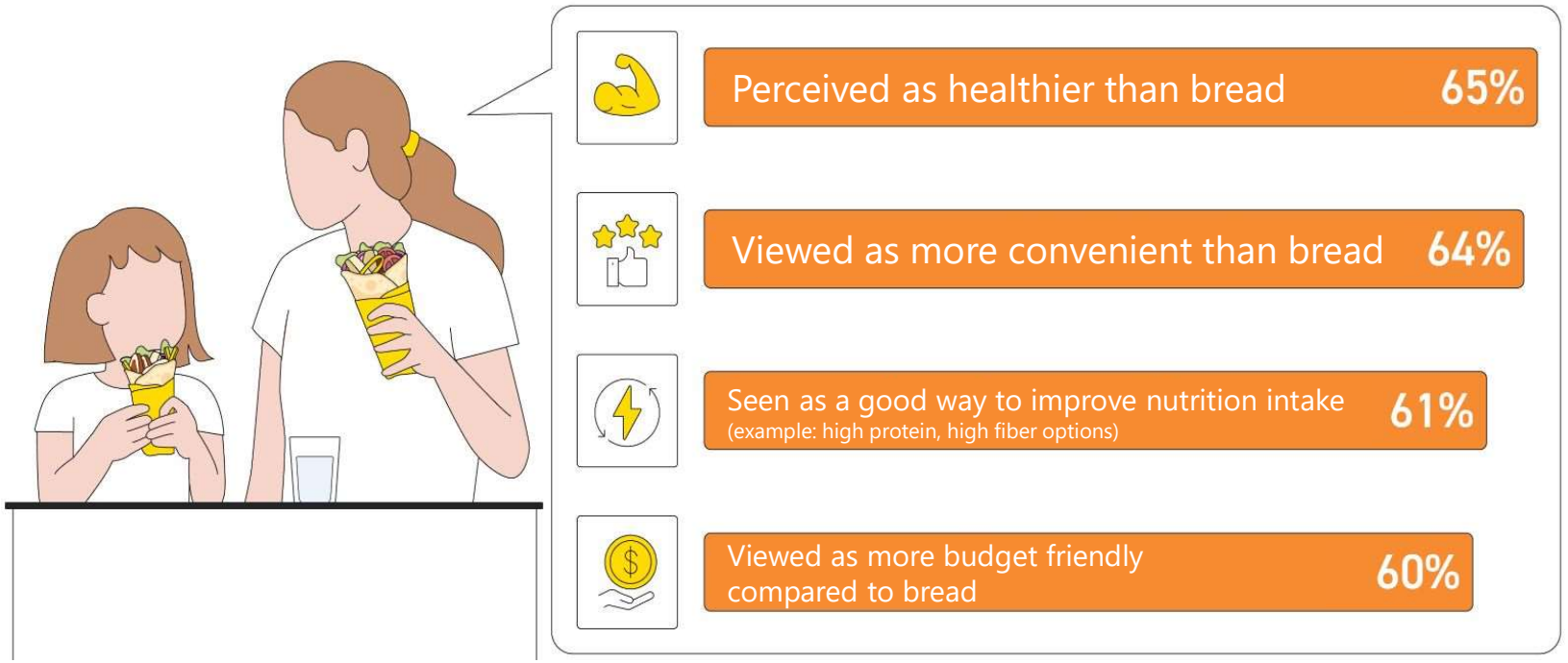
Source: Mintel, Tortilla & Wraps, US, 2026; published on January 29, 2026

Consumers perceive tortillas as convenient, affordable and ‘health positive’



Base: 1,808 internet users aged 18+ who used tortillas and wraps in the past six months

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Source: Mintel, Tortilla & Wraps, US, 2026; published on January 29, 2026

Formulation enables growth; fiber, protein and premium ingredients justify trade-ups BUT are constrained by price sensitivity

66% of consumer purchase value-added* tortilla (beyond basic flour and corn)
**value-added includes multi-grain, whole wheat, low-carb, gluten-free*

→ *More complex formulations require well-designed fats & oils systems to deliver structure, flexibility & shelf life*

Interest in fiber- and protein-enhanced tortillas is increasing

→ *Higher fiber and/or protein formulations increase demands on dough structure, softness and moisture management*

60% of consumers willing to pay more for premium ingredients*
**premium includes whole grain, multi-grain, organic, non-gmo*

→ *Clean-label fats & oils support premium positioning while preserving performance*

***Caveat: Price sensitivity** remains a **critical constraint**. Price increases will be met with decreased purchase frequency, trading down and/or switching to private label. Functional and premium benefits must be delivered with **cost discipline** to avoid volume erosion.*

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Source: Mintel, Tortilla & Wraps, US, 2026; published on January 29, 2026

Bunge Shortening Tortilla Application Case Study

Why Shortening Matters in Tortillas

Without Shortening /Liquid Oil Only	With Shortening
Drier texture; more prone to cracking	Soft, flexible tortillas that resist cracking
Tighter structure from excess gluten development	Controlled gluten development for tender bite
Stickier dough, processing challenges	Improved dough handling and machinability
Greater batch-to-batch variability	Consistent texture and appearance
Faster staling and flavor fade	Extended shelf life and flavor release

Shortening is the difference between a tortilla that cracks and one that performs—on the line and at the bite.

