



Introducing our all
new Gluten Free
Flour Blends

CASE STUDY

The Evolution of Gluten-Free:

Opportunities to Make More Dough

Consumer needs and desires have changed, but avenues to capitalize on trends are plenty.





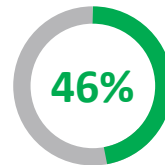
The Goods on Still Going Gluten-Free

Serving your friends and family members gluten-rich bread and brownies between 2010 and 2019 might have been met with a gasp. In 2023, attitudes toward gluten have softened, but a significant portion of global consumers are still avoiding or eliminating gluten as part of their personal wellness lifestyles.

While only a small share of the population has Celiac disease (0.8 percent of Europeans and 1 percent globally¹), the number of gluten avoiders is much higher. In fact, the global gluten-free market is estimated to be \$7.8 billion in 2023.² That's quite an audience that's already baked in.



11% of U.S. consumers are considered gluten avoiders.³



46% of U.S. gluten avoiders eliminate wheat/gluten as part of a healthy lifestyle.⁴

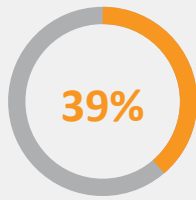


Gen Z and Millennials in the U.S. are experimenting with a wide range of eating approaches (69% and 65%, respectively).⁵

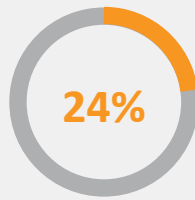
1. Mintel
2. Euromonitor, 2023
3. Mintel, Keeping Gluten-Free Relevant to Mainstream Consumer, 2022
4. Mintel, Patent Insights: Emerging Trends in "Gluten-Free"
5. The Hartman Group, HW, 2021

Room for Improvement:

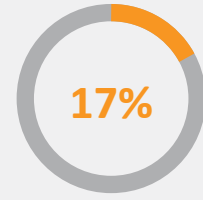
Creating Tastier, More Nutritious & Cleaner-Label Gluten-Free Food



of French consumers agree gluten-free foods don't taste as good as their "regular" counterparts.³



of Italian consumers agree gluten-free products usually contain more unnatural ingredients and additives than "regular" equivalents.³



of German consumers agree the nutritional value of gluten-free products is poor compared to products that contain gluten.³

Bringing Better Options to the Table

There are still significant opportunities to both attract new consumers to the gluten-free way of life and to gain loyalty from existing gluten avoiders. Making products taste great with the right textures, while also addressing highly sought-after attributes, such as quality nutrition, clean labels, and responsible sourcing, are key to developing the next generation of gluten-free food.

ADM is helping achieve these goals, with all new Gluten Free Flour blends both in an All Purpose Flour and Bread Flour, coupled with our application and technical expertise.





Introducing HarvestEdge Gold™ Gluten-Free Flour Blends



Introducing ADM’s HarvestEdge Gold™ gluten-free (GF) flour blends, expertly crafted for manufacturers looking to solve flavor and texture challenges that arise when formulating for gluten-free.

We offer two distinct blends: an all-purpose GF flour designed for a broad range of uses and a GF bread flour specifically formulated for bread applications. These blends are created with high-quality ancient grain sorghum flour, buckwheat flour, and tapioca starch, which are both label-friendly and great-tasting ingredients.

Additional Benefits of HarvestEdge Gold™ Gluten-Free Flour Blends:

- **Gluten Free Certified**
- Clean Label Ingredients that are Consumer Friendly
- Expertly Blended to Replace Gluten Flour
- Includes Ancient Grains
- **Two Blends:**
 - **All Purpose GF Flour (FLOU-002)***
 - **GF Bread Flour (FLOU-003)***

**Patent Pending*

Packaging Options:

We can offer customers a high variety of packaging options including: Supersacks, 50lb Bags and Custom Packaging Options (retail bagged, retail boxed, etc.)”



