



Leading to Better

Clean Label Preservation Techniques

October 3, 2017



Agenda

- A Case for Clean Label
- Clean Label Preservation Solutions for Tortillas
 - Upgrade™
 - Biobake™ Enzymes



A Case for Clean Label



What is Clean Label?

Clean Label is an industry term to describe consumer desire to know what is in our food, where it is grown and how it is processed. Consumers may not understand Clean Label, but they understand product claims and attributes



Source: Kerry Primary Research; scaled to index

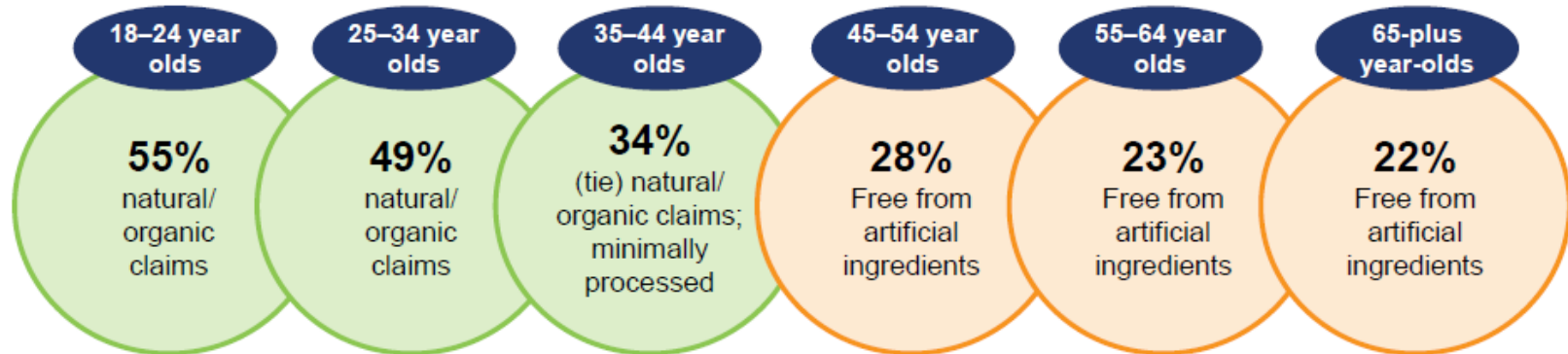
“Clean Label” Perceptions by Age

Younger consumers have a different view of clean label than older consumers, and tend to see "clean label" as intrinsic to a product. Older consumers view "clean label" more in the context of the removal of "bad" ingredients.

Consumers aged 18–44 tend to see "clean label" as aligned with organic and natural product concepts.

Consumers aged 45 and older have a fuzzier view of clean label and tend to equate it with the removal of "bad" ingredients.

US: "What does the term 'clean label' mean to you?", top responses by age group, 2015¹



Source: Canadean's global survey, Q4 2015

Clean Label Growth



Clean Label products
are growing

5x

faster than
the rest of the market

2009

\$37,636MM

2015

\$69,376MM

2020

\$115,532MM



Source: Nutrition Business Journal, 2016.

Evolution of Healthy Eating

The definition of “healthy eating” is changing, as consumers want cleaner foods and more information and transparency on what they eat and drink...

The Nutritional Information Labeling Act of 1985 represented our desire to identify things we wanted removed from our meals: fat, sodium, and cholesterol.

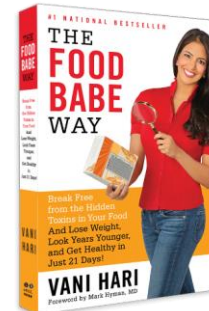
The 2000s were about adding beneficial things like whole grains, Omega-3s, and antioxidants

The “Free Movement” – GMO-free or antibiotic-free – focusing on the purity of the ingredients.