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Objective: Compare common fat systems used in tortilla

Compare animal-based vs plant-based fat options used in tortillas:

- Lard
- Plant-based butter (Bunge PlantBetter)
- Soy-based shortening (Bunge Vream 337)
- Palm-based shortening (Bunge NH 333)
- **Evaluate differences in finished tortillas:**
- Texture and eating quality
- Rollability
- Softness
- Flavor Release
- Shelf-Life Attributes

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Objective

Assess Bunge shortening position in the tortilla shortening market

Compare the performance of **Bunge tortilla shortening with industry-standard fat** (Lard)

Compare the performance among **Bunge Plant-based, Soy-based and Palm-based** tortilla shortening

Tortilla Fat Systems: Functional Comparison Matrix

Fat System	Flavor Impact	Dough Handling & Machinability	Finished Texture & Flexibility	Key Considerations
Lard	Traditional, familiar flavor	Excellent extensibility and sheetability	Soft, tender, flexible tortillas	Animal-derived; labeling and supply variability
Plant-Based Butter	Buttery, differentiated flavor	Good initial dough softness	Soft bite; may shorten shelf life	Lower heat stability; flavor variability
Soy-Based Shortening	Neutral	Consistent and predictable	Balanced softness and structure	Soy allergen; perception considerations
Palm-Based Shortening	Minimal flavor contribution	Strong structure and machinability	Supports softness and shelf life	Sustainability sourcing; manage firmness

Tortilla Testing Formula

Ingredients	Bakers Percent(%)
Wheat flour	100.00
Water	60.00
Shortening	16.50
Salt	2.00
Baking powder	1.00
Calcium propionate	0.50
Potassium sorbate	0.40
Fumaric acid	0.33

Shortening used in this study

- Lard (Control)
- Vream 337
- NH 333
- Beleaf PlantBetter

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Tortilla Baking Data Analysis

		Control (Lard)	Vream 337	NH 333	PlantBetter
Weight (g)	Average	46.77	46.22	44.88	46.94
	Standard Deviation	1.16	0.57	0.44	0.78
	Bake Loss	6.5%	7.6%	10.2%	6.1%
Height (cm)	Average	0.23	0.25	0.21	0.28
	Standard Deviation	0.02	0.02	0.02	0.01
Diameter (cm)	Average	15.90	16.77	16.67	15.93
	Standard Deviation	0.20	0.25	0.15	0.38
Specific Volume (cm3/g)	Average	974.99	1177.44	1004.48	1204.92
	Standard Deviation	62.0	71.7	82.8	92.7

- Lard and PlantBetter have the smallest percent of bake loss
- PlantBetter has the highest rise and biggest volume
- The after-bake spread is similar for 4 variables

LARD 337 333 PB

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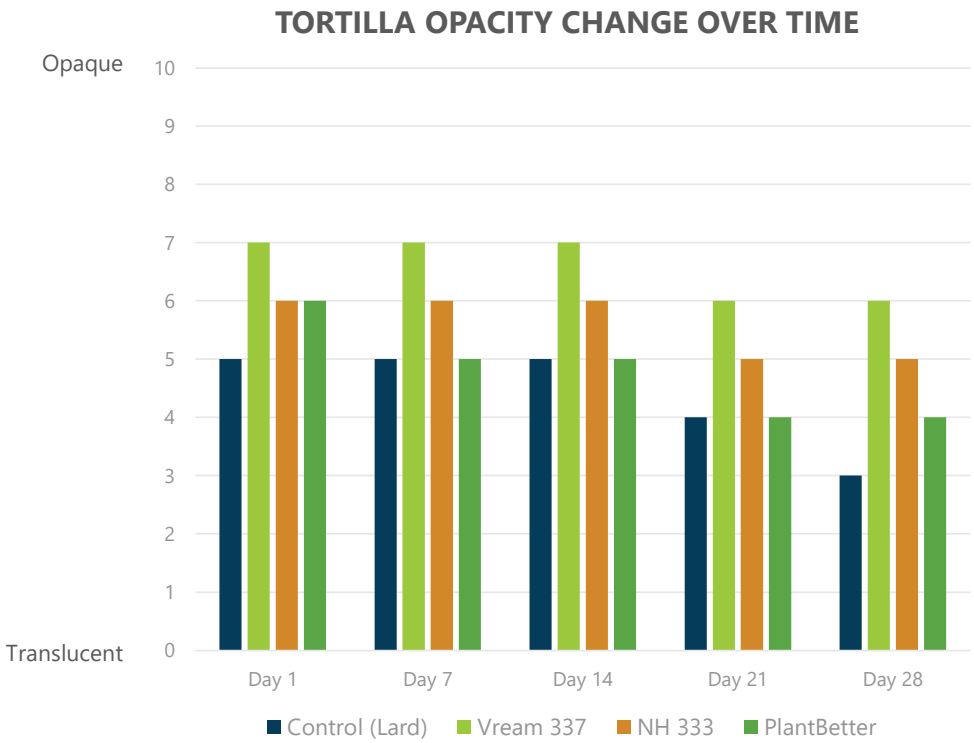
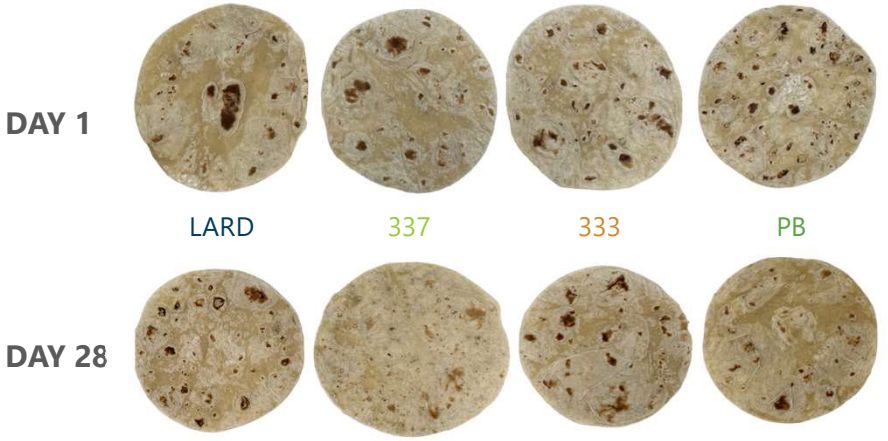
Tortilla Opacity Change Over Time