Applications:



Breads



Baked Goods



Snacks



Dry Baking Mixes

Ingredients:

- White Sorghum
- Buckwheat Flour
- Quinoa Flour
- White Rice Flour
- Native Tapioca Starch
- Corn Starch
- Psyllium Husk



Wholesome Ingredients Portfolio

Beyond our specialty designed Gluten Free flour blends we have launched, we also have a supporting Wholesome Ingredients portfolio that includes pulses, beans, ancient grains and seeds ingredients in different forms that are great in gluten free applications for added nutrition, texture, taste and function.



Fulfill your wholesome, plant-based food needs with nutritious, functional, and sustainable ingredients.

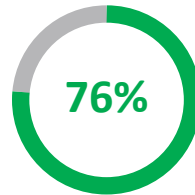
Portfolio	Features & Benefits	Available Options
Beans & Pulses Black Beans Chickpeas Green Lentil Navy Beans Pinto Beans Red Lentil Small Red Beans Yellow Pea	<ul style="list-style-type: none"> • Broad portfolio of pre-gelatinized and unprocessed ingredients enabling functionality in a variety of applications • Unprocessed or minimally processed forms • Non-GMO & available as organic • Wide range of added value options • Expertise in extrusion and sheeting 	<ul style="list-style-type: none"> • Non-GMO, Organic Pregelged <ul style="list-style-type: none"> • Flours, Meal, Grits • Crisps • Whole Raw-milled <ul style="list-style-type: none"> • Flour • Grit
Ancient Grains & Seeds Amaranth Barley Buckwheat Millet Sorghum Quinoa Chia Flax Hemp Pumpkin Sunflower	<ul style="list-style-type: none"> • Whole food ingredients that offer a variety of tastes, textures, and nutritional benefits • Reliable quality supply chain for hard-to-source niche ingredients to meet your quality standards • Wide range of added value options • Minimally processed—non-GMO, organic, gluten-free 	<ul style="list-style-type: none"> • Non-GMO, Organic • Pasteurized, Roasted, Flaked, Crisped, Puffed, Milled, Seasoned, Bulk
Key Applications: Snacks, Bakery, Savory, Alternative Meat		



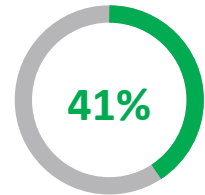


Consumer Perceptions

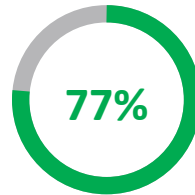
Consumers often point to taste as being a barrier to adopting gluten-free eating habits. Our NutriStem™ chickpea powder and NutriStem™ black bean powder scored higher than competitor products in desirable taste.



