

Sustainable Grains

The Evolution of Grains, What's Changing, and What's Next





Sustainable Grains: Transforming Food & Beverage Innovation

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\$41.4M

Sustainable Grains Dollar Sales L52W

+13%
Dry Plain Grains
YoY Growth

74%
of all shoppers care
about the
environmental
impact of the
products they buy



Grains have expanded beyond traditional wheat and rice and continue to be an in-demand commodity product that supports a balanced diet. The continued acceleration of better for you products is impacting the future of grains.

Grains previously niche sector, sustainable grains, is more readily available than ever before and aligns to present day consumer ethos.

This piece analyzes grains, the evolution to sustainable grains, consumer mentality shifts, and predictions with sustainable grain enhancements and innovations leading us into the future.

Future predictions

What are grains?

Consumer mentality shifts

Sustainable grains as an enhanced ingredient

Why do we need them?

Evolution of grains

Sustainable grain performance



What are Grains?

Definition: wheat or any other cultivated cereal crop used as food

Traditional Grains

Grains such as wheat, durum, oats, rye, and barley are widely considered traditional grains. These grain types are not as old as the ancient grains.

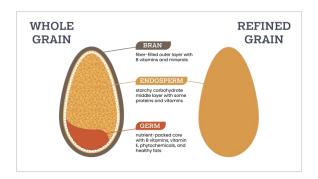
Ancient Grains

The Whole Grains Council generally defines ancient grains loosely as grains that are largely unchanged over the last several hundred years. This means that modern wheat (constantly bred and changed) is not an ancient grain, while einkorn, emmer/farro, Kamut®, and spelt would be considered ancient grains in the wheat family.

Other grains largely ignored until recently by Western palates (such as sorghum, teff, millet, quinoa, amaranth) would also be widely considered to be ancient grains. Sometimes less common grains, like buckwheat, or wild rice, are also included.

Whole Grains

Whole grains or foods made from them contain all the essential parts and naturally-occurring nutrients of the entire grain seed in their original proportions. This definition means that 100% of the original kernel – all of the bran, germ, and endosperm – must be present to qualify as a whole grain.



Whole grains are more nutritious than a refined grain as refined grains processes out most of the fiber and nutrients. Refined grains are used for a finer texture and overall, a longer shelf life.



Why are grains important?

Grains in whole form contribute to a balanced and nutritious diet while also being a viable crop.

Balanced Diet

In 2011 First Lady Michelle Obama, to combat obesity, unveiled MyPlate with the USDA as a new healthy eating guideline. Historically, whether it's a food pyramid or plate, grains continue to be a large portion of a healthy diet.

Grains Represent 30%
Of a Healthy Diet



Nutrition

Whole grains are a good source of dietary fiber, minerals (magnesium, selenium, phosphorus), and vitamins (Folate, Iron, Vitamin A, B, & E). Whole grains are shown to promote weight lose, improve cholesterol, lower your risk of heart disease, stroke, obesity, and type 2 diabetes.

Those who average 2 to 3 servings of whole grains a day are 30% less likely to develop type 2 diabetes.

Sustainable

Whole grains provide more food and utilize less waste than most food production. Rotating crops with whole grains in the off season can help with soil erosion and deliver nutrients back to the soil.



Whole Grains use
90%
less water than
Beef production



Rice & Grains see steady YoY Growth

Plain Dry Rice & Grains Taking Share From Convenience-Oriented Rice & Grains Mixes







A Convenience Staple Since 1941

The last few decades of grains products have championed convenience and quick cooking times

CLASSICS

NEW WAVE

DISRUPTORS

The quick-cooking grains trend started in 1941, with the invention of Minute Rice as a solution for feeding World War II soldiers. Rice-A-Roni enhanced the fast grains market with the introduction of flavored ricepasta combos in 1958, creating a microwaveable cup version in 2012. Ben's Original Boil-In-Bag rice launched in 1988, making cooking grains easier than ever. Convenient ready-to-heat options are now available across a wide variety of grains.