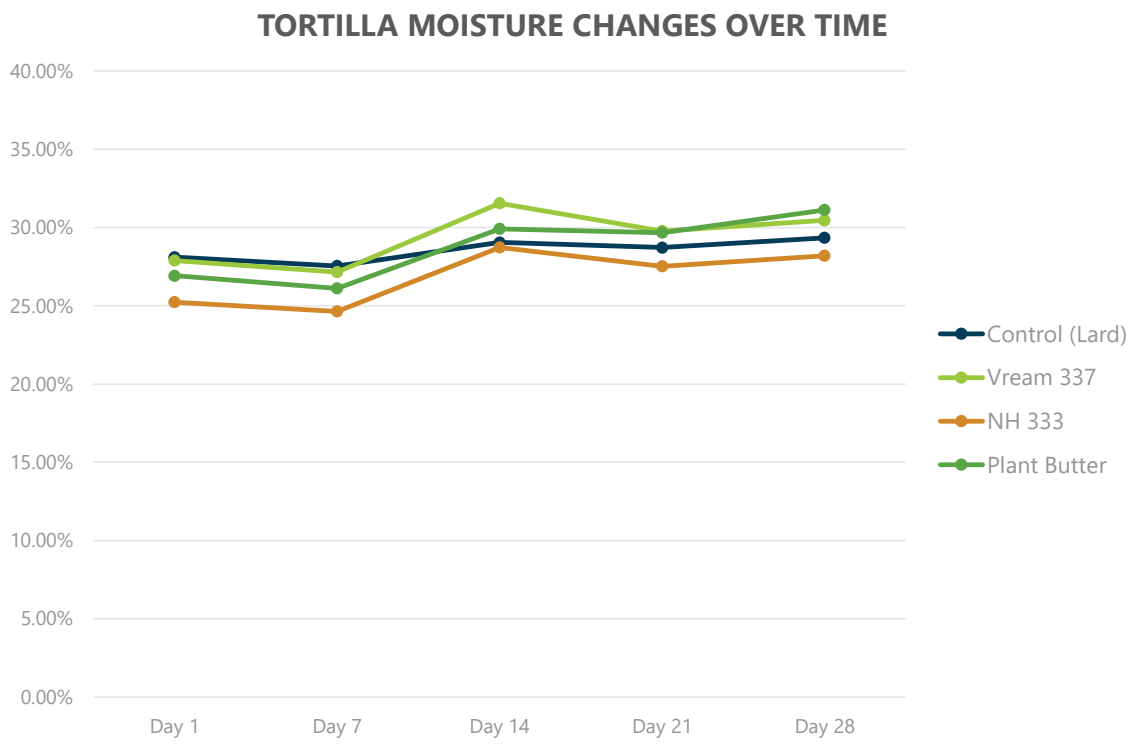
Vream 337 sample remained the most opaque sample during the 28-day shelf-life study

*__Opacity:__ Whiteness of tortilla, due to inability to allow light to pass through the tortilla

Tortilla Moisture Data Analysis

During the 1st 7 days, Lard tortilla shows higher moisture content than Vream 337, NH 333 and PlantBetter versions

Between 7th day and 28th day, PlantBetter holds the highest moisture among these 4 variables



