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Health-Conscious and Clean-Label Tortilla Options – Expanding your Portfolio and the Challenges of Production

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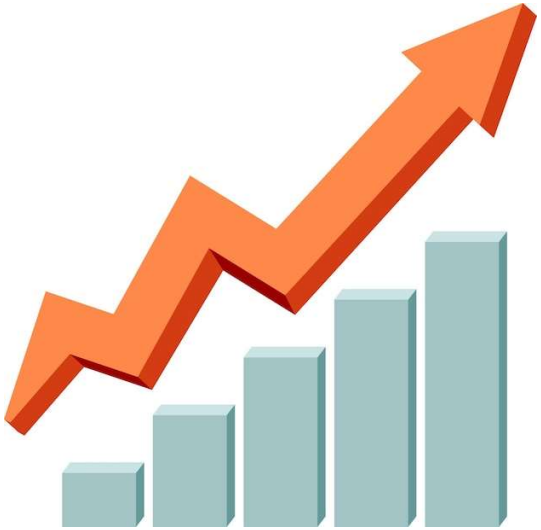
Better-For-You Tortilla Trends

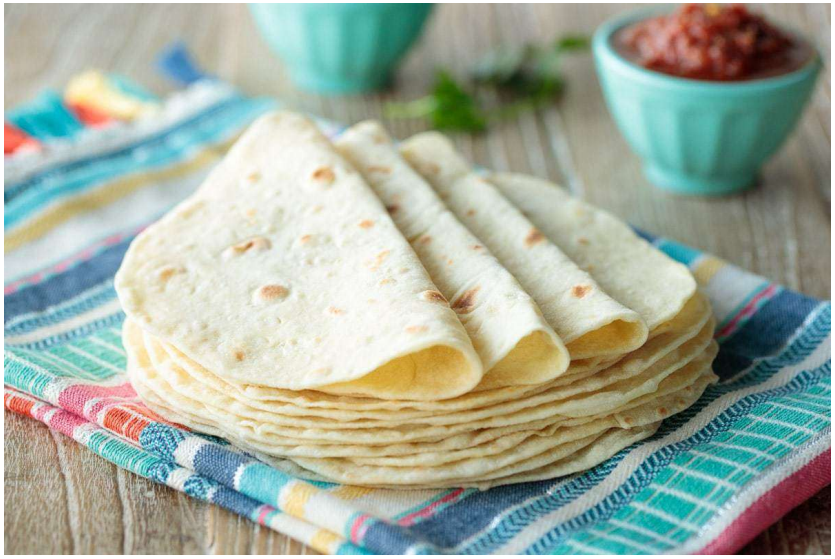
- Tortillas have become very popular baked products worldwide.
  - Tortillas are versatile, convenient and functional and are seeing increasing use in a variety of meal settings
  - Demand has been driven by attractive cost, ease of preparation and the range of options.

- Health-focused products are seeing tremendous growth in the market. Health-conscious consumers are seeking **simple food labels with fewer additives and added health benefits**



Better-For-You Tortilla Trend Options

1) Clean Label
2) Non-GMO/Non-BE
3) Organic
4) Diet Specific:
    a) Low Carb/High Fiber
    b) Keto Friendly (Low Carb High Fat)
    c) High Protein / High Fiber
    d) Gluten Free
    e) Grain Free (Paleo)
    f) Vegan (No Animal Products)
    g) Low Sodium
    h) Reduced Sugar / No Sugar



Clean Label

- Clean label starts with consumer perception of “natural”.
  - A simple and short ingredient list that is easy to understand
  - This can mean no chemical sounding ingredients or additives
- No FDA definition (No definite regulations/guidelines).
- Created by Industries and/or customer advocates.
- Retailers are making their own guidelines to target specific customers
  - Whole Foods calls their list “Unacceptable Ingredients for Food”
- New clean-label functional ingredients continue to improve upon the range of functionality, benefits, and shelf-life that can be achieved in tortillas

Ingredients That May be Considered Unacceptable in Clean Label Tortillas

- **Aluminum containing baking powders** - Sodium Aluminum Sulfate (SAS), Sodium Aluminum Phosphate (SALP)
- **Emulsifiers** - (Sodium/Calcium Stearoyl Lactylate (SSL), Mono-diglycerides
- **Preservatives** - Sodium/Calcium Propionate, Potassium Sorbate, Sorbic Acid, Benzoates, Parabens
- **Dough Relaxers -** L-Cysteine, Sodium Metabisulfite
- **Shortening** - Hydrogenated Oils
- **Flour** - Bleached Flour