Rise Of Global Grains With Unique Advantages

Ancient grains like couscous, quinoa, and farro germinate renewed interest on American grocery shelves

CLASSICS

NEW WAVE

DISRUPTORS

As shoppers begin to seek more than just convenience from their grains, ancient staples from all over the world like couscous, quinoa, and farro become some of the first alternatives to rice and wheat that gain widespread popularity on shelf.

Whether for their inherent versatility and quick cooking times (couscous), potent nutritional benefits (quinoa), or unique flavor profile (farro), the growth of these grains demonstrated that shoppers were more than willing to experiment with this portion of the plate.







Farro

- Found in the tombs of Egyptian Kings and believed to have been eaten by Ancient Roman soldiers
- Distinct nutty flavor that lends itself to sweet and savory dishes

Quinoa

- Originated in Peru and Bolivia around 5000–3000BC
- Source of complete, plant-based protein, with all 9 essential amino acids

Couscous

- Developed by Berbers in Northwest Africa as early as 11th century
- Smal grain size naturally lends rapid cooking time and ability to absorb variety of seasonings



Nutrition Takes Center Stage

Grains continue to diversify as consumers increasingly seek out nutritional benefits in all parts of the plate

CLASSICS

NEW WAVE

DISRUPTORS



Teff

High in resistant starch, a form of dietary fiber that can benefit blood sugar management, weight control, and digestive health



Sorghum

Very high in protein and antioxidants



Amaranth

Anti-inflammatory peptides and oils, gluten free, cholesterol-lowering phytosterols, lysine that helps body absorb calcium, build muscle, and produce energy



Millet

Source of both soluble and insoluble fiber, which support heart health and gut health, also significant source of antioxidants

Nutritious Grains Continue To Win On Shelf

+40%

HIGH PROTEIN

Items With 20g Protein Or More Per Serving +16%

LOW SODIUM

+14%

LOW IN SATURATED FATS

+11%

HIGH FIBER

Items With 10g Fiber Or More Per Serving



What are Sustainable Grains?

Definition: grains that are resilient and adaptable, meaning they can grow in harsh conditions with minimal water and fertilizer inputs.

Sustainable Grains

Sustainable grains are frequently native to harsh growing climates which have allowed them to become highly resilient and adaptable to conditions like drought or pests! Grains in general don't require as much water as other crops, and many "ancient" and heirloom grains are more tolerant of extreme weather patterns than their commodity counterparts.

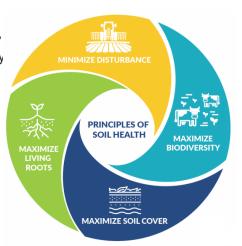
Sustainable cereal production systems involve enhanced biodiversity, living soils, use of integrated pest management, and low greenhouse gas emissions, simultaneously producing high-quality food and maintaining food security.

Sustainable grains offer immense value:

- Increased nutritional content
- Replenishment to soil health
- Reduced need for Herbicide usage

Mitigating Soil Disruption

- Biodiversity loss is threatening the world's food supply
- We rely on the soil for 95% of food, globally, but a third of it has already degraded
- Intensive agricultural practices disrupt soil structure
- Over-grazing and only growing one crop in the same area of land (monoculture) can also be highly damaging to soil





Sustainable Grains: Soil Health

Sustainable grains support and promote soil health which is crucial for **food quality and production**

Soil Health:

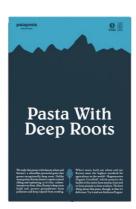
Impact to Flavor and Quality of Product

- Complex taste profiles: Healthy soils, rich in minerals and nurtured with organic practices like cover cropping, tend to produce crops with more complex and richer taste profiles. Many grains can incorporate cover cropping.
- **Texture and appearance:** Beyond flavor, the texture and even color of produce can be influenced by soil health.
- Extended shelf life: Healthier crops tend to be more resilient post-harvest. This provides products with a longer shelf life and ensuring consumers get the most out of every purchase.