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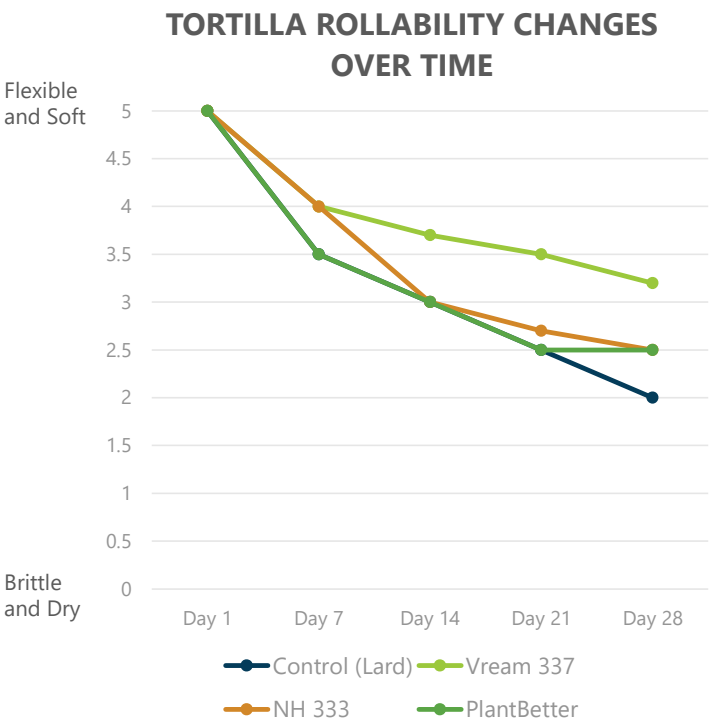
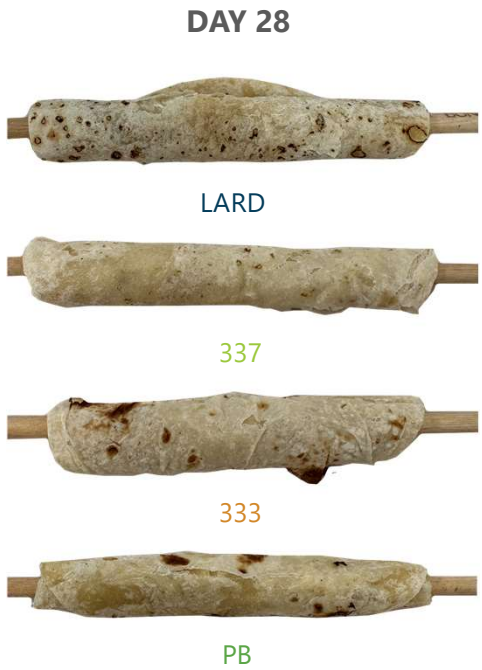
Tortilla Rollability Analysis





All samples showed excellent rollability during the 1st week after production; all variables rollability decreased over shelf-life.

Among the tested shortenings, Vream 337 demonstrated best rollability performance throughout the study

PlantBetter initially displayed rollability comparable to Lard, and it demonstrated better performance than Lard after 21 days of storage

Tortilla Foldability: Ability of tortilla to fold with no cracks or tears.

The rollability of tortilla is measured using 1 cm dowel. Measured on scale of 1-5: 1 when tortilla breaks at several points; on rolling; 5 when no cracks and tears appear during rolling of tortilla

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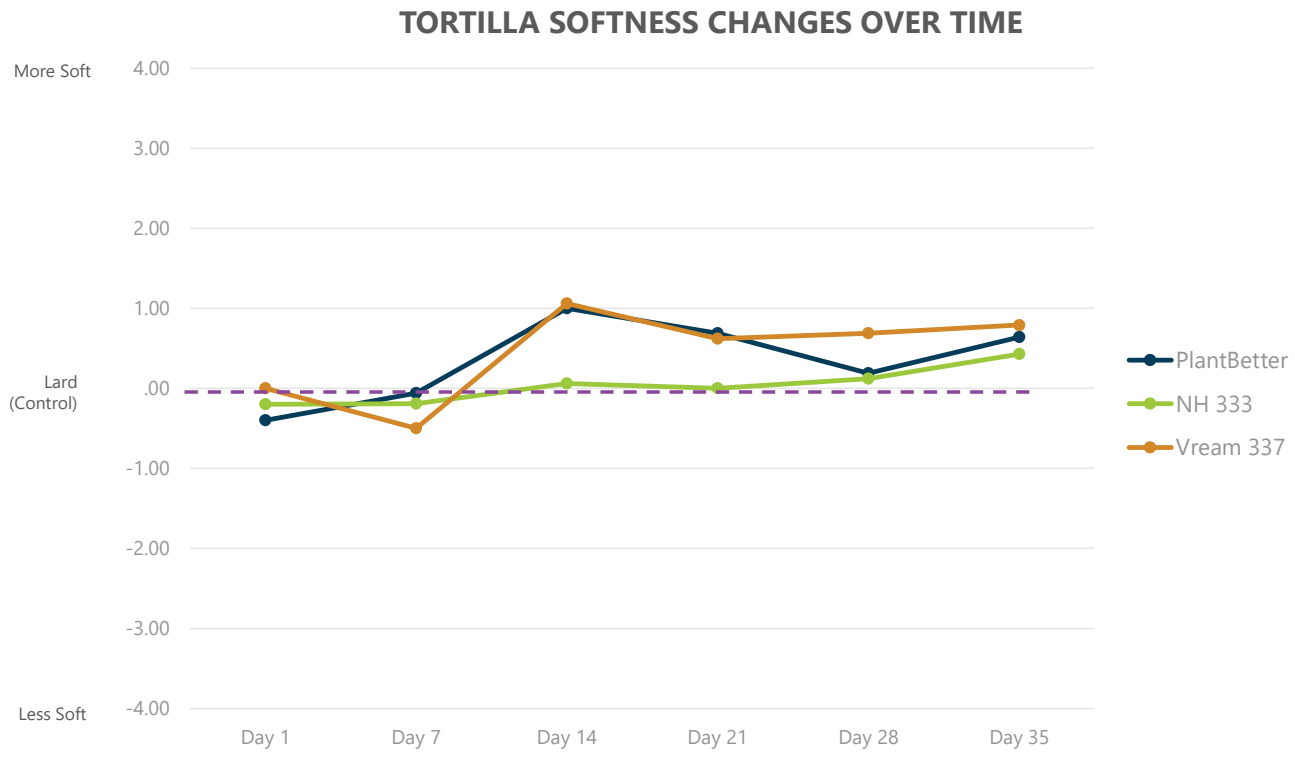
Tortilla Softness Analysis



