

Overcoming Challenges in High Fiber Tortillas

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Overcoming Challenges in High Fiber Tortillas

Key Takeaways:

- High fiber tortillas success with the right solutions.
- Challenges :Dough Rheology, Tortilla Texture- Stickiness & Softness
- Formulation solutions with three pillar technologies: **Texture, Taste, & Mold-Free.**



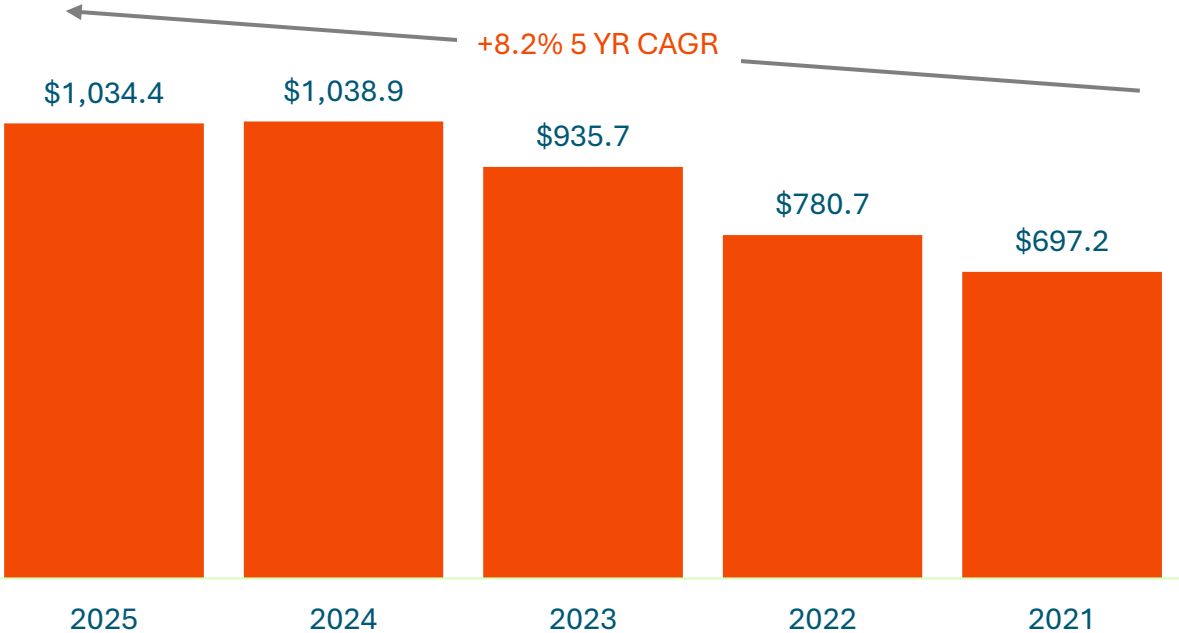
KERRY

Rising Trend: Fiber-Rich Tortillas



Fiber-rich tortillas are becoming a popular choice for health-conscious consumers, driving growth in the market.

Tortilla US Retail Sales (M) with Fiber Claims



+8.2%
5YR CAGR Growth
of Tortillas with
Fiber Claims



Source: Nielsen Sales Latest 52 wks 04/19/25 – 04/24/21 Fiber Presence Claim Soft Tortillas

Health Positioning #2 in New Product Launches for Tortillas



Positioning Claims in New Launches of Tortillas | % Last 3 Year

Convenience	99%
Health*	81%
Choice	75%
Ethical	31%
Pleasure	24%
Others	4%

No Trans Fats	29%
Low/No/Reduced Cholesterol	28%
GMO Free	27%
High/Source of Fiber	26%
Gluten Free	19%
No Additives/Preservatives	19%
Organic	15%
Vegan	15%
Wholegrain	14%
Low/No/Reduced Carb	11%
Sugar Free	11%
Low/No/Reduced Fat	8%
Low/No/Reduced Sodium	8%
Grain free	7%
No Added Sugar	6%
High/Source of Protein	3%
Vegetarian	3%
Low/No/Reduced Calorie	3%
Weight Management	2%
Digestive/Gut Health	1%
Plant Based	1%
Low/No/Reduced GI	1%
Natural	1%
Omega-3	1%



Total equals more than 100% because of multiple positionings

Source: Innova Database Past 3 Years; *"Health" includes Passive & Active

Low/NO Carb & High Fiber Tortillas New Products



Mission Carb Balance Tortillas
Contains 4g net carbs.
High fiber. 110 calories per serving. Zero sugar.
Keto certified.



Guerrero Zero Net Carb Jalapeno Tortillas
Zero net carbs. High fiber. 3.5g total fat per serving. 0g sugars. Keto certified. Only 30 calories.



Ole Mexican Foods Xtreme Wellness High Fiber Tortilla Wraps
Zero net carbs. High fiber. 3.5g total fat per serving. 0g sugars. Keto certified. Only 30 calories.



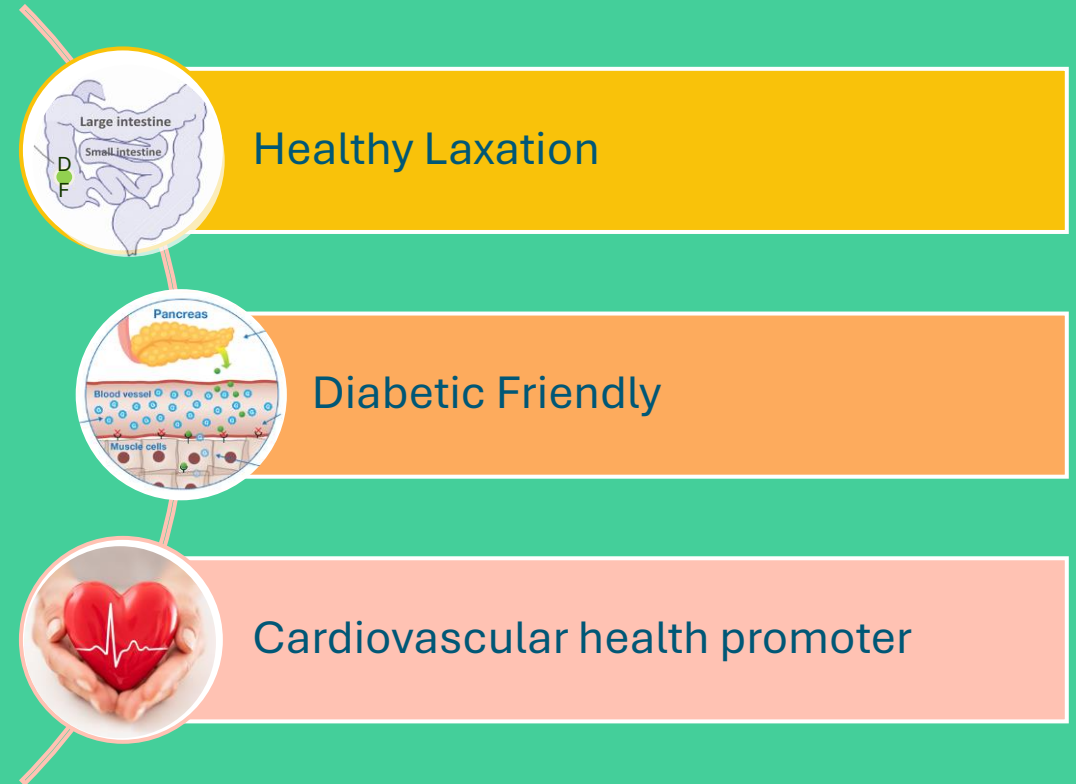
Maria And Ricardos Carbbueno Tortillas
Gluten free tortillas.
4 net carbs per tortilla.
Keto certified.