Popular Ingredients in Clean Label Tortillas

- **Low sodium baking powders** - (Calcium Acid Pyrophosphate (CAPP), Monocalcium Phosphate (MCP)
- **Emulsifiers** – Lecithins
- **Preservatives** - Cultured Wheat/Dextrose, Vinegars, Rowan Berry Extract (naturally high in sorbic acid)
- **Non-hydrogenated and better for you oils -** i.e. canola oil, olive oil, lard, tallow
- **High fiber ingredients –** Oat Fiber, Resistant Starches, Inulin
- **Proteins** – Pea, Chickpea, Rice, wheat

Genetically Modified and Bioengineered

- Non-GMO and Non-Bioengineered are often used synonymously, but are very different standards

- Non-Bioengineered is defined by the USDA
  - The National Bioengineered Food Disclosure Standard was established with a mandatory compliance date of January 1, 2022

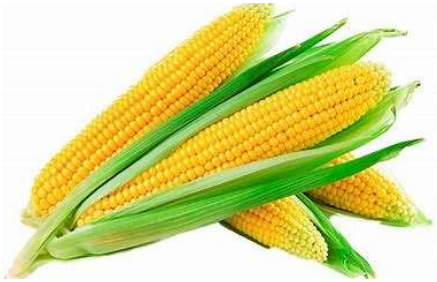
- Non-GMO is managed by third-party organizations, such as Project Verified
  - Third-party certifiers generally have their own stringent provisions for testing, traceability, and segregation.

National Bioengineered Food Disclosure Standard

- The Standard defines bioengineered foods as those that ***contain detectable modified genetic material***

- Primarily impacts retailers selling packaged foods, and does not apply to restaurants and similar retail food establishments or very small food manufacturers (annual receipts of less than $2,500,000).

- The List of Bioengineered Foods (List) identifies bioengineered foods that are authorized for commercial production. The List tells regulated entities which foods they must keep records for and which foods may require BE disclosures.
  - The list includes some commonly used tortilla ingredients such as: **canola, corn, soybean, and sugarbeets.**



National Bioengineered Food Disclosure Standard (Cont.)

- Bioengineered foods or foods that contain bioengineered food ingredients must be labeled with the bioengineered food disclosure.

- The disclosure may be made using one of four different methods: (1) text, (2) symbol, (3) electronic or digital link, or (4) text message.
  - The text disclosure is: “bioengineered food” or “contains bioengineered food ingredients.”
  - The symbol disclosure is:

- The Standard prescribes three different locations for the disclosure, including locations on both the front and back of the package.

BE Disclosure | Agricultural Marketing Service (usda.gov)

Organic Foods

- National Organic Program (NOP)
  - Overseen by USDA
- There are four distinct labeling categories for organic products
  - **100% Organic**
  - **Organic** - no more than five percent of the combined total ingredients may contain non-organic content.
  - **"made with" organic ingredients** -at least 70 percent of the product must be certified organic ingredients
  - **Individual organic ingredients declared on the label**, i.e. organic corn
- Water and salt are excluded from the calculation.
- Produced without excluded methods (e.g., bioengineering, ionizing radiation, or sewage sludge).