0 (R): Not Different (from the reference)
(+/-) 0.5-1: Trace Difference (from the reference)
(+/-) 1-2: Slightly Different (from the reference)
(+/-) 2-3: Moderately Different (from the reference)
(+/-) 3-4: Very Different (from the reference)

- During the initial 7-day period, Vream 337, NH 333 and PlantBetter showed firmer texture relative to the Control
- After the 1st week, textural inversion occurred, these 3 variables became softer than Control

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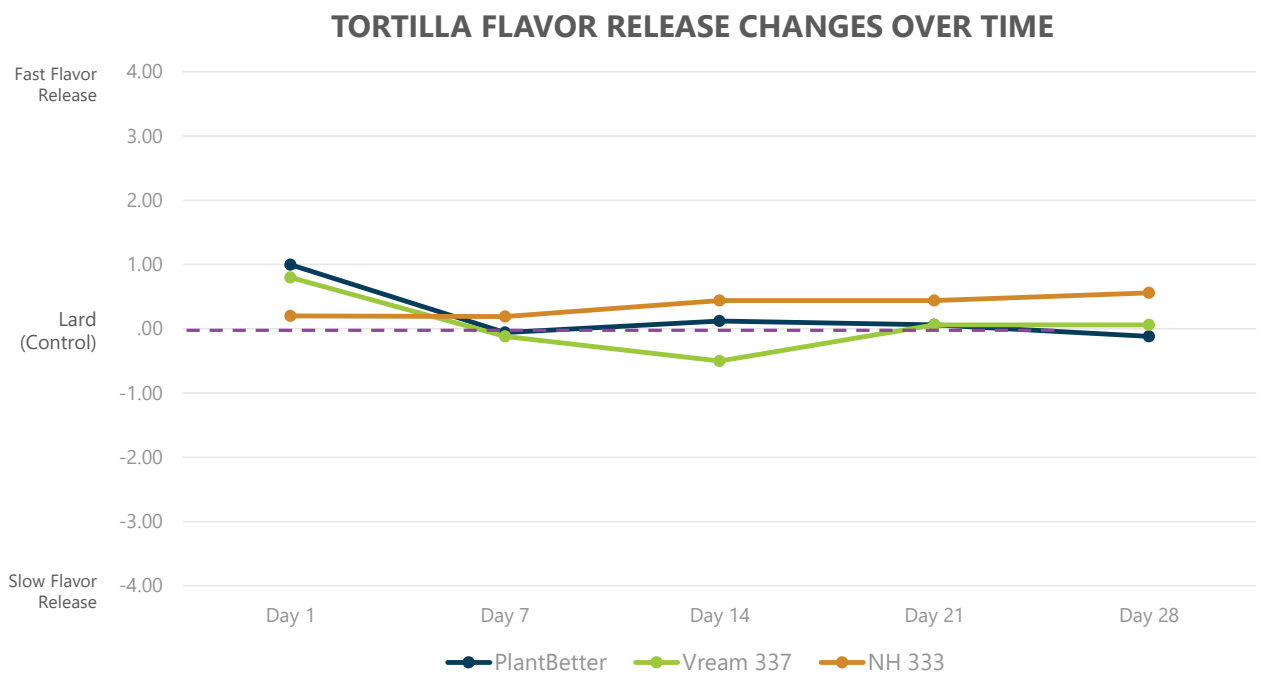
Tortilla Flavor Release Analysis



