Price vs Quality:
The Hidden Costs of Low-Priced Food

A joint study by Yuka and Harvard Law School's Food Law and Policy Clinic

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Foreword

A growing unease is settling over America's dinner tables. Nearly 87% of Americans say the government should do more to protect the public from unsafe food ingredients, and for good reason. Almost **70% of packaged foods in the U.S. are ultra-processed**, now accounting for more than half of adults' daily calorie intake and nearly two-thirds of children's. A growing body of research, with over 100 studies to date, associates these foods with serious health risks, including heart disease, diabetes, and increased all-cause mortality.

To better understand how food prices relate to product composition across the U.S. market, we analyzed more than **800 food products sold nationwide**. The findings reveal a stark reality: **price strongly dictates food quality**, to consumers' detriment. Across 12 of the most common processed food categories, cheaper products come at a cost: 163% more additives, 21% more sugar, and 10% more sodium than the more expensive options. Nutrition, then, is not simply a matter of personal choice but of access. Lower-income households disproportionately rely on ultra-processed foods and, as a result, consume higher levels of sugar, salt, and additives.

This inequality is produced by the current American food regulatory framework. U.S. food law places **few meaningful limits on additive use** and offers little incentive for manufacturers to reduce such use. Although additives are theoretically subject to FDA oversight, a major loophole allows companies to self-certify new substances as "Generally Recognized as Safe" (GRAS) without agency review or even notification. As a result, the American food supply includes numerous substances whose safety has never been independently verified. In addition, FDA rarely conducts post-market reviews, so there are a large number of additives and GRAS substances still allowed to be used in the U.S. that have been banned or limited in other jurisdictions due to suspected adverse health effects.

These regulatory gaps translate directly into an issue of equitable access to real food, with consequences that extend far beyond the grocery aisle. Diet-related diseases now cost the United States more than $1 trillion each year, and the lowest-priced foods are among the largest contributors to this burden. The result is a system that steers families toward ultra-processed products **high in additives, sugar, and sodium**—trade-offs few would choose if healthier options were truly accessible.

Americans deserve a food system where **affordability does not come at the expense of health**. Achieving it will require political will, greater transparency, and regulatory reforms that prioritize nutrition over engineered substitutes. This report examines how food composition varies by price across the U.S. market and outlines concrete policy recommendations to make healthy food the standard, not a luxury.

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Key Takeaways

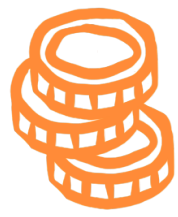
Below are some key figures from **our large-scale study of food products in the U.S.**, based on comparisons between product quartiles (the 25% cheapest vs. the 25% most expensive, and the 25% highest vs. lowest in sugar, sodium, or additives).

The cheapest products contain **2.6 times more additives** than the most expensive ones.

The cheapest products contain **5.3 times more high-risk additives** than the most expensive ones.

Products without high-risk additives are, on average, **64% more expensive** than those with high-risk additives.

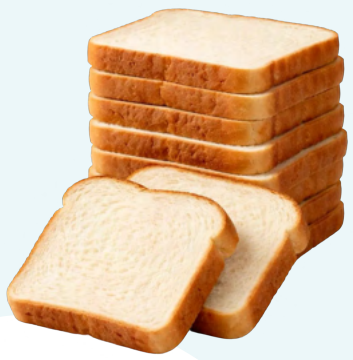
The cheapest products contain, on average, **21% more sugar** than the most expensive ones.



The lowest-sodium products are, on average, **19% more expensive** than the highest-sodium ones.

Key Takeaways

Store-Bought Bread



The cheapest store-bought breads contain

4x more additives

than the most expensive ones.

Breakfast Cereal

Breakfast cereals without high-risk additives are

65% more expensive

than those with high-risk additives.

Pizza

The cheapest pizzas contain

12 additives per product

versus 4.4 additives among the most expensive ones.

Ice Cream

The cheapest ice creams contain

35% more sugar

than the most expensive ones.

Cereal Bars

The least sugary cereal bars are

44% more expensive

than the most sugary ones.

Crackers

The cheapest crackers contain

31% more sodium

than the most expensive ones.

Study Methodology

Scope of the Study

This study analyzed **805 processed food products across 12 of the most popular categories in the Yuka app**, based on the number of product scans in the United States: Store-bought bread, cookies, breakfast cereal, pizza, barbecue sauce, crackers, mayonnaise, mac & cheese, chips, cereal bars, ice cream and tortilla wraps.

For each category, we compared **at least 40 different products**, selected from the most frequently scanned by Yuka users. To ensure diversity within each category while avoiding overrepresentation, a **maximum of three products per brand** were included — and only when the brand offered significant variations within the category, such as a conventional option and an organic one of the same product type.

Price Collection

Prices were collected online from major U.S. grocery retailers across a set of selected cities.

• Retailer Selection

Prices were gathered online from the official websites of Walmart, ALDI, Whole Foods, Sam's Club, Costco, Trader Joe's, and Target. The chosen chains meet the following criteria:

- Nationwide presence, with availability across multiple states and regions
- Wide product assortments
- Comparable store models, offering similar shopping formats and assortments
- Accessible online data on product availability and pricing

The retailer used to collect prices was defined according to brand type:

1. National brands: prices were collected from Walmart, as Walmart is the largest grocery retailer in the United States, with the widest national footprint and a highly standardized online assortment, making it the most robust reference point for national brand pricing.
2. Retailer private-label brands: prices were collected from the retailer that owns the brand.

• City Selection

To ensure representativeness and comparability, prices were collected across ten cities selected through a multi-criteria approach combining social, economic, and geographic factors.

The ten cities included in the study are: Columbus (OH), Valley Stream (NY), Los Angeles (CA), Chicago (IL), Houston (TX), Phoenix (AZ), Philadelphia (PA), San Antonio (TX), San Diego (CA), and Dallas (TX).

For each product, the final price corresponds to the average of observed prices across the selected city locations.

The detailed methodology for price and city selection is available in Appendix 1.

Product Composition Data Collection

Using each product's UPC (Universal Product Code), we retrieved composition data from Yuka's database, including nutritional values (sugar and sodium) and additive information. Yuka's database relies on product information collected directly from packaging. To ensure consistency with current market formulations, the study only used recent product data updated within the past 12 months.

Further details on the product categories are available in Appendix 2. The list of all products analyzed is available in Appendix 3.

Data Standardization

To ensure consistent and comparable analyses across all product types, nutritional and price data were standardized according to common reference units:

Nutritional values: reported per 100g or 100mL of product

Prices: reported per ounce (oz) or fluid ounce (fl oz) depending on the product type.

Statistical Analysis

The statistical methodology was developed internally and validated by two independent experts. We first examined the extremes of the distributions by segmenting products into quartiles, and then comparing the highest vs. lowest quartiles (e.g., top 25% vs. bottom 25%). Differences were quantified using mean ratios, and statistical significance between quartiles was assessed using the Kruskal–Wallis test. Nutritional profiles of quartiles (sugar and sodium content) for each product category were also compared against official WHO (World Health Organization) recommendations.

Supplementary analyses were also conducted to further explore the associations. The analytical framework to study the relationship between price, nutritional factors and additives included the following steps:

- **Data visualization** using scatterplots to examine the dispersion of the data and visualize the relationship between price and key variables.
- **Simple and multivariable linear regression** to observe and quantify trends between two or more variables.
- **Model quality assessment** using standard criteria: p-values ($\alpha = 0.05$), R^2 / adjusted R^2 and the average prediction error (RMSE)
- **Residual analysis** to check model assumptions and validate the statistical models, including tests for homoscedasticity and normality of residuals

The detailed statistical methodology is available in Appendix 4. Detailed results and supplementary analyses are provided in Appendix 5.

Cheaper Products
Contain More Additives

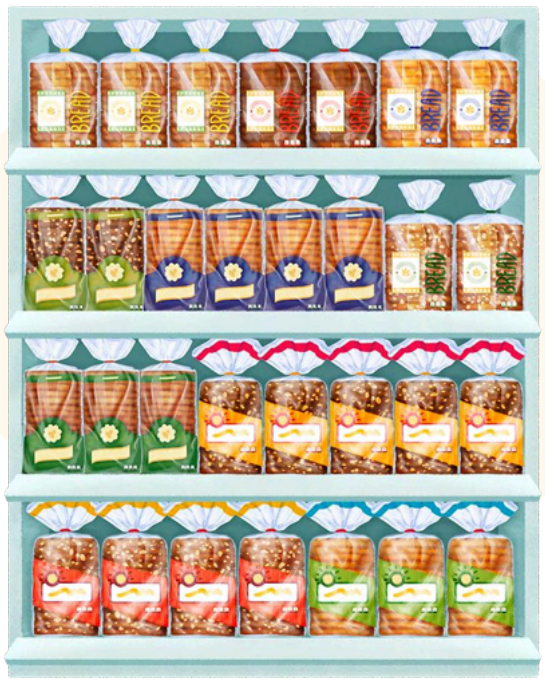
Across the **12 categories analyzed**, the cheapest products contain, on average, **2.6 times more additives** than the most expensive ones. Products in the lowest price quartile (bottom 25%) contain an average of **6.6 additives per item**, whereas those in the highest price quartile (top 25%) contain an average of **2.7 additives**.

The gap is even larger for the most concerning additives, assessed as high-risk on Yuka. The lowest-priced products contain, on average, **over 3 times more high-risk additives** than the highest-priced ones.

Overall, the results point to the same conclusion: avoiding additives, especially high-risk additives, isn't equally affordable. Products without high-risk additives are, on average, 63% more expensive than those with high-risk additives.

Store-Bought Bread

Store-bought bread is a staple in the U.S., appearing in everyday meals—from breakfast toast and children's sandwiches to burger buns and quick dinner sides. Supermarkets devote entire aisles to it, offering a wide range of options—white, whole wheat, multigrain, sourdough, seeded, or "healthy" varieties—making it a typical product where prices vary widely while choice appears abundant.



For this category, we analyzed 61 store-bought bread products from 43 different brands, selected among the most scanned on Yuka. The results show a clear and significant association between price and the number of additives: the cheapest products contain nearly **4 times more additives** than the most expensive. Products in the lowest-priced quartile contain an average of **8.7 additives**, whereas those in the highest-priced quartile contain an average of **2.3 additives**.

When focusing specifically on high-risk additives, the contrast is even more striking: in the lowest-priced quartile, 75% of breads contain at least one high-risk additive, compared with only 12% in the highest-priced quartile.

This gap shows up directly in what consumers pay: store-bought breads without high-risk additives are, on average, **28% more expensive** than those with high-risk additives.

Breakfast Cereal

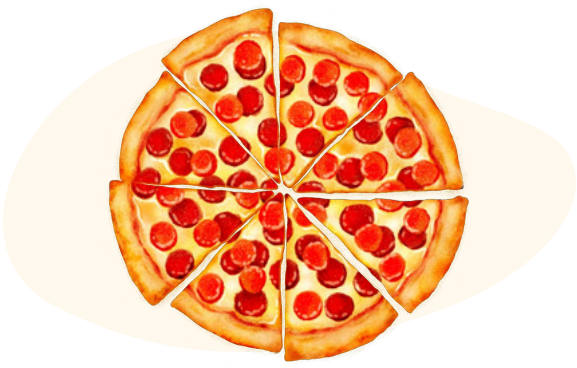
Breakfast cereals have recently become the subject of significant U.S.-specific scrutiny, as major brands face criticism for using artificial colors and other additives in products heavily marketed to children, despite cleaner formulations existing abroad. This context makes cereals an illustrative category for examining how price influences families' purchasing decisions.

We analyzed 83 breakfast cereals from 61 different brands, and the quality gap is evident. The cheapest cereals contain about **2 times more additives** than the most expensive quartile, with an average of **5.3 additives** per product. The contrast is even stronger for high-risk additives: in the lowest-priced quartile, 61% of breakfast cereals contain at least one high-risk additive, compared with 19% in the highest-priced quartile.

In other words, avoiding high-risk additives costs more: breakfast cereals without high-risk additives are, on average, **65% more expensive** than those with high-risk additives.

Pizza

Pizza is deeply embedded in U.S. food culture: one of the most widely eaten comfort foods, shared at family nights, birthday parties, school events, and major sporting events. It has become a default meal choice—one broadly accepted across households—and is consumed regularly, making it a meaningful part of weekly diets.



In this category, our analysis of 70 pizzas shows the same price–quality trend observed in other food staples. The additive load in low-priced pizzas is extremely high: the cheapest products contain **12 additives** per product on average (including 3.5 rated high-risk on Yuka), versus only **4.4 additives** per product among the most expensive pizzas (including 1.2 rated high-risk).

Pizzas without high-risk additives are, on average, **35% more expensive** than those with high-risk additives.

Tortilla Wraps

Tortilla Wraps capture two core American habits at once: eating on-the-go and the desire to "make it healthier." They are often marketed as a better-for-you alternative to bread—but that health halo can conceal highly processed formulations designed for softness, flexibility, and long shelf life.

For this category, we analyzed 53 store-bought tortilla wraps from 31 different brands.

The association between price and the presence of additives is clear: the cheapest wraps contain, on average, **69% more additives** than the most expensive ones. The gap is even more pronounced for high-risk additives: the lowest-priced quartile contains more than **twice as many high-risk additives** as the highest-priced quartile (3.2 versus 1.5 high-risk additives per product).

Recap

	Number of additives in the 25% cheapest products	Number of additives in the 25% most expensive products	Number of high-risk additives in the 25% cheapest products	Number of high-risk additives in the 25% most expensive products	Price without high-risk additives*
🍞 Store-Bought bread	8.7	2.3	1.2	0.2	+28%
🍪 Cookies	6.3	3.4	1.1	0.2	+77%
🥣 Breakfast Cereal	5.3	2.4	1.9	0.2	+65%
🍕 Pizza	12	4.4	3.5	1.2	+35%
🍯 Barbecue Sauce	3.3	1.3	1.7	0.8	+51%
🧀 Crackers	5.3	2.3	1	0.1	+72%
🧀 Mac & Cheese	8.9	3.7	1.6	0.9	+21%
🍟 Chips	4.5	2.9	1.4	0.6	+22%
🍫 Cereal Bars	7.9	2.3	1.2	0.1	+44%
🍦 Ice Cream	6.3	2.1	2.7	0	+100%
🌯 Tortilla Wraps	9.2	5.5	3.2	1.5	+142%
🫙 Mayonnaise	6.6	2.7	1.7	0.5	+64%
Mean (all items)	2	0.5	0.2	0	-

**For instance, store-bought breads without high-risk additives are, on average, 28% more expensive than those with high-risk additives.*

Cheaper Products
Contain More Sugar

The price–composition gap doesn't end with additives. Sugar follows the same pattern: lower-priced products are both more additive-heavy and significantly sweeter. This is especially concerning in the U.S., where on average, Americans consume up to **three times** the sugar intake **recommended by the WHO**. Added sugars are consistently linked to major chronic conditions, including obesity, type 2 diabetes, hypertension, and cardiovascular disease mortality[2].

Across the **12 categories studied**, the cheapest products contain, on average, **21% more sugar** than the most expensive. Conversely, the least sugary products cost, on average, **23% more** than the most sugary.

Breakfast Cereal

Breakfast cereals have become a focal point in the U.S. debate on additives, particularly due to the widespread marketing of best-selling products to children; however, sugar constitutes an equally structural concern in this category. In fact, the price gap mirrors what is observed for additives: cereals in the lowest-priced quartile contain, on average, **73% more sugar** than those in the highest-priced quartile—**26g of sugar** per 100g of product, compared with **15g in the most expensive ones**.

For families seeking less sweet options, the trade-off is clear: cereals in the lowest-sugar quartile are, on average, **twice as expensive** as those in the highest-sugar quartile.

Ice Cream

Ice cream is a U.S. supermarket institution that became mass-market with the advent of industrial refrigeration, and Americans continue to consume it at exceptionally high levels—about **five gallons per person per year**[3]. The category has also shaped global ice-cream culture through iconic U.S. brands such as Häagen-Dazs and Ben & Jerry's.

Here too, based on our analysis of 47 products from 28 different brands, price tracks sugar content: ice creams in the lowest-priced quartile contain, on average, **31% more sugar** than those in the highest-priced quartile—**21g of sugar** per 100g, compared with **16g of sugar.**

Products in the lowest-sugar quartile are, on average, **47% more expensive** than those in the highest-sugar quartile.

Crackers

Crackers are typically seen as a savory snack—something to pair with cheese, soups, or eat straight from the box. Yet many supermarket crackers also contain added sugar, which enhances palatability and makes them harder to stop eating.

This category follows the same pattern: across the 95 products from 57 brands we analyzed, the lowest-priced quartile of crackers contains, on average, **28% more sugar** than the highest-priced quartile.

Cereal Bars

Cereal bars are breakfast cereals repackaged for the U.S. snacking culture—portable, ever-present, and marketed as a convenient default when something quick is needed.

In reality, this everyday format also reveals stark price-based differences in sugar content across the 82 products from 50 brands we analyzed: the cheapest bars contain **40% more sugar** than the most expensive, while the least sugary bars are, on average, **44% more expensive** than the most sugary ones.

Lower Budgets and Exceedance of Health Recommendations

Using FDA RACCs[4] (Reference Amounts Customarily Consumed), we observe a clear **affordability-driven nutrition inequity**: cheaper products can bring consumers much closer to, or beyond, WHO daily sugar intake recommendations under normal consumption patterns. This is particularly evident for breakfast cereals, cereal bars, and ice creams: one serving of cheaper breakfast cereals can reach **52% of the WHO limit** versus **29% for pricier cereals**, and cheaper ice creams can reach **80% vs 58% per serving**.

Recap

	Average sugar content in the 25% cheapest products (g/100g)	Average sugar content in the 25% most expensive products (g/100g)	% more sugar in the 25% cheapest products (vs most expensive 25%)*	% higher price in the 25% lowest-sugar products vs the 25% highest-sugar products**
Store-Bought Bread	5.3	4.8	+10%	+6%
Cookies	32.4	29.6	+9%	+32%
Breakfast Cereal	26.2	14.8	+78%	+110%
Pizza	3.2	3	+5%	+6%
Barbecue Sauce	30.4	28	+9%	+3%
Crackers	3.8	3	+28%	+11%
Mac & Cheese	2.4	2.4	+2%	+7%
Chips	4.3	4.1	+5%	+0%
Cereal Bars	27.9	22	+40%	+44%
Ice Cream	21.4	15.5	+38%	+47%
Tortilla Wraps	1.5	1.3	+11%	+11%
Mayonnaise	0.7	0	N/A	+3%
Mean (all items)	13	11	+21%	+23%

**For instance, the cheapest 25% of store-bought breads contain, on average, 10% more sugar than the most expensive 25%.*

***For instance, the 25% least sugary store-bought breads are, on average, 6% more expensive than the 25% most sugary ones.*

Cheaper Products
Contain More Sodium

Of the 12 categories analyzed, 11 had WHO-recommended sodium targets[5]—and all exceeded them. In 7 of these 11 categories, lower-priced products showed **greater exceedance of the recommended sodium levels**.

This has significant public health implications. Excess sodium intake is a well-established contributor to high blood pressure and increases the risk of cardiovascular disease, including heart attacks and stroke. The WHO estimates that excessive sodium consumption is linked to approximately **1.9 million deaths worldwide each year**, while most populations exceed the recommended daily limit of 2 grams of sodium. In the U.S., average intake far surpasses these thresholds—about **1.4 times the federal guideline** (2.3 g/day)[6] and **1.75 times the WHO recommendation**[7].

In the U.S., average intake far surpasses these thresholds—about **1.4 times** the federal guideline and **1.75 times** the WHO recommendation.

Mac & Cheese

Mac & cheese is a defining presence in U.S. grocery aisles: bright boxed classics, instant cups, and family-size ready meals designed to be cheap, fast, and shelf-stable. Here, price often reflects how far formulations are pushed—not just with additives and sugar, but with sodium as well.

An analysis of 72 mac & cheese products shows that the cheapest mac & cheese options contain, on average, **348 mg of sodium/100g**, versus **310 mg** for the most expensive ones. For consumers seeking lower-sodium options, the trade-off is clear: the lowest-sodium products are, on average, **40% more expensive** than the highest-sodium ones.

Crackers

Crackers illustrate the broader picture: as prices drop, overall quality declines. Cheaper options tend to stack the same compromises — more additives, more sugar, and also more sodium. The cheapest 25% of products contain, on average, **31% more sodium** than the most expensive 25%.

Breakfast Cereal

While breakfast cereals are most often discussed in terms of sugar, sodium also plays a role—and lower-sodium options tend to be more expensive.

On average, the cheapest products contain **408 mg of sodium/100g**, compared with **371 mg/100g** in the most expensive ones. Consequently, the 25% lowest-sodium products are, on average, **59% more expensive** than the 25% highest-sodium ones.

Recap

	Average sodium content in the 25% cheapast products (mg/100g)	Average sodium content in the 25% most expensive products (mg/100g)	% more sodium in the 25% cheapest products (vs most expensive 25%)*	% higher price in the 25% lowest-sodium products vs the 25% highest-sodium products**
Store-Bought Bread	459	411	+12%	+15%
Cookies	334	381	+14%	+15%
Breakfast Cereal	408	371	+10%	+59%
Pizza	529	498	+6%	+17%
Barbecue Sauce	885	1252	-29%	-31%
Crackers	795	608	+31%	+46%
Mac & Cheese	349	310	+12%	+40%
Chips	647	718	-10%	-1%
Cereal Bars	297	204	+46%	+33%
Ice Cream	80	61	+30%	+15%
Tortilla Wraps	438	451	-3%	+24%
Mayonnaise	590	586	+1%	-1%
Mean (all items)	484	488	+10%	+19%

**For instance, the cheapest 25% of store-bought breads contain, on average, 12% more sodium than the most expensive 25%.*

***For instance, the 25% lowest-sodium store-bought breads are, on average, 15% more expensive than the 25% highest-sodium ones.*

Policy Recommendations

The policy recommendations that follow respond to structural weaknesses in the U.S. regulatory system that allow many chemical substances, including potentially harmful substances, to remain widespread in the food supply, particularly in lower-cost and ultra-processed foods. These recommendations pursue two complementary approaches: modernizing food additive oversight through regulatory reform, and reducing exposure to additives and ultra-processed foods through schools, public institutions, and fiscal policy. Together, these recommendations aim to reduce harmful exposures, strengthen accountability across the food system, and better align U.S. food policy with public health goals.