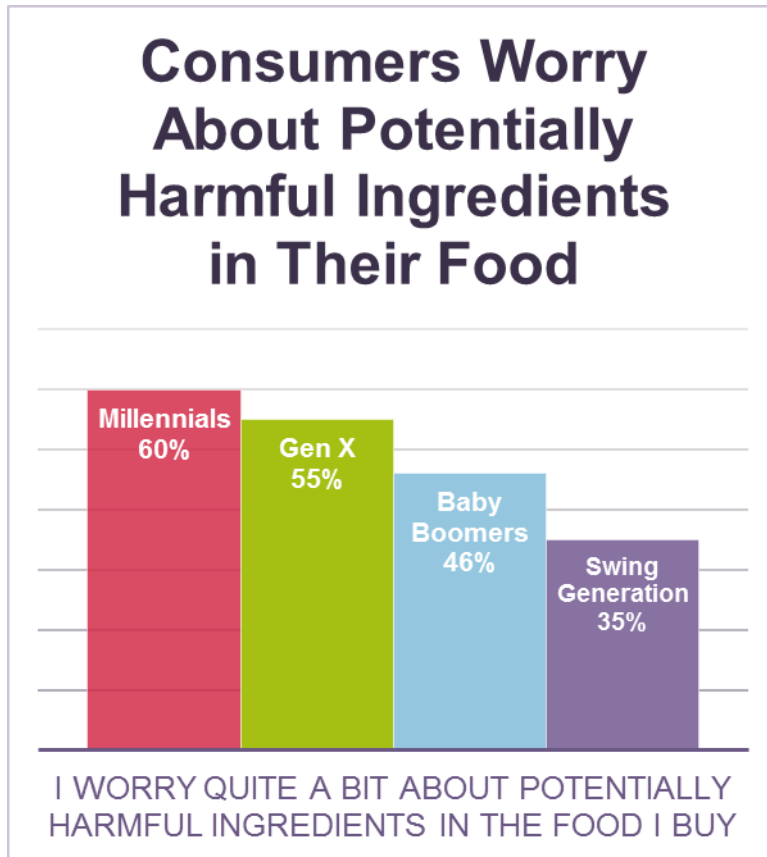
Transparency and information. Empowering the consumer with information and choice.

Wholesome ingredients and shorter labels. A lack of artificial ingredients.

Nutrition Facts	
Serving Size 4 OZ. SERVING (112g) Servings Per Container VARIED	
Amount Per Serving	
Calories 170	Calories from Fat 70
% Daily Value*	
Total Fat 8g	12%
Saturated Fat 3g	15%
Cholesterol 65mg	22%
Sodium 70mg	3%



Trust is a Factor with Food Manufacturers



71%
Consumers think there are more harmful ingredients than manufacturers tell them

53%
Consumers prefer foods & beverages with a short list of ingredients

75%
Consumers are buying free-from foods because they think they are more natural

Source: Mintel GNPD, Mintel Free-From U.S. Report 2015; Nielsen Global Health & Wellness Survey 2015; National Marketing Institute

Meeting Customer Clean Label Expectations

Replace

To replace ingredient(s) with clean label alternatives while retain key functionality, taste and/or nutrition profiles in their products

- *Natural Flavors*
- *No Flavors added*
- *Natural Colors*
- *Natural Preservatives*
- *Natural Sweeteners*

Reduce

To leverage clean label technologies to reduce specific ingredients and simplify their ingredient statements

- *Short, simpler ingredient statements*
- *Natural ingredients that are multi-functional*
- *Regulatory, dietary recommendation compliance*
- *Sugar and Sodium reduction*

Remove

To eliminate specific ingredient(s)

- *"No-No" lists*
- *BHT Free*
- *BPA Free*

Re-position

Customers asking for creative ways to reposition product in the marketplace

- *Product positioning and format*
- *Packaging, culinary processing*
- *Small Batch/Home cooked/Authentic*

Re-invent

Natural Brand customers looking to scale their business, while maintaining their identity

- *Certified Organic*
- *nonGMO*
- *Sustainable practices from local to global*
- *Waste not want not*
- *Long Term Investment in Health*



Kerry's Clean Label Solutions

Tortillas

Natural Preservation &
Fresh Keeping

Biobake™
Enzymes

Upgrade™



Kerry's Clean Label
Tortilla Solutions
Biobake™ Enzymes



Enzyme Use in Food

- Enzymes are clean label
 - Natural products of fermentation
 - GRAS
 - Processing aids
- Enzyme benefits in the food industry
 - Ease of processing
 - Higher throughput
 - Standardisation of raw materials
 - Improved texture
 - Longer shelf life
 - Improved nutrition

Enzyme use is increasing & on-trend

Biobake™ Enzymes

Protease Enzymes

Biobake™ protease enzymes are a range of products used to manage dough rheology, process operations, and product texture

- Less shrinkage
- Provide consistent texture

Products:

- *Biobake™ BPN*

Applications:

Sheeting & hot press operations, high fiber & wholegrain products



Biobake™ Enzymes

Amylase Enzymes

Biobake™ amylase enzymes are a range of enzymes to improve the processing & quality of baked goods.