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(+/-) 1-2: Slightly Different (from the reference)
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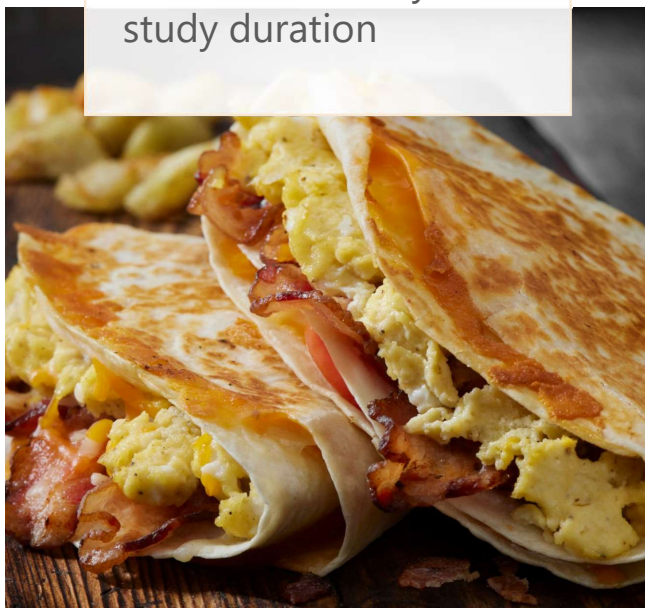
(+/-) 3-4: Very Different (from the reference)

Overall, NH 333 demonstrated highest rate of flavor release across the 28-day study duration



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Conclusion

PlantBetter demonstrated the best baking efficiency, exhibiting the lowest bake loss; the highest rise and greatest volume increase.

Vream 337 tortilla maintained superior opacity and bright whiteness throughout the 28-day shelf-life study.

Vream 337 tortilla outperformed other samples in rollability, it maintained best flexibility for folding and rolling.

Softness: during the first week, all 3 variables (Plant Better, NH 337 and NH 333) were initially firmer than Control; after the 1st week, these 3 variables became softer than Control, showing better resistance to Staling.

Overall, **NH 333** demonstrated highest rate of flavor release across the 28-day study duration.

Key Takeaways

Beleaf PlantBetter
Not Butter. Better.

- Savory, Artisan Tortillas
- Drop in Sensory & Functionality Compared to Dairy Butter
- Best Baking Efficiency
- Closest Plant-Based Performance to Lard

Vream® Classic Tortilla Shortening 337

- All Soy
- Best Rollability Performance
- Superior Opacity and Bright Whiteness
- Interesterified Soybean Oil, Mono and Diglycerides (added for improving machinability for tortilla production lines and preventing sticking in packaging.)

NH 333 Tortilla Shortening

- Sustainably Sourced Palm Oil
- Best Tortilla Flavor Release Over Time
- Mono and Diglycerides (added for improving machinability for tortilla production lines and preventing sticking in packaging.)

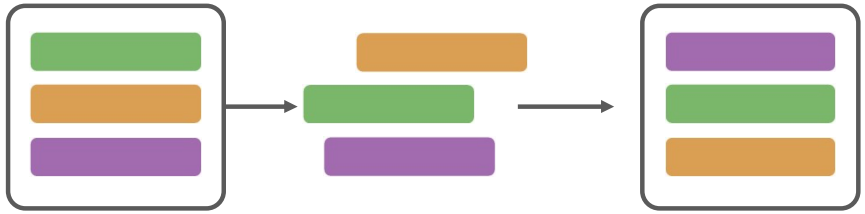
Explaining Interesterification (IE):

Functional Role and Health Impact

What is IE?

Interesterification (IE) is a common practice in the food industry.

IE **rearranges fatty acids** on triglyceride (TAG) molecules of fats **without making changes to the fatty acids themselves**.[1]



IE **changes an oil's physical properties**, like melting point, **to achieve a desired functional benefit**.[1]

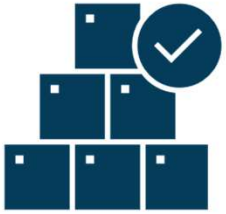
1. Berry SE, Bruce JH, Steenson S, Stanner S, Buttriss JL, Spiro A, Gibson PS, Bowler I, Dionisi F, Farrell L, Glass A, Lovegrove JA, Nicholas J, Peacock E, Porter S, Mensink RP, Hall WL. Interesterified fats: What are they and why are they used? A briefing report from the Roundtable on Interesterified Fats in Foods. Nutrition Bulletin. 2019; 44(4):363-80. doi:10.1111/nbu.12397

The functional benefits of IE

COMMON FOOD CHARACTERISTICS IMPROVED THROUGH IE

Melting point

Creates desired sensory attributes like a smooth and creamy texture



Quality

Makes products less prone to hardening and oil/fat separation

Common products that rely on interesterified oils include:
Margarines, spreads, baked goods, icings, creamers, donuts, pastries, pie crusts, biscuits, cookies, chocolatey treats, tortillas, and cakes.

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The history of Interesterification

Early exploration began in the 20th century

1940s

Procter & Gamble patented interesterification. They modified lard's crystals to create a smoother, more workable lard for shortenings. This revolutionized the baking industry.

1950 – 1960

IE extends to vegetable oils

- Created spreadable margarine with stable β' crystals and ideal melting points.
- Avoided greasiness of blends and waxiness of hydrogenated fats.

1980s

Health concerns about trans fats emerge. Industry revisits IE as a trans fats free alternative.