A. Reforming Substances Added to Food Oversight & Safety

The first set of recommendations focus on opportunities to reform the system of oversight for additives and ingredients added to food, in order to improve the general safety standards and transparency for those substances.

1. Reform the Generally Recognized as Safe (GRAS) Loophole

A regulatory loophole known as “generally recognized as safe” (GRAS) allows most ingredients to enter the U.S. market without FDA review. As a result, 99 percent of new food chemicals introduced since 2000 have bypassed federal oversight. Closing this gap requires federal action, which could be taken by either Congress or the FDA.

Congress should amend the Food, Drug, and Cosmetic Act (FD&C Act) to eliminate the GRAS exemption and require FDA review for all substances added to food, with a limited carve-out for common household ingredients such as sugar, salt, vinegar, and baking soda. New substances should require explicit FDA approval prior to use, and no substance should enter the food supply unless the FDA has reviewed it and affirmatively listed it as permitted.

Congress should require all substances used under the GRAS pathway to undergo renewed review, with continued interim use permitted only for substances already known to FDA, while self-determined (non-notified) GRAS substances would be prohibited unless and until FDA approval is granted.

The FDA could alternatively strengthen its oversight by making GRAS notifications mandatory, thus prohibiting self-certified GRAS determinations and preventing manufacturers that withdraw GRAS notifications from still using the substance. The agency should also re-evaluate all GRAS substances within five years using transparent, publicly available safety data that account for cumulative and long-term exposure, and publish these data in a searchable database.

2. Strengthen FDA Post-Market Review of Food Additives

The FDA currently lacks a systematic post-market safety review process for food additives and GRAS substances. Because GRAS substances may be marketed without prior FDA notification at all, and even substances approved via the additive pathway have often gone decades without re-review, safety concerns are often addressed only after widespread exposure has occurred. Strengthening post-market oversight therefore requires the FDA to implement a robust and predictable review framework.

The FDA should start by reassessing all GRAS substances, and adopting a precautionary approach similar to that employed by the European Food Safety Authority: when credible safety concerns of a substance exist, it should be prohibited in the food supply.

In addition, the agency should establish a formal, periodic reassessment cycle for all food additives and GRAS substances, with reviews conducted at least every fifteen years. Substances should be prioritized for a full safety assessment based on clear, risk-based criteria, including public health concerns, regulatory actions taken by peer countries, hazard classifications issued by recognized authorities, emerging scientific evidence of harm, or excessive exposure relative to safety thresholds such as Acceptable Daily Intake (ADI) levels. In parallel, the FDA should implement an annual, risk-based priority review list—independent of the fifteen-year cycle—to ensure timely action when new concerns arise.

Finally, the FDA should set or update limits on individual substances and establish group-level limits for related substances to address cumulative exposure. This approach would better reflect real-world consumption patterns and align U.S. oversight with international best practices.

3. Redefine Food Additives and Use Limits

U.S. law defines a “food additive” so broadly that, combined with the GRAS loophole, it allows substances to be added to food for virtually any purpose, including cosmetic or marketing reasons rather than essential functions. Establishing functional and category-specific limits would reduce exposure to additives.

Congress should amend the definition of “food additive” under the FD&C Act to require that additives serve a legitimate, non-cosmetic function. Limiting additives to defined functional purposes would reduce unnecessary use and prevent inclusion driven solely by marketing or appearance.

Congress should also require manufacturers to disclose all additives and GRAS substances used in their products and justify the function of each. Amending the Food Safety Modernization Act to mandate full disclosure of such substances to FDA would increase transparency, give FDA a clearer view of cumulative additive exposure across the food supply, and support stronger, more targeted regulation.

4. Improve Transparency in Flavoring Ingredients

Another barrier for consumers seeking to avoid risky additives is the lack of transparency around flavorings. Current labeling rules allow “natural” and “artificial” flavors to be listed generically, even though they often contain dozens or even hundreds of individual substances. This loophole allows potentially risky substances, including self-GRAS substances, to be hidden from both consumers and regulators.

To address this gap, the FDA should require greater disclosure for flavorings. Manufacturers should list the top three substances by weight in each flavoring directly on ingredient labels and include a QR code linking to a complete list of flavoring ingredients. This approach would improve consumer transparency, enable faster identification of harmful substances, and help public health experts assess cumulative exposure across the food supply, without requiring disclosure of proprietary formulas or ingredient quantities.

5. Require Disclosure of Ingredient Processing and Sources

U.S. food labels allow ingredients to be listed using generic terms without disclosing how they were processed or derived, even though certain production methods can introduce contaminants, including heavy metals. By contrast, the European Union regulates additives as distinct substances based on their method of production, even when derived from the same starting material, in line with Codex Alimentarius principles. Each process-defined additive is assigned a specific name and E-number, along with purity criteria, specifications, and conditions of use.

The FDA should adopt a similar approach and require additives to be identified by production method, using existing Codex E-codes or equivalent names, and by establishing corresponding purity standards and use conditions. Including this information on ingredient labels would increase transparency, empower consumers to make informed choices, and allow regulators to better assess and manage contamination risks in the food supply.

B. Reducing Exposure to High-Risk Additives and Ultra-Processed Foods

Outside of policy changes to improve the oversight of additives and ingredients in food both pre- and post-market, there are a range of policy approaches that the federal government, as well as state or local governments, could take to reduce exposure to UPF or to foods containing high-risk additives. The recommendations below present some of the key opportunities.

1. Ban High-Risk Additives in School Foods

Children are uniquely vulnerable to food additives due to their lower body weight, developing metabolisms and brains, and disproportionate exposure to processed foods, yet U.S. regulations do not adequately account for these risks.

To address this gap, the FDA should establish and maintain a federal list of additives and additive classes that pose heightened risks to children. This would include, among others, synthetic food dyes associated with behavioral effects and endocrine-disrupting substances such as nitrates, nitrites, and BHA/BHT, with risk assessments accounting for both individual toxicity and cumulative exposure. This list should be regularly updated as new scientific evidence emerges and serve as the scientific basis for restricting additives in foods consumed by children. Using this list, the USDA should revise the Nutrition Standards for Schools and the Smart Snacks in School rule to prohibit, or at minimum sharply limit, foods containing additives of concern from being eligible for federal reimbursement or sale in schools.

In parallel, state and local governments should use their existing authority to further restrict high-risk additives and ultra-processed foods in schools. While federal agencies can set national standards and guidance, states and localities may adopt stronger nutrition policies tailored to their school systems. Several cities and states have already banned foods containing certain artificial colors, preservatives, or other additives of concern in school meals, and California has enacted legislation to prohibit “ultra-processed foods of concern” in schools based on clear health-risk criteria. These policies demonstrate that stricter school nutrition standards are both feasible and effective, and provide a model for broader adoption nationwide.

2. Improve Public Food Procurement Standards

Beyond school meals, governments can reduce exposure to high-risk additives by reforming food procurement across other institutional settings. The federal government spends billions each year on food for public programs, including military service members, veterans’ hospitals, and senior nutrition programs, yet procurement policies prioritize cost over food quality, favoring products more likely to contain high-risk additives. State and local governments follow similar practices. Updating procurement standards to account for additive risk and food quality would reduce harmful exposures and help shift the market toward healthier food options.

Federal agencies should adopt procurement standards or incentives that limit the purchase of foods containing high-risk additives or that are ultra-processed, and explicitly incorporate additive safety into purchasing decisions. These standards could be implemented through updates to the Federal Acquisition Regulation and via strengthened CDC Food Service Guidelines, which should be adopted more broadly across federal facilities.

State and local governments should likewise update their procurement policies to restrict foods containing high-risk additives or ultra-processed foods when public funds are used. Existing value-based procurement frameworks offer a practical model for prioritizing public health alongside cost and can be adapted to reduce harmful additive exposure in state and local institutions.

3. Implement Tax Incentives for Foods with Fewer Risky Additives

Tax policies, including incentives and excise taxes, can encourage both manufacturers and consumers to shift toward foods with fewer harmful additives. Evidence from tobacco, alcohol, and sugar-sweetened beverage taxes shows that food demand is highly price-responsive, and fiscal measures can also drive product reformulation.

Governments could use tax credits to lower the cost of foods made without high-risk additives, particularly in widely consumed product categories. Offering targeted tax credits to manufacturers that reformulate products to eliminate harmful additives would help make healthier options more price-competitive and incentivize industry-wide change, while keeping public costs manageable by focusing on high-consumption food categories.

Excise taxes on foods containing high-risk additives or certain ultra-processed foods are another option, though more politically sensitive due to potential price impacts. These taxes can be structured upstream, at the manufacturer or distributor level, to target industry practices rather than consumers directly. However, because excise taxes are often passed on to consumers and may disproportionately affect low-income households, any such policy should be paired with equity safeguards, including directing tax revenues toward programs that improve access to healthy foods and offset cost burdens for marginalized communities.

The detailed Policy Recommendations and supporting references are available in Appendix 6.

Appendix

Appendix 1 - City and Price Selection Methodology

To ensure that the study is representative of the U.S. market, it was essential to select a sample of cities that is representative of the United States. The aim was to capture the country's diversity in socio-economic and cultural contexts so that the study's findings could be generalized nationwide. The choice of the 10 cities was based on a multi-criteria approach combining both quantitative and qualitative criteria. The selection was guided by data from official sources including the U.S. Federal Census (for data on population, income, poverty rates, etc.), specialized studies on city representativeness (comparing U.S. metropolitan areas to national averages)[8], and publications highlighting the role of certain cities as test markets in the agri-food sector.[9] Overall, the goal was to ensure that both the cities and the supermarkets within them reflect a realistic cross-section of the U.S. processed food market, both socially and commercially, thereby supporting robust, generalizable conclusions.

• City Selection Criteria

To ensure representativeness and comparability, cities were selected based on the following criteria:

- **Geographic balance**: across the four main U.S. regions[10]. The final sample includes cities spread across the Northeast, South, Midwest, and West. This geographic coverage ensures inclusion of varied climatic, cultural, and economic contexts. For example, consumption habits in the urban Northeast may differ from those in the rural South or the coastal West. A regional balance was therefore essential to avoid biasing the study toward a single part of the country.
- **Socio-economic diversity**: cities were selected to represent the full range of U.S. economic situations, from high-income cities to cities facing high poverty rates. This makes it possible to study how living standards and socio-occupational structure influence processed food consumption. Key indicators included average annual income (USD) and poverty rate (%), drawn from the 2024 American Community Survey (ACS) 1-year estimates.[11][12],
- **Demographic variety**: only cities with more than 10,000 residents were considered, to ensure sufficient retail density and avoid very low-population areas with limited store variety. Population data were taken from the 2020 Decennial Census (state-level "Population and People" variables).[13]
- **Urban scale**: the sample covers different urban scales, from global metropolis (Los Angeles) to dynamic mid-sized cities (Columbus). City size influences the retail structures (large supermarkets chains vs. local convenience stores), the product offer available, and lifestyle variety. Including very large cities makes it possible to observe large, complex markets with marked internal inequalities between affluent neighborhoods and disadvantaged areas. Conversely, medium or smaller cities often perceived as more "typical", such as Columbus (Ohio), serve as a reference for average U.S. household consumption. Columbus has also long been known as a test market for food chains, because its population closely mirrors national demographic averages.[14–20]
- **Access to all consumer segments**: a key objective was to ensure that, in each selected city, multiple consumer segments could be studied: working-class, middle-class, and affluent households. In practical terms, this meant prioritizing socially mixed metropolitan areas where different income and education levels coexist. For example, Houston displays strong socio-economic heterogeneity with very affluent neighborhoods alongside modest ones, making it a suitable field to observe the full range of purchasing behaviors, from discount products to premium offerings. Similarly, Los Angeles, as a global metropolis, includes consumers of all profiles, from wealthy elites to low-income families relying on food assistance programs. This internal accessibility ensures no major socio-economic group is excluded from the analysis. [21–25]
- **Food culture relevance**: Finally, the selection considered local food culture and the possible presence of industries or specific issues linked to processed foods. For example, some Southern cities have higher obesity rates and higher consumption of sugary drinks than the national average, which may influence demand for processed products. Others, such as Los Angeles, have seen the emergence of "healthier" consumption trends that may affect the industrial food market. Overall, each selected city is relevant either because it is emblematic of a particular consumption pattern or because it provides a relatively neutral context for measurement without strong regional bias.

After analyzing and integrating all of these criteria, the selected cities were: Columbus (Ohio), Valley Stream (New York), Los Angeles (California), Chicago (Illinois), Houston (Texas), Phoenix (Arizona), Philadelphia (Pennsylvania), San Antonio (Texas), San Diego (California), Dallas (Texas).

- **Supermarket Selection Criteria**

After identifying the 10 target cities, we selected the largest retailers in the U.S. that met the condition of being simultaneously available in these cities or in close proximity (always within the same state). The retailers that fulfilled these criteria were: Walmart, ALDI, Whole Foods, Sam's Club, Costco, Trader Joe's, and Target. Retailers operating under a fragmented portfolio of regional banners were not included (e.g., The Kroger Co., which operates stores under multiple brand names).

Within each retailer, we prioritized large supermarkets such as supercenters to ensure access to a wide range of products and brands, to maximize product diversity. The final selection of supermarkets is available in Table 1.

This method enables a balanced comparison of the formulation strategies and price positioning of major brands in the U.S., while also accounting for the geographical variability of prices.

Table 1. List of Selected Supermarkets and Store ZIP Codes

	Store ZIP codes						
City	**Walmart**	**ALDI**	**Whole Foods**	**Sam's Club**	**Costco**	**Trader Joe's**	**Target**
Columbus, OH	43219	43229	43219	43219	43240	43219	43219
Valley Stream, NY	11581	11581	11530	11763	11559	11557	11581
Los Angeles, CA	90280	90247	90016	90505	90303	90232	90016
Chicago, IL	60639	60641	60642	60804	60614	60614	60647
Houston, TX	77007	77018	77019	77081	77027	77098	77007
Phoenix, AZ	85015	85032	85016	85023	85008	85016	85015
Philadelphia, PA	19148	19148	19147	19154	19406	19107	19148
San Antonio, TX	78249	78660	78209	78249	78249	78230	78250
San Diego, CA	92115	92119	92103	92115	92108	92115	92115
Dallas, TX	75231	75234	75231	75231	75251	75230	75204

- **Price Data Collection**

Prices were collected online from the official websites of Walmart, ALDI, Whole Foods, Sam's Club, Costco, Trader Joe's, and Target between October and November 2025. For each product, prices were retrieved across five to ten of the selected cities, depending on retailer availability in the city sample.

To improve comparability across locations and limit distortions driven by regional price outliers, only products with prices available from at least five different supermarkets were retained. Product prices were then standardized to a unit price based on net quantity (USD per oz or fl oz). For each retained product, the final price corresponds to the mean unit price observed across the available supermarkets/cities and was used for all subsequent statistical analyses.

The retailer used as the pricing reference followed the rules defined in the main methodology: for national brands, prices were collected from Walmart as the reference retailer; for retailer private-label brands, prices were collected from the retailer that owns the brand. Promotional or sales prices, multipack or bundle offers, and prices deemed implausible (outliers) for the given category were excluded from the price collection.

Appendix 2 - Products Analyzed

Twelve categories of processed food products were selected based on Yuka scan frequency in the United States (≥100 scans per month), reflecting the most frequently scanned product categories by U.S. users. Selected categories and number of products analyzed are described in Table 1.

Table 1. Number of Products by Category

Category	Number of Products Analyzed
Store-bought bread	61
Cookies	53
Breakfast cereal	83
Pizza	70
Barbecue sauce	78
Crackers	95
Mayonnaise	40
Mac & cheese	72
Chips	71
Cereal bars	82
Ice Creams	47
Wraps	53
Total number of products	805

Appendix 3 - Full list of products

Product EAN	Name	Category	Brand
072945612419	Artesano Bakery Bread	Store-bought bread	Sara Lee
013764027220	White Bread Done Right	Store-bought bread	Dave's Killer Bread
072250037068	Honey Wheat Bread	Store-bought bread	Nature's Own
013764027138	Thin-Sliced 21 Whole Grains and Seeds	Store-bought bread	Dave's Killer Bread
072945601369	Honey Wheat Pre-sliced Bread	Store-bought bread	Sara Lee
014100074670	Sourdough Bread	Store-bought bread	Pepperidge farm
014100085980	Whole Grain 15 Grain	Store-bought bread	Pepperidge farm
072250020756	Perfectly Crafted Multigrain Bread	Store-bought bread	Nature's Own
073130001322	Whole Grains 100% Whole wheat	Store-bought bread	Oroweat
072250011372	Classic White Sandwich Bread	Store-bought bread	Wonder
072250011372	Round Top White Sliced Bread	Store-bought bread	Wonder
073472001202	Ezekiel 4:9 Sprouted Whole Grain Bread	Store-bought bread	Food For Life
4099100008654	Knock your sprouts off reduced sodium	Store-bought bread	Simply Nature
4099100252910	Thin-Sliced Seedtastic Bread	Store-bought bread	Simply Nature
071025617160	Italian Bread	Store-bought bread	D'Italiano
071305055255	Premium Italian Bread	Store-bought bread	Maier's
763946225028	Artesano Bakery Bread	Store-bought bread	Alfaro's
074323090901	Soft White Bread	Store-bought bread	Bimbo
078742012285	White Sandwich Bread	Store-bought bread	Great value
073410955970	12 Grain Whole Wheat Bread	Store-bought bread	Brownberry
073410955666	Organic Thin Sliced 22 Grains & Seeds Bread	Store-bought bread	Oroweat
073130000264	12 Grain Bread	Store-bought bread	Oroweat
072250916547	Gluten Free Multigrain Bread	Store-bought bread	Canyon Bakehouse
024126017162	Whole wheat 1/2 loaf	Store-bought bread	Lewis Bake Shop
024126017414	Special Recipe Bread Sourdough	Store-bought bread	Lewis Bake Shop
4099100038101	Artisanal Bakery Bread	Store-bought bread	L'Oven Fresh
00519861	Sourdough Sandwich Bread	Store-bought bread	Trader Joe's
4099100080414	Sourdough Loaf	Store-bought bread	Specially selected
055991040160	The Big 16	Store-bought bread	Silver Hills
4099100042979	Whole Grains 12 Grain Bread	Store-bought bread	L'Oven Fresh
048121900939	Everything Breakfast Bread	Store-bought bread	Thomas
076057018091	Dakota Style 12 Grain	Store-bought bread	Country Hearth
076057001383	Cottage Bread	Store-bought bread	Village Hearth
072220110807	Organic Bare White	Store-bought bread	Naked
071314103367	100% whole grains	Store-bought bread	Aunt Millie's
071314102216	Cracked Wheat With Whole Grain Bread	Store-bought bread	Aunt Millie's
039677377108	Brown Bread Wheat Sandwich Loaf	Store-bought bread	The Cheesecake Factory At Home
071010126714	Omega Me Crazy 21 Grain And Seeds	Store-bought bread	Old Tyme
078700016249	Home-Maid Bread White Bread	Store-bought bread	Grandma Sycamore's
075185005010	Whole Wheat Potato Bread	Store-bought bread	Martin's
00579599	Organic Seeded Bread	Store-bought bread	Trader Joe's
00642200	Whole wheat bread	Store-bought bread	Trader Joe's
074323091496	Soft Wheat Bread	Store-bought bread	Bimbo
070870002008	Large White Bread	Store-bought bread	Mrs Baird's
024126011719	All whole grain whole wheat	Store-bought bread	Butternut
078700801623	100% Whole Wheat	Store-bought bread	Nature's Harvest
024126014499	Whole Grain White	Store-bought bread	Bunny Bread
071314001854	Lite Whole Grain Vegan Bread	Store-bought bread	Aunt Millie's
071319000302	Sweet Harvest Wheat Bread	Store-bought bread	Schwebel's
606541920380	The Original Healthy Multi-Grain Bread	Store-bought bread	Milton's Craft Bakers
071330601380	Premium Italian Bread	Store-bought bread	Freihofer's
856711007957	Rosie's San Francisco Sourdough Bread	Store-bought bread	Inked Bread
085239306970	100% Whole Weat Bread	Store-bought bread	Market Pantry
099482538286	365 Organic 21 Grains & Seeds Sliced Bread	Store-bought bread	Whole foods market

