



The Esca Bona™ Food & Beverage  
Ingredient Trend Series

# Ancient Grains

QUINOA, FLAXSEED & CHIA



# Ancient Grains: Coming of Age, Again

by Danielle Rose



The Whole Grains Council describes ancient grains as those that have remained largely unchanged over the last several hundred years. The name, however, is somewhat of a misnomer because ancient grains are not always older than their traditional counterparts, nor are they always grains.

Grains are a member of the *Poaceae*, or grass, family. Although called “ancient grains,” quinoa, flax and chia are not of the *Poaceae* family; however, they are known as “pseudo grains” because they look like and can be used similarly to grains.

By introducing variety in color, flavor, texture and taste, ancient grains can help drive product innovation. They speak to traditional flavors and cooking techniques, and the ability to meet a variety of consumer desires including those for plant-based protein, gluten-free and whole grain intake.

Although by no means a new trend, ancient grains are both a stable player and a new innovator in categories across the board, particularly where they fill a hole in consumer need. They are versatile—introducing nutrients, flavor and texture into popular foods—while showing the capacity to reach the evolving health-conscious consumer. Whether you are an established player in the functional food and beverage category or looking to enter the game, consider these market dynamics when looking to source ancient grains.

## GLUTEN-FREE GOES MAINSTREAM

Consumers are increasingly seeking nutrient-dense gluten-free baked products. The ancient grains highlighted in this Report—quinoa, chia and flax—are all gluten-free, and increasingly popular in traditionally wheat-based categories.

The Grains, Pasta & Side Dishes category showed consistent product innovation with ancient grains at Natural Products Expos from 2013 to 2017. The category showed an 11 percent increase in product growth during those years for all ancient grains, driven by increased usage of flax, quinoa and chia. Chia saw a decrease of 10 percent absolute growth in the Grains, Pasta & Side Dishes category, but realized 72 percent absolute

growth in the Diet & Nutrition category. Quinoa showed a 64 percent increase in the Bakery category and an impressive 80 percent absolute growth in the Diet & Nutrition category.

Likewise, Cereal & Breakfast Foods represented 13 percent of the products formulating with ancient grains at Expo West between 2013 and 2017. Chia dominated the category with 77 percent absolute growth, followed by flax (31 percent) and quinoa (15 percent).

Many brands are turning to ancient grains to bolster their gluten-free offerings. Consider the Food for Life® line of gluten-free sprouted grain breads featuring quinoa, chia, flax and millet. Along those lines, Better For You Foods launched a gluten-free sprouted ancient grain pizza featuring flax, quinoa, chia and millet.

### NUTRITION NAILS IT

Ancient grains also can deliver plant-based protein and fortify the carbohydrate-filled breakfast category. Quinoa, flaxseed and chia are high in protein and fiber content, and contain significant levels of zinc, magnesium, iron, B vitamins and vitamin E.

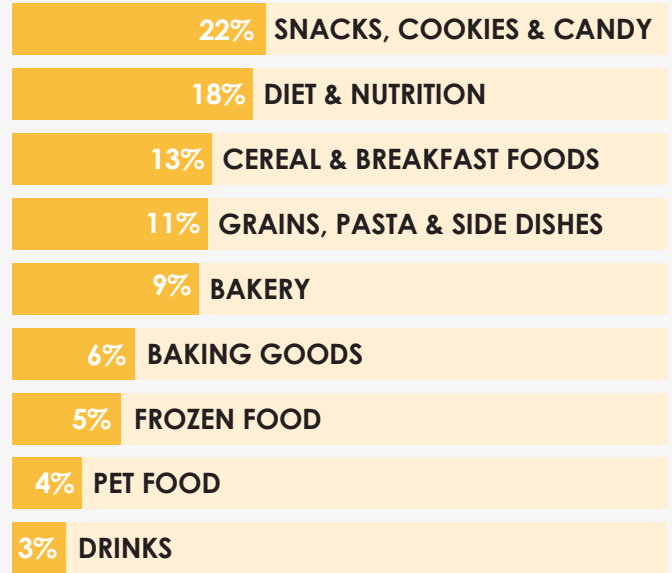
Packaged Facts reported adults in the 25-39 age category are the most likely to seek out protein, followed by the under-25 demographic. The same holds true for those seeking plant-based protein—37 percent for the 25-39 demographic, and 22 percent for those under 25.