La Banderita Carb Counter
Net carbs: 0g

Why High Fiber Tortillas?

- Consumer label claims for baked goods also support desire for healthier options
- High fiber/low carb tortilla emerged as one of the leading trends in tortilla industry
- Considered part of a healthy lifestyle

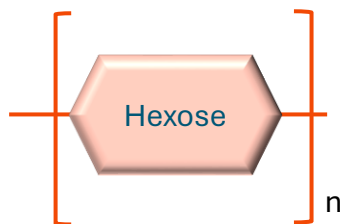


....Tortilla offers a tremendous opportunity to **deliver dietary fibers**

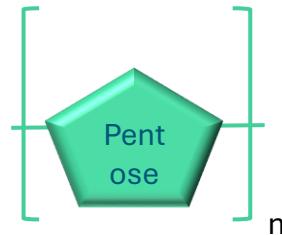
What is Fiber/Dietary Fiber (DF)?

Fiber/Dietary Fiber

- Edible parts of plants or analogous carbohydrates
- Resistant to digestion and absorption in the human small intestine
- Complete or partial fermentation in the large intestine.
- DF includes polysaccharides, oligosaccharides, lignin, and associated plant substances.

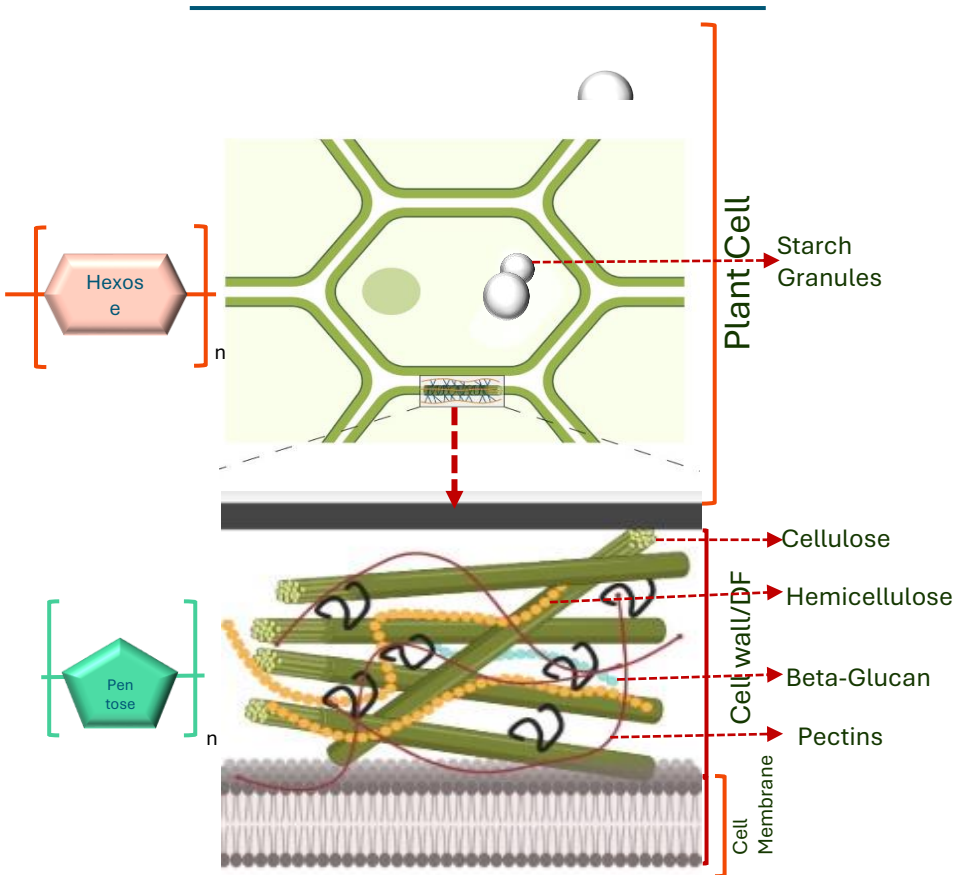


n=1,2,3....
DP=2,3,4....
Oligomers: 3--12.