Product EAN	Name	Category	Brand
099482493424	Organic Sprouted multigrain & seed	Store-bought bread	365 Whole Foods Market
078821100223	Split Top Wheat Bread	Store-bought bread	Nickles
072220110715	Honey Wheat Bread	Store-bought bread	Naked
027900000756	Canadian White Bread	Store-bought bread	Nissen
071673010986	Small White Bread	Store-bought bread	Stroehmann
028833060008	Alvarado st bakery sprouted whole wheat bread	Store-bought bread	Alvarado St
071010120057	Split-top wheat bread	Store-bought bread	Old Tyme
810091780909	Chocolate Chip Cookies	Cookies	Siete
856069005193	Almond flour Cookies chocolate chip	Cookies	Simple Mills
787692834617	The Complete Cookie - Chocolate Chip	Cookies	Lenny&Larry's
852761007008	Chocolate Chip Crunchy Cookies	Cookies	Partake
810291001088	Gluten free chocolate chip cookies	Cookies	Tate's Bake Shop
810091780916	Fresas Con Crema Cookies	Cookies	Siete
687456286259	Soft Baked Mini Cookies	Cookies	Made good
044000033385	Original Chocolate Chip Cookies	Cookies	Chips Ahoy
850406004009	Chocolate Chip Cookies	Cookies	Cybele's Free to Eat
021908109329	Kid Chocolate Chip Cookie Gluten Free	Cookies	Larabar
852761007336	Chocolate Chip Soft Baked Cookies	Cookies	Partake
014100089001	Soft Baked Milk Chocolate Chunk Cookies	Cookies	Pepperidge farm
014100078845	Soft Baked Oatmeal Raisin Cookies	Cookies	Pepperidge farm
856069005223	Crunchy Almond Flour Cookies Double Chocolate	Cookies	Simple Mills
810291007660	Tiny Tates	Cookies	Tate's Bake Shop
050000009268	Ultimates cookie dough chocolate chip lovers	Cookies	Toll House
044000033392	Chocolate chip Chewy	Cookies	Chips Ahoy
850711006057	Chocolate Chip Coconut Cookies	Cookies	Emmy's Organics
072030001807	Soft-Baked Chocolate Chip Cookies	Cookies	Entenmann's
076677057210	Chocolate chip cookie	Cookies	Famous Amos
027500613363	Oatmeal Classic Soft Cookies	Cookies	Archway
840515100044	Cookie thins chocolate chip cookies	Cookies	Thinsters
678523070352	Cookie chocolate chip	Cookies	Glutino
079746200005	Chocolate Chip Cookies	Cookies	Matt’s Bakery
027800065572	Sandies Shortbread Pecan	Cookies	Keebler
194346174966	Lemon Chiffon Cookies	Cookies	bettergoods
194346174959	Berry Chantilly Cake Cookies	Cookies	bettergoods
850406004153	Cybele’s gluten free Confetti cookies	Cookies	Cybele's Free to Eat
194346175635	Ginger Snap Cookies	Cookies	Great value
041820823233	Oatmeal Raisin Soft Baked Cookies	Cookies	Homestyle
078742159874	Iced Oatmeal Cookies	Cookies	Great value
028400079143	Chocolate Brownie Cookies	Cookies	Grandma's
013562493944	Organic chocolate chip cookie bites	Cookies	Annie's
018000137794	Mini Soft Baked Cookies Chocolate Chip	Cookies	Pillsbury
853026005036	Chocolate chunk cookies	Cookies	Maxine’s Heavenly
850475006843	100% Whole Grain Chocolate Chip Cookie Mix	Cookies	Miss Jones Baking
639266944874	Thin & Crispy Chocolate chip cookies	Cookies	Steve & Andy's
718604977580	Lemon blueberry	Cookies	Thinaddictives
027500095336	Iced Oatmeal Crispy Cookies	Cookies	Archway
027800067941	Chips Deluxe Cookies Made with M&M's	Cookies	Keebler Chips Deluxe
018000106813	Peanut butter cookies	Cookies	Reese's
819898011001	Chocolate Chip Cookies	Cookies	Back to nature
787692872008	The complete crunchy double chocolate	Cookies	Lenny&Larry's
030684766435	chocolate chip cookies gluten free	Cookies	Mi-Del
639266944881	Oatmeal raisin cookies	Cookies	Steve & Andy's
681131411714	Bite size chocolate chip cookies	Cookies	Marketside
038000296031	Power-Fulls Chocolate Chip	Cookies	Nutri-Grain

Product EAN	Name	Category	Brand
4099100034059	Cookie Thins Chocolate Chip	Cookies	Benton's
4061464312074	Pizza Cookie	Cookies	Mama cozzi's
00797887	Mini Cinnamon Sugar Cookies	Cookies	Trader Joe's
00787789	Crispy Oatmeal Cookies	Cookies	Trader Joe's
193968475031	Oatful Bites	Cookies	Member's Mark
759035900549	Minis Super Omega Chocolate Chip Cookies	Cookies	**Wella**
812541030732	Cracker Rounds	Crackers	Fitjoy
888849014002	Cheese Crackers Spicy Cheddar	Crackers	Quest
888849012060	Cheese Crackers Cheddar Blast	Crackers	Quest
812541030749	Crackers Cheezy White Cheddar	Crackers	Fitjoy
044000080778	Cheese Bakes Aged White Cheddar & Rosemary	Crackers	Sargento
099482511258	Organic Golden Round Crackers	Crackers	365 Whole Foods Market
076410905648	Gluten Free Original Crackers	Crackers	Lance
044000080815	Cheese Bakes Parmesan & Oregano	Crackers	Sargento
047416051288	Wheat crackers	Crackers	Dux
093215150400	Oyster Crackers	Crackers	Westminster Bakers Co
810757010067	Table Crackers	Crackers	Schär
4099100034035	Cauliflower Crackers Cheddar Flavor	Crackers	Simply Nature
810757010906	Gluten free entertainment crackers	Crackers	Schär
044000031138	Fresh stacks original crackers	Crackers	Ritz
059290573497	Whole wheat crackers	Crackers	Carr's
052836160250	Cream crackers	Crackers	Excelsior
073490131875	Matzo squares glutenfree ounce	Crackers	Yehuda
099482512514	Organic Cheddar Square Crackers	Crackers	365 Whole Foods Market
024100440771	Baked Snack Cheese Crackers	Crackers	Cheez-it
024100104437	Baked Snack Crackers extra toasty	Crackers	Cheez-it
856069005155	Almond flour crackers Farmhouse Cheddar	Crackers	Simple Mills
044000030476	better cheddars baked snack crackers	Crackers	Better Cheddar
041331039505	Soda Crackers	Crackers	Goya
036593110208	Organic Sweet Beet Crackers	Crackers	Rw Garcia
4099100034028	Cauliflower Crackers Sea Salt	Crackers	Simply Nature
036593110192	Organic Sweet Potato Crackers	Crackers	Rw Garcia
013562493999	Annie's organic cheddar squares	Crackers	Annie's
893615002091	Cracker Sea Salt	Crackers	Flackers
850011737026	Sea Salt Chia Thins	Crackers	Every Body Eat
013562495399	Organic white cheddar squares baked snack crackers	Crackers	Annie's
850011737033	Cheese-less Thins	Crackers	Every Body Eat
853665005091	Super Seed Everything Crackers	Crackers	Marys Gone Crackers
044000051051	Toasted Chips Sour Cream & Onion	Crackers	Ritz
856069005742	Original Organic Seed Crackers	Crackers	Simple Mills
030100103097	Pretzel FlipSides	Crackers	Town House
879890002995	Multi-Grain Baked Rice Crackers - 6 Seed	Crackers	Crunchmaster
044000030490	Chicken in a Biskit Original Baked Snack Crackers	Crackers	Chicken In A Biskit
030100263517	Toasteds Cracker Collection	Crackers	Toasteds
047416029638	Saltine Original Crackers	Crackers	Dux
028400718349	Baked Pita Chips Parmesan Garlic & Herb	Crackers	Stacy's
028400008518	Pita Thins Garlic and herbs	Crackers	Stacy's
4099100063851	Woven Whole Wheat Crackers Original	Crackers	Savoritz
4061464036734	Sea Salt Brown Rice Crisps	Crackers	Live G Free
085693107007	Gluten free rice thins	Crackers	Sesmark
085239113608	Everything Seasoned Crackers	Crackers	Good & Gather
840392300025	Cheddar Pretzel Crackers	Crackers	Pretzelized
897580000106	Original Crackers	Crackers	Mary's Gone Crackers
00726764	Organic Naan Crackers	Crackers	Trader Joe's

Product EAN	Name	Category	Brand
4061461753764	Organic Original Seeded Crackers	Crackers	Specially selected
856069005131	Almond Flour Crackers Sea Salt	Crackers	Simple Mills
044000056438	Organic original crackers	Crackers	Triscuit
605870000114	Crispbread	Crackers	Finn Crisp
070227500027	Matzosc unsalted	Crackers	Streit's
070844001013	Gluten free rice crackers	Crackers	Ka-me
014100043386	Trio Variety Crackers	Crackers	Pepperidge farm
014100074878	Harvest Wheat Crackers	Crackers	Pepperidge farm
099482513498	Ancient Grain Pita Cracker	Crackers	365 Whole Foods Market
659000406055	Panzanel croccantini mini artisan crackers	Crackers	La Panzanella
049508252931	Spicy Ranch Pretzel Snacks	Crackers	Snack Factory
4099100000719	Scalloped Crackers Sea Salt & Pepper	Crackers	Specially selected
196761430825	Garlic & Chive Pita Crackers	Crackers	Good & Gather
055653601784	Breton Multi-grain Crackers	Crackers	Breton
659000406000	Mini Croccantini Rosemary	Crackers	La Panzanella
030100100706	Club Crackers Reduced Fat	Crackers	Club Crackers
030100132196	Export Sodas Original	Crackers	Keebler
044000000554	Unsalted Tops Premium Saltine Crackers	Crackers	Premium
030100001331	Zesta Original	Crackers	Zesta
078742276298	Multi-Grain Crackers	Crackers	Great value
194346174874	Flatbread Crackers	Crackers	bettergoods
194346174911	Chile Lime Crackers	Crackers	bettergoods
850049776264	Pita Crackers	Crackers	Food Should Taste Good
850049776271	Pita Crackers Multigrain	Crackers	Food Should Taste Good
055653600282	Cabaret Crisp & Buttery Crackers	Crackers	Breton
044000030483	Flavor Originals Sociables Baked Savory Crackers	Crackers	Sociables
059290573220	Table Water Crackers	Crackers	Carr's
030100100683	Club Crackers Multigrain	Crackers	Club Crackers
606541803027	Crispy sea salt Crackers	Crackers	Milton's Craft Bakers
030100128984	Flatbreads Sea Salt & Olive Oil	Crackers	Toasteds
044000054953	Whole grain saltine crackers	Crackers	Premium
606541801023	Gluten Free Crispy Sea Salt Baked Crackers	Crackers	Milton's Craft Bakers
044000081454	Premium Unsalted Tops Fresh Stacks	Crackers	Premium
078742351414	Original Saltine Crackers	Crackers	Great value
041570109106	Artisan Nut-Thins Multi-Seeds Crackers	Crackers	Blue Diamond Almonds
030100100577	Club Crackers Original	Crackers	Club Crackers
044000064587	Garden Veggie Crackers	Crackers	Good Thins
044000000578	Original Saltine Crackers	Crackers	Premium
030100784586	Town House Pita Crackers Sea Salt	Crackers	Town House
044000051723	Thin Crisps Whole Grain Wheat Vegan Crackers	Crackers	Triscuit
044000069254	Wheat Thins Reduced Fat Crackers	Crackers	Wheat Thins
00907019	Pita Bite Crackers	Crackers	Trader Joe's
041570052785	Almond Nut-Thins Hint of Sea Salt	Crackers	Blue Diamond Almonds
044000044718	Simply Salt Gluten Free Crackers	Crackers	Good Thins
4099100117295	Pita Crackers Garlic & Chive	Crackers	Savoritz
044000050986	Original Crackers	Crackers	Triscuit
044000069230	Wheat Thins Original	Crackers	Wheat Thins
675625354014	Sprouted rice crisp brown	Breakfast cereal	One Degree Organic Foods
074333474302	Puffed Corn Cereal	Breakfast cereal	Arrowhead mills
021908455594	Honey Nut O's Cereal	Breakfast cereal	Cascadian farm
856088003750	Grain Free Sunflower Cereal - Real Cocoa	Breakfast cereal	Seven Sundays
086341170510	whole grain honey nut toasted oats	Breakfast cereal	Grain Berry
856088003965	Real Coco Sunflower Cereal	Breakfast cereal	Seven Sundays
850002887440	Fruity Grain-Free Cereal	Breakfast cereal	Magic spoon

Product EAN	Name	Category	Brand
018627101390	Go Peanut Butter Crunch Cereal	Breakfast cereal	Kashi
856069005643	Honey Cinnamon Sweet Thins	Breakfast cereal	Simple Mills
074333374909	Organic Oat Bran Flakes	Breakfast cereal	Arrowhead mills
021908459882	Organic Honey Oat Crunch	Breakfast cereal	Cascadian farm
018627510031	Organic Blueberry Clusters	Breakfast cereal	Kashi
070617006245	Puffins Peanut Butter Cereal	Breakfast cereal	Barbara's
884912002372	Great grains cranberry almond crunch	Breakfast cereal	Post Great Grains
058449771555	Crunchy Vanilla Breakfast Cereal	Breakfast cereal	Nature's Path
070617006238	Barbaras puffins peanut butter cereal nongmo vegan	Breakfast cereal	Barbara's
016000222083	Protein Cereal Peanut Butter	Breakfast cereal	Ghost
860479001546	Dark Chocolate Keto Friendly Cereal	Breakfast cereal	Catalina Crunch
850017468993	Cinnamon Toast Cereal	Breakfast cereal	Catalina Crunch
4099100066623	Pumpkin Seed & Flax Granola Cereal	Breakfast cereal	Simply Nature
038000293801	Kellogg's Breakfast Cereal	Breakfast cereal	Compplete Bran
860002152448	Cinnamon Grain Free Cereal	Breakfast cereal	Three Wishes
850016813022	Fruity Grain Free Cereal	Breakfast cereal	Three Wishes
810589031957	Cinnamon Raisin Almond Cereal	Breakfast cereal	Purely Elizabeth
058449860044	Peanut Butter Panda Puffs	Breakfast cereal	EnviroKidz
016000188648	Maple Almond Crunch Cereal	Breakfast cereal	:ratio
038000199240	Krave Chocolate	Breakfast cereal	Krave
884912359483	Honey Bunches of Oats with real Strawberries	Breakfast cereal	Post
016000147652	Morning Summit	Breakfast cereal	Morning Summit
058449770503	Flax Plus Flocons Multison	Breakfast cereal	Nature's Path
884912006721	Fruity PEBBLES Marshmallow Cereal	Breakfast cereal	Pebbles
070617206096	Puffins Original Cereal	Breakfast cereal	Barbara's
058449770206	Heritage Flakes Cereal	Breakfast cereal	Nature's Path
016000275263	Cheerios 100% whole grain oats cereal	Breakfast cereal	Cheerios
884912126016	Great Grains Cereals Crunchy Pecan	Breakfast cereal	Post Great Grains
016000487949	General Mills Rice Gluten Free	Breakfast cereal	Chex
884912004710	Grape-Nuts Cereal	Breakfast cereal	Grape Nuts
038000269752	Corn Flakes	Breakfast cereal	Kellogg's
016000151598	Trix Breakfast Cereal	Breakfast cereal	General Mills
00770767	Organic Peanut Butter & Cocoa Crunch	Breakfast cereal	Trader Joe's
016000124790	Honey Nut Cheerios	Breakfast cereal	Cheerios
884912378118	Raisin Bran	Breakfast cereal	Raisin Bran
038000276583	Kellogg's Cold Breakfast Cereal	Breakfast cereal	Krave
030000061190	Life Multigrn Crl Orgl	Breakfast cereal	Quaker
016000123991	Lucky Charms with Marshmallows	Breakfast cereal	Lucky Charms
030000573211	Cap'n Crunch Original	Breakfast cereal	Cap'n Crunch
073472002582	Ezekiel sprouted whole grain cereal almond	Breakfast cereal	Food For Life
016000275652	Wheaties cereal	Breakfast cereal	General Mills
016000275638	Total Whole Grain Flakes	Breakfast cereal	General Mills
038000199615	Müeslix	Breakfast cereal	Kellogg's
016000122222	Reese's Puffs - Peanut Butter	Breakfast cereal	Reese's Puffs
016000122246	Grahams cereal	Breakfast cereal	General Mills
883978063754	Crispy Cocoa Rice Cereal	Breakfast cereal	Mom's Best Cereals
038000269851	Kellogg's Breakfast Cereal	Breakfast cereal	Special K
016000157651	Honey Clusters Breakfast Cereal	Breakfast cereal	Fiber One
038000924224	Crispix Cereal Original	Breakfast cereal	Kellogg's
016000151635	Cookie Crisp	Breakfast cereal	Cookie Crisp
085239045756	Organic Honey Nut Hoops	Breakfast cereal	Good & Gather
016000171046	Kix Cereal	Breakfast cereal	Kix
4099100017878	Vitality Cereal with Red Berries	Breakfast cereal	Fit & active
016000171084	Corn Chex	Breakfast cereal	Chex

Product EAN	Name	Category	Brand
884912416483	Honey-Comb Cereal	Breakfast cereal	Honey Comb
030000573228	Crunch Berries	Breakfast cereal	Cap'n Crunch
016000157811	Raisin nut bran cereal	Breakfast cereal	General Mills
016000122543	Cinnamon Toast Crunch	Breakfast cereal	Cinnamon Toast Crunch
884912379283	Cocoa PEBBLES Cereal	Breakfast cereal	Pebbles
884912379276	Fruity PEBBLES Cereal	Breakfast cereal	Pebbles
884912396402	Honey Oh's	Breakfast cereal	Post
00808408	Super Nutty Oat Clusters Cereal	Breakfast cereal	Trader Joe's
016000230699	Honey Almond Cereal	Breakfast cereal	Nature valley
00744379	Tiny Fruity Cuties Cereal	Breakfast cereal	Trader Joe's
038000199943	Rice Krispies	Breakfast cereal	Rice Krispies
4099100017885	Vitality Cereal Vanilla Almond	Breakfast cereal	Fit&Active
041192100192	Frosted Flakes	Breakfast cereal	Frosted Flakes
675625355011	Sprouted Brown Rice Cacao Crisps	Breakfast cereal	One Degree Organic Foods
884912180599	Shredded Wheat Spoon Size	Breakfast cereal	Shreddies
884912249272	Honey Roasted Bunches Of Oats Cereals	Breakfast cereal	Honey Bunches Of Oats
038000318344	Frosted Mini Wheats	Breakfast cereal	Frosted Mini-Wheats
038000198076	Kellogg's Choco Krispis Breakfast Cereal	Breakfast cereal	Kellogg's
042400184690	Creamy Hot Cereals With Coco Wheats	Breakfast cereal	Malt o meal
042400388876	Fruity Dyno Bites Cereal	Breakfast cereal	Malt o meal
4099100031065	Crispy Oats Toasted Whole Grain Cereal	Breakfast cereal	Millville
078742128481	Fruit Spin Loops Breakfast Cereal	Breakfast cereal	Great value
892453001167	Pepperoni Pizza	Pizza	Against the Grain Gourmet
042272001996	Margherita Pizza	Pizza	Amy's kitchen
042272001033	Roasted Vegetable Pizza No Cheese	Pizza	Amy's kitchen
013562001750	Mini Pizza Bagels Uncured Pepperoni	Pizza	Annie's
070085035389	Pizza Snacks! Cheese And Pepperoni	Pizza	Bagel Bites
070085060121	Pizza Snacks! Cheese And Pepperoni	Pizza	Bagel Bites
070085060107	Pizza Snacks! Three Cheese	Pizza	Bagel Bites
850011443200	Four Cheese	Pizza	Banza
850011443224	Margherita	Pizza	Banza
194346207794	Cauliflower Thin Crust Pepperoni Pizza	Pizza	bettergoods
194346207800	Cauliflower Thin Crust Margherita Pizza	Pizza	bettergoods
073130012373	12" Original Pizza Crust	Pizza	Boboli
073130012571	Thin Crust	Pizza	Boboli
071921290535	Margherita recipe - crispy thin crust pizza	Pizza	California Pizza Kitchen
071921624910	BBQ Chicken Crispy Thin Crust	Pizza	California Pizza Kitchen
854934007204	Uncured Pepperoni Pizza	Pizza	Caulipower
862871000325	Margherita Pizza	Pizza	Caulipower
871459001326	Gluten-Free Pizza Cheeze Lover's	Pizza	Daiya
871459001524	Dairy-Free Fire-Roasted Vegetable Pizza	Pizza	Daiya
071921008284	Four Cheese Traditional Crust	Pizza	Digiorno
071921823795	Rising Crust Original Ultimate Pepperoni	Pizza	Digiorno
080868002644	Gluten Free Pizza Stars	Pizza	Dr. Praeger's
041118009028	Cheese Pizza	Pizza	Ellios
850058395029	Mini Pizza Bagels	Pizza	Feel Good Foods
072180639790	Pepperoni Naturally rising Crust	Pizza	Freschetta
072180636942	Pepperoni Gluten Free Thin Crust Pizza	Pizza	Freschetta
085239099643	Gluten-Free Cauliflower Crust Four Cheese Pizza	Pizza	Good & Gather
196761502546	Ann Kim Wood Fired Crust Pizza	Pizza	Good & Gather
194346134700	Supreme Pizza Thin & Crispy Crust	Pizza	Great value
194346080458	Thin & Crispy Crust Spinach Alfredo Pizza	Pizza	Great value
031205060001	Cheese Classic Pizza	Pizza	Home Run Inn
031205050002	Sausage Classic Pizza	Pizza	Home Run Inn