The fiber content of some ancient grains such as barley (17.3 percent), bulgur wheat (18.3 percent) and rye (15.1 percent) is very high. Others, including millet (8.3 percent), oats (10.6 percent) sorghum (6.3 percent) and spelt wheat (10.7 percent) have a fiber content range comparable to that found in whole wheat and corn—12.2 percent and 7.3 percent, respectively (USDA Nutrients Database SR 26, updated September 2013). When grain is debranned to make macaroni, noodles and other products, its fiber content drops to levels ranging from 2.8 to 4.3 percent.

When comparing ancient and traditional grains, one cannot conclude that ancient grains' nutritional profiles are outright superior. However, some ancient grains such as barley are a rich source

### Represented in more than 9,000 products, the following categories have highest incidence of products formulating with ancient grains

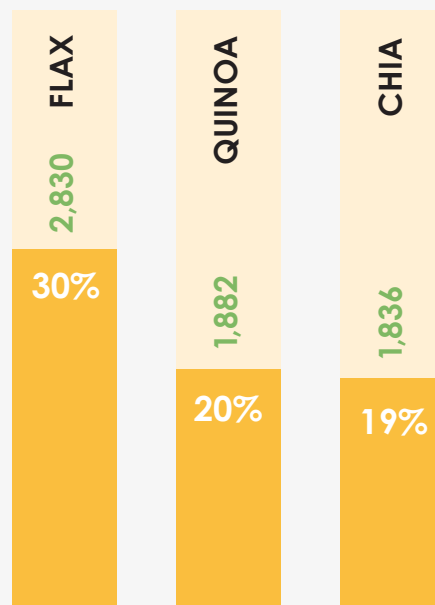
Expo West 2013—Expo West 2017



Source: New Hope Network NEXT Trend Database

### Ancient Grain Usage Continues to Grow Among Products Launched at Expo West

Most in-demand ancient grains are: Flax, Quinoa and Chia



Source: New Hope Network NEXT Trend Database

of selenium; teff and spelt have high values of magnesium; oats are rich in thiamin; etc. Traditional grains are also rich in some micronutrients. The nutritional content of any grain, though, is affected by the soil and growth conditions.

According to Euromonitor International, consumers see ancient grains as more natural, less processed and highly nutritious. This is an added bonus for those seeking reduced carbohydrate and sugar intake, a Paleo lifestyle or increased nutrients.

## CONSUMER PRODUCTS GO BACK IN TIME

Quinoa, flax and chia are stirring up innovation in numerous product categories including Snacks, Cookies & Candy; Diet & Nutrition; Cereal & Breakfast Foods; and Bakery. Of the nearly 9,500 products launched at Expo West between 2013 and 2017, flax appeared in 30 percent of products, followed by quinoa (20 percent) and chia (19 percent.)

Ancient grains also are sprouting up in the casual dining realm. Quinoa, for example, can be found at chains like Applebee's, sweetgreen and Native Foods Café. Au Bon Pain and Panera are incorporating ancient grains in their baked goods to increase options for nutrient-dense calories.

In addition to consumer products, ancient grains are available as bulk packaged milled flour for food and beverage manufacturers. Quinoasure®, the first nutritionally enhanced 100 percent instant quinoa powder, is one example suitable for foods, beverages, supplements and meal replacements catering to the dietary needs of pregnant and nursing mothers, vegetarians and those on specialized diets requiring soft, low-calorie, celiac and diabetic food options.

## CONSIDERATIONS FOR SOURCING ANCIENT GRAINS

Supply chain and sourcing is one of the biggest hurdles ingredient suppliers face. However, finding established supply chains that are transparent and speak to social and environmentally responsible practices can be difficult when it comes to ancient grains. Forward-thinking brands are taking an active part in securing the future of the supply chain at the source. Companies that create a partnership with their suppliers, meet farmers face-to-face, and help establish sustainable business practices represent some of the most responsible sourcing options.