- Enhanced freshness and softness
- Maintains flexible texture throughout shelf-life
- Can help prevent stickiness when used in combination with emulsifiers

Products:

- *Biobake™ Fresh 2500* – extended shelf life
- *Biobake™ Fresh 310* extended shelflife, high resilience & other high temperature applications

Applications:

Bread, Buns, Donuts, Croissants, Cake, Frozen Dough, Flatbread, Crackers, Tortillas



Biobake™ Enzymes

Lipase Enzymes

Biobake™ lipase enzymes are a range of enzymes to improve the processing & quality of baked goods.

- Increased pliability
- Reduced cracking
- Reduced stickiness

Product:

- *Biobake™ STL1000* suitable for flour tortillas & flatbreads

Applications:

Bread, Buns, Donuts, Croissants, Cake, Frozen Dough, Flatbread, Crackers, Tortillas



Kerry's Clean Label
Tortilla Solutions
Upgrade™



Upgrade™

Upgrade™ is a naturally derived fermented ingredient consisting of a unique blend of organic acids.

- Inhibits mold growth in bakery applications
- Clean label, natural alternative to calcium propionate.
- Suitable for use in products claiming “natural” and “no artificial preservatives”
- Standardized to a high level of organic acids
- Available in gluten-free formats

Application:

Tortillas, Gluten Free, Bread, Buns, Rolls, Pizza Crust



Authenticity of Upgrade™

- Upgrade™ proactively validated for authenticity through Eurofins
- Eurofins – world leader in food & feed authenticity testing, analyses are “tailor-made” for each product
- Eurofins’ world class method and reports are available upon demand



100%

The real deal



Upgrade™ Case Study

Objectives:

- Replace calcium propionate and potassium sorbate with a clean label alternative in flour tortillas
- Validate sensory, pH and functionality conformance of Upgrade™

Study Design:

- Flour tortillas were hot-pressed in Kerry's Commercialization Center.
- Upgrade performance was benchmarked against chemical control.
- Tortillas were stored at ambient temperature in zip lock bags (no MAP packaging).
- Visual inspection daily
- Sensory evaluation by trained panelists.



Upgrade™ Case Study

Tortilla Recipe

Ingredients	Bakers %
Flour	100.0
Water	61.0
Shortening	10.0
Salt	2.0
Baking Powder	1.2
*Fumaric acid	0.15 - 0.25
Admul MG 60-50	1.0
L-Cysteine	0.004 (40ppm)

*Can be used when making 'No Artificial Preservative' claim but cannot be used in 'All Natural' tortillas

Upgrade™ Case Study

Results

Tortilla Variable	pH	% Moisture	Mold-free Days	Sensory Comments
Control 0.2% Potassium sorbate, 0.5% Calcium propionate 0.15% fumaric acid	5.96	30.89	*36	Reference
2% Upgrade™ Label: Cultured wheat starch, wheat flour 0.25% fumaric acid	5.79	30.60	*36	Comparable to Reference. Acceptable.

* The study concluded after 36 days.

Kerry's Clean Label Solutions

Tortilla Label

- **Traditional Label:**

- Enriched Flour (Wheat flour, Niacin, Reduced Iron, Thiamin Mononitrate, Riboflavin and Folic Acid), Water, Vegetable Shortening, Salt, Leavening (Sodium Bicarbonate, Sodium Acid Pyrophosphate, Monocalcium Phosphate), **Calcium Propionate, Potassium Sorbate**, Fumaric Acid, Mono and Diglycerides, **L-cysteine**

- **Cleaner Label**

- Enriched Flour (Wheat flour, Niacin, Reduced Iron, Thiamin Mononitrate, Riboflavin and Folic Acid), Water, Vegetable Shortening, Salt, Leavening (Sodium Bicarbonate, Sodium Acid Pyrophosphate, Monocalcium Phosphate), **Cultured wheat**, Fumaric Acid, Mono and Diglycerides, **Enzymes**

Thank you.

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