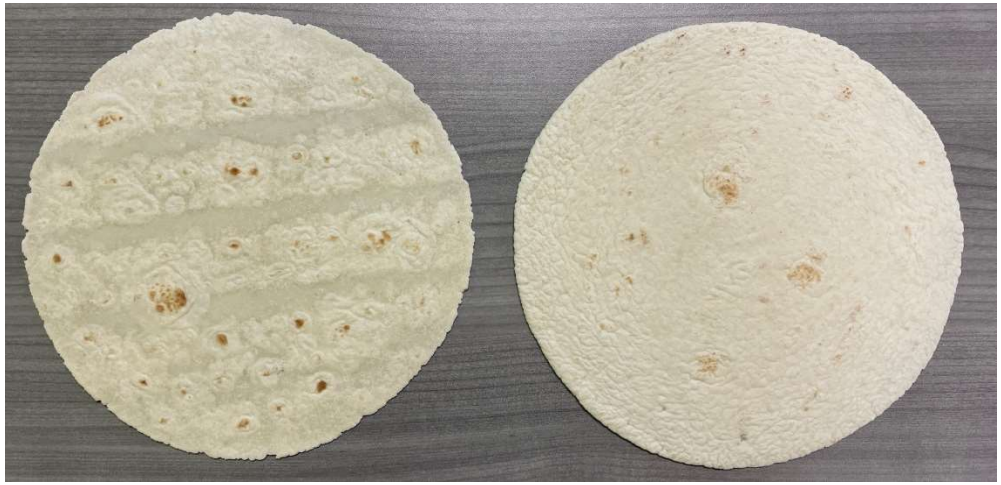
Low Carb Standards

- Consumer interest in low or zero net carbs have exploded in popularity in recent years due to the desire to reduce the carbohydrate content of their diets for weight loss or diabetic purposes.

- The FDA has not yet defined nutrient content claims for carbohydrates but the marketplace has evolved to develop some of its own standards.
  - **Net Carbs = Total Carbohydrates - Dietary Fiber - Sugar Alcohols**

Low Carb Tortilla Ingredients

- **Resistant starches -** Can be derived from many different sources including: wheat, tapioca, corn, potato.
- Resistant starches, are high in fiber and resistant to digestion in the small intestine.
- Due to their low water absorption capacity, they can produce tortillas with moisture levels similar to traditional wheat flour tortillas.



Low Carb Tortilla Ingredients

- **Plant cell wall based fiber** including: cellulose, oat fiber, sugarcane fiber.
  - Very high water absorption, often 5x their weight
  - At high levels they produce tortillas with higher than typical moisture levels that help to decrease total calories per serving
- **Inulin** is a water soluble fiber typically derived from chicory root.
- **Sugar alcohols** such as allulose or erythritol that have sweetness levels similar to table sugar.
- **Proteins**, especially highly purified protein Isolates and vital wheat gluten that help to provide structure.

Low Carb Adjacent Products

- Keto-Friendly (Low Carb High Fat)
  - Low carb tortillas (between 2-6 net carb) are often accepted as Keto-friendly.
  - Typically use:
    - Wheat protein isolates and concentrates, Soy protein
    - Dietary Fibers: Oat Fiber, Cellulose and Resistant Starches
- High Protein High Fiber
  - Increase the protein & fiber contents in tortilla formulations
  - Adding high protein plant-based ingredients & non-digestible carbohydrates.
  - Typically use:
    - Cellulose, Modified Food Starch, Protein Isolates, Oat Fibers, Vital Wheat Gluten

Gluten-Free

- Gluten are **proteins** naturally present in wheat, rye, malt and barley.
- Gluten can have adverse health effects to people diagnosed with celiac disease or who are allergic to gluten.
- FDA requires less than 20 ppm for presence of gluten for a food with “Gluten Free” claim.
- Key Ingredients used in GF Tortillas:
  - GF Flours & Starches (Rice, Soy, pea, Corn, Cassava, Chickpea Flour)
  - Gums (CMC, Guar, Xanthan).
- Use sugar and salt to mask different taste or texture that might be off-putting to consumers.

Challenges

- "Clean label" products may create new challenges in manufacturing, finished product quality, and shelf stability compared to traditional formulas
  - Replacing highly concentrated functional ingredients used for specific purposes with clean label and diet oriented ingredients
  - Consumers do not want worse quality and taste from healthier options
  - Identifying the market segment/niche that desires these products and has a willingness to absorb the extra cost.

Overcoming Challenges with BatchPak's

- Clean label BatchPak's can require extra attention to create a consistent blend. Taking extra measures to prevent "hot spots" is key to overcoming the challenges of Health-Conscious formulas. That includes:
  - Formulating to optimize ingredient distribution
    - Sourcing the best ingredients for the blend, with similar particle size and density
  - Blending to optimize ingredient distribution and consistency
  - Verifying consistency with Coefficient of Variation (CV) Testing

- Working with pre-blends of functional ingredients (BatchPaks), you can mitigate the variables and challenges of producing a new formula with ***scale-up support*** from a supplier.

- Allied Blending has prototype formulations that can be customized to your production to help you launch products across the specialty tortilla space.

Allied Blending

The natural choice for food solutions

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Thank You