## ANCIENT GRAINS, IN A NUTSHELL

### Quinoa

Quinoa is the seed of *Chenopodium quinoa*, a member of the *Amaranthaceae* family. Approximately 120 variations of quinoa have been identified. Other than amaranth, quinoa is the only ancient grain that is a complete protein. Despite its success over the years, sustainability remains one of this ingredient's biggest concerns.

Grown predominately in the Andes, quinoa requires an arid climate. Growth in other countries is expanding, but the farming economy in Bolivia has become unbalanced as quinoa demand grows. Despite increased income, quinoa farmers no longer can afford to purchase this native grain themselves. Traditional growing practices also have been altered to meet supply and demand. Crop rotation has decreased, and fields used for local consumption are being eliminated for quinoa growth. Quinoa faces the introduction of chemical fertilization, genetic modification and grower exploitation. Without care, the production of a crop synonymous with old practices, slow growth and responsible farming will become little different from that of traditional grains.

Companies that create better conditions and relationships with their farmers will ensure the future success of this ancient grain and speak to the socially responsible consumer.

For example, Andean Naturals Inc., a B Corp and member of the Fair Trade Federation, pays farmers at or above fair trade levels while also providing medical insurance, free meals and free quinoa daily. The Fair Trade USA website requires a minimum of 30 percent of all Fair Trade Premium received by the farmer to be invested in projects or activities that increase environmental sustainability of quinoa.

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The Alter Eco brand creates relationships with producers and communities—building sustainability not only for its quinoa crop, but for the entire supply

## [Quinoa]

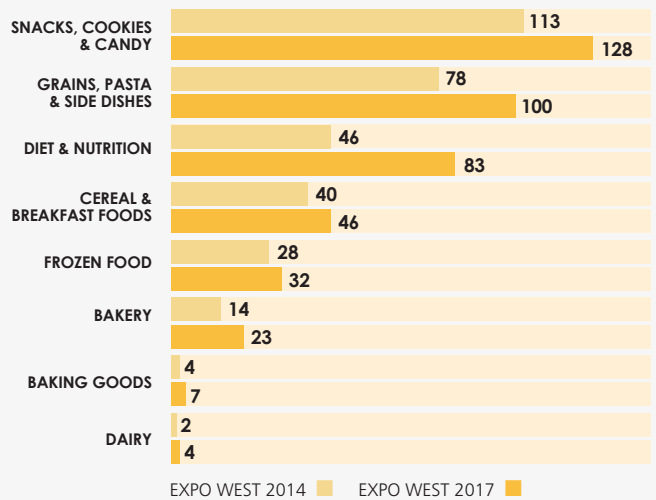
### BY THE NUMBERS

At nearly 430 products at Expo West 2017, quinoa opportunities lie in the Diet & Nutrition aisle with increased innovation in Snacks, Energy & Granola Bars and Energy, Protein & Muscle Recovery Drinks subcategories.

### Categories Innovating with Quinoa

(according to absolute product count)

Expo West 2014—Expo West 2017

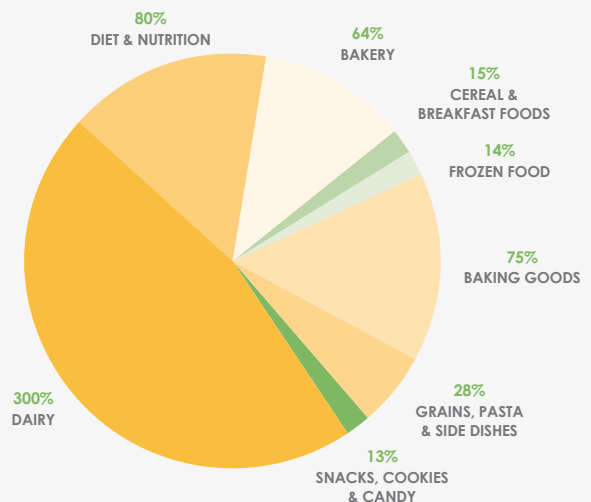


Source: New Hope Network NEXT Trend Database

### Leading Categories Innovating with Quinoa

(according to absolute growth of number of new products)

Expo West 2014—Expo West 2017



Source: New Hope Network NEXT Trend Database

chain. Ardent Mills’ Great Plains Quinoa has brought quinoa local, expanding the ingredient’s growing area into North America, supporting carefully vetted farmers and providing traceability and supply assurance.