Brands are pushing forward the impact of soil health practices to improve their product quality and taste as well as align to consumer ethos.









Sustainable Grains: Soil Health

Sustainable grains support and promote soil health which is crucial for nutritious food

Soil Health: Impact on Consumers

- **Foundation of nutrients:** Healthy soil facilitates the growth of crops that are not only robust but nutrient dense
- **Soil structure and plant growth:** The structure of soil determines its ability to hold air and water. This directly translates to crops that are healthier and more nutritious.
- The magic of organic matter: By fostering a soil rich in organic matter, farmers enhance the vitality of their produce.
- Carbon sequestration and its benefits: Carbon sequestration is a natural process where soil captures and stores carbon from the atmosphere. This not only combats climate change but also enriches the soil, making it more fertile.

74%

Of all shoppers care about the environmental impact of the products they buy

Consumers Pay Attention to Brand Reputation

Gen-Z shoppers prefer to buy sustainable brands, and 73% are willing to spend more on sustainable products. Millennials are similarly eco-conscious, particularly when it comes to their investments.





Sustainable Grains as a **Single Product**

Shelf Stable Rice & Grains

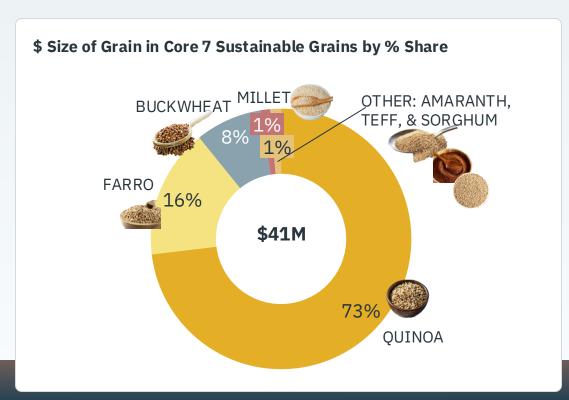
Shelf Stable Rice & Grains Dry Plain



Product Type (EX: Rice – Jasmine)



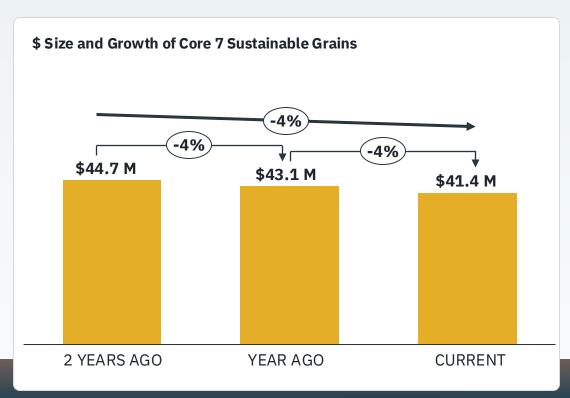
Quinoa declining by \$2M L52W: Farro & Buckwheat over-indexing on growth







Sustainable grains declining 4% over L2yr: Future growth as a supporting ingredient



Farro, Buckwheat, and Amaranth show continued growth as a single product. Quinoa, Millet, Teff, and Sorghum are declining as a single product.

However, all of these grains are showing fast growth as an ingredient across categories.

SUBCATEGORY	\$ Sales L52W	\$ % Chg YA
QUINOA	\$30.2M	-7%
FARRO	\$6.7M	8%
BUCKWHEAT	\$3.4M	7%
MILLET	\$0.5M	-2%
AMARANTH	\$0.3M	1%
TEFF	\$0.2M	-5%
SORGHUM	\$0.1M	-2%

Concerns over climate change and protecting the planet have propelled sustainable grains to the forefront of product formulations.

Sustainability paired with **nutrition** is the **driving force for expansion** of sustainable grain into new spaces.