Product EAN	Name	Category	Brand
043695071115	Pepperoni Pizza	Pizza	Hot Pockets
043695071092	Four Cheese Pizza	Pizza	Hot Pockets
074653791875	Original Thin Pepperoni Pizza	Pizza	Jack's
074653308905	Cheese Pizza	Pizza	Jack's
013800047199	Four Cheese Pizza	Pizza	Lean Cuisine
013800047175	Pepperoni Pizza	Pizza	Lean Cuisine
044700024119	Extra Cheesy Pizza	Pizza	Lunchables
044700024102	Pizza with Pepperoni	Pizza	Lunchables
4099100285734	Cauliflower Crust Pizza	Pizza	Mama cozzi's
4061461729660	Stuffed Crust Pepperoni Pizza	Pizza	Mama cozzi's
606541601272	Cauliflower Crust Uncured Pepperoni Pizza	Pizza	Milton's Craft Bakers
606541601098	Cauliflower crust pizza - margherita four cheese	Pizza	Milton's Craft Bakers
870375005005	Pepperoni Pizza	Pizza	Motor City Pizza Company
870375005012	Supreme Detroit-Style Deep Dish Pizza	Pizza	Motor City Pizza Company
020662006301	Stone-Fired Crust Margherita	Pizza	Newman's Own
020662006011	Uncured Pepperoni Pizza	Pizza	Newman's Own
628308290031	Margherita Pizza	Pizza	Porta
628308290024	Uncured Pepperoni Pizza	Pizza	Porta
888849007172	Uncured Pepperoni Thin Crust Pizza	Pizza	Quest
888849007165	Cheese Thin Crust Pizza	Pizza	Quest
747479300216	Pepperoni Pizza	Pizza	Rao's
747479300209	5 Cheese Pizza	Pizza	Rao's
072180638137	Meat Trio Brick Oven Pizza	Pizza	Red Baron
072180632456	Five Cheese & Garlic French Bread Single Pizzas	Pizza	Red Baron
075706151011	Holy Pepperoni Pizza	Pizza	Screamin' Sicilian
075706151035	Supremus Maximus Supreme	Pizza	Screamin' Sicilian
013800502230	Pepperoni French Bread Pizzas	Pizza	Stouffer's
4061464779716	Five Cheese Traditional Crust Pizza	Pizza	Take 'N Bake
071921971854	Tombstone Original Crust Pizza	Pizza	Tombstone
071921702823	Tombstone Original Crust Pizza 5 cheese	Pizza	Tombstone
072180637185	Cheese Pizza	Pizza	Tony's
072180637178	Pepperoni Style Crust Pizza	Pizza	Tony's
042800115201	Party Pizza Triple Cheese	Pizza	Totino's
042800435897	Party Pizza Pack Pepperoni	Pizza	Totino's
00798983	Uncured Pepperoni Pizza	Pizza	Trader Joe's
00805308	Margherita Pizza	Pizza	Trader Joe's
698997810339	Crispy Thin Crust Uncured Pepperoni Pizza	Pizza	Udi's
013800924384	Vital Pursuit Cauliflower Crust Pepperoni Pizza	Pizza	Vital Pursuit
850006883028	Japanese barbeque sauce	Barbecue sauce	Bachan's
852675006913	Dairy Free Medium Buffalo	Barbecue sauce	the New Primal
807176705940	Sauces	Barbecue sauce	Bibigo
054400000030	Steak Sauce	Barbecue sauce	A.1.
194346197590	Traditional Compition BBQ Sauce	Barbecue sauce	bettergoods
185544000010	Chimichurri original sauce	Barbecue sauce	Gaucho Ranch
072878505239	Doña María mole sauce ounce	Barbecue sauce	Dona Maria
819153010183	Sauce bbq whiskey maple	Barbecue sauce	Rufus Teague
819153010169	Bbq Sauce Touch O'Heat	Barbecue sauce	Rufus Teague
041500779874	Carolina tangy gold bbq sauce	Barbecue sauce	Cattlemen'S
810264023529	Teriyaki sauce paleo keto	Barbecue sauce	Kevin's natural foods
194346197613	Spicy Pineapple Habanero Bbq Sauce	Barbecue sauce	bettergoods
665591000725	Raspberry chipotle	Barbecue sauce	Blues Hog
019582411104	Bbq sauces	Barbecue sauce	Bull's Eye
731050000749	General tso sauce	Barbecue sauce	Iron Chef
028239000202	Barbq sauce	Barbecue sauce	Head Country

Product EAN	Name	Category	Brand
780993086587	Bbq sauce devils spit	Barbecue sauce	Famous Dave's
852675006937	Classic bbq	Barbecue sauce	the New Primal
715923280001	Bbq sauce	Barbecue sauce	Montgomery Inn
860005338009	Franklin Barbecue Sause	Barbecue sauce	Franklin
026825090187	Sweet & Spicy BBQ Sauce	Barbecue sauce	G Hughes Sugar Free
026825000131	BBQ Sauce Sugar Free Original	Barbecue sauce	G Hughes Sugar Free
810020930344	Honey BBQ Sauce	Barbecue sauce	Jack Daniel's
810020930351	Jack Daniel's Sweet & Spicy BBQ Sauce	Barbecue sauce	Jack Daniel's
041390047657	Sauce dipping sweet n sour	Barbecue sauce	Kikkoman
755795700085	Kinder’s Hickory Brown Sugar	Barbecue sauce	Kinder's
755795700054	Gold Bbq Sauce	Barbecue sauce	Kinder's
851099004437	Memphis Sweet & Spicy BBQ Sauce	Barbecue sauce	True Made
071828001012	Horseradish xhot	Barbecue sauce	Beaver
021000052288	Original barbecue sauce	Barbecue sauce	Kraft
194346176878	Original Barbecue Sauce	Barbecue sauce	Great value
854019006023	Killer Hogs Barbecue	Barbecue sauce	Killer Hogs
851099004420	Central Texas Bold & Spicy BBQ Sauce	Barbecue sauce	True Made
021000052387	Barbecue Sauce Hint of honey	Barbecue sauce	Kraft
810069510897	Smoky Barbeque Sauce	Barbecue sauce	Lillie's Q
850004639238	Hawaiian style bbq sauce	Barbecue sauce	Primal Kitchen
855232007354	Classic BBQ Sauce	Barbecue sauce	Primal Kitchen
856663004028	Spicy bbq sauce	Barbecue sauce	Rib Rack
856663004011	Bbq sauce honey	Barbecue sauce	Rib Rack
850068174102	American Style Bbq Sauce	Barbecue sauce	Smash Kitchen
757339222220	Memphis Style Sweet & Smoky Bbq Sauce	Barbecue sauce	Sticky Fingers
071828002101	Brand cream style horseradish	Barbecue sauce	Beaver
734756000020	Stubb's Original Barbecue Sauce	Barbecue sauce	Stubb's
734756000105	Sticky Sweet BBQ Sauce	Barbecue sauce	Stubb's
754496001224	Bone Suckin Sauce	Barbecue sauce	Bone Suckin'
013409351000	Sweet n spicy bbq sauce	Barbecue sauce	Sweet Baby Ray's
013409918104	Original BBQ Sauce	Barbecue sauce	Sweet Baby Ray's
070200790056	Chick-fil-A Sauce	Barbecue sauce	Chick-fil-A
850006883707	Roasted Garlic Japanese Bbq Sauce	Barbecue sauce	Bachan's
01326406	57 Sauce	Barbecue sauce	Heinz
860005338016	Vinegar Bbq Sauce	Barbecue sauce	Franklin
807176705940	Korean BBQ sauce	Barbecue sauce	Bibigo
781198181503	Original BBQ Sauce	Barbecue sauce	Sonny's
781198191601	Sweet Bbq Sauce	Barbecue sauce	Sonny's
735995092012	Buffalo Wing Sauce Original	Barbecue sauce	Moore's
074609072409	Original Barbecue Sauce	Barbecue sauce	KC Masterpiece
850064367201	Bbq Sauce Smokey & Savory	Barbecue sauce	Kosmos Q
046015174329	Flavortown Smokin Hickory BBQ Sauce	Barbecue sauce	Guy Fieri
046015174367	Money Honey BBQ Sauce	Barbecue sauce	Guy Fieri
054100977656	Original Barbecue Sauce	Barbecue sauce	Open Pit
857595002083	Naked BBQ Sauce	Barbecue sauce	Meat Mitch
711381021989	Honey Barbecue Sauce	Barbecue sauce	Stonewall kitchen
711381323601	Honey Sriracha Barbecue Sauce	Barbecue sauce	Stonewall kitchen
070200513266	Buffalo Wild Wings	Barbecue sauce	Buffalo Wild Wings
019582000568	Everyday bbq sauce original	Barbecue sauce	Bull's Eye
851099004420	Central Texas Bold & Spicy BBQ Sauce	Barbecue sauce	True Made
852675006913	Dairy-Free Medium Buffalo	Barbecue sauce	the New Primal
042563016562	Organic Bbq Sauce	Barbecue sauce	Woodstock
4061461312497	Mild Bbq Sauce	Barbecue sauce	Burman's
4061461312480	Gold Bbq Sauce	Barbecue sauce	Burman's

Product EAN	Name	Category	Brand
00537995	Sriracha & Roasted Garlic Bbq Sauce	Barbecue sauce	Trader Joe's
00634861	Organic Kansas City Style BBQ Sauce	Barbecue sauce	Trader Joe's
085239058442	Original Barbecue Sauce	Barbecue sauce	Good & Gather
085239058459	Organic Honey Barbecue Sauce	Barbecue sauce	Good & Gather
850281006921	Sweet And Spicy Korean BBQ Sauce	Barbecue sauce	Momofuku
850281006938	Sweet & Savory Korean BBQ Sauce	Barbecue sauce	Momofuku
099482469627	Organic texas true barbecue sauce	Barbecue sauce	365 Whole Foods Market
099482469610	Organic Memphis Madness Barbecue Sauce	Barbecue sauce	365 Whole Foods Market
021000062706	Mayo with Avocado Oil	Mayonnaise	Kraft
021000026326	Real Mayo	Mayonnaise	Kraft
021000026494	Miracle Whip Mayo-like Dressing	Mayonnaise	Miracle Whip
099482447557	Organic Mayonnaise	Mayonnaise	365 Whole Foods Market
787545004402	Real mayonesa	Mayonnaise	Baldom
048001705937	Mayonnaise	Mayonnaise	Best foods
048001265844	Real Mayonnaise	Mayonnaise	Best foods
856260006999	Avocado Oil Mayo Original	Mayonnaise	BetterBody Foods
047900507307	Real Mayonnaise	Mayonnaise	Blue Plate
4099100023121	Real Mayonnaise	Mayonnaise	Burman's
815074022809	Classic Mayo with Avocado Oil	Mayonnaise	Chosen Foods
052500084400	Real Mayonnaise	Mayonnaise	Duke's Mayonnaise
049568180168	Organic Vegenaise	Mayonnaise	Follow Your Heart
085239052402	Organic Mayonnaise	Mayonnaise	Good & Gather
078742065311	Mayonnaise	Mayonnaise	Great value
041220914630	Mayo Real Mayonnaise	Mayonnaise	H-E-B
048001014848	Spicy Mayonnaise Dressing	Mayonnaise	Hellmann's
048001204362	Mayonnaise Olive Oil	Mayonnaise	Hellmann's
191011001411	Just Mayo Plant-Based	Mayonnaise	Just Mayo
033357071010	Kewpie Mayonnaise	Mayonnaise	Kewpie
033357051012	Kewpie Mayonnaise (sans additif)	Mayonnaise	Kewpie
085239771396	Real Mayonnaise	Mayonnaise	Market Pantry
052100371603	Mayonesa With Lime Juice	Mayonnaise	McCormick
860408000879	Amazing Real Mayonnaise	Mayonnaise	Mike's Amazing
863699000122	Chipotle Lime Real Mayonnaise	Mayonnaise	Primal Kitchen
863699000108	Avocado Oil Mayonnaise	Mayonnaise	Primal Kitchen
048001013278	Sriracha Mayonnaise	Mayonnaise	Sir Kensington's
850551005425	Mayonnaise Classic	Mayonnaise	Sir Kensington's
850068174072	Spicy Mayonnaise	Mayonnaise	Smash Kitchen
850068174089	Organic Real Mayonnaise	Mayonnaise	Smash Kitchen
022506002357	Organic Mayonnaise	Mayonnaise	Spectrum
817108021048	Avocado & Lemon Mayo	Mayonnaise	The foraging fox
00609326	Organic Mayonnaise	Mayonnaise	Trader Joe's
042563015848	Organic mayo	Mayonnaise	Woodstock
052500084400	Real Mayonnaise Hint of lime	Mayonnaise	Duke's Mayonnaise
048001572713	Organic Mayonnaise	Mayonnaise	Hellmann's
099482447571	Mayonnaise	Mayonnaise	365 Whole Foods Market
048001013599	Organic Mayonnaise	Mayonnaise	Sir Kensington's
049568780160	Avocado Oil Vegenaise	Mayonnaise	Follow Your Heart
048001572713	Organic Mayonnaise	Mayonnaise	Hellmann's
014500031563	Veggie Mac & Cheese	Mac & cheese	Birds eye
015300014992	Cheesy Jalapeño Mac n Cheese	Mac & cheese	Cheetos
041000009655	Buffalo Chicken Pasta	Mac & cheese	Knorr
717854151146	Five Cheese Ziti	Mac & cheese	Michelina's
099482537975	Deluxe cheddar Shells And Cheese	Mac & cheese	365 Whole Foods Market
075900005844	Macaroni & Cheese	Mac & cheese	Bob Evans

Product EAN	Name	Category	Brand
064144040759	Mac & Cheese	Mac & cheese	Chef Boyardee
013800103345	Macaroni & Cheese	Mac & cheese	Stouffer's
021131350499	Shrimp Mac & Cheese Bowl	Mac & cheese	Marie Callender's
078742141336	Shells & Cheese Three Cheese	Mac & cheese	Great value
856587004241	Shells & Cheese High Protein Pasta	Mac & cheese	Muscle Mac
652729710809	Double Cheeseburger Macaroni	Mac & cheese	Hamburger Helper
850016944221	Guinness Macaroni and Cheese	Mac & cheese	Cabot
717854105156	Macaroni & Cheese	Mac & cheese	Michelina's
085239047743	Mac 'n' Cheese	Mac & cheese	Good & Gather
891627009121	Smoked Gouda Mac & Cheese	Mac & cheese	Evol
810882011403	Wagon Wheels Mac & Cheese	Mac & cheese	Kidfresh
850048199040	Jalapeno Popper Mac & Cheese	Mac & cheese	Counter Culture
810114061091	Chicken Mac & Cheese	Mac & cheese	Giovanni Rana
099482493899	Organic Macaroni & Cheese	Mac & cheese	365 Whole Foods Market
099482493882	Organic White Cheddar Shells & Cheese	Mac & cheese	365 Whole Foods Market
193968074265	Five Cheese Bacon Macaroni	Mac & cheese	Member's Mark
042272000456	Gluten Free Rice Mac & Cheese	Mac & cheese	Amy's kitchen
042272013203	Mac & 3 Cheese with Cauliflower	Mac & cheese	Amy's kitchen
025155057051	White Cheddar Mac & Cheese with Bacon	Mac & cheese	Devour
025155057044	Buffalo Frozen Chicken Mac & Cheese	Mac & cheese	Devour
021000654925	Shells Cheese with Milk Cheese Boxes	Mac & cheese	Velveeta
194346210022	Plant Based White Cheddar Style Macaroni And Cheeze	Mac & cheese	bettergoods
015300201101	Macaroni White Cheddar	Mac & cheese	Simply
015300201231	Creamy White Cheddar	Mac & cheese	Rice a Roni
021131905545	Mac & Cheese Bowl	Mac & cheese	Marie Callender's
031000126100	Buffalo Style Mac' N' Cheese	Mac & cheese	Banquet
015300014985	Mac'n cheese Bold & Cheesy	Mac & cheese	Cheetos
078742358857	Macaroni & Cheese Original	Mac & cheese	Great value
891627002955	Truffle Parmesan Macaroni & Cheese	Mac & cheese	Evol
850016944023	Yellow Cheddar Macaroni and Cheese	Mac & cheese	Cabot
077958790499	Mac & Cheese Original	Mac & cheese	Panera Bread
4099100119916	Macaroni & Cheese Truffle & Porcini Mushroom	Mac & cheese	Specially selected
4099100197679	Macaroni & Cheese Pesto	Mac & cheese	Specially selected
085239078150	Organic Macaroni & Cheese Shells & Cheddar	Mac & cheese	Good & Gather
085239078167	Organic Macaroni & Cheese Shells & White Cheddar	Mac & cheese	Good & Gather
854598005202	Goat Cheddar Cheese Macaroni & Cheese	Mac & cheese	Funny Farm
193968504175	Mac & Cheese	Mac & cheese	Member's Mark
013562499014	Organic Vegan Mac Cheddar Flavor Pasta And Sauce	Mac & cheese	Annie's
857183005632	Mac & Cheese Made With Chickpea Pasta	Mac & cheese	Banza
021000060672	Sharp Cheddar Macaroni & Cheese Dinner	Mac & cheese	Cracker Barrel
021000060689	Sharp White Cheddar Macaroni Cheese Dinner	Mac & cheese	Cracker Barrel
815421018035	Gluten Free Dairy Free Vegan Mac	Mac & cheese	Jovial
021000658978	Mac & Cheese Spirals	Mac & cheese	Kraft
013800103406	Macaroni & Cheese	Mac & cheese	Stouffer's
021000023394	Shells & Cheese Original Microwaveable	Mac & cheese	Velveeta
194346210015	Plant Based Original Macaroni and Cheese	Mac & cheese	bettergoods
871459001333	Dairy-Free Cheddar Deluxe Mac and Cheese	Mac & cheese	Daiya
015300201118	Mac A Roni Three Cheese	Mac & cheese	Simply
015300201224	Creamy Cheddar	Mac & cheese	Rice a Roni
815421018004	Gluten-Free Mac & Cheese	Mac & cheese	Jovial
782045113388	World's Best Mac & Cheese	Mac & cheese	Beecher's
4061461683269	Cheddar Mac & Cheese Chickpea Pasta	Mac & cheese	Cheese Club
4099100347180	Shells & Cheese Original	Mac & cheese	Cheese Club
4061462313479	Shells & Aged Cheddar	Mac & cheese	Simply Nature

Product EAN	Name	Category	Brand
4099100003024	Shells & White Cheddar	Mac & cheese	Simply Nature
4061459204278	Macaroni & Cheese	Mac & cheese	Park street deli
857183005137	Mac & Cheese Made with Chickpea Pasta	Mac & cheese	Banza
021000012534	Mac & Cheese Original Flavor	Mac & cheese	Kraft
013800366047	Vermont White Cheddar Mac & Cheese	Mac & cheese	Lean Cuisine
00036559	Mac'n Cheese	Mac & cheese	Trader Joe’s
013562000043	Shells & White Cheddar Macaroni & Cheese	Mac & cheese	Annie's
013562000456	Macaroni and cheese	Mac & cheese	Annie's
850031990012	Shella Good	Mac & cheese	Goodles
00610230	Butternut Squash Mac & Cheese	Mac & cheese	Trader Joe’s
850031990005	Cheddy Mac	Mac & cheese	Goodles
652729710854	Deluxe Beef Stroganoff	Mac & cheese	Hamburger Helper
038000138430	Sour Cream & Onion	Chips	Pringles
028400071895	Baked Barbecue Potato Crisps	Chips	Lay's
020685003165	Potato Chips Sea Salt & Vinegar	Chips	Cape cod
020685003202	Sweet & Spicy Jalapeño Potato Chips	Chips	Cape cod
850668000443	Sweet maui onion kettle cooked potato chips	Chips	Deep river snacks
028400516655	Dinamita Chile Limon Crisps	Chips	Doritos
028400589284	Corn chips Chili Cheese	Chips	Fritos
028400589314	Flamin' Hot Flavored Corn Chips	Chips	Fritos
016000468139	Special Request Garlic Rye Chips	Chips	Gardetto's
857776002628	Kettle Cooked Potato Chips, Sea Salt & Vinegar	Chips	Great Lakes Potato Chips
011594100519	Kettle style potato chips	Chips	Hawaiian
072600001862	Jalapeno Kettle chips	Chips	Herr's
084114902047	Potato Chips Jalapeño	Chips	Kettle Brand
084114902009	Potato Chips Backyard Barbeque	Chips	Kettle Brand
028400043496	Wavy Potato Chips Hickory BBQ Flavored	Chips	Lay's
028400168748	Jalapeno Kettle Cooked Potato Chips	Chips	Miss Vickie's
082666777007	Sour Cream & Onion	Chips	Popchips
038000183713	Pringles BBQ	Chips	Pringles
028400184779	Baked cheddar & sour cream	Chips	Ruffles
028400517744	Cheddar & Sour Cream Crisps	Chips	Ruffles
853986008115	Chipotle BBQ Potato Chips	Chips	Siete
853986008085	Kettle Cooked Chips Sea Salt & Vinegar	Chips	Siete
028400147392	Harvest Cheddar Whole Grain Chips	Chips	Sunchips
757528005047	Tortilla Chips Fuego	Chips	Takis
757528037475	Blue Heat	Chips	Takis
851562007507	The Good Crisp Company	Chips	The Good Crisp Company
785654161030	Bar-B-Que Potato Chips	Chips	Uglies
041780271501	Sour cream and onion	Chips	Utz
041262286689	Golden Potato Onion & garlic	Chips	Wise Food
4099100069150	Baked Barbecue Potato Crisps	Chips	Clancy's
194346191567	Carolina Gold Style BBQ Chips	Chips	bettergoods
708163121937	Avocado Oil Sea Salt & Cracked Pepper	Chips	Boulder Canyon
850052699093	Avocado Oil Sweet Potato Chips Spicy Jalapeno	Chips	Jackson's
850062335615	Sweet Potato Chips Cheddar & Sour Cream	Chips	Jackson's
028400012546	Kettle Cooked Potato Chips Sea Salt & Vinegar	Chips	Miss Vickie's
853986008085	Kettle Cooked Chips Sea Salt & Vinegar	Chips	Siete
853986008115	Chipotle BBQ Potato Chips	Chips	Siete
851562007057	Sour Cream & Onion Potato Crisps	Chips	The Good Crisp Company
083791520025	Jalapeno Heat Potato Chips	Chips	Dirty Potato Chips
755355008101	Kettle Chips - Avocado Oil Lime Ranch	Chips	Good Health
720495922198	Potato Skins Jalapeno Cheddar Crisps	Chips	Tgi Fridays
785654161047	Potato Chips Salt & Vinegar Flavored	Chips	Uglies