Quinoa innovation is being seen in the Diet & Nutrition category with increased use two subcategories— Snacks, Energy & Granola Bars; and Energy, Protein & Muscle Recovery Drinks. Dairy represents a small (but mighty) segment of quinoa, and beyond that, brands are incorporating it into several products like nondairy smoothies, vegan cheese and as crunchy toppers for yogurts.

*Chia*

Chia, or *Salvia hispanica*, is a member of the mint family *Lamiaceae*. Every chia seed is full of complex plant protein, alpha-linolenic acid (ALA) omega-3, dietary fiber and antioxidants. Unfortunately, due to the high and relatively unstable oil content in chia, shelf life is often compromised, offering less opportunity for bulk packaging.

A stable chia seed oil using fluid-based extraction and fractionation was patented in 2014 by Valensa to alleviate some of the inherent issues with chia stability and shelf life.

***Chia innovation in the Snacks, Energy & Granola Bar subcategory of Diet & Nutrition can be found in products from KIND, Perfect Bar and Wholesome Goodness.***

Despite its obstacles, chia has remained a rising star in the ancient grains category. Thanks to its powerhouse of nutrients and innovation in processing, the number of chia products at Expo West has nearly doubled since 2014. Chia innovation in the Snacks, Energy & Granola Bar subcategory of Diet & Nutrition can be found in products from KIND, Perfect Bar and Wholesome Goodness.

[Chia]

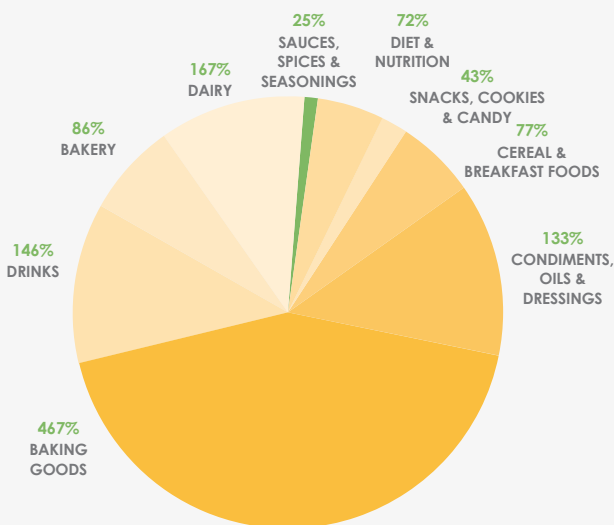
**BY THE NUMBERS**

At nearly 400 products at Expo West 2017, chia opportunities lie in the Diet & Nutrition and Snacks, Cookies & Candy aisles.

**Leading Categories Innovating with Chia**

(according to absolute growth of number of new products)

Expo West 2014—Expo West 2017

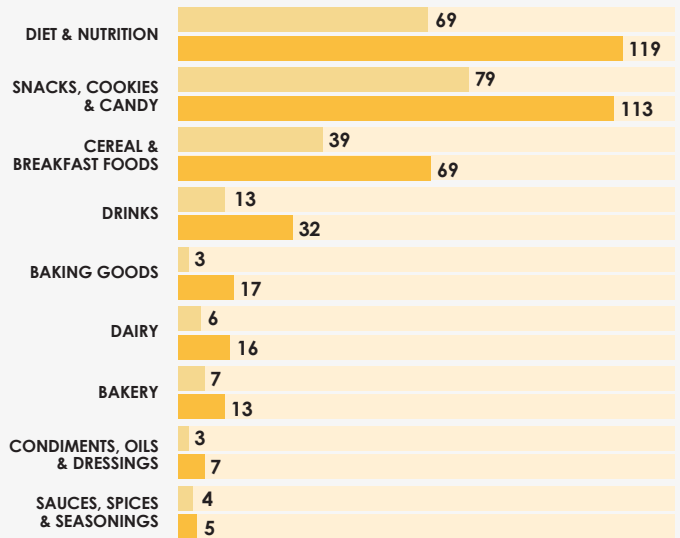


Source: New Hope Network NEXT Trend Database

**Categories Innovating with Chia**

(according to absolute product count)

Expo West 2014—Expo West 2017



EXPO WEST 2014 ■ EXPO WEST 2017 ■

Source: New Hope Network NEXT Trend Database

Its mild flavor can easily be incorporated into a wide range of functional foods such as cereals, breads, soups, salad dressings and nutrition bars, or mixed with liquids. Chia oil can be used in softgels, dressings, soups, vinaigrettes and cooking oils.