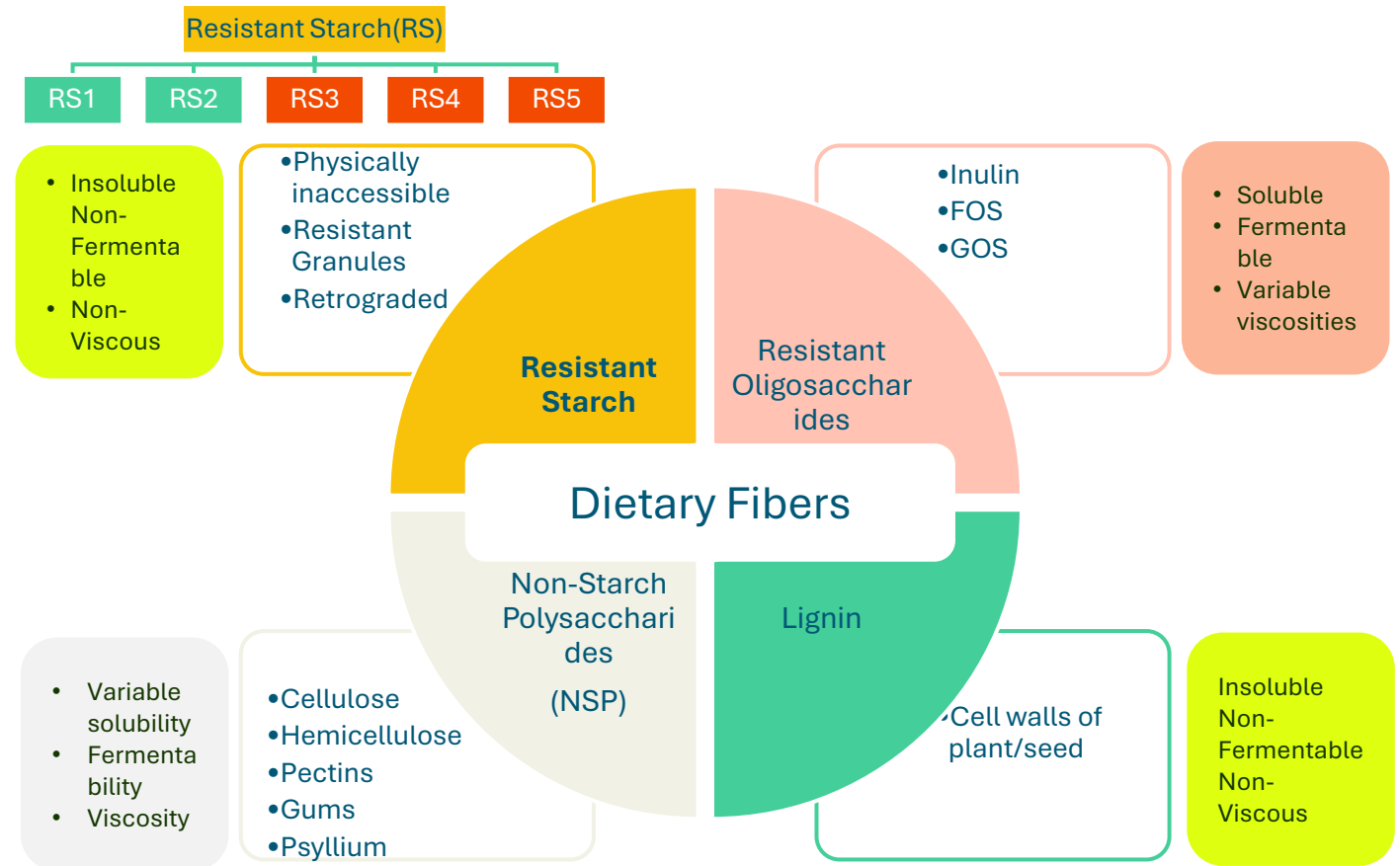


What is Fiber/Dietary Fiber (DF)?

Source of DF



Types of DF



... and net carbs?

4g/43 g of Tortilla



Net Carbohydrate (Net Carb)

- Net carb equals to total carbohydrate – dietary fiber
- No legal definition of Net Carb
- High fiber tortilla is recognized by “net carb(g)” content
- Recommended daily value for fiber is 28 g per day, based on 2000 calories needs¹

Net Carb Calculation

Net carb (g) =

Total Carbohydrate (g) -
Dietary Fiber (g)

Net Carb(g) = 19g -15 g = 4 g
Serving Size = 43 g

Nutrition Facts
8 Servings per container
Serving Size 1 tortilla (43g)

Amount per serving
Calories 70

% Daily Value*

Total Fat 3g	4%
Saturated Fat 1g	5%
Trans Fat 0g	
Polyunsaturated Fat 1.5g	
Monounsaturated Fat 0g	
Cholesterol 0mg	0%
Sodium 320mg	14%
Total Carbohydrate 19g	7%
Dietary Fiber 15g	54%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 5g	
Vitamin D 0mcg	0%
Calcium 70mg	6%
Iron 0.6mg	4%
Potassium 20mg	0%