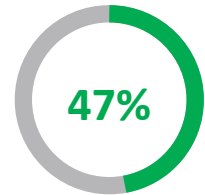
find beans healthy/nutritious⁶



find beans tasty⁶



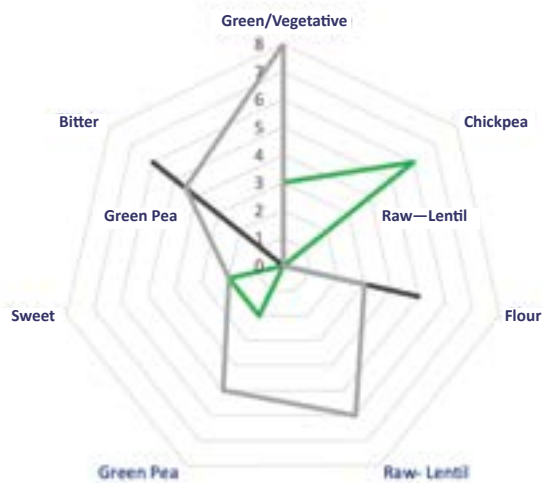
find nuts and seeds healthy/nutritious⁶



find nuts and seeds tasty⁶

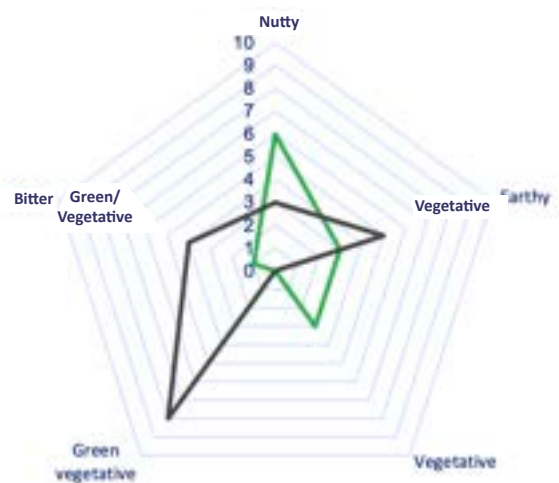
Chickpea Ingredient Comparison

— NutriStem™ Chickpea Powder — Competitor A — Competitor B



Black Bean Ingredient Comparison

— NutriStem™ Black Bean Powder — Competitor A Earthy



6. ADM Outside VoiceSM, Consumer Study, 2023

NutriStem™ Ancient Grains & Seeds

Consumers are looking to add more nutrient-dense foods to their diets. Ancient grains and seeds offer positive nutrition attributes and great taste and can provide texture and even color. Plus, they're available in multiple formats to achieve the functionality needed for your gluten-free applications.

What's more, when you work with ADM, you have access to our entire pantry of ingredients to add even more highly sought-after attributes to your products.

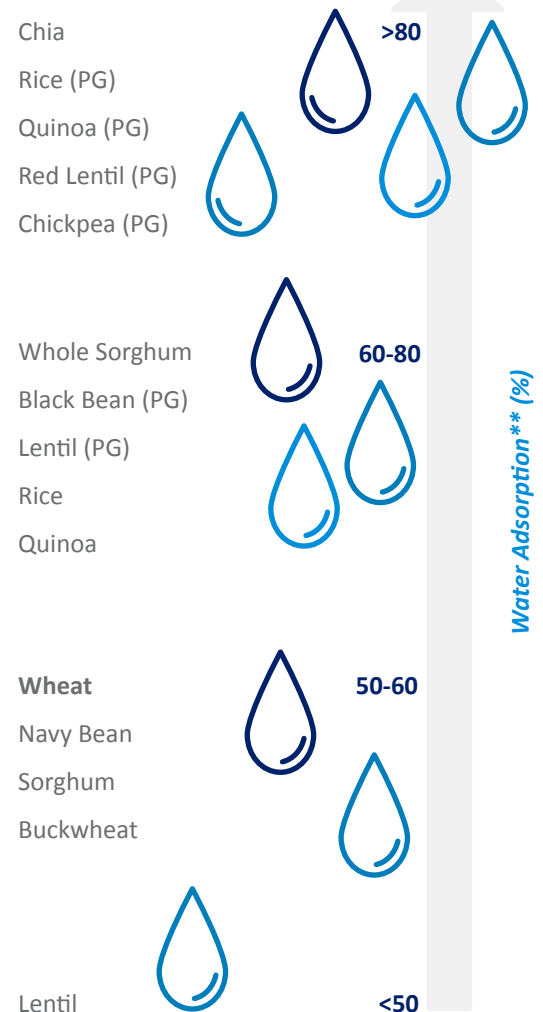


Ingredients, Nutrition Information & Formats

Products	Forms Available	Protein (g/100g)	Fat (g/100g)	Fiber (g/100g)
Amaranth	Conventional, organic, popped, puffed	14	7	7
Quinoa	White, black, red and tricolor, flour, crisp, flakes, organic	10	6	7
Chia	Black & white, powder, organic, pasteurized	17	31	34
	Hulled, organic, pasteurized	32	48	4
Hemp	Protein powder 33	30	11	31
	Protein powder 50	50	15	16
Buckwheat	Conventional, flour, grits, groats, kasha	13	4	10
Flax	Brown & yellow, pasteurized, milled, organic	18	42	27
Sorghum	Flour, crisp, popped, white, organic	11	3	7
Barley	Hulled, organic	12	12	17
Sunflower	Hulled seeds, pasteurized, roasted	24	43	23
Pumpkin	Hulled, raw, pasteurized, roasted, organic	30	49	6