Mayan and Incan cultures built great civilizations around the chia crop, a cultural practice continued today by the isolated Terahuma Indians. However, chia has become so popular, there are now supply shortages. For the Health Warrior brand, the supply chain for chia wasn't big enough to support its goals. Since the crop faced similar farmer economy concerns as quinoa, the company took sourcing into its own hands. Today, it works directly with the Terahuma to grow chia, improving farming conditions and production. Special run chia bars, such as the Mexican Chocolate flavor, take advantage of growing trends in the snack and chocolate categories, and allow the company to reinvest profits back into the chia farms.

Another concern with chia is the inability to conventionally wash seeds since contact with water initiates the absorption process. Without washing, the end product runs the risk of contamination. However, CO<sub>2</sub> extraction and other milling processes, particularly those that remain oxygen-free, allow for a more stable sterilized chia product. Due to the difficulties of sterilization and prewashing, knowing if and how a supplier sterilizes chia can be as important as some of the farm-based supply chain concerns surrounding the ingredient.

*Flaxseed*

Flax, or *Linum usitatissimum* is an ALA that the body can convert to eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). It is a sustainable option for plant-based omega-3 that may be beneficial for inflammation, joint and heart health. It also has been found to lower cholesterol, a claim now approved for labeling purposes in Canada.

Flaxseed has been incorporated into foods such as breads, muffins, cereals, crackers, energy bars, baking mixes, snacks, soups and waffles. In addition, there is considerable interest in the use of flaxseed as an animal feed ingredient.

A self-pollinating plant, flax can thrive in almost any soil and region throughout the United States. It is also grown prolifically in Canada for export and domestic use.

[Flax]

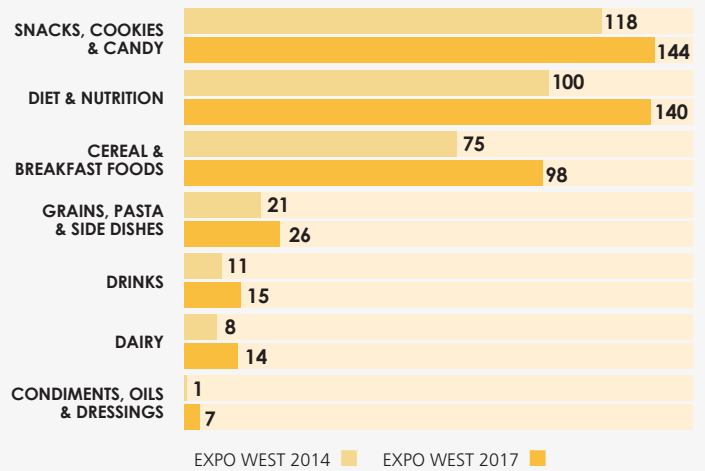
**BY THE NUMBERS**

At nearly 450 products at Expo West 2017, flax opportunities lie in the Diet & Nutrition aisle with increased innovation in the highly competitive Snack, Energy & Granola Bar subcategory.