Post 2000

Global trans fat bans solidify IE's role

- IE becomes a cornerstone of the fats and oils industry
- Widely used for cookies, pastries, margarine, coatings

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The health impact of IE

Interesterification **delivers desired fat functionalities in a healthier manner compared to trans fats.**[1,2] Trans fats, also known as partially hydrogenated oils or PHOs, are strongly linked to heart disease. This health concern led to global bans on trans fats.[1]

Interesterification can **create a functional fat solution with lower saturated fat content** compared to pure tropical or pure animal fats.[1]

Human clinical studies indicate that interesterified fats **do not impact important health indicators**.* When consumed according to overall and saturated fat intake guidelines, interesterified fats are **unlikely to affect human health**.[2]

*indicators studied include cholesterol, triglycerides, blood sugar and insulin levels as well as markers of inflammation or oxidative stress

Research indicates that interesterified fats are **safe for consumption**.[2]

1. World Health Organization. (2020). *REPLACE trans fat: An action package to eliminate industrially produced trans-fatty acids. Module 2: Promote: How-to guide for determining the best replacement oils and interventions to promote their use.*
2. Berry SE, Miller GJ, Sanders TA. The solid fat content of stearic acid-rich fats determines their postprandial effects. Am J Clin Nutr. 2007. 85:1486-94; Christophe AB, De Greyt WF, Delanghe JR, Huyghebaert AD. Substituting enzymatically interesterified butter for native butter has no effect on lipemia or lipoproteinemia in Man. Ann Nutr Metab. 2000;44:61-7; Filippou A, Berry SE, Baumgartner S, Mensink RP, Sanders TA. Palmitic acid in the sn-2 position decreases glucose-dependent insulinotropic polypeptide secretion in healthy adults. Eur J Clin Nutr. 2014;68:549-54; Filippou A, Teng KT, Berry SE, Sanders TA. Palmitic acid in the sn-2 position of dietary triacylglycerols does not affect insulin secretion or glucose homeostasis in healthy men and women. Eur J Clin Nutr. 2014;68:1036-41; Hall WL, Alkoblan A, Gibson PS, et al. Postprandial lipid and vascular responses following consumption of a commercially-relevant interesterified palmitic acid-rich spread in comparison to functionally-equivalent non-interesterified spread and spreadable butter: a randomised controlled trial in healthy adults. Food & function. 2024;15:2733-50; Meijer GW, Weststrate JA. Interesterification of fats in margarine: effect on blood lipids, blood enzymes, and hemostasis parameters. Eur J Clin Nutr. 1997;51:527-34; Nestel PJ, Pomeroy S, Kay S, Sasahara T, Yamashita T. Effect of a stearic acid-rich, structured triacylglycerol on plasma lipid concentrations. Am J Clin Nutr. 1998;68:1196-201; Shane JM, Walker PM, Emken EA. Effect of randomization of lard triglyceride structure on plasma lipids. J Applied Nutr. 1999;51:68-77; Summers LK, Fielding BA, Ilic V, Quinlan PT, Frayn KN. The effect of triacylglycerol-fatty acid positional distribution on postprandial metabolism in subcutaneous adipose tissue. Br J Nutr. 1998;79:141-7; Yli-Jokipii KM, Schwab US, Tahvonen RL, Kurvinen JP, Mykkanen HM, Kallio HP. Chylomicron and VLDL TAG structures and postprandial lipid response induced by lard and modified lard. Lipids. 2003;38:693-703; Zampelas A, Williams CM, Morgan LM, Wright J, Quinlan PT. The effect of triacylglycerol fatty acid positional distribution on postprandial plasma metabolite and hormone responses in normal adult men. Br J Nutr. 1994;71:401-10; Zock PL, de Vries JH, de Fouw NJ, Katan MB. Positional distribution of fatty acids in dietary triglycerides: effects on fasting blood lipoprotein concentrations in humans. Am J Clin Nutr. 1995;61:48-55.

Key Takeaways

Interesterification (IE) is a **well-established and pivotal process** in the modern food industry.

IE optimizes fat functionality, texture, and sensory attributes, across diverse food applications to meet customer needs.

IE provides the food industry with an effective alternative to trans fats.

IE enables the creation of indulgent, high-performing fats and oils that are safe to consume.

Thank You

Appendix

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Tortilla Shortenings

Tortilla Shortenings

Oil Source	Tier Level	Product	Texture	Description	Ingredient Statement	Material # / Pack Format
Soy	●●●	**Bunge Vream Classic Tortilla Shortening 337**	Medium	• Emulsifiers are specifically added for tortilla production lines and to prevent sticking together after packaging • Excellent workability across wider temperature ranges	Soybean Oil, Hydrogenated Soybean Oil, Mono and Diglycerides ----------**OR**---------- Interesterified Soybean Oil, Mono and Diglycerides	5026077- 50lb. Cube
Palm	●●○	**Bunge NH 333 Tortilla Shortening**	Medium	• Emulsifiers are specifically added for tortilla production lines and to prevent sticking together after packaging	Palm Oil, Mono and Diglycerides	5015048- 50lb. Cube

Palm Soy

●●● Best combination of working temperature range, machinability and resistance to sticking

●●○ Great combination of working temperature range, machinability and resistance to sticking

●○○ Good combination of working temperature range, machinability and resistance to sticking

Product availability subject to change. Contact your Bunge sales representative for more information.