Product EAN	Name	Category	Brand
072600083585	Baked Cheddar & Sour Cream Crisps	Chips	Herr's
855036005136	Sea Salt & Vinegar Kettle Chips	Chips	Hal's New York
829515322106	Garden Veggie Chips Salt & Vinegar	Chips	Sensible Portions
078742021997	Kettle Cooked Potato Chips Spicy Jalapeno	Chips	Great value
078742276175	Cheddar & Sour Cream Potato Chips	Chips	Great value
815099022273	Nacho Cheese Tortilla Chips	Chips	Late July
829515325039	Garden Veggie Cheddar Sour Cream	Chips	Sensible Portions
028400767217	Potato Crisps - Honey BBQ	Chips	Chester's
028400765381	Lightly Seasoned Tortilla Chips	Chips	La Cocina de Josefina
860008724779	Chile Lime Flavored Tortilla Chips	Chips	Zack's Mighty
028400518185	Salsa Verde Tortilla Chips	Chips	Tostitos
028400734790	Hint of Chile Lime Tortilla Chips	Chips	Tostitos
072080192883	Superior Dipping Chips Cantina Style	Chips	Tortiyahs!
602050014268	Hatch Green Chile Whole Grain Tortilla Chips	Chips	505 Southwestern
810173070003	Big Dill Ranch Tortilla Chips	Chips	Good Eat'n
810173070010	Nacho Cheese Tortilla Chips	Chips	Good Eat'n
829515326319	Flavor Burst Nacho Cheese Tortilla Chips	Chips	Garden veggie
00614207	Chili & Lime Rolled Corn Tortilla Chips	Chips	Trader Joe's
00822688	Ketchup Flavored Lattice Potato Chips	Chips	Trader Joe's
011594100526	Crispy & Crunchy Luau BBQ Kettle Style Potato Chips	Chips	Hawaiian
083791150055	New Orleans Kettle Style Voodoo	Chips	Zapp's
085239196335	Kettle Cooked Mesquite Barbeque Potato Chips	Chips	Good & Gather
085239042298	Kettle Cooked Parmesan Garlic Potato Chips	Chips	Good & Gather
708163261305	Wavy Cheddar Sour Cream with Avocado Oil	Chips	Boulder Canyon
084114902030	Potato Chips Honey Dijon	Chips	Kettle Brand
628678211124	Sea Salt & Cider Vinegar Potato Chips	Chips	Humble
764218607542	Jalapeno Lentil Chips	Chips	Simply 7
028400070560	Nacho Cheese	Chips	Doritos
19434619574	Smoked Gouda Mac N'cheese Chips	Chips	#N/A
013562289721	Organic Original Crispy Snack Bars	Cereal bars	Annie's
860003034149	Peanut Chocolate Butter Protein Bar	Cereal bars	Mezcla
850003898506	Smart Bars Blueberry Banana Sweet Potato	Cereal bars	Cerebelly
857851005018	Dark Chocolate Sea Salt Seed + Oat Bar	Cereal bars	88 Acres
016000143449	Oats & Chocolate Chewy Bars	Cereal bars	Fiber One
859146006168	Daydreaming about Donuts Protein Bar	Cereal bars	TRUBAR
850065948065	Strawberry Shorty Got Cake Protein Bar	Cereal bars	TRUBAR
850003898520	Smart Bars Strawberry Beet	Cereal bars	Cerebelly
853555006689	Coconut + Almond Butter + Chocolate Chips MacroBar	Cereal bars	Gomacro
093709801023	Gluten free figgies jammies cookies	Cereal bars	Pamela's
850033324068	Strawberry and Rhubarb Baby Snack Bars	Cereal bars	Yumi
850033324075	Blueberry & Purple Carrot Bar	Cereal bars	Yumi
897785001304	Dark Chocolate Cherry & Almond Bar	Cereal bars	Kate's Real Food
853555006559	Double Chocolate + Peanut Butter Chips MacroBar	Cereal bars	Gomacro
857127003328	Blueberry Pomegranate Granola Cookie Bakes	Cereal bars	Cooper Street
193908005175	Honey Cinnamon Peanut Butter Bar	Cereal bars	Rxbar
850064930016	Peanut Butter Chocolate Chip Protein Bar	Cereal bars	Mush
850056784214	Oat Bakes Chocolate Chip Bars	Cereal bars	Little Spoon
850056784238	Oat Bakes Apple Pie Bars	Cereal bars	Little Spoon
810003512741	Apple & Oat Soft Baked Bar	Cereal bars	Once upon a farm
193908005106	Blueberry Cashew Butter Bar	Cereal bars	Rxbar
016000219618	Bars Oats & Chocolate Strawberry	Cereal bars	Fiber One
039978159021	Peanut Butter Honey & Oats Bob's Bar	Cereal bars	Bob's Red Mill
023923204591	Sunny Days Snack Bars	Cereal bars	Earth's Best Organic
691535525016	Mint Chocolate Chip Protein Bar	Cereal bars	Nugo

Product EAN	Name	Category	Brand
021908406763	Organic chewy granola bar vanilla chip bars	Cereal bars	Cascadian farm
016000188952	Peanut Butter Chocolate Bars	Cereal bars	Chex Mix
722252103307	Lemonzest Nutrition Bar	Cereal bars	Clif Luna
093709600442	Chocolate Chip Coconut	Cereal bars	Pamela's
013764028432	Trail Mix Crumble Snack Bar	Cereal bars	Dave's Killer Bread
016000231894	Strawberry Soft Baked Bars	Cereal bars	Mott's
819573015089	Organic Super Morning Strawberry Oat Bar	Cereal bars	Happy Tot
687456215655	Mornings Blueberry Soft Baked Oat Bars	Cereal bars	Made good
819573015072	Organic Super Morning Blueberry Oat Bar	Cereal bars	Happy Tot
705599016288	Chewy Granola Bars Chocolate Chip	Cereal bars	Kodiak
013764028395	Cocoa Brownie Blitz Snack Bar	Cereal bars	Dave's Killer Bread
023923204652	Organic Sunny Days Snack Bars Strawberry Flavored	Cereal bars	Earth's Best Organic
705599016417	Chewy Granola Bars S'Mores	Cereal bars	Kodiak
021908485331	Chewy granola bar organic nongmo chocolate chip	Cereal bars	Cascadian farm
687456213057	Chocolate Chip Granola Bars	Cereal bars	Made good
191907996098	Organic Blueberry Multigrain Snack Bars	Cereal bars	Good & Gather
013562116126	Organic Chewy Granola Bars Chocolate Chip	Cereal bars	Annie's
194346388592	Dark Chocolate Pistachio Pecan Nut Bars	Cereal bars	bettergoods
194346388608	Berry Pomegranate Nut Bars	Cereal bars	bettergoods
851100003015	Chocolate Chip Chewy Granola Bars	Cereal bars	Junkless
851100003558	Birthday Cake Chewy Drizzled Granola Bars	Cereal bars	Junkless
052200041338	Oaty Bars with Fruit & Whole Grain Strawberry	Cereal bars	Beech-Nut
722252192035	ZBar Chocolate Brownie	Cereal bars	Clif bar
722252387240	Iced Oatmeal Cookie ZBar	Cereal bars	Clif bar
847644008050	Chocolate Peanut Butter Protein Bar	Cereal bars	Ready clean
4099100116618	Organic Chocolate Chip Chewy Granola Bars	Cereal bars	Simply Nature
4099100116625	Organic Vanilla Chip Chewy Granola Bars	Cereal bars	Simply Nature
847644005103	Dark Chocolate Sea Salt Protein Bar	Cereal bars	Ready clean
4061463769046	Peanut Butter with Dark Chocolate Bars	Cereal bars	Elevation
884912001399	Fruity Pebbles Treats	Cereal bars	Pebbles
850028332504	Mini Cookie Dough Bars	Cereal bars	Bake ride
602652419270	Blueberry Almond Breakfast Bars	Cereal bars	Kind
047495112900	Blueberry fig bar	Cereal bars	Nature's Bakery
4099100345841	Organic Baked Oat Bar Chocolate Brownie	Cereal bars	Elevation
602652419287	Peanut Butter Breakfast Bars	Cereal bars	Kind
085239045084	Organic Strawberry Fruit & Grain Bars	Cereal bars	Good & Gather
016000144811	Puffs peanut butter and cocoa bar treats	Cereal bars	Reese's Puffs
016000146419	Lucky Charms Breakfast Cereal Treat Bars	Cereal bars	Lucky Charms
096619215607	Nut Bars with Cocoa Drizzle & Sea Salt	Cereal bars	Kirkland signature
016000277076	Sweet & Salty Nut Peanut Granola Bars	Cereal bars	Nature valley
099482484309	Organic Apple Cinnamon Fruit & Grain Bars	Cereal bars	365 Whole Foods Market
099482484316	Organic Blueberry Fruit & Grain Bars	Cereal bars	365 Whole Foods Market
194346210954	Crunchy Peanut Butter Energy Bar	Cereal bars	Great value
047495013054	Whole wheat fig bars	Cereal bars	Nature's Bakery
030000311844	Peanut butter chocolate chip chewy granola bars	Cereal bars	Quaker
016000264601	Crunchy granola bars Oats 'n honey	Cereal bars	Nature valley
193968461904	The Better Muffin Bar	Cereal bars	Member's Mark
4099100229325	Kids Fruit & Grain Soft Baked Mini Bars	Cereal bars	Millville
030000450178	Chewy Bar Chocolate Chip	Cereal bars	Quaker
038000359002	Soft Baked Breakfast Bars Strawberry	Cereal bars	Nutri-Grain
024300033025	Oats & Honey Chewy Granola Bars	Cereal bars	Sunbelt Bakery
038000113376	Kelloggs soft baked breakfast bars	Cereal bars	Nutri-Grain
038000765414	Rice Krispies Treats Original	Cereal bars	Rice Krispies Treats
024300033018	Chocolate chip chewy granola bars value	Cereal bars	Sunbelt Bakery

Product EAN	Name	Category	Brand
4099100116090	Trail mix Fruit & Nut Bars	Cereal bars	Millville
096619313945	Soft & Chewy Granola Bars Chocolate Chips	Cereal bars	Kirkland signature
078742059716	Chocolate Chip Chewy Granola Bars	Cereal bars	Great value
099482478179	Cookies & Cream Ice Cream	Ice cream	365 Whole Foods Market
099482478049	Vanilla Ice Cream	Ice cream	365 Whole Foods Market
072609741851	Vanilla Bean Ice Cream	Ice cream	Alden's
072609741820	Cookies & Cream Ice Cream	Ice cream	Alden's
076840100583	Chocolate Chip Cookie Dough Ice Cream	Ice cream	Ben & Jerry's
076840100156	Cherry Garcia Ice Cream	Ice cream	Ben & Jerry's
194346067220	Tiramisu Gelato	Ice cream	bettergoods
194346158294	Premium Ice Cream Double Vanilla	Ice cream	bettergoods
071899051015	Cookies 'n Cream Ice Cream	Ice cream	Blue Bell
070640023691	Soft Vanilla Frozen Dessert	Ice cream	Blue Bunny
070640023707	Soft Chocolate Frozen Dessert	Ice cream	Blue Bunny
077567226006	Homemade Vanilla Ice Cream	Ice cream	Breyers
077567254344	Natural Strawberry	Ice cream	Breyers
041548001869	Slow Churned Vanilla Light Ice Cream	Ice cream	Dreyer's
812184030038	Chocolate Dairy Free Frozen Dessert	Ice cream	Frönen
812184030052	Madagascar Vanilla Dairy Free Frozen Dessert	Ice cream	Frönen
078742089607	Vanilla Bean Ice Cream	Ice cream	Great value
078742089850	Mint Chip Ice Cream	Ice cream	Great value
074570650576	Vanilla Bean Ice Cream	Ice cream	Häagen-Dazs
074570014002	Chocolate Ice Cream	Ice cream	Häagen-Dazs
858089003135	Cookies & Cream Light Ice Cream	Ice cream	Halo Top
658238518011	Vanilla bean ice cream	Ice cream	Ice Cream For Bears
860000268707	Triple Chocolate Brownie Zero Sugar Added Ice Cream	Ice cream	Keto pint
096619948406	Super Premium Vanilla Ice Cream	Ice cream	Kirkland signature
075243201767	Chocolate Ice Cream	Ice cream	Mayfield
041548173542	Oreo Mint Ice Cream	Ice cream	Oreo
041548396361	Oreo Ice cream	Ice cream	Oreo
853149008044	Mint Chip Ice Cream	Ice cream	Rebel
744473477111	conut Vanilla Bean Zero Added Sugar Non-Dairy Frozen-Dess	Ice cream	So Delicious
744473470464	Cookie Dough Plant-Based Frozen Dessert	Ice cream	So Delicious
4099100045161	Vanilla Super Premium Ice Cream	Ice cream	Specially selected
4099100045185	Chocolate Ice Cream	Ice cream	Specially selected
784830100306	Vanilla Bean Ice Cream	Ice cream	Straus Family Creamery
784830100900	Organic Cookies & Cream Ice Cream	Ice cream	Straus Family Creamery
4099100304596	Triple Chocolate Gelato	Ice cream	Sundae Shoppe
4099100325430	Vanilla Light Ice Cream	Ice cream	Sundae Shoppe
186852000334	Gelato Caramel Cookie Crunch	Ice cream	Talenti
072830081047	Mint chocolate chip ice cream	Ice cream	Tillamook
072830081146	Vanilla Bean Ice Cream	Ice cream	Tillamook
00812382	Vanilla Non-Dairy Frozen Dessert	Ice cream	Trader Joe’s
00952538	Pumpkin Ice Cream	Ice cream	Trader Joe’s
00785761	French Vanilla Ice Cream	Ice cream	Trader Joe’s
020735161258	Chocolate Chip Cookie Dough Premium Ice Cream	Ice cream	Turkey hill
020735161739	Vanilla Bean Premium Ice Cream	Ice cream	Turkey hill
850005872191	Honeycomb Ice Cream	Ice cream	Van Leeuwen
850005872184	Vanilla Bean Ice Cream	Ice cream	Van Leeuwen
186852000495	Gelato Coffee Chocolate Chip	Ice cream	Talenti
869066000368	Almond Flour Grain Free Tortillas	Tortilla Wraps	Siete
865336000014	Cassava Flour	Tortilla Wraps	Siete
046000139586	Carb Advantage Tortilla Rounds	Tortilla Wraps	Old el Paso
099482494049	Almond Flour Tortillas	Tortilla Wraps	365 Whole Foods Market

Product EAN	Name	Category	Brand
849455000032	Carb Wise Multigrain Wraps	Tortilla Wraps	Tumaro's
840202270272	High Protein Carb Savvy Wraps	Tortilla Wraps	Bfree
850047659118	Flour Tortillas	Tortilla Wraps	Hero
078858520957	Organic Traditional Flour Tortillas	Tortilla Wraps	La Tortilla Factory
727888101147	Organic Corn Tortillas	Tortilla Wraps	Mi Rancho
861080000324	Flour Tortillas	Tortilla Wraps	Vista Hermosa
849455000018	Carb Wise Whole Wheat Wraps	Tortilla Wraps	Tumaro's
078858521442	Zero Net Carb Cutting Tortillas	Tortilla Wraps	La Tortilla Factory
727888403449	Gluten Free Tortillas - Burrito Size	Tortilla Wraps	Mi Rancho
027331033194	Carb Counter Zero Net Carb Soft Taco Tortilla Wraps	Tortilla Wraps	La Banderita
074117009959	Flax Oat Bran & Whole Wheat Tortillas Wraps	Tortilla Wraps	Joseph's
073731071090	Carb Balance Four Tortillas	Tortilla Wraps	Mission
073472003701	Sprouted Corn Tortillas	Tortilla Wraps	Food For Life
4061462791659	Zero Net Carb Wraps	Tortilla Wraps	L'Oven Fresh
027331032128	Xtreme Wellness High Fiber Tortilla Wraps	Tortilla Wraps	Olé Mexican Foods
027331032029	Xtreme Wellness Tortillas Spinach & Herb	Tortilla Wraps	Olé Mexican Foods
079341060080	Carb Control Wraps 1	Tortilla Wraps	Don Pancho
085239174821	Organic Flour Tortillas	Tortilla Wraps	Good & Gather
085239174838	Organic Whole Wheat Flour Tortillas	Tortilla Wraps	Good & Gather
085239174791	Carb conscious tortilla	Tortilla Wraps	Market Pantry
046000273419	10 Flour Tortillas	Tortilla Wraps	Old el Paso
037600282529	Fajita Style Tortillas	Tortilla Wraps	Chi-chi's
041501009239	Flour Tortillas	Tortilla Wraps	Ortega
078742294834	Flour Tortillas	Tortilla Wraps	Great value
4099100024111	Plain Protein Wrap	Tortilla Wraps	L'Oven Fresh
021108202165	Large Burrito Flour Tortillas	Tortilla Wraps	Romero's
041331090452	Tortillas Soft Tacos	Tortilla Wraps	Goya
041331090353	Tortillas Fajitas	Tortilla Wraps	Goya
078858510118	Handmade Style White Corn Tortillas	Tortilla Wraps	La Tortilla Factory
099482473877	Organic flour tortillas	Tortilla Wraps	365 Whole Foods Market
194346188970	Authentic flour tortillas	Tortilla Wraps	Marketside
079341020824	Burrito Style Gorditas Flour Tortillas	Tortilla Wraps	Don Pancho
078742294797	Whole Wheat Soft Taco Flour Tortillas	Tortilla Wraps	Great value
037600176521	Flour Tortillas Street Taco Size	Tortilla Wraps	Chi-chi's
071117006926	Corn Tortillas	Tortilla Wraps	La Burrita
027331101114	Burrito Grande Flour Tortillas	Tortilla Wraps	La Banderita
729630500109	Chimichanga Style Flour Tortillas	Tortilla Wraps	Frescados
085239174777	8" Flour Tortillas	Tortilla Wraps	Market Pantry
817585010177	Yellow Corn Ranchera Tortillas	Tortilla Wraps	El Comal
048564074037	Taco Size Flour Tortillas	Tortilla Wraps	Guerrero
073731004159	Taco Size Super Soft Flour Tortillas	Tortilla Wraps	Mission
4099100015867	Flour torillas	Tortilla Wraps	Pueblo Lindo
038622624472	Flour Tortillas	Tortilla Wraps	El Milagro
4099100016024	Flour Tortillas Large-Burrito	Tortilla Wraps	Pueblo Lindo
048564060023	Tortillas de Maiz Blanco	Tortilla Wraps	Guerrero
4099100015935	White Corn Tortillas	Tortilla Wraps	Pueblo Lindo
074426020065	Corn Tortillas	Tortilla Wraps	La Providencia
729630000470	White Corn Tortillas	Tortilla Wraps	Frescados
021108102144	Whole Grain Corn Tortillas Yellow Large King Size	Tortilla Wraps	Romero's

Appendix 4 - Detailed statistical methodology

• Variables and data cleaning

The statistical analysis was performed on a dataset of 805 processed food products, with more than 40 products per category across 12 food categories. Price (in US dollars) was analyzed as a continuous variable, standardized per ounce (oz) or fluid ounce (fl oz) depending on product type. Nutritional variables included sugar and sodium content, expressed per 100 g or 100 mL. Additive-related variables included: the total number of additives per product and the number of additives classified as high-risk by Yuka.

Data were cleaned through contextual and visual verification. For each product, we verified the brand and product name, confirmed the assigned food category, and checked the consistency of nutritional values, additive information, and price (e.g., no aberrant entries within a given category). Outliers were detected and investigated manually. Nutritional values and additive information were verified using the Yuka database to correct any errors or inconsistencies. This process improved the accuracy and comparability of the dataset across products, thereby strengthening the reliability of the subsequent analysis.

• Comparison between lower and upper quartiles

In order to explore the relationship between price and product characteristics, this part of the analysis focused on the upper and lower ends of the data distribution. The dataset was divided into quartiles for key variables including price, sugar, sodium, and additives. For each variable, products were segmented into two extreme groups: lower quartile (Q1): products in the lowest 25% of the distribution and upper quartile (Q3): products in the highest 25% of the distribution.

Descriptive statistics were calculated for each variable within each product category (mean, standard deviation, median, and interquartile range [IQR]). Differences between Q1 and Q3 groups were summarized using mean ratios (expressed as percentages (%)) and tested using the Kruskal-Wallis test (a nonparametric rank-based test whose test statistic is asymptotically χ^2-distributed under the null hypothesis). Differences between products with and without high-risk additives were also evaluated using the same methodology. Statistical significance was defined as $p < 0.05$.

• Regression analysis

All regression analyses were first conducted separately within each food category to ensure comparisons between nutritionally and commercially comparable products. In addition, pooled analyses across all food categories were performed to assess whether the observed associations were consistent across food categories.

Scatterplots were first used to visualize the dispersion of data points and explore potential associations between price and each explanatory variable. Exploratory multiple linear regression models were fitted within each food category to assess the explanatory variables that were most significant to price. Multicollinearity among variables was evaluated using the Variance Inflation Factor (VIF). When high multicollinearity was detected, correlated predictors were not included simultaneously and we removed variables with p values < 0.05.

For all regression models, statistical significance was assessed using p-values ($p < 0.05$). Model goodness of fit was evaluated using the coefficient of determination (R^2), and adjusted R^2 when more than one explanatory variable was included.

• Model diagnostics

Residual analysis was conducted to verify that the assumptions underlying the statistical models were met. Homoscedasticity was assessed through visual inspection of residuals plotted against fitted values; a random distribution of residuals around zero without any distinct pattern was interpreted as evidence of constant variance. The independence of residuals with respect to each explanatory variable was also checked. Normality of residuals was evaluated both visually (Q–Q plot) and through the Anderson-Darling test. Mild deviations from normality were tolerated, as the primary aim of the study was to characterise general market trends rather than estimate causal effects or build highly optimised predictive models.

• Uncertainty estimation

Uncertainty around regression estimates was summarized using approximate error bands of ±2 × RMSE, which under normal error assumptions correspond roughly to 95% coverage of observed outcomes. These intervals provide an estimate of the expected variability around predicted price values rather than confidence intervals around parameter estimates.