Sustainable Grains as an Ingredient

Departments

Categories

Versatile ingredient that can be found across different departments and categories



Ingredient

(Ex: Category of Cookies, Ingredient - Buckwheat)





+9%

Peruvian

Cuisine

Total FZ, RF, & Grocery

Quinoa

Native to the Andes Mountains, extremely nutritious, and adapted to high-altitude, dry environments.

FUTURE ENTRY PRESENT

Quinoa became popular in the health food scene in North America in the early 2000s. It is gluten-free, high in protein, and contains all nine essential amino acids.

The global quinoa market size was valued at \$406.93 million in 2022 and is expected to reach \$507.95 million by 2028.

Supporting Ingredient

New!

Nut & Seed Butters

+75%

Rice Cakes

+17%

Wellness Bars







As Lima, Peru has quickly become home to some of the world's top restaurants, we continue to see quinoa innovating as a supporting ingredient in categories that correlate to Peruvian recipes.



for a hearty & nutritious addition

Plant-Based Products

Protein + Whole Ingredient addition



Beverage

Paired with functional ingredients







SUSTAINABLE GRAINS: WHAT'S CHANGING?



+1%

Mediterranean

Diet

Total FZ, RF, & Grocery

Farro

Now an Italian staple, this ancient grain is originally from the Middle East. Not only drought and pest-resistant but also fast-growing and high-yield.

ENTRY PRESENT FUTURE

Farro is among the most ancient cereal crops of the Mediterranean region. It gained popularity in the US primarily over the past decade due to the growing interest in whole grains and healthier eating.

The global farro market size was valued at \$178.9 million in 2020, and is projected to reach \$513.8 million by 2030.

Supporting Ingredient

+67%

Baking Mixes

+49%

Crackers & Crisp Breads

+11%

Pasta







The Mediterranean Diet continues to grow; made popular by diet specific cookbooks and healthy eating documentaries like "Live to 100: Secrets of Blue Zones".

Farro is a key component to Mediterranean eating and is being incorporated into dishes for the whole family.

Entrees

Core Ingredient







Baby Food

Sustainable + Nutrition forward







+3%

Kombucha

Subcategory

Buckwheat

Gluten-free East Asian grain adapted to high altitudes and variable climates. Has a short growing season and returns nutrients to the soil.

Breakfast

Adding nutritional value and texture to an extra crunchy breakfast



+7%

Buckwheat Hot Cereal

Snacking

Swapping out unenriched flours for buckwheat flour



+26%

Crackers & Crispbreads



Innovation

Soba Tea is made from roasted buckwheat, prominent in Asia as an anti-inflammatory, and is gaining popularity in the US. As this evolution continues, with the push from consumers for more innovation in better for you beverage, there is opportunity for soba based Kombucha.









Amaranth

Pest and drought-resistant Mesoamerican grain that grows quickly. Naturally anti-inflammatory and low cholesterol.



Expansion of Amaranth

Influencers, like Chef Sean Sherman from Owamni restaurant, have played an important role with consumer familiarity to indigenous ingredients like Amaranth.



Chef Influence

Sean Sherman is an Oglala Lakota Sioux chef, cookbook author, forager, and promoter of indigenous cuisine with continued involvement the at Natural Product Expo.

Native American products are up 8% across FZ, RF, and **Grocery** Departments



CPG Expansion

Amaranth is increasingly being used in categories across grocery gearing towards better you and better for the plant products.

Amaranth as an ingredient is up 31% in SS Cold Cereals and up **86%** in **SS Chips – Vegetable** & Other



Gluten Free Grain Trio

Millet, Teff, and Sorghum are all gluten free grains that are commonly used as flour alternatives and flour mixes in allergen friendly products. Furthermore, these flours can each be used as a nutritious thickening agent.

Millet

Found across Asia and Africa, well known sustainable grain with the highest calcium content of cereal grains.

+15% Cold Cereals





Teff

Nutritionally dense Ethiopian grain with super high yields—one pound of seeds can produce an entire acre of crops.









Sorghum

Mineral-rich, drought and pest-resistant East African grain frequently used for gluten-free bread.