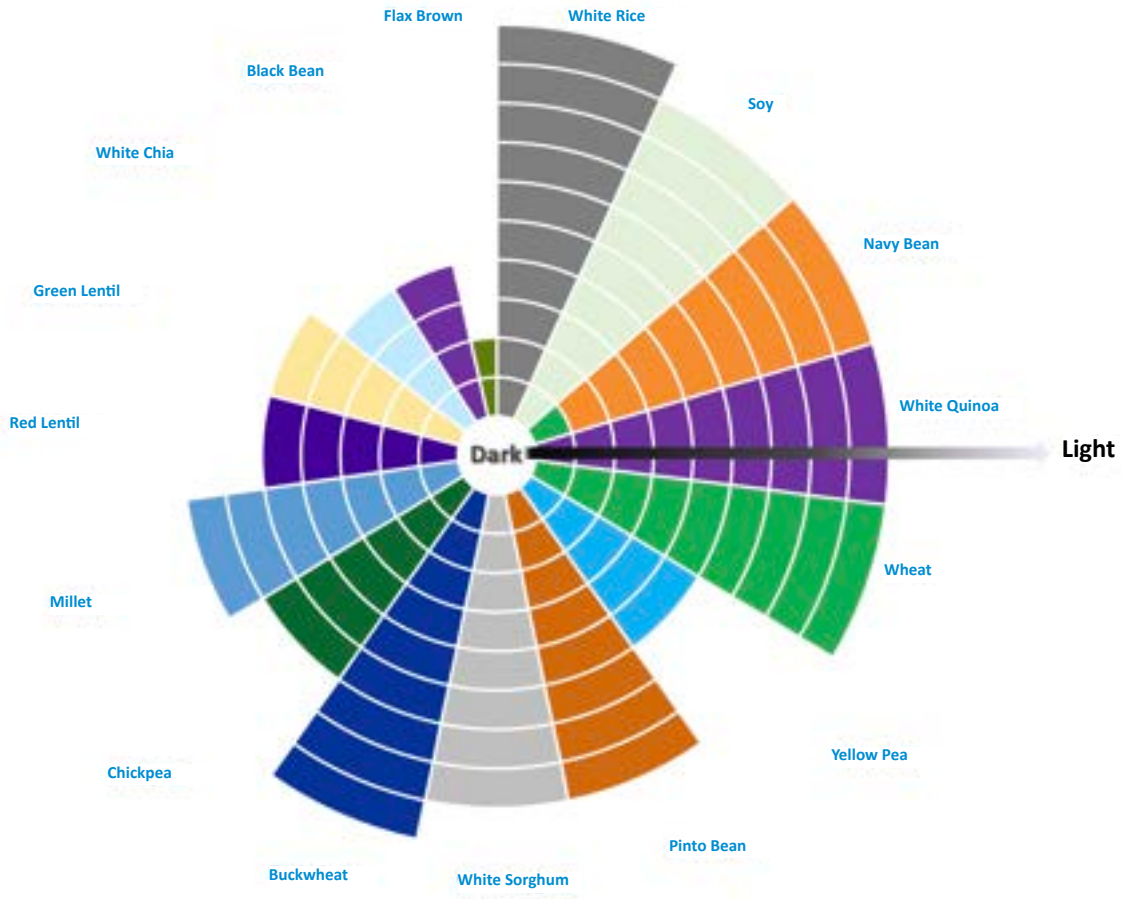
Available in conventional & organic

Water Adsorption of Alternative Flours for Application



**Mixograph

Whiteness Index of Alternative Flours for Application



Information reported above are based on whiteness index calculation



Sustainably Sourced Assurance

Consumers are increasingly seeking products that are not only good for them, but also good for the planet. By combining our smaller U.S. footprints with strategic responsible growing practices, ADM is helping meet this demand. From reduced water usage to improved seed yields, cover crops, atmospheric nitrogen fixing, traceability, and more, we, along with our farmer partners, are helping make land more productive with fewer inputs.