Appendix 5 - Detailed results and supplementary analyses

Table 1. Comparison of Sodium exceedance across quartiles relative to WHO Global Targets by Food Category

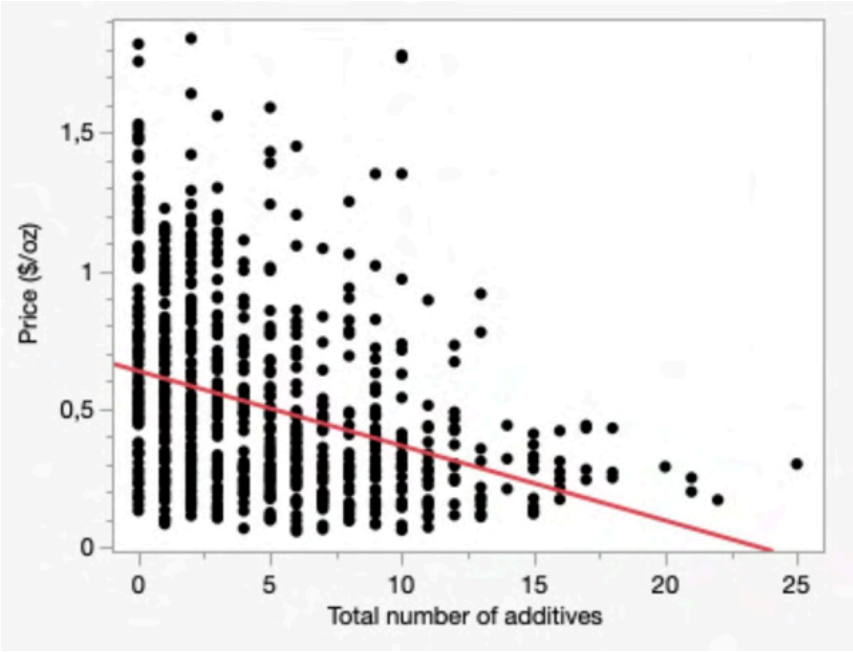
Food category	WHO global sodium target per category (mg/100g)	Mean sodium bottom price quartile (g/100g)	Mean sodium upper price quartile (g/100g)	Exceedance of WHO sodium target (bottom price quartile)	Exceedance of WHO sodium target (upper price quartile)
Store-bought bread	370,0	459,3	410,8	24,15%	11,02%
Cookies	200,0	334,5	380,8	67,23%	90,41%
Breakfast cereal	280,0	408,2	370,9	45,78%	32,46%
Pizza	450,0	528,6	497,8	17,47%	10,63%
Barbecue sauce	650,0	885,2	1251,7	36,19%	92,57%
Crackers	580,0	794,7	608,5	37,01%	4,92%
Mayonnaise	500,0	590,4	586,4	18,08%	17,27%
Mac & cheese	230,0	348,8	310,2	51,66%	34,86%
Chips	470,0	646,8	717,6	37,61%	52,69%
Cereal bars	150,0	296,8	203,8	97,90%	35,84%
Ice Cream	No target	79,8	61,4	-	-
Wraps tortillas	320,0	438,1	451,4	36,92%	41,07%

Table 2 - Comparison of Sugar exceedance across quartiles relative to WHO Global Targets, based on Reference Amounts Customarily Consumed (RACCs).

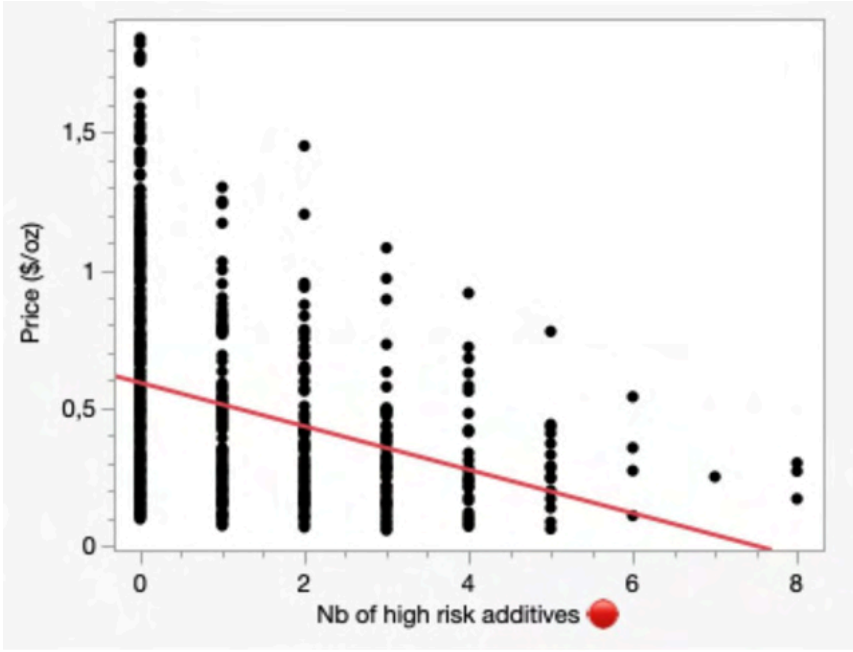
Food category	RACCs (g)	% WHO daily recommendations (based on RACCs)	% WHO daily recommendations (based on RACCs)
Store-bought bread	50	10,50%	9,58%
Cookies	30	38,82%	35,56%
Breakfast cereal	50	52,46%	29,52%
Pizza	140	17,85%	17,04%
Barbecue sauce	30	36,45%	33,57%
Crackers	30	4,59%	3,59%
Mayonnaise	15	0,40%	0,00%
Mac & cheese	220	21,54%	21,09%
Chips	30	5,21%	4,98%
Cereal bars	40	44,63%	35,15%
Ice Creams	95	81,16%	58,92%
Wraps tortillas	50	3,00%	2,69%

1. Linear regressions between price and product variables (Number of total additives, Number of high risk additives, Sugar and sodium content) with all products included (n=805 products) (Pooled analyses)

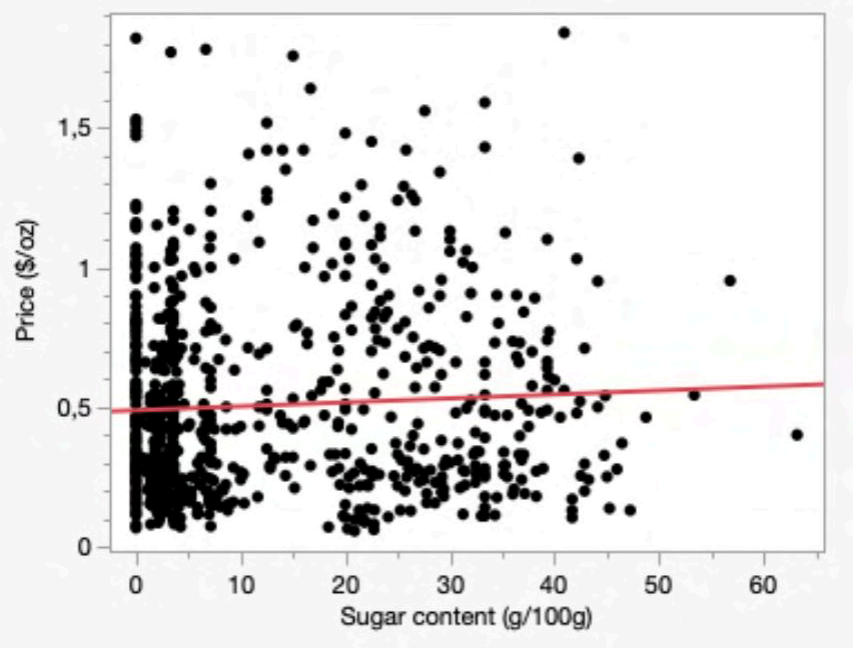
I - Association between price ($/oz) and Total number of additives



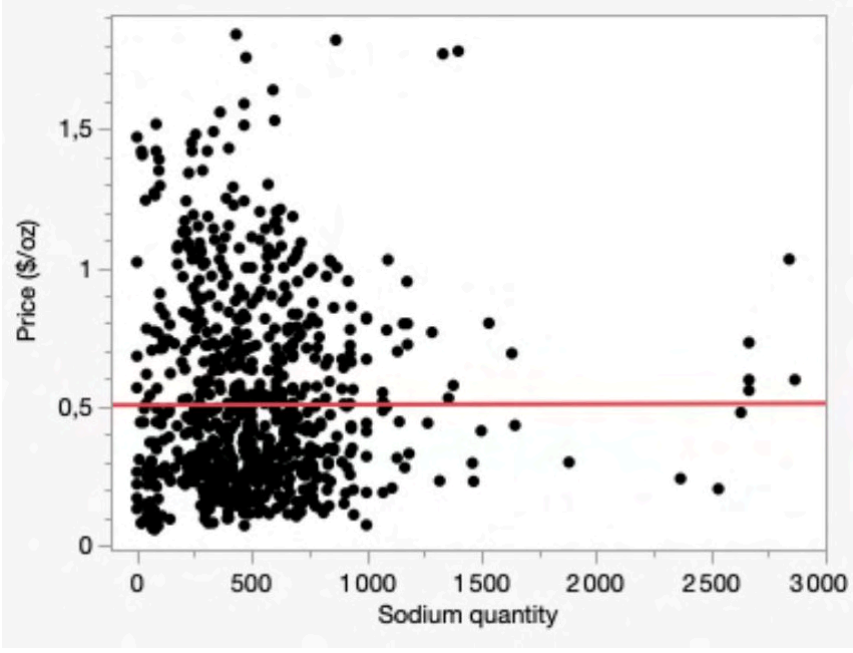
II - Association between price ($/oz) and number of high risk additives



III - Association between price ($/oz) and sugar content (g/100g)



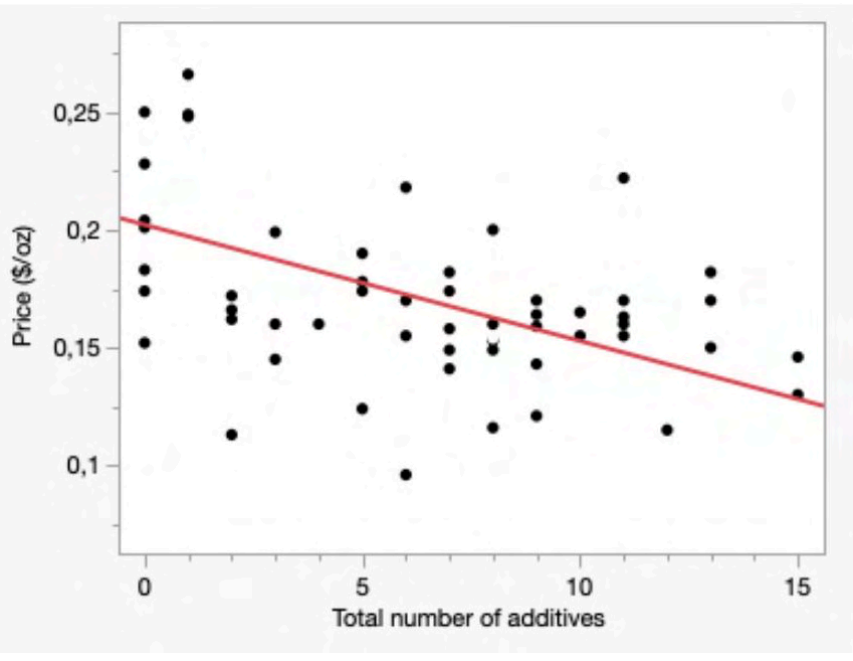
IV - Association between price ($/oz) and sodium content (mg/100g)



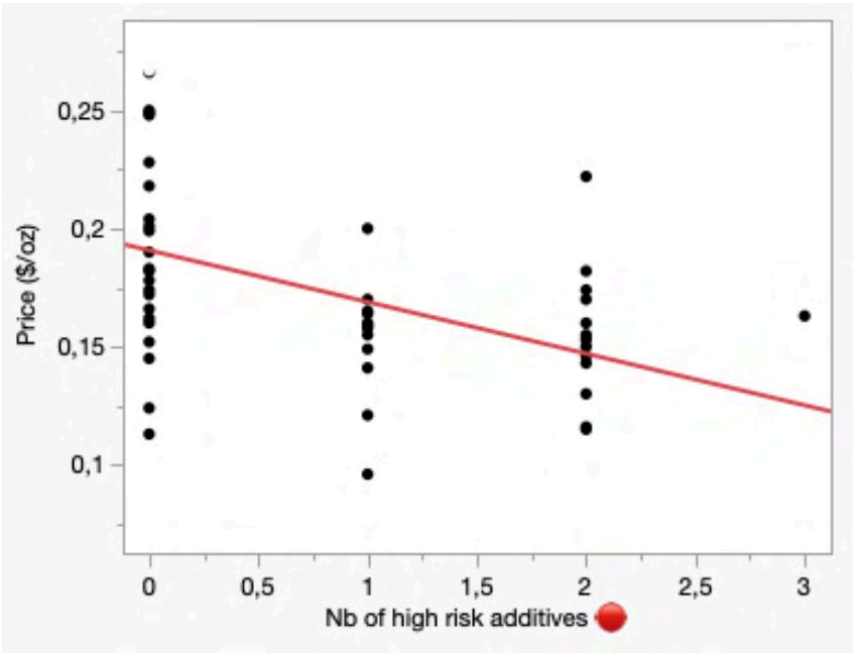
2. Associations between price and variables for the highlighted product categories (A-H)

A. Store bought bread (n=61)

A1 - Association between price ($/oz) and Total number of additive

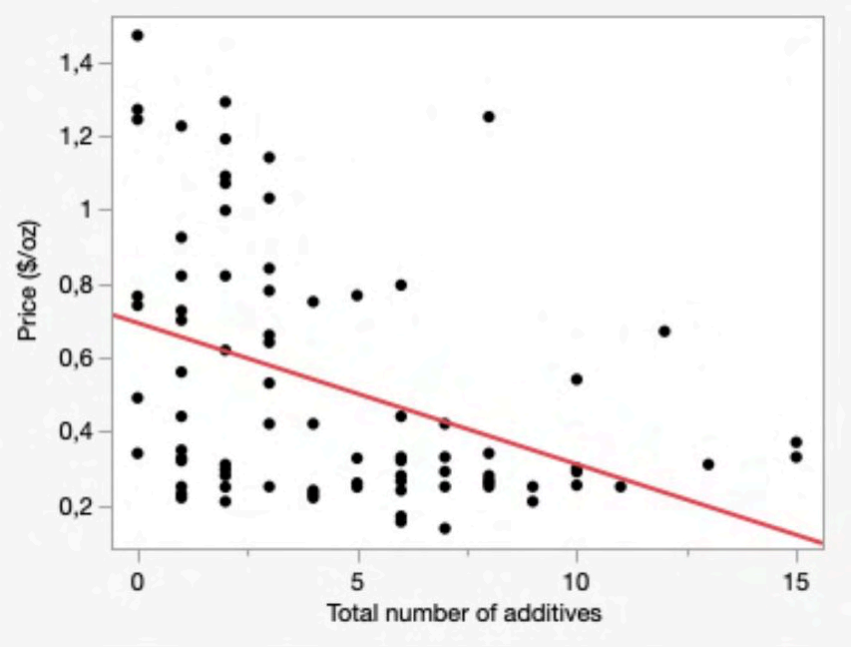


A2 - Association between price ($/oz) and number of high risk additives

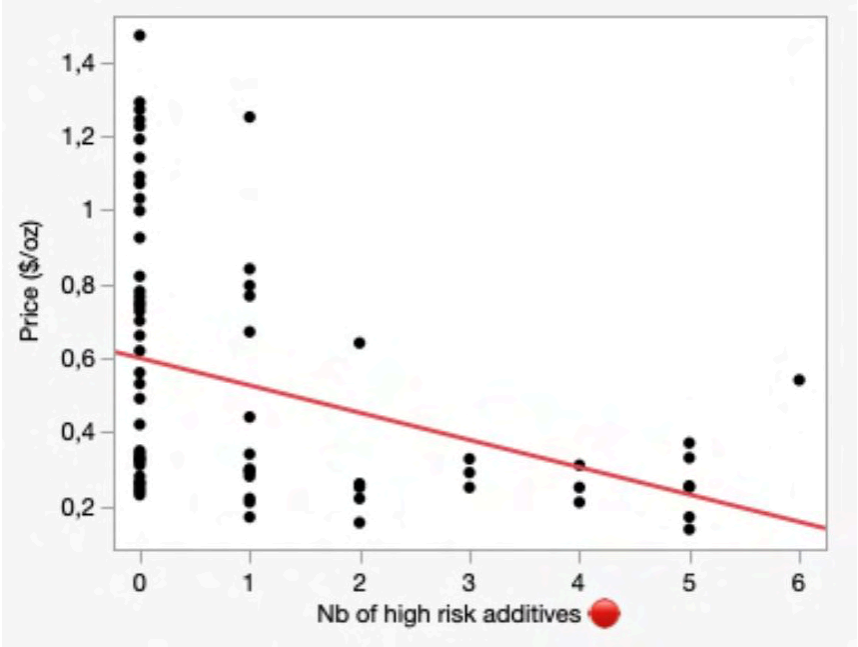


B. Breakfast cereal (n=83)

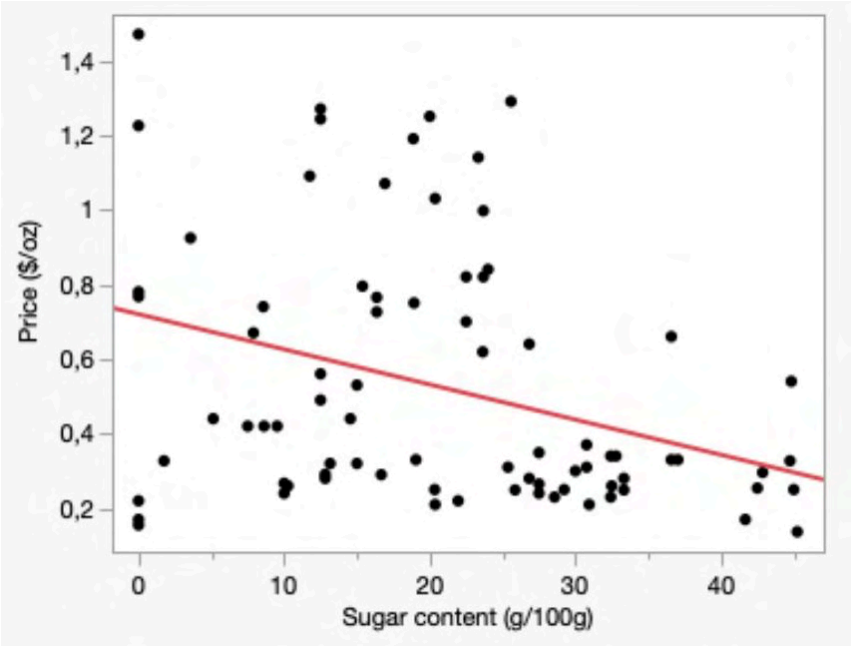
B1 - Association between price ($/oz) and Total number of additives



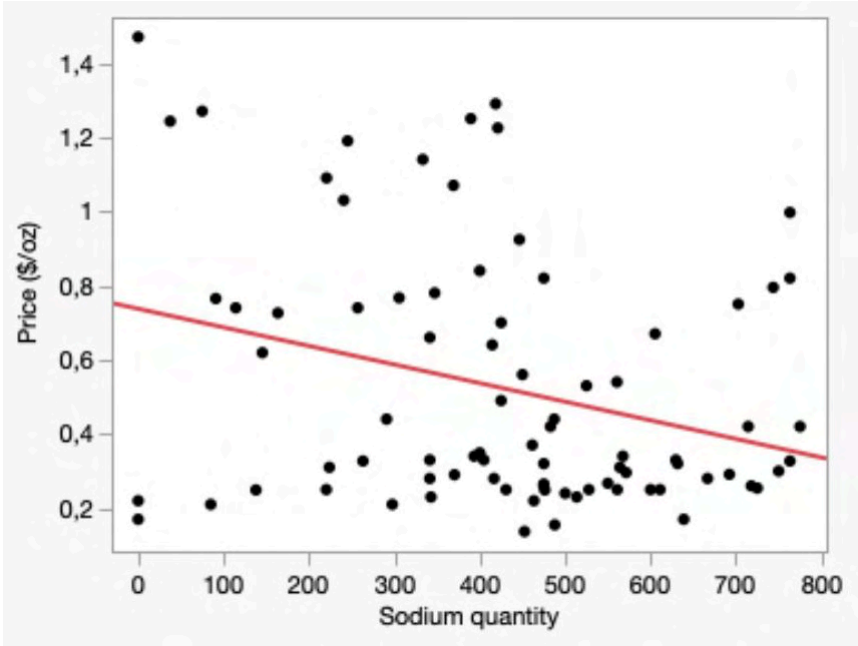
B2 - Association between price ($/oz) and number of high risk additives



B3 - Association between price ($/oz) and sugar content (g/100g)

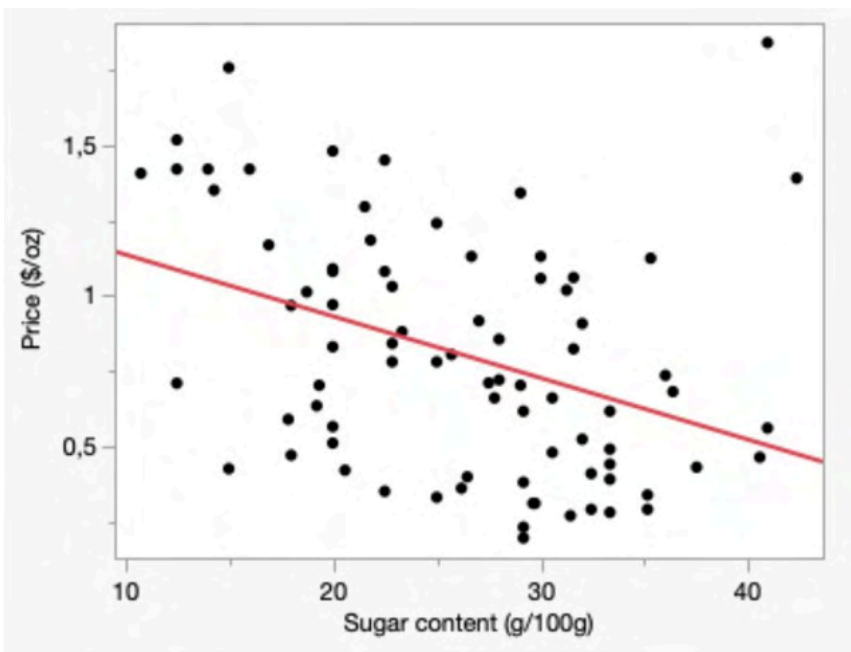


B4 - Association between price ($/oz) and sodium content (mg/100g)