+25%

SS Sweeteners







Brands succeeding in **Grains** are addressing **Consumer Mentality Shifts**



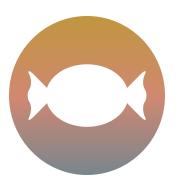
Lifespan to Healthspan



New Global Notions



Protecting the Planet



Intentional Indulgence



Lifespan to Healthspan

What to Watch For:

- Better for you Digestion
- Sourdough paired with Sustainable Grains



Sorghum + Millet +Teff Flours

SORDOUGH LOAVES

+14%

Fermentation

Sourdough bread + Sustainable grains:

- Higher protein
- Added nutrients
- Less gluten
- More flavor
- Natural prebioitics
- Added texture

Buckwheat + Sourdough



The bread category has evolved with sustainable grains at the center of it. Components like sprouted and fermented, 7 grains, and alternative flour incorporations not only add valuable nutrition and sustainable ingredients, but overall are easier to digest.

Digestive Health







Sorghum + Millet +Teff + Amaranth +Quinoa + Buckwheat

> EINKORN LOAVES

>+200%

Einkorn Wheat

- One of the oldest ancient grains and a type of farro
- Higher protein than modern wheat and is considered more nutritious
- May reduce the toxicity to consumers with gluten sensitivities



jovial



New Global Notions

What to Watch For:

- Region Specific Grains
- Global Cuisine White Space



AFRICAN FOOD

+11%

Total Grocery

Teff

- Origins mainly from Ethiopia
- Teff flour is traditional used to make injera, a soft flatbread prepared from a fermented batter







Global cuisine growth has leveraged regionally specific grains forward.

As African, Italian, and Peruvian cuisines continue to grow there is still white space for other global cuisines and the alignment of region-specific

Farro

- Origins from Egypt with more present-day origin in Italy
- Utilized in tomato dishes or as a salad with arugula and chickpeas



Quinoa

- · Origins from Peru and Bolivia
- Traditionally used in soup or even in making Quinoa milk



PERUVIAN FOOD **Total Grocery**

Quinoa Milk in Stores New!



Origins from Central and South America

Used to make tortillas (flour form)

Used to make candies called alegrias, or even as a topping for fruit (popped form)



Protecting the Planet

What to Watch For:

- Regenerative Grain Farming
- Ingredient Swapping in Snacks
- Frozen Entrée
 Innovation

Regenerative Grains

Describes farms and products that meet the highest standards in the world based on three pillars:

soil health, animal welfare, farmworker fairness



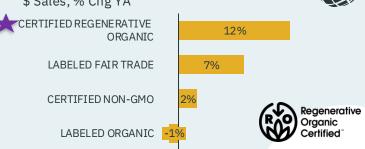






SS RICE & GRAINS CATEGORY \$ Sales, % Chg YA





Snack Swapping

As consumers look for healthier snack options we see traditional corn, wheat, and rice flours being replaced with sustainable grain options like quinoa and sorghum to make a more nutritional dense product that has a positive climate impact.



Frozen Entrees Evolving

As Frozen Entrees continue to grow to meet consumer convenience needs so does innovation for global flavors, nutritious, and sustainable ingredients. >+200%

IN FZ ENTREES

MILLET +7%

IN FZ PIZZA

+32%

IN FZ PLANT-BASED ALTS.











Intentional Indulgence

What to Watch For:

- Baking Mix Diversity
- Health Wave Expanding in Cereal & Granola
- White Space being led by Creative Innovators

Baking Mixes

Convenience + Sustainability

A key example of grains as a value add is in baking mixes. Cookie and pancake & waffles mixes provide convenient indulgence paired with sustainable ingredients like sorghum and quinoa.



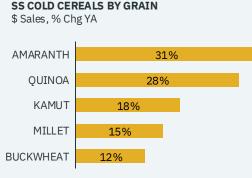


Cereal & Granola

Indulgence + Sustainable Ingredients

The cereal and granola categories continue to see innovation through products that are incorporating sustainable grains. The nutrients from these grains aligns perfectly to pair with indulgent ingredients for a "taste" of a treat.