A Taste of Our Solutions for Gluten-Free Manufacturing Challenges

Prevent Tearing, Powdery Mouthfeel, Bitterness, Aftertaste, and Aromatic Off Notes

High-quality ingredients that are neutral in flavor, such as tapioca starch and sorghum flour, create consumer-preferred crispy flatbreads and buns with a soft center. Taste modulators, flavor enhancers, and other techniques can be employed to correct off notes, including toasting white sorghum to replicate the taste of wheat flour.

Turning Dry Breads Into Mouth-Watering Masterpieces

A dry texture is usually an undesirable feature in bread that, unfortunately, can be all too common. Our humectant portfolio combats this issue by improving moisture retention throughout shelf life. Sweetening solutions, like our reduced sugar glucose syrup, also aid in this regard while reducing total sugars in the formulation at the same time.

No matter the challenge, ADM can help.

Case Study

Challenge

Consumers want better-for-you bakery options to enjoy throughout the day that they can feel good about—combining purposeful indulgence with great texture and delicious taste.

Insight

The increase in consumers turning to a more flexitarian lifestyle—consuming both plant-based, animal-based, and other protein sources—can be attributed to the search for more dietary diversity, as well as environmental and animal welfare concerns.⁷



Gluten-Free Vegan Brownie

CONCEPT 1

Gluten-free and vegan, without compromise! These brownies are not only delicious but also packed with fiber, providing highly sought-after attributes. The tapioca starch and sorghum help deliver the taste and texture customers expect in baked goods.



Concept Highlights

Gluten-free

Vegan

High fiber

ADM Featured Ingredients

Gluten Free All Purpose Flour Blend

Fibersol®-2

Coconut Oil

Black Bean Powder

Cocoa Powder

Vanilla Extract

7. Mintel, A Year of Innovation in Cakes & Sweet Bakery, October 2019

Case Study

Challenge

Delicious gluten-free pizza crust that doesn't impart bitter flavors from the use of common ancient grains or create the texture challenges that occur during the freeze/thaw process.

Insight

While gluten-free bakery products are perceived as healthier, taste and indulgence are still the main areas of improvement from the consumer's point of view.⁸



Gluten-Free Thin Pizza Crust

CONCEPT 2

Inspired by the flavorful Neapolitan pizzas of Italy, our thin crust has a delicious taste that appeals to consumers seeking permissive indulgence. Functionally, this crust controls water migration and offers freeze/thaw stability while delivering a crispiness during baking for an irresistible, familiar texture.



Concept Highlights

Gluten-free
Non-GMO

ADM Featured Ingredients

Modified Tapioca Starch 6224
Brown Rice Flour
Sorghum Flour
Interesterified Soybean Oil
Flaxseed

8. Mintel, Gluten-Free Bakery: a New Era of Innovation, October 2018



Why ADM?

A Legacy of Expertise

With over 100 years of experience, ADM provides the performance, reliability, and industry know-how to give you the service and speed to market you need to succeed. Many of our gluten-free proteins offer the appeal of plant protein with a neutral flavor that delivers a taste consumers love. Plus, we're equipped with the technical ingenuity and deep understanding of ingredients to help select the ideal gluten-free protein to solve your challenges and deliver consumer-desired texture and taste enhancement.

Sustainable Supply

ADM's partnership with carefully selected growers provides the highest quality ingredients and consistency from field to market. Transparent and traceable, you can rest assured that when you work with ADM, you'll have the right ingredients to help you produce clean-label and delicious goods that today's mindful—and taste-driven—consumers will love.

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To learn more, visit
adm.com/GlutenFree

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