**Categories Innovating with Flax**

(according to absolute product count)

Expo West 2014—Expo West 2017

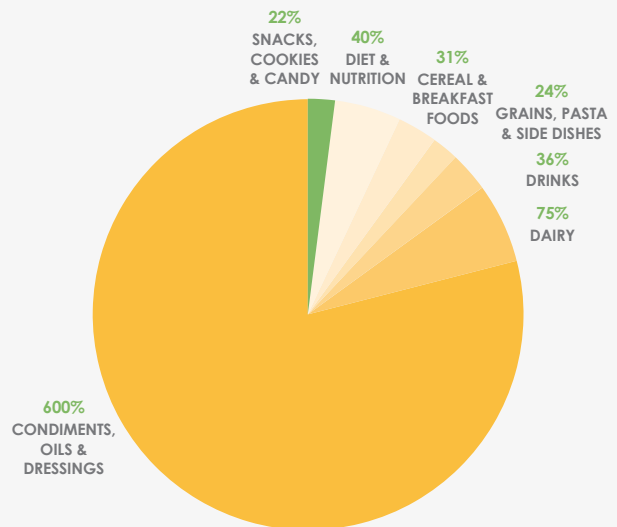


Source: New Hope Network NEXT Trend Database

**Leading Categories Innovating with Flax**

(according to absolute growth of number of new products)

Expo West 2014—Expo West 2017



Source: New Hope Network NEXT Trend Database

Flaxseeds show 50 percent growth in the plant-derived food supplement category. The Snack, Energy & Granola Bar subcategory of Diet & Nutrition has seen innovative products from Go Macro, The Gluten-Free Bar and Soul Sprout. The Energy, Protein & Muscle Recovery Drinks subcategory also is seeing growth from brands including Sun Warrior, Blue Bonnet and Protein Energy Power.

While the Condiments, Oils & Dressings and Dairy categories are relatively small segments of the overall flax pie, innovation has been steady over the years, making for categories with huge growth potential.

As of 2016, organic flax [oil supplements] made up 42 percent of total flax sales with an 11 percent growth rate, while non-organic options were in decline.

## [Ancient Grains]

### MARKET MANIFESTATIONS



#### MARY'S GONE CRACKERS

Mary's Gone Crackers' Super Seed is an innovative line extension of the original gluten-free cracker—one that taps into a deep consumer desire for clean label snacking. These amped-up crackers are packed with wholesome ingredients such as whole grain brown rice, quinoa, chia seeds, hemp, flax seeds, amaranth, sesame seeds, sprouted buckwheat, and a litany of savory flavor boosters including seaweed, herbs, paprika, rosemary, black pepper and sea salt. Manufactured in a dedicated organic, gluten-free and dairy-free facility, the crackers are USDA Organic, Certified Gluten Free, Non-GMO Project Verified, vegan, whole grain and kosher. The line comes in five varieties: Super Seed Classic, Super Seed Basil & Garlic, Super Seed Chia & Hemp, Super Seed Everything, and Super Seed Seaweed & Black Sesame.



#### HEALTH WARRIOR

Available in 10 flavors, nutrient-dense Health Warriors Chia Bars feature the mighty chia seed as the first ingredient on the label and are designed to fuel the body without weighing it down. With only 100 calories and 3 g of sugar, the Non-GMO Project Verified, Certified Gluten Free bars are packed with chia seeds that deliver 4 g of fiber, 1,000 mg of omega-3s and 3 g of protein. The company's line of Superfood Protein Bars has 10 g of plant protein from a blend of chia, quinoa, oats and peas. And its most recent line extension—Pumpkin Seed Protein Bars—features a paleo-friendly combination of pumpkin seeds, organic wildflower honey, milled quinoa, black pepper, turmeric, coconut oil and sea salt that delivers 35 percent of daily value magnesium, 8 g of protein and 6 g of sugar.



#### KIND

KIND Healthy Grains bars deliver a full serving of 100 percent whole grains from a blend of five super grains: oats, millet, quinoa, amaranth and buckwheat. The Cinnamon Oat and Double Dark Chocolate bars each contain 5 g of sugar and 22 g and 20 g of whole grains, respectively. KIND's Healthy Grains clusters also contain the blend of five super grains and are available in eight tasty flavors including Cinnamon Oat Clusters with Flax Seeds, Raspberry Clusters with Chia Seeds, and Maple Quinoa Clusters with Chia Seeds. The company's Breakfast bars provide sustained energy from whole grains by harnessing the power of gluten-free oats, millet, buckwheat, amaranth and quinoa. Its Pressed by KIND line also tips its hat to the mighty chia seed with Strawberry Apple Chia and Cherry Apple Chia bars.