Creative Innovators

Bringing adventure:

- General Mills brand, Cascadian Farms, has a Climate Smart Cereal with Kernza as the main ingredient
- Van Leeuwen is using Buckwheat flour in their Cookie Crumble Strawberry Jam Ice Cream
- Bourbon Barrel Foods takes sorghum syrup and ages it for a robust flavor profile. Ranked highly recommended by Bon Appetit Magazine.







SUSTAINABLE GRAINS

What's Next?

The expansion of Kernza® and the growth of certifications & label claims



Predictions: Kernza®, a perennial grain

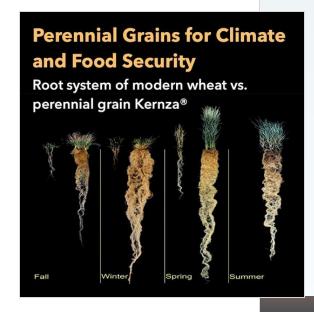
Perennial: plants that regrow every spring, while annual plants live for only one growing season, then die off.

Kernza [®], a Perennial Grain

Kernza® was developed by The Land Institute, a Kansas based non-profit. It is a distant cousin of annual wheat, Kernza® is a domesticated perennial grain originating from a forage grass called intermediate wheatgrass. The roots of Kernza® can extend 10 feet or more beneath the soil surface, delivering atmospheric carbon to the soil and efficiently taking up nutrients and water. Most of the food we eat comes from annual plants, which are replanted from scratch every year. The Land Institute aims to change this approach by igniting a movement for perennial agriculture. Unlike annuals, perennial crops are planted once and then reharvested season after season.

Why Perennial Crops Matter?

- Do not need to be reseeded or replaced every year; no plowing or herbicide needed
- Robust crop; protect soil from erosion and improve soil structure
- Free farmers from economic instability; reduces costly inputs and minimizes operational expenses of tillage and planting





Predictions: Expansion of Kernza®

Flavor Profile: slightly sweet, grassy, and nutty making it not only a nutritious & sustainable grain, but also versatile as an ingredient.

Industry Influence

As of 2017 General Mills has been supporting research on Kernza® as well as buying the ingredient for their Cascadian Farms products.

Local bakeries in Kernza® hot spots, like Minnesota, Colorado, and Kansas, are buying Kernza® from farms to utilize in their products. This projects what is to come in the CPG industry with Kernza® gaining traction nation wide as a better for you and better for the planet grain.









CPG Expansion

Kernza® is now being commonly used in flour form to make baking mixes, pasta, crackers ets. Another effective use of Kernza® is in its grain form for brewing and distilling more sustainable beverages, while retaining flavor profile.















Predictions: Growth of Certifications & Label Claims

Certifications, like Detox Project and Regenerative Organic, are leveling up grains

Regenerative Farming

The Regenerative Organic Certification is not only growing in grains, as noted previously at 12% YoY, but it is growing across the grocery department. Natural Channel retailers are aligning their mission with regenerative farming initiatives to continue expanding the movement in across stores for a healthier future.

With regenerative organic agriculture, we can rehabilitate soil, respect animal welfare, and improve the lives of farmers. We can sequester carbon, build healthier communities, and reap more nutritious and abundant yields.



Certified Detox Project – Glyphosate free +30%

in SS Rice & Grains

Glyphosate Residue Free certification verifies that your product/s do not contain the World's most used herbicide. Glyphosate Residue Free certification is growing fast in the U.S. and around the world.



Labeled Fair Trade +7%

In SS Rice & Grains

Fair Trade products meet the internationally agreed social, environmental and economic Fairtrade Standards. The label has always stood for fairly produced and fairly traded products. It also means the product is fully traceable from farm to shelf.





Thank you!

Come say hi at Newtopia Now, August 25–28 in Denver, CO

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