*The % Daily Value tells you how much a nutrient in a

A Fiber Tortilla-Finished Product Characteristics



- Round,
- Regular edges,
- Uniform toast points
- White/Opaque



- Loose
- No Zippering
- No stickiness
- No peeling



- Soft, pliable
- Good foldability
- No breaking
- No cracking



- Good flexibility
- Perfect Burrito
- Translucency
- Strength



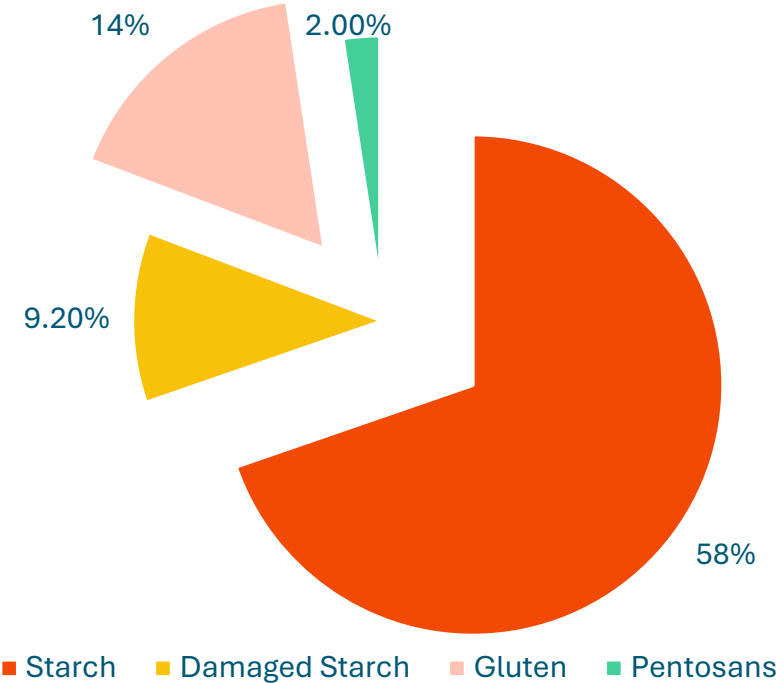
- Good rollability
- **NO MOLD**

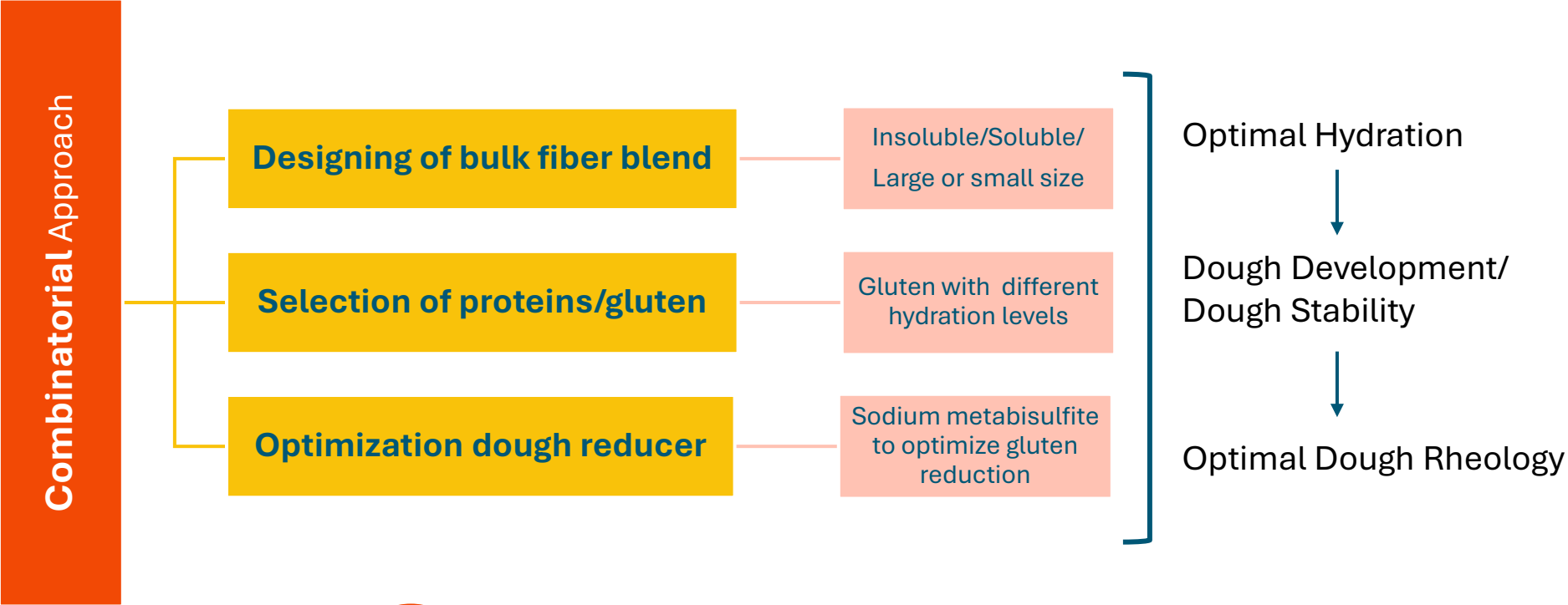
High Fiber Tortilla

Wheat flour will be replaced by Fibers

Composition	%	Distribution of Water in Dough
Starch	58.0	26.4
Damaged Starch	9.2	19.1
Gluten	14.0	31.2
Pentosans	1.5	23.4

Percentage Composition of a Wheat Flour





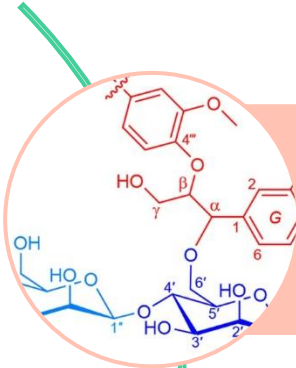
Dough is the **HEART** of baking!

Formulation Challenges: Dough Rheology



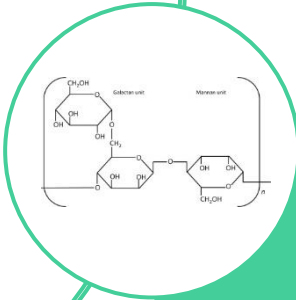
Step-1-Designing of Bulk Fibers

Soluble Fiber @ 1.5 %:
Hydration = 23.4%



Insoluble Fibers
(Hemicellulose, Resistant Starch)

Water Absorption Capacity
Particle Size

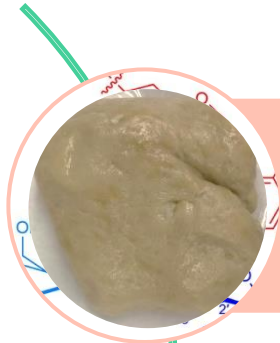


Soluble Fibers
(Guargum, Beta Glucan)