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Vream® Classic Tortilla Shortening 337

A medium textured shortening with a great working temperature range, machinability and resistance to sticking.

Product Description

Mono & Diglycerides are added for improving machinability for tortilla production lines and preventing sticking in packaging.

Features & Benefits

Functionality

- Delivers excellent rollability and minimizes tears
- Helps prevent sticking in production and the package
- Wider working temperature range provides excellent workability and production flexibility

Sensory

- Produces tortillas with a tender and soft texture

Labeling

- All Soy
- Allergen-free
- Kosher

Applications

Tortillas

Product	Pack Format	Ingredient Statement
Vream® Classic Tortilla Shortening 337	5026077 - 50 lb. Cube	Soybean Oil, Hydrogenated Soybean Oil, Mono and Diglycerides -OR- Interesterified Soybean Oil, Mono and Diglycerides

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NH 333 Tortilla Shortening

A medium textured shortening with a great combination of working temperature range, machinability and resistance to sticking.

Product Description

Mono & Diglycerides are added for improving machinability for tortilla production lines and preventing sticking in packaging.

Features & Benefits

Functionality

- Delivers great rollability and minimizes tears
- Helps prevent sticking in production and the package
- Wider working temperature range provides high workability and production flexibility

Sensory

- Produces tortillas with a tender and soft texture

Labeling

- Sustainably sourced palm oil
- Soy free
- Allergen-free
- Kosher

Applications

Tortillas

Product	Pack Format	Ingredient Statement
Bunge® NH 333 Tortilla Shortening	5015047 - 50 lb. Cube	Palm Oil, Mono and Diglycerides

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Plant-Based Butter

Our innovative, label friendly, plant-based alternative to butter is here. Beleaf® PlantBetter™ delivers the same performance, taste and melt profile as dairy butter, but with a lower climate, land occupation and water scarcity impact than dairy butter*.

For food industry professionals who need the same performance, taste, and melt profile, but with a cost advantage to dairy butter, look no further than the industry's first proprietary match for croissants, shortbread, cookies, cakes, icing, sauces, gravies, prepared foods and more.

*Large-scale regionalized LCA shows that plant-based fat spreads have a lower climate, land occupation and water scarcity impact than dairy butter. The International Journal of Life Cycle Assessment (2020) 25: 1043-1058.

Beleaf® PlantBetter™

Oil Source	Tier Level	Product	Applications	Description	Ingredient Statement	Material # / Pack Format
Coconut, Canola, Shea	●●●	**Beleaf® PlantBetter™ Unsalted**	Croissants, Shortbread, Cookies, Cakes, Icing, Sauces, Gravies, Prepared Foods and More	• Clean label • Dairy-free • Lactose-free • Gluten-free • Plant-based / Vegan • Non Palm & Soy-free • Cholesterol-free	Coconut Oil, Canola Oil, Water, Shea Oil, Oat Syrup (Oats, Water). Contains 2% or Less of: Sunflower Lecithin, Natural Flavors, Beta Carotene (Color)	5038465 - 50lb cube
Coconut, Canola, Shea	●●●	**Beleaf® PlantBetter™ Salted**	Croissants, Shortbread, Cookies, Cakes, Icing, Sauces, Gravies, Prepared Foods and More	• Clean label • Dairy-free • Lactose-free • Gluten-free • Plant-based / Vegan • Non Palm & Soy-free • Cholesterol-free	Coconut Oil, Canola Oil, Water, Shea Oil, Oat Syrup (Oats, Water). Contains 2% or Less of: Salt, Sunflower Lecithin, Natural Flavors, Beta Carotene (Color)	5038210 – 1lb solid

Coconut Canola Shea

●●● Best combination of clean label, dairy butter sensory and performance

Product availability subject to change. Contact your Bunge sales representative for more information, including additional pack sizes.

Belief® PlantBetter requires MOQs and lead times – see GlenView Farms Unsalted Non-Dairy Butter SKU for immediate sales needs.

Ingredients

Coconut Oil, Canola Oil, Water, Shea Oil, Oat Syrup (Oats, Water), Contains 2% or Less of: Sunflower Lecithin, Natural Flavors, BetaCarotene (Color).

GLENVIEW FARMS®

Unsalted Non-Dairy Butter

During the formulation design, we put this product through rounds of blind testing. As experts who have decades of experience in professional kitchens, we knew how crucial it was that our non-dairy butter have a creamy texture, buttery flavor and perform well across all applications. Our final product had to impress chefs, if they were to use it in place of butter across all types of operations, so we put it to the test again and again. We baked croissants and biscuits and whipped up hollandaise sauce and white gravy. The final product? A non-dairy butter offering a consistent value, helping to save on food costs while changing the perception of what non-dairy butter looks, feels and tastes like.

VIEW DETAILS ON MOXE

Product ID	Case Size	Serving Size	Serving / Case
1117374	30/1 LB.	1 Tbsp. (14 g)	About 960

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