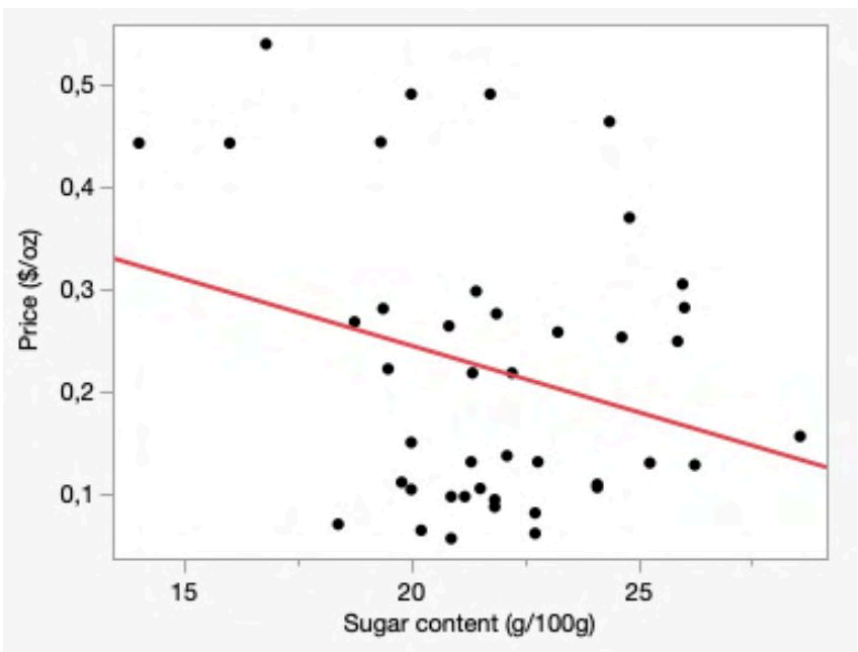
C. Cereal Bars (n=82)

C1 – Association between price ($/oz) and sugar content (g/100g)



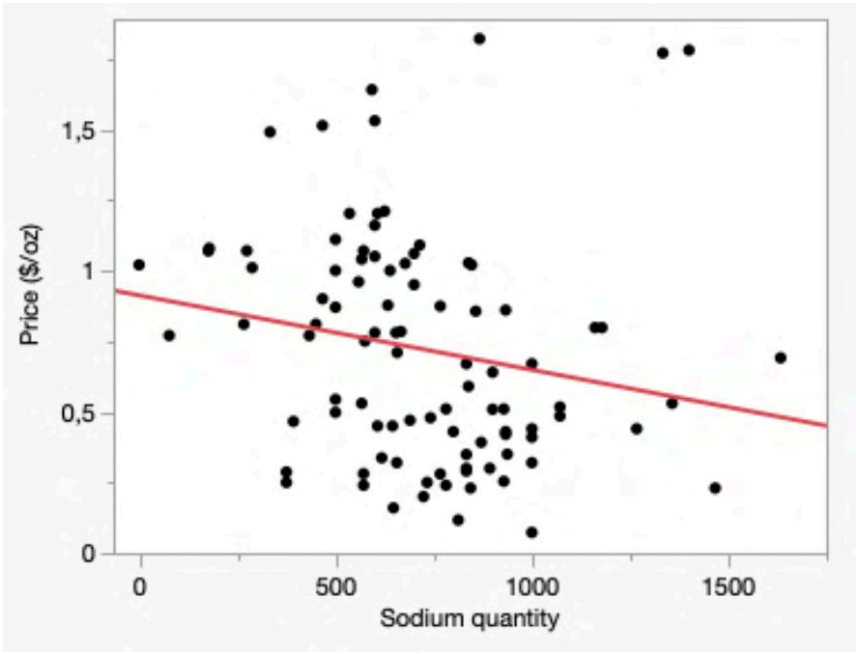
D. Ice Cream (n=43)

D1 – Association between price ($/oz) and sugar content (g/100g)



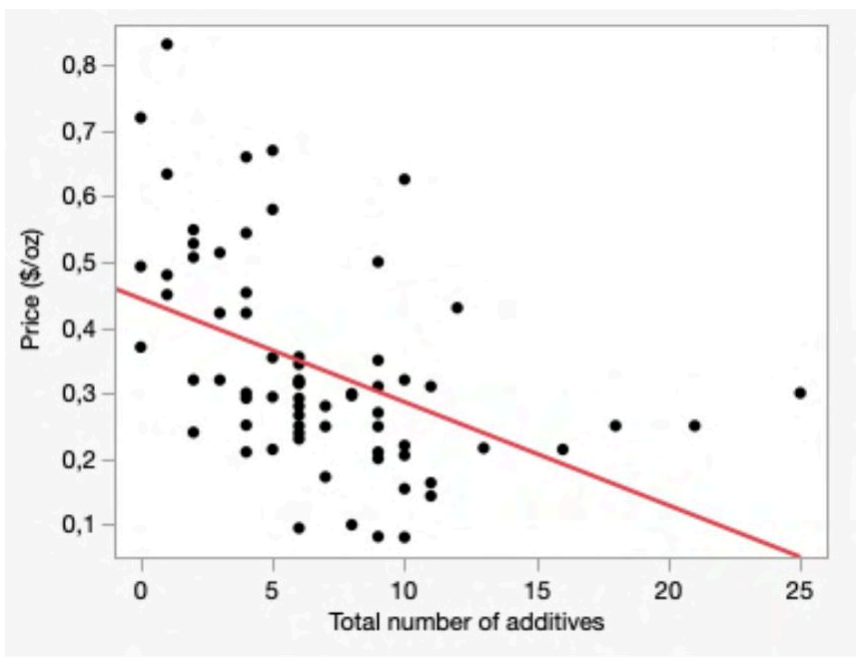
E. Crackers (n=95)

E1 - Association between price ($/oz) and sodium content (mg/100g)

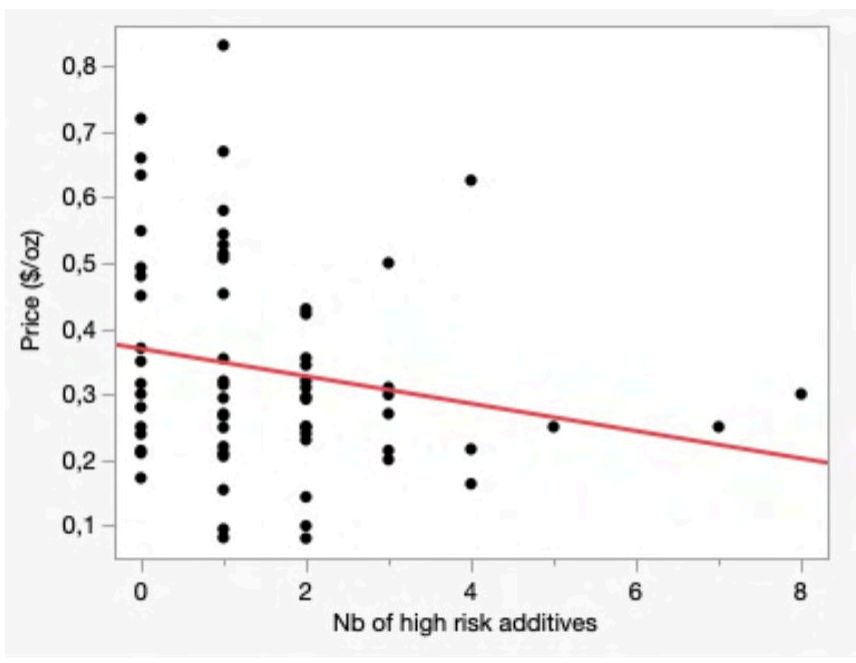


F. Mac & Cheese (n=67)

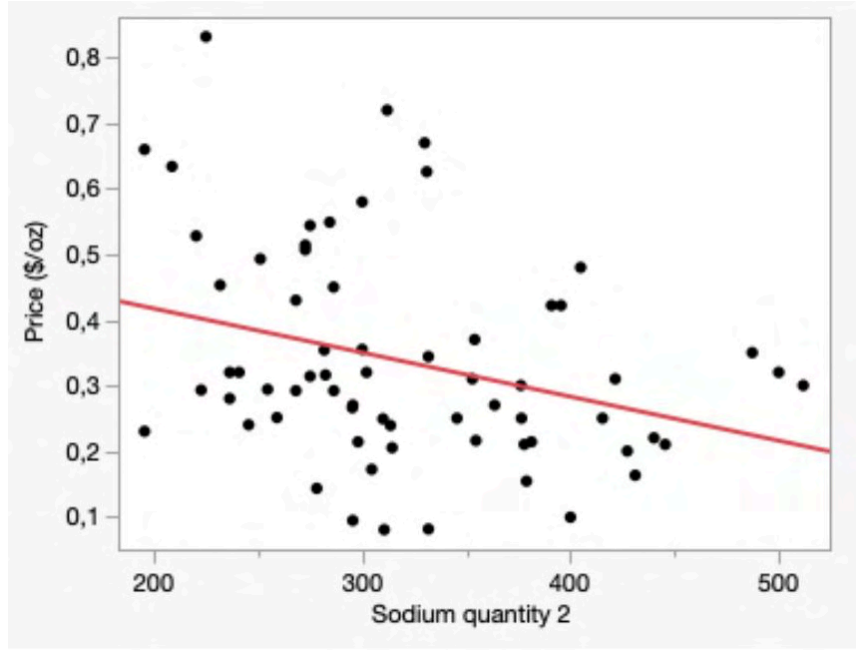
F1- Association between price ($/oz) and total number of additives



F2 - Association between price ($/oz) and number of high risk additives

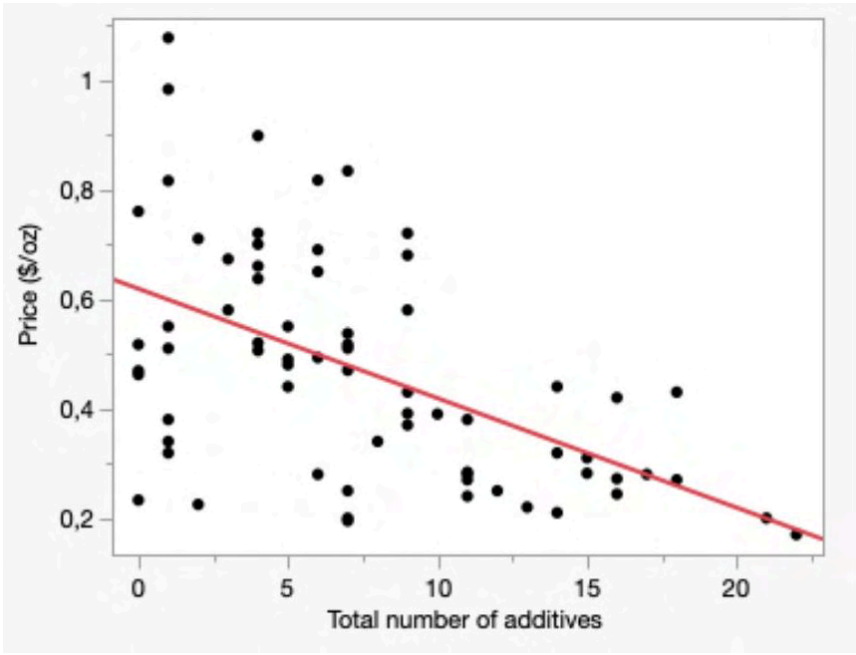


F3 – Association between price ($/oz) and sodium content (mg/100g)

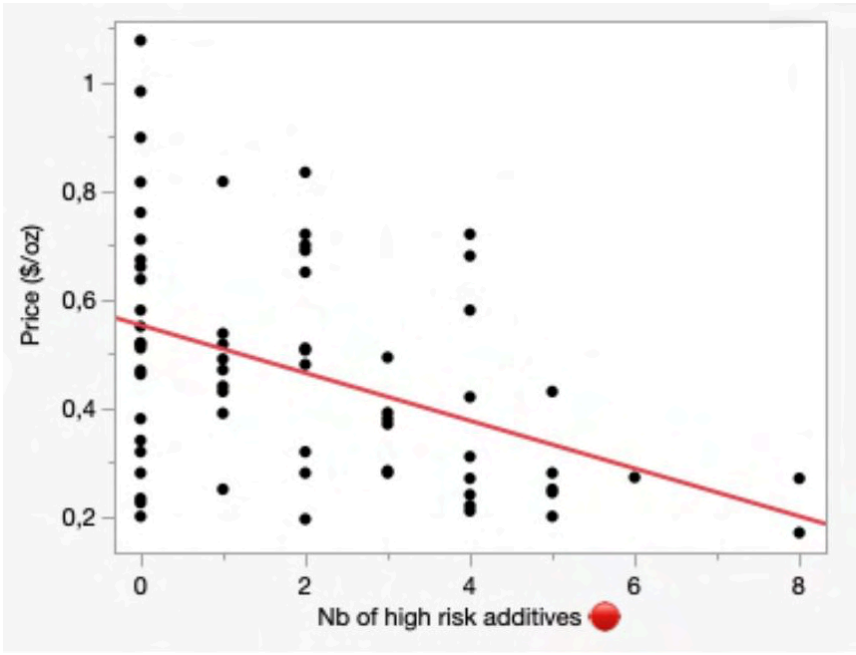


G. Pizza (n=70)

G1 – Association between price ($/oz) and total number of additives

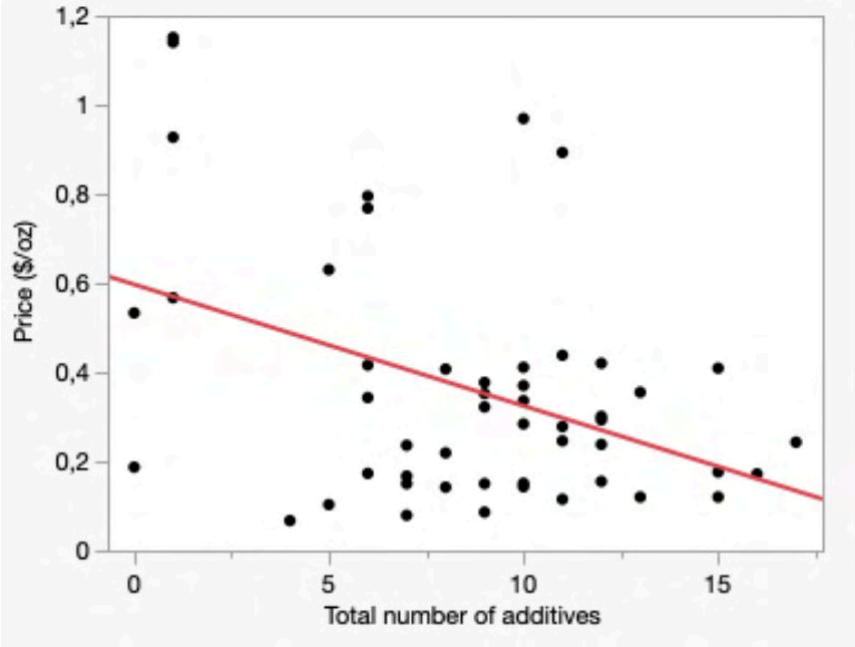


G2 – Association between price ($/oz) and number of high-risk additives



H. Wraps Tortillas (n=82)

H1 – Association between price ($/oz) and total number of additives



H2 – Association between price ($/oz) and number of high-risk additives

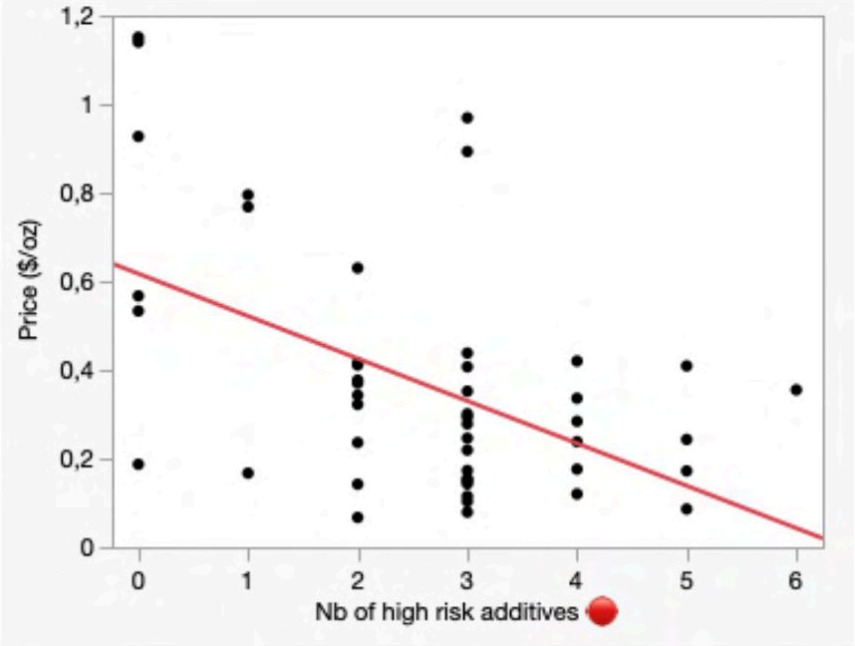


Table 3. Kruskal-Wallis test results for differences in food composition variables and price across food categories.

Category	X	Y	χ2
barbecue-sauce	Presence High Risk	Price	13,1198
breakfast-cereals	Presence High Risk	Price	10,0947
cereal-bars	Presence High Risk	Price	6,566
chips	Presence High Risk	Price	4,946
cookies	Presence High Risk	Price	12,4248
crackers	Presence High Risk	Price	18,6693
ice-cream-dessert	Presence High Risk	Price	15,4365

mac-n-cheese	Presence High Risk	Price	1,919
mayonnaise	Presence High Risk	Price	3,231
pizzas	Presence High Risk	Price	5,0332
store-bread	Presence High Risk	Price	15,1701
wraps	Presence High Risk	Price	8,5041
barbecue-sauce	Quartile sodium	Price	4,5769
breakfast-cereals	Quartile sodium	Price	1,7125
cereal-bars	Quartile sodium	Price	7,6246
chips	Quartile sodium	Price	0,133
cookies	Quartile sodium	Price	0,3301
crackers	Quartile sodium	Price	11,0249
ice-cream-dessert	Quartile sodium	Price	0,8019
mac-n-cheese	Quartile sodium	Price	4,658
mayonnaise	Quartile sodium	Price	0,0011
pizzas	Quartile sodium	Price	1,8327
store-bread	Quartile sodium	Price	1,5015
wraps	Quartile sodium	Price	0,034
barbecue-sauce	Quartile price	Sodium content	1,9791
breakfast-cereals	Quartile price	Sodium content	1,7013
cereal-bars	Quartile price	Sodium content	6,9413
chips	Quartile price	Sodium content	1,5664
cookies	Quartile price	Sodium content	2,4704
crackers	Quartile price	Sodium content	8,7692
ice-cream-dessert	Quartile price	Sodium content	2,1576
mac-n-cheese	Quartile price	Sodium content	4,7427
mayonnaise	Quartile price	Sodium content	0,005
pizzas	Quartile price	Sodium content	2,4396
store-bread	Quartile price	Sodium content	0,7791
wraps	Quartile price	Sodium content	0,076
barbecue-sauce	Quartile price	Total number of additives	15,4841
barbecue-sauce	Quartile price	Nb of high risk additives	9,4928
breakfast-cereals	Quartile price	Total number of additives	11,8621
breakfast-cereals	Quartile price	Nb of high risk additives	11,7456
cereal-bars	Quartile price	Total number of additives	12,8819
cereal-bars	Quartile price	Nb of high risk additives	5,982
chips	Quartile price	Total number of additives	1,2293
chips	Quartile price	Nb of high risk additives	2,6963
cookies	Quartile price	Total number of additives	8,4448
cookies	Quartile price	Nb of high risk additives	5,786
crackers	Quartile price	Total number of additives	13,7543
crackers	Quartile price	Nb of high risk additives	17,597

ice-cream-dessert	Quartile price	Total number of additives	10,4393
ice-cream-dessert	Quartile price	Nb of high risk additives	15,7313
mac-n-cheese	Quartile price	Total number of additives	14,7228
mac-n-cheese	Quartile price	Nb of high risk additives	2,0133
mayonnaise	Quartile price	Total number of additives	4,4812
mayonnaise	Quartile price	Nb of high risk additives	2,3158
pizzas	Quartile price	Total number of additives	14,8313
pizzas	Quartile price	Nb of high risk additives	8,3864
store-bread	Quartile price	Total number of additives	10,2019
store-bread	Quartile price	Nb of high risk additives	10,8407
wraps	Quartile price	Total number of additives	2,4689
wraps	Quartile price	Nb of high risk additives	7,6642
barbecue-sauce	Quartile sugar	Price	0,0529
breakfast-cereals	Quartile sugar	Price	9,6529
cereal-bars	Quartile sugar	Price	9,0652
chips	Quartile sugar	Price	0,0769
cookies	Quartile sugar	Price	2,5389
crackers	Quartile sugar	Price	0,5786
ice-cream-dessert	Quartile sugar	Price	4,5673
mac-n-cheese	Quartile sugar	Price	0,0097
mayonnaise	Quartile sugar	Price	0
pizzas	Quartile sugar	Price	0,4008
store-bread	Quartile sugar	Price	0,1716
wraps	Quartile sugar	Price	0,0675
barbecue-sauce	Quartile price	Sugar content	0,0888
breakfast-cereals	Quartile price	Sugar content	11,3411
cereal-bars	Quartile price	Sugar content	6,0829
chips	Quartile price	Sugar content	0,1093
cookies	Quartile price	Sugar content	2,8303
crackers	Quartile price	Sugar content	0,1554
ice-cream-dessert	Quartile price	Sugar content	2,5797
mac-n-cheese	Quartile price	Sugar content	0,1901
mayonnaise	Quartile price	Sugar content	1,1
pizzas	Quartile price	Sugar content	0,0104
store-bread	Quartile price	Sugar content	0,4456
wraps	Quartile price	Sugar content	0,0094

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Appendix 6 - Policy Recommendations

I. Introduction

There is growing concern in the United States about the quality and safety of the food supply. Most Americans (87%) believe the government needs to do more than it is currently doing to ensure food safety. Public trust in the Food and Drug Administration (FDA) decreased from 60% to 52% between December 2024 and October 2025.[1] Over half of Americans (56%) believe that unsafe additives in food pose moderate to large risks to their health.[2] Seven out of ten U.S. shoppers are trying to avoid consuming ultra-processed foods (UPFs).[3]

There is a general intuition that low-cost food products are less healthy than high-cost products. Yet to date, there have been no conclusive studies as to the disparity in health risks based on the prices of food. This study was crafted to show how food products even within the same product category can differ in terms of nutritional quality and health risks. The results of this study show a wide disparity between low and high-cost food and beverage products within each product category studied, raising concerns about the equity and safety of the American food system.
Alongside sharing the results of the research, this study aims to provide some context about the current regulatory landscape and offer suggestions on policy opportunities to take action on additives that have been linked to increased risks of several health outcomes but are still widely used in the American food supply. Further, many of these additives are commonly found in UPFs, where they are used to create low cost, palatable and highly attractive products.