Formulation Challenges: Dough Rheology

Step-2-Selection of Proteins/Dough Relaxers

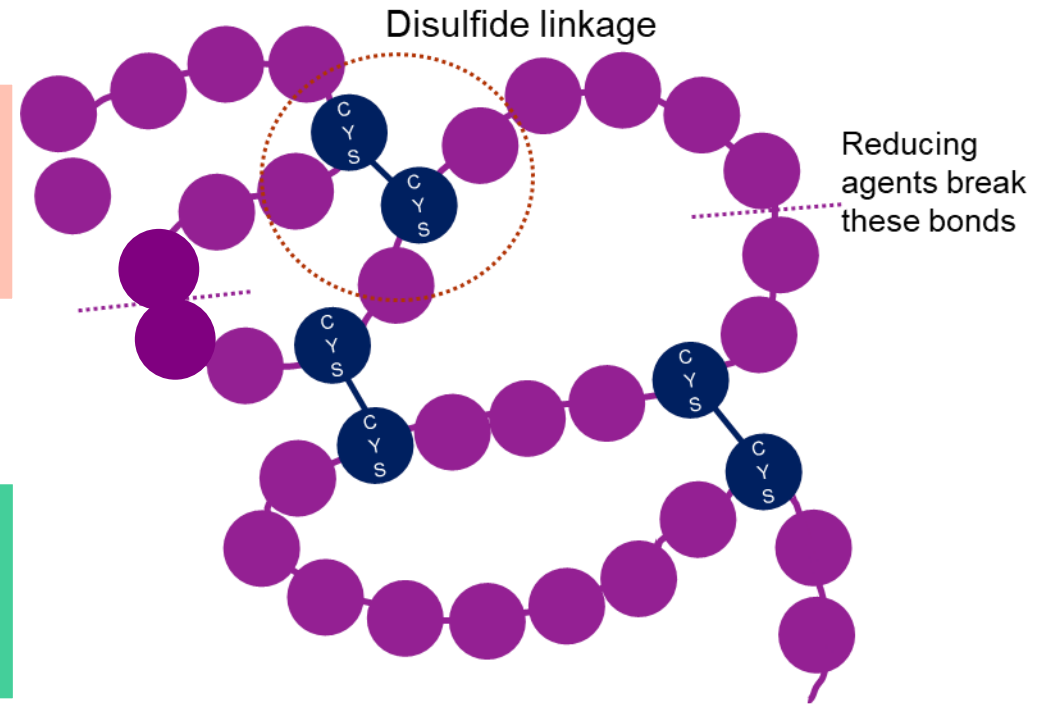


Proteins
Dough Development/Stability

Water Absorption Capacity
Particle Size



Dough Relaxers-Dough Rheology



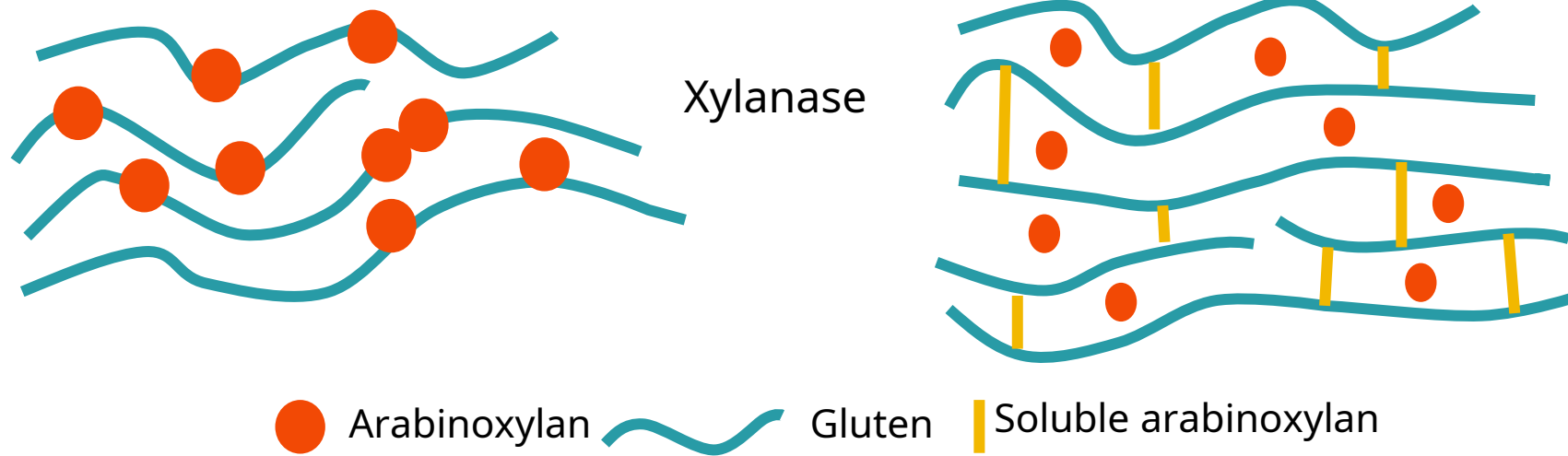
Dough Relaxers : Sodium metabisulfite, L-Cysteine, Clean Label (Protease)

Weaken the gluten matrix → Create SH- (Sulphydryl group)

Reduce dough elasticity, improves water absorption, improves softness, dough machinability, reduce mixing time

Formulation Challenges: Dough Rheology

Step 3 : **Arabinoxylan (NSPs) Degrading Enzymes (Xylanases)**



EXTENT OF DEGRADATION



Two Kinds of Arabinoxylan in Wheat Flour

25-30%
Water Extractable (WE-AX)

70-75%
Water Unextractable (WU-AX)



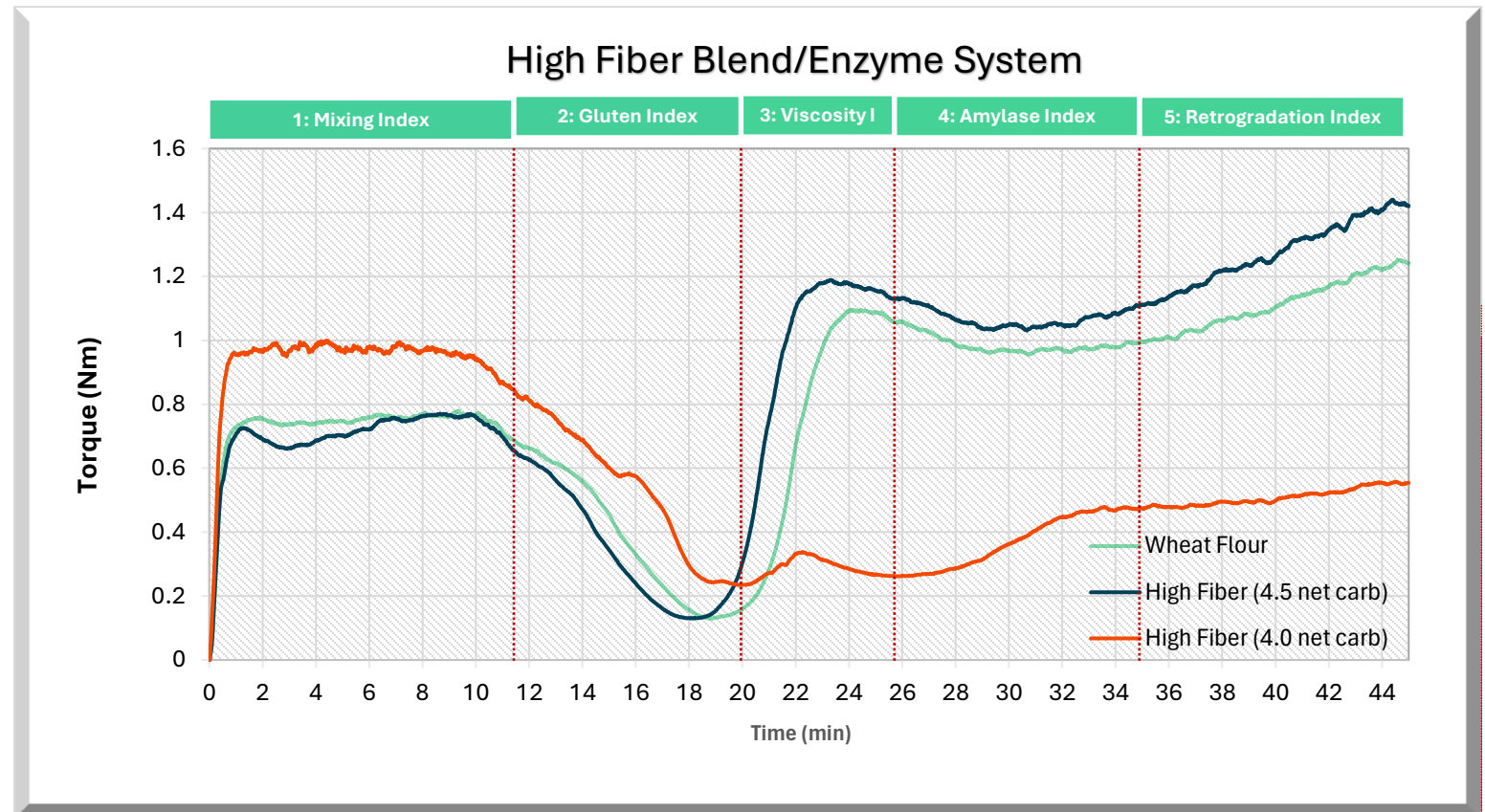
Formulation Challenges: Dough Rheology

Step-4- High Fiber Blend – Dough Characterization

Using Mixolab-2, a torque is measured to characterize the rheology of dough

Zone 1 : Dough development zone

Zone 5 : Retrogradation Index

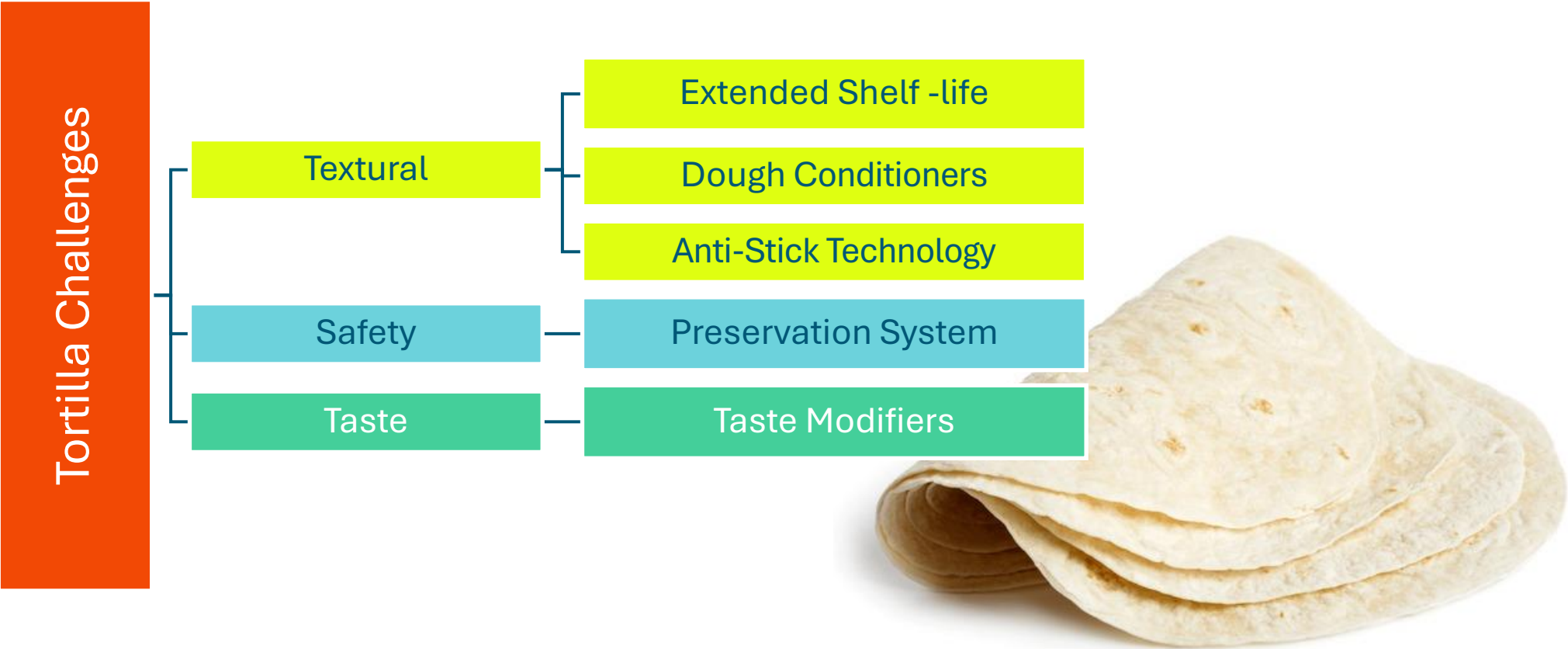


- Translucent
- Lacing
- Pillowing
- Oval



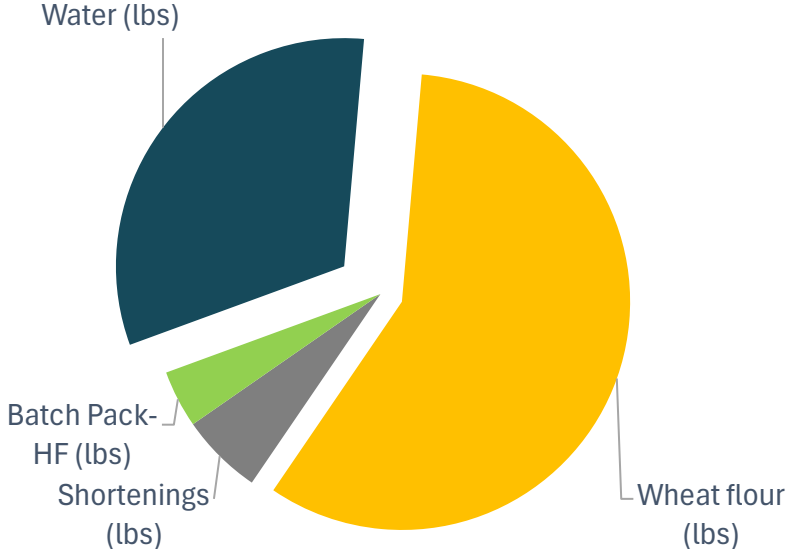
- Sticking/Peeling
- Staling
- Breaking
- Mold

High Fiber Tortilla : Freshness Solutions

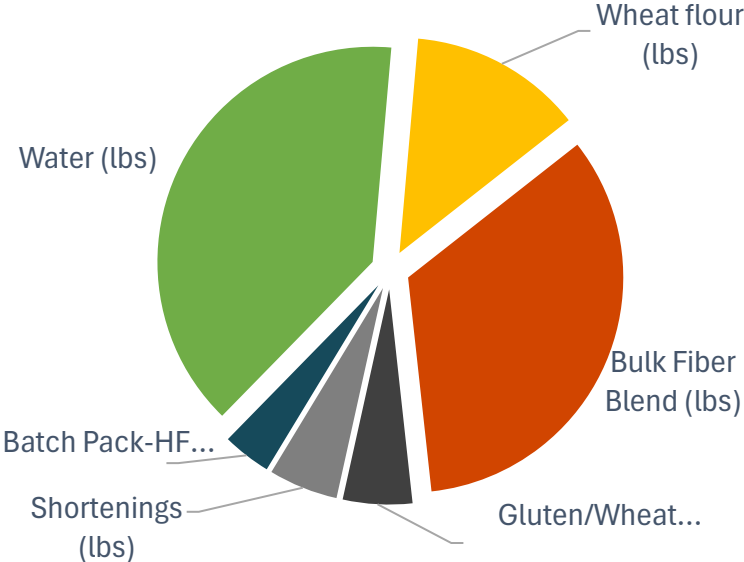


High Fiber Tortilla- A Case Study

Regular Tortilla Dough Formulation



High Fiber Tortilla Dough Formulation

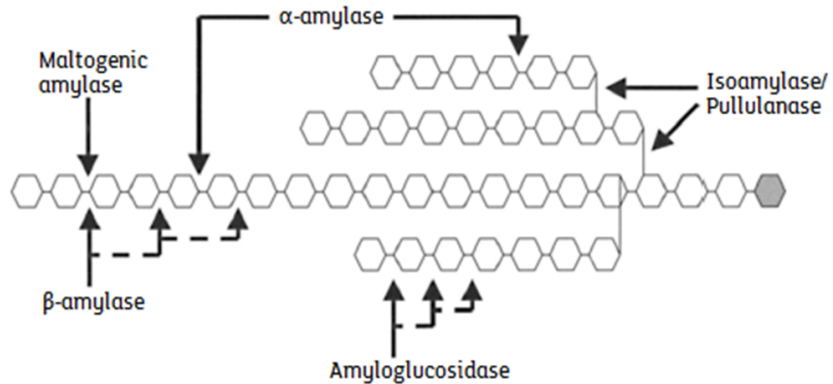


	Raw Material	Impact On Formulation
1	Reduction in regular flour	14-25%
2	Increase of Bulk Fiber	70-85%
3	Increase in gluten content	10-25%
4	Increase in hydration rate	20-30%

Enzymes

Freshness/Texture

Freshly Baked
Experience From First to
Last Bite



Biobake Fresh Range

(Maltogenic amylase, α -Amylase)

Biobake Range

(Xylanase)

Full range of GM & Non-GM
derived enzymes available

Enhance Shelf Life

- Softness
- Flexibility
- Resilience

Improves

DOUGH PROCESSING

Optimised Dosing

COST-IN-USE

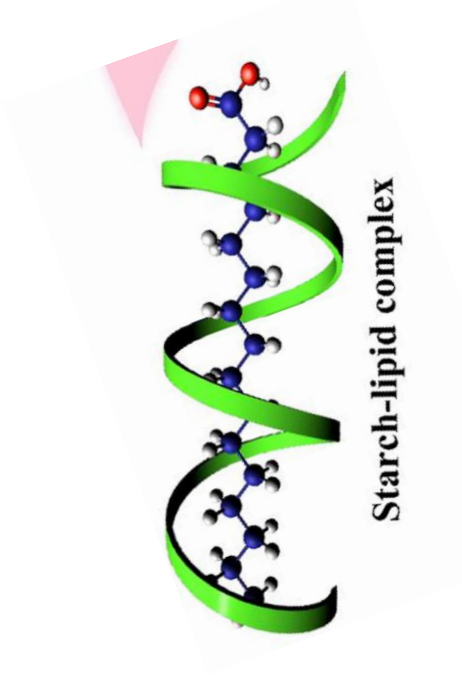
Reformulate For

COST SAVINGS

Emulsifiers

Antistick-Technology

Freshly Baked Experience From First to Last Bite



Interaction of amylose and emulsifier is quantified as **Amylose-complexing index or ACI**



Non-Sticky Tortilla: Low surface energy, High Surface tension, low moisture migration



Myvatex Supreme NS
Mono-Diglyceride

Enhance Shelf Life

- Anti-Stick Properties
 - Anti-Staling Properties
-

RSPO Certified

Optimised Dosing
COST-IN-USE

Reformulate For
COST SAVINGS

Antimicrobials

MOLD FREE SHELF-LIFE

Freshly Baked Experience From First to Last Bite

High-Fiber Tortilla is
perfect heaven for mold



Bakery Shelf-Life Predictive Modelling



Probake™

Calcium Propionate

Upgrade™

Natural Antimicrobial

Conventional, Organic, Gluten-free

- Mold-Free Shelf-Life

Optimised Dosing

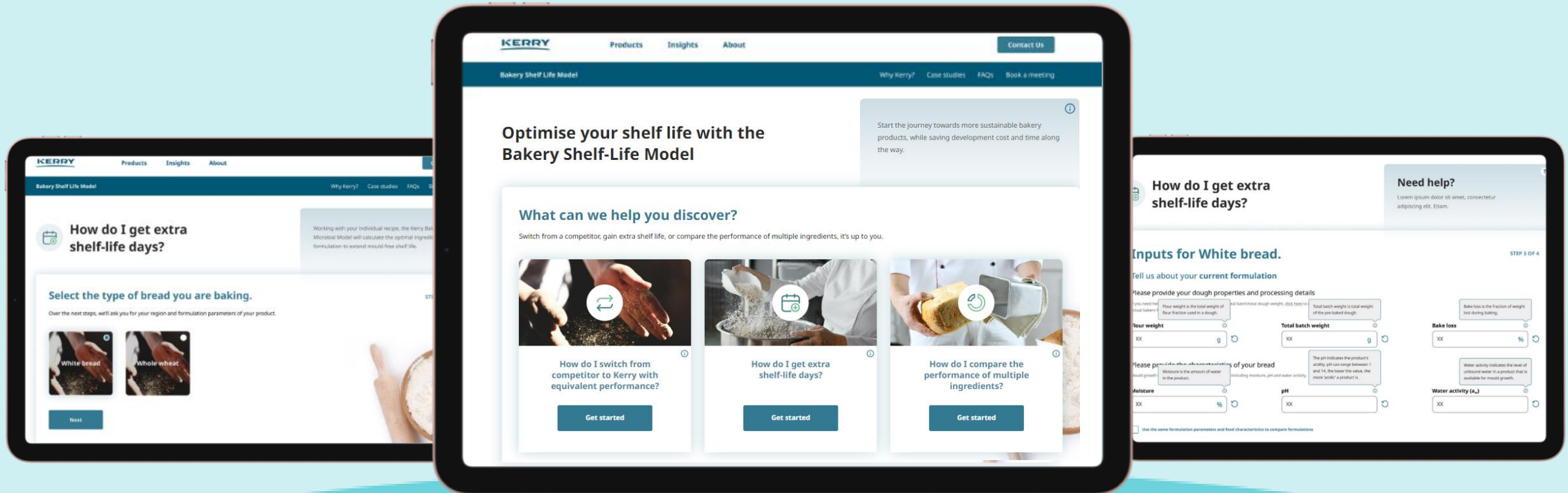
COST-IN-USE

Reformulate For

COST SAVINGS

Bakery Shelf-Life Predictive Modelling

Support bakers to predict shelf life and ingredient performance in bread, reducing time and costs for in-house trials. Powered by decades of lab trials, data, and expertise, it lowers the uncertainty in preservation reformulation



Key Benefits:

Finance:

- R&D Savings
- Extended Shelf Life
- Optimized formulations & ingredient cost

Time:

- Higher trial success rate
- Improved speed to market
- Faster innovations

Reputation:

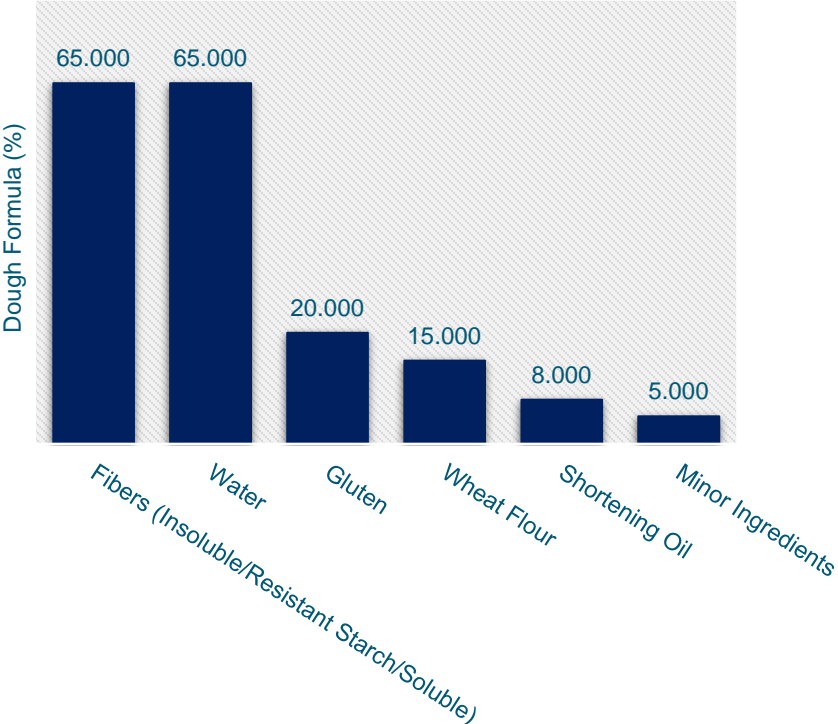
- Reduce failed trials
- Reduce recalls
- Confidence in shelf-life promises

High Fiber Tortilla: Prototype Formula

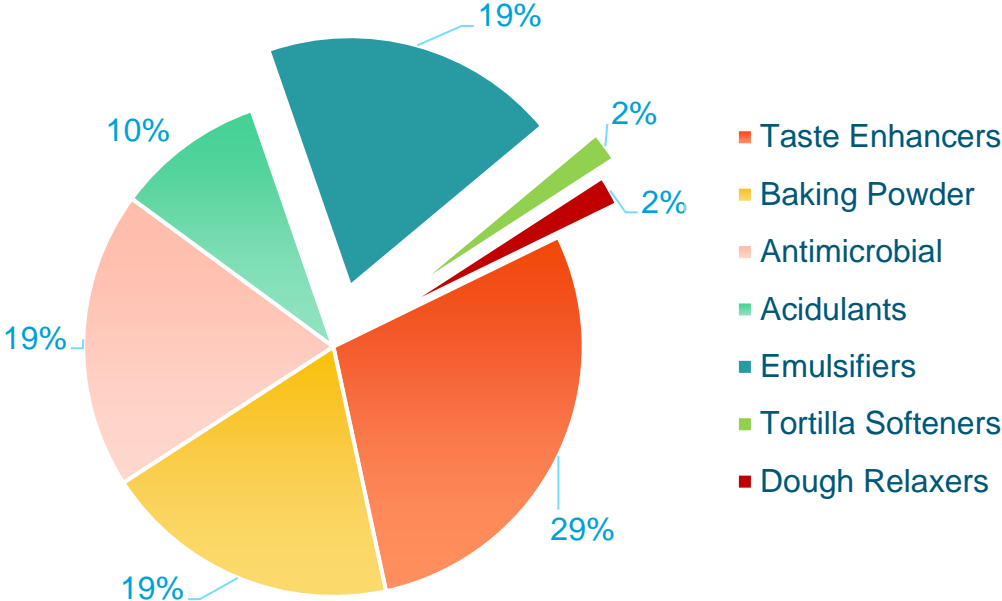
Dough Formula

High Fiber-Prototype Formula

Net Carb 3-5 G/Tortilla (45 g); Shelf-Life 30 Days



Minor Ingredients



High Fiber Tortilla: Scale-Up Run



BioBake™: Enzyme Technology | ProBake™: Preservation Technology | Myvatex™ Supreme NS: Anti Stick Technology



Overcoming Challenges in High Fiber Tortillas

Key Takeaways:

- High fiber tortillas are possible with the right solutions
- Challenges of high fiber tortillas: stickiness, mold, dough rheology
- Formulation solutions – Texture, Taste, & Mold-Free



TORTILLA FRESHNESS SOLUTIONS DELIVER IMPACT

MOLD FREE

Our preservations solutions deliver mold-free shelf life of your bread and come in conventional and clean label formulations.

PRESERVATION

- ProBake® Calcium Propionate
- UpGrade™ Fermentates
- IsoAge® - Calcium Buffered Vinegar

TEXTURE / SOFTNESS

Our texture solutions deliver high quality and consistent soft texture from the first bite to the last in a broad range of baked goods.

ENZYMES

- Biobake™ Fresh
- Biobake™

EMULSIFIERS

- Myvatex™ Mighty Soft
- Myvatex™ MxTex
- Admul™

TASTE

Our taste modulation technologies and lipid encapsulated flavors bridge the gap between 'taste' and 'nutrition'.

TASTE MODULATION

- Tastesense™ Salt
- Tastesense™ Sweetness
- Tastesense™ Masking



KERRY

FIXATED ON FRESHNESS?

So are we.

Visit us at Booth #612



THANK YOU

Any Questions?

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