Around 70% of packaged food and beverage products sold in the United States are considered UPFs.[4] It is estimated that UPFs constitute over 50% of the calories all Americans consume, and over 60% for children.[5] The consumption of UPFs has been associated with increased risk of heart disease, type 2 diabetes, gastrointestinal problems, obesity, and mental health conditions like anxiety and depression.[6] The U.S. Department of Health and Human Services (HHS), the FDA, and the U.S. Department of Agriculture (USDA) have announced plans to establish a uniform definition for UPFs at the federal level.[7] However, as that process is not yet complete, there are currently varying interpretations of what makes foods ultra-processed. The most common interpretation is associated with the NOVA food classification system, discussed below.[8]

Food additives are substances that are not normally consumed as a food by themselves, but are used in food processing for technical purposes, such as increasing shelf life, or to modify the sensory properties of food, such as its appearance, taste, or texture.[9] Some of these additives can help to make UPFs more palatable, which is why many of them are considered as markers of ultra-processing.[10] However, increasing scientific evidence suggests that many of these additives may pose health risks. For example, certain artificial sweeteners and emulsifiers have been associated with an increased risk of mental health disorders, cardiovascular disease, metabolic syndrome, and carcinogenic effects.[11]

Defining “high risk additives”

Not all additives pose health risks; however, there are a number of additives currently in use in the United States that are associated with severe health harms like increased risk of cancer, cardiovascular diseases, reproductive and neurological harm.[12] Determining which additives are high risk can help policymakers focus their efforts on reducing the use and consumption of the additives that present the greatest harm.

For example, as discussed later on in this report, analyzing risk can help prioritize additives for quicker post-market review. Further, high risk additives can be reduced with tax incentives or prohibited from government purchases. The report defines high risk additives based on the following criteria:

1. Highly concerning adverse health effects. The additive itself, or contaminants that may be present in it, are associated with highly concerning adverse health effects. Serious effects are defined as those likely to significantly increase the risk of chronic or severe diseases, such as cancer, cardiovascular disease, or type 2 diabetes, or to cause toxicity affecting one or more target organs (for example, the pancreas, liver, or kidneys). Serious effects also include complex biological or metabolic disruptions, such as effects on the endocrine, reproductive, or nervous systems, attention and behavioral disorders, or damage to DNA.
2. Effects with a high level of evidence. The link between the additive and its toxic effects is supported by robust evidence, based on an official classification by a recognized authority (International Agency for Research on Cancer - IARC, European Chemicals Agency - ECHA, French Agency for Food, Environmental and Occupational Health & Safety - ANSES, etc.) and/or a body of converging scientific evidence from multiple complementary methodological approaches, including animal studies, in vitro experiments, and epidemiological studies.
3. Estimated exposure likely to exceed health concern thresholds. The Acceptable Daily Intake (ADI) of the additive or its group is likely to be exceeded based on cumulative use in the food supply, or epidemiological studies suggest a risk at typical levels of exposure. All population groups must be considered, from newborns to older adults.

Defining “ultra-processed foods” (UPFs)

Defining ultra-processed foods (UPFs) can make it easier for policymakers to create policy solutions. The term UPF is most commonly associated with the NOVA food classification system.[13] A food is classified as UPF under NOVA if it undergoes intensive industrial processing (e.g., extrusion) and/or contains either ingredients not used in culinary preparations and/or an additive from one of several *Codex Alimentarius-listed*[14] classes that are used for cosmetic reasons; i.e., “whose function is to make the final product sellable, palatable and often hyper-palatable.”[15]

While the use of these particular additives or ingredients is just one element of ultra-processing, it is central to the UPF definition because food manufacturers do not need to label foods with information about their type or level of processing (like extrusion), whereas ingredient and additive declarations are generally mandatory (with some exceptions described below). Defining and regulating UPFs can also help reduce the use and consumption of some of the high-risk additives currently in food.[16] For example, in 2025 California enacted legislation to limit the sale of certain UPFs in schools. That law defines UPFs broadly (similar to the NOVA definition with some key differences)[17], and creates a subcategory of "ultra-processed foods of concern" that will be defined by the state Department of Public Health based on whether they contain riskier substances; those "ultra-processed foods of concern" will no longer be allowed in school meals.[18]

The USDA and FDA are working to establish a uniform definition for UPFs at the federal level. At the state level, state governments are also already taking action to define UPFs via introduced or enacted legislation, including the California example mentioned above.[19]

The quantity of chemical additives used in American foods is also particularly concerning because many of these substances have never been reviewed by the FDA for safety. Under the current regulatory regime, the majority of such ingredients can enter the market without any FDA oversight, based solely on a determination by the manufacturer that the substance is "generally recognized as safe."[20] And even for additives that have been reviewed by FDA, for many, approval was granted decades ago and FDA is slow to re-review these substances despite new adverse scientific information. For example, FDA's ban on Red Dye No. 3 in January 2025 cited research that was published nearly four decades ago, in 1987.[21] In recognition of the need to improve its oversight, the FDA has proposed efforts over the past year to refine its post-market safety assessment process and make it more proactive; however, it has not finalized any of its proposals to do this.[22]

The disparities between low and high-cost food products in terms of nutritional quality, number of additives, and number of high-risk additives is cause for concern. The fact that products in each category included in this study are able to be produced with less risky additives shows that it is possible to reduce these risks being borne by consumers, particularly low-income consumers. The problem right now is that there are almost no requirements or incentives for food manufacturers to reduce the use of high-risk additives or to limit the production of UPFs. The recommendations below provide some of the policy options available to start to change this landscape and realign incentives around a healthier food system. Some of the recommendations require federal authority (Congress and/or FDA) and others could be implemented by state or local governments. The possible levels of government are listed for each policy recommendation.

II. Policy Recommendations to Reform Oversight of Additives and Improve Additive Safety

The first set of recommendations focus on opportunities to reform the system of oversight for additives and ingredients added to food, in order to improve the general safety standards and transparency for those substances.

1. The Federal Government Should Reform the Generally Recognized as Safe (GRAS) Loophole

The ubiquity of additives in the U.S. food supply is enabled by a regulatory loophole known as "generally recognized as safe" (GRAS).[23] Under a federal law enacted by Congress, the FDA must conduct rigorous safety reviews of all new additives through a formal regulatory process, but as described below, many substances enter the market without undergoing such review because the law exempts substances from such review if they are "generally recognized as safe."[24] To illustrate the depth of the issue, one study found that 99% of the 766 new food chemicals introduced to the U.S. food supply between 2000 and 2021 bypassed federal scrutiny through the GRAS loophole.[25] This aspect of the U.S. system is in stark contrast to other jurisdictions such as the European Union, where substances intentionally added to food require pre-market authorization and defined conditions of use.[26]

The GRAS designation was created in 1958 and was intended as an exemption from the additive definition—and thus from the pre-market additive review process—for common, historically used ingredients like vinegar and baking soda.[27] However, after receiving a large number of GRAS petitions in the first few years, and due to industry pressure to speed up approval times, the FDA began to allow industry entities to self-certify new substances as GRAS without informing the agency, a rule it codified in 1997.[28]

Today, companies may voluntarily notify the FDA of a GRAS designation.[29] The FDA can then respond by either issuing a "no questions" letter (saying they do not question the GRAS designation and thus allow it to stand) or rejecting the GRAS designation[30]. In practice, however, rejection is not an impediment, because if FDA raises questions, companies can simply withdraw their GRAS notification and proceed to market the substance anyway.[31]

The GRAS loophole can severely endanger public health. Tara flour, a substance used in food products in the U.S. after being self-certified as GRAS, led to the illness and hospitalization of hundreds of people, some with permanent organ damage, with symptoms appearing within 4–12 hours after ingestion.[32] While some substances cause acute effects within hours, others are associated with chronic risks that may take years to develop (e.g., certain cancers or cardiovascular diseases), with early changes remaining unnoticed for many years.[33]

The GRAS loophole undermines FDA safety reviews as well as consumer transparency and choice. FDA maintains a database of GRAS substances for which it has received and reviewed a voluntary notification. However, this database does not contain substances that were self-determined GRAS by manufacturers. Without required pre-market review or mandatory notification, the FDA cannot know that a new substance is in use until it is already

made, marketed, and sold, much less maintain a public database for these substances. Worse, even for the most savvy consumers looking at ingredient lists to try to find these GRAS substances, companies can hide self-determined GRAS substances from required inclusion on ingredient lists by using terms such as "natural flavor" or "artificial flavor," in which case the FDA and the public have no way of ever knowing about the substance.[36] For example, a brand of "sleepy chocolate" infuses into its ingredients melatonin and a blend of botanicals that contains "PharmaGABA," an artificial version of the GABA neurotransmitter. The manufacturer has self-affirmed PharmaGABA as GRAS, even though the FDA twice raised serious concerns about its safety.[37] None of these ingredients are reported on the ingredient list; instead they are hidden behind the term "natural flavors."[38]

Recent state bills have proposed to require companies to report the use of self-determined GRAS substances in food to the state[39], but none of those bills have been enacted. At the federal level, several bills were introduced in Congress in 2025 to close the GRAS loophole.[40] The Trump administration also committed that it will revise the GRAS regulation to develop a mandatory notification program and increase consumer transparency.[41] However, a new rule has not yet been proposed or finalized and it is not clear what it will require or how protective it will be. Further, simply requiring FDA notification may not suffice to protect consumer safety, if FDA does not properly review the notifications for new substances, as well as assess the thousand or so substances already in use under GRAS status.

Recommendations

The federal government should take the following actions to rectify the GRAS loophole:

A. Congress can remove the GRAS exception from law

Congress can amend the Food, Drug and Cosmetics Act (FD&C Act) to abolish the term GRAS and the GRAS loophole altogether. It should clarify that all substances that become a component of or otherwise affect the characteristics of food are required to go through the pre-market additive review process. This could include an exemption for "any substance normally consumed as a food or normally used as a household ingredient of food," such as sugar, salt, and baking soda.

Under this system, the following should occur:

1. For any new substances, the full additive review process should be required going forward. No such substance should be allowed unless it is reviewed and then proactively permitted and listed by FDA.
2. For substances that are already in use as "GRAS substances":
    a. For GRAS substances that the FDA knows of (that are included as GRAS in regulations or in FDA's GRAS inventory), these should be re-reviewed by the FDA in order to continue to be allowed in food.[42] Congress should require food manufacturers to immediately (within 6 months of enactment) submit the substance to an online FDA platform and submit a comprehensive dossier of safety information to the FDA (within 24 months of enactment). If submitted to FDA, such substances could continue to be used pending submission of the full dossier and FDA review, which should also have a timeline set by Congress. Any substances that did not register by the deadline would need to start over as a new substance, and would not be allowed to be used in the meantime.
    b. Anything currently being used under self-determined, secret GRAS should be forbidden until it is permitted according to the "new substances" process outlined above. A product containing such substance should otherwise be considered adulterated.

As this new system will vastly increase FDA's workload, Congress should also take action to help FDA accelerate the evaluation of substances. Ideally, Congress can do this by boosting the FDA's resources for staffing and conducting these reviews. This can be done via appropriations, or through a combination of appropriations and user fees.[43]

B. FDA can change GRAS oversight processes

Ideally, Congress should enact the actions discussed above, as it has more authority to change this system than FDA does alone. This would make these permanent legal requirements instead of being subject to agency interpretation or discretion. Congress is best positioned to address the GRAS loophole as it has the power to remove the GRAS term and loophole completely. However, in the meantime the FDA can and should act on its own to improve the GRAS system unless or until Congress acts.

The FD&C Act mandates the existence of the GRAS exemption, requiring FDA to maintain a regulatory pathway for substances that meet the definition of GRAS. However, FDA can update its rules to make GRAS notifications mandatory and thus prohibit self-certified GRAS. FDA can also update its regulations to take more ownership over the initial determination whether a substance is GRAS or an additive and thus whether it can go through an FDA GRAS process or must go through the full additive process. In addition, FDA should make clear that manufacturers should not be able to withdraw GRAS notifications when the FDA responds with questions and then still use those substances in food.

The FDA should also announce a re-review of all current GRAS substances within 5 years. It should ensure that all GRAS determinations are based on sufficient evidence and rely on robust, high-quality risk-assessment methodology. GRAS determinations should also be based on publicly available data and an evaluation of the cumulative and long-term effects of an ingredient. To increase consumer transparency, FDA should require public disclosure of all safety data supporting GRAS determinations and maintain a database that consumers can easily search. In Europe for example, every additive risk assessment is summarized in a publicly available online report.

2. The FDA Should Conduct More Regular and Structured Post-Market Reviews of Food Additives and Institute a Process for Continuous Safety-Assessments of Food Additives

The FDA currently does not have any systematic process for post-market safety reviews of additives or GRAS substances in food.[44] However, since industry entities are not required to provide GRAS notices to the FDA prior to their use in the market, the FDA can often only review the safety of these chemicals through post-market assessments. Additionally, there are many approved food additives on the market that have not been re-reviewed by the FDA for safety in decades. When concerns about certain additives or GRAS substances are brought to the FDA's attention, a significant amount of time often passes before the FDA responds or takes steps to prohibit the substances from being on the market.[45] For example, despite studies evidencing the harm of consuming trans-fat from partially hydrogenated vegetable oils, it took the FDA thirty years to revoke the GRAS status of these oils.[46]

In response to growing concern about these issues, the FDA started a process to update its post-market review of chemicals. FDA issued a discussion paper for how it could improve its process and received comments in January 2025.[47] FDA has not yet responded to the comments, many of which were critical of the proposed process for not going far enough.[48] In the meantime, however, FDA has made several key announcements related to its pre- and post-market review of chemicals, including a series of steps FDA plans to take to develop a prioritization scheme for chemical review and an updated list of chemicals under review.[49]

The lack of robust and regular review of ingredients and additives means that food products can continue to utilize substances that have growing evidence of risk, including many of the high-risk additives identified in this study, which were particularly found in lower-cost food products.

Recommendations

FDA should strengthen and finalize a new process for post-market review of chemicals:

A. Reassess all GRAS substances (FDA)

First, a reassessment should be conducted for any substance that is used in food under a GRAS determination.[50] The FDA could follow the example of the European Food Safety Authority, which is re-evaluating all additives authorized before 2009.[51]

B. Reassess all substances regularly using prioritization criteria (FDA)

The FDA should establish a formal process for periodic reassessment of food additives and GRAS substances every fifteen years after their last review, similar to the Environmental Protection Agency's pesticide reevaluation program.[52] Each year, the FDA should publish a list of substances scheduled for review as the fifteen years have elapsed and determine which require a full safety reassessment based on whether, since the last evaluation, (1) public health concerns have grown, (2) the substance has been banned or substantially restricted in peer countries, (3) the substance has received an official hazard classification from a recognized authority (e.g., IARC, ECHA), (4) emerging scientific evidence suggests potential harm, or (5) exposure to the substance could be too high and/or exceed safety thresholds like the ADI. In parallel, the FDA should implement an annual, risk-based priority review list—independent of the fifteen-year cycle—to ensure timely action when new concerns arise. Using an approach analogous to EPA's Toxic Schedules Control Act (TSCA) prioritization process, the agency could queue and fast-track review of substances with emerging safety signals, reducing the time that potentially harmful chemicals remain on the market without review.[53] In parallel, the FDA should move away from a reactive "safe until proven otherwise" approach and adopt a precautionary framework like the European Union's, under which a substance can be banned when scientific doubt exists about its safety.

For both scheduled and priority reviews, the FDA should determine whether the scientific literature continues to support the substance's safety and regulatory status, whether current exposure remains within applicable safety thresholds (including ADI where available), and whether limits or conditions of use should be updated. For example, in the United States, no ADI limit currently exists for carrageenan.[54] However, carrageenan has recently been associated with intestinal inflammation and the disruption of healthy gut bacteria[55], and chronic exposure has been associated with increased risks of ulcerative colitis and Crohn's disease.[56] This illustrates why the FDA should periodically re-evaluate safety thresholds and, where warranted, establish or update ADIs and use conditions.

C. Establish limits for individual substances and groups of similar substances (FDA)

Through the post-market assessment process, FDA should determine whether a substance should still be considered an approved food additive or allowed GRAS substance, and should also set or revise maximum permitted levels (MPL) for the use of the substance in food. In addition to limits for individual additives, FDA should establish group-level limits for related substances to control cumulative exposure from multiple compounds that contribute to the same biological effect. Phosphate additives are an example: many different phosphate salts are used in processed foods, but they all contribute to total phosphorus intake, which, when excessive, can harm kidney health and disrupt mineral balance, including bone mineralization.[57] In Europe, this cumulative exposure is addressed by setting a group ADI for phosphates expressed as phosphorus, rather than separate ADIs for each individual phosphate salt.[58] According to the European Food Safety Authority (EFSA), evaluating the phosphorus content "is particularly necessary in the context of establishing a group ADI which encompasses phosphorus from all sources including all classes of phosphates as food additives."[59]

3. Amend the Definition of "Food Additives" to Include Functional Requirements and Establish Category Restrictions

A "food additive" is defined in U.S. law as any substance that "may reasonably be expected to result, directly or indirectly, in its becoming a component or otherwise affecting the characteristic of any food."[60] This broad definition was beneficial at the time, as it was meant to ensure all substances added to food would be regulated. Unfortunately, in addition to the GRAS loophole, which leaves many substances out of the additive regulations, this broad definition also allows manufacturers to add substances to food for any reason. This is particularly concerning because many substances are added to foods and beverages in the U.S. mainly for cosmetic or marketing purposes (such as taste, texture, or appearance), or simply to increase sales, rather than to serve an essential function. Indeed, a 2014 report from the Natural Resources Defense Council analyzing GRAS substances in food found that almost all the chemicals reviewed in the report served no function in food products other than to grab consumer's attention.[61]

Additionally, American foods and beverages expose consumers to greater levels of the additives used in food than those in peer countries. One of the reasons is because there are very few use restrictions on additives in the United States. Yuka conducted a study comparing limitations on the use of the 50 most commonly scanned food additives on the app in the European Union (E.U.) and the United States (U.S.) that could pose health risks.[62] In the E.U., 86% were subject to use restrictions. By contrast, in the US, only 62% were subject to such limitations.[63]

Establishing category limitations can decrease exposure to dangerous additives. For example, Blue 1 has been associated with attention disorders and hyperactivity in children.[64] Due to these effects, in the early 2010s the E.U. limited the use of this additive to only be allowed in specific products and imposed maximum concentrations in those products.[65] By contrast, in the U.S., there are no category restrictions on Blue 1. In 2025, the FDA announced that it would be working with the industry to eliminate Blue 1 (among other synthetic dyes) from the food supply, but to date, the agency has not promulgated any regulations that would legally limit or restrict its use in food.[66]

Recommendations

A. Amend the definition of "food additive" under the FD&C Act (Congress)

Congress also could amend the definition of "food additive" under the FD&C Act to require that any additive used in food perform one of a list of specified non-cosmetic functions. Amending the definition to require that all additives meet a functional need will provide limits on the reasons for which manufacturers can permissibly include an additive in their food and beverage products, helping to ensure additives are not unnecessarily used.

B. Require manufacturers to identify all additives and GRAS substances added to food (Congress)

Congress could also amend the Food Safety Modernization Act ("FSMA") to require manufacturers to identify all the additives and substances added to their food products and provide justifications for the use of every substance in each product. Currently, the FSMA requires manufacturers to "identify and evaluate known or reasonably foreseeable hazards that may be associated with the facility including . . . unapproved food and color additives."[67] While unapproved food and color additives are explicitly listed as potential hazards by the FSMA, the FDA has recognized that GRAS substances and approved food and color additives that could potentially pose safety risks are considered under the definition of "chemical" hazards. Congress could amend this section of the FSMA to require manufacturers to disclose all food and color additives and GRAS substances used in their products to the FDA, regardless of whether the manufacturer believes they constitute a potential hazard.[68] This change will increase transparency and provide the FDA with more complete information on what substances are included in products on the market. It would help with assessing the cumulative usage of additives and substances in the food supply which can support better regulations. Congress can also require manufacturers to justify the use of each additive in a food product based on its function.

4. The FDA Should Require More Transparency for Substances Used in Flavorings on Ingredient Labels

One challenge facing consumers that are trying to reduce the consumption of risky additives is that there is a lack of transparency as to the exact substances used in food products, particularly if such substances are used as flavorings. Under federal regulations, all ingredients must be listed on food packages[69], and must include a specific name and not a generic name.[70] In addition, ingredients with common names that are composed of two or more ingredients must be declared on labels in one of two ways, either: (i) providing the common name followed by a listing of all the ingredients contained in parenthesis; or (ii) declaring the common name of every component of the ingredient without listing the compound ingredient.[71]

However, flavorings are exempted from these labeling requirements.[72] Flavorings are allowed to be declared on ingredient lists as either "natural flavor(s)", "artificial flavor(s)" or any combination thereof, even if they contain two or more substances.[73] In fact, flavorings often include dozens to hundreds of different types of substances.[74] The only real requirement for labeling of flavorings in the U.S. is that they be accompanied by the characterizing flavor if the packaging contains an image that resembles that flavor.[75] For example, if a package included an image of cherries and vanilla beans, and those flavors are imparted on the foods by synthetic flavorings, the ingredient label must state "artificial cherry and vanilla flavors." This exemption for the labeling of flavorings is problematic, because this means manufacturers can hide potentially risky chemicals used in their foods behind these labels. The substances could include both regulated additives and unregulated self-GRAS substances. This means that even the most sophisticated and discerning consumer cannot avoid substances as they cannot learn if the food includes those substances.

Recommendations

Require disclosure of all substances used in flavorings (FDA)

The FDA should require manufacturers to disclose the ingredients used in natural and artificial flavors. Manufacturers should be required to list out, in parenthesis after the term "natural flavoring" or "artificial flavoring" on ingredient labels, the top three substances (by weight) used in the flavoring and provide a QR code on the label that sends customers to a website that contains the full list of substances included in the flavoring. A number of companies already have QR code capacity[76] and can just include these substances at the linked site. This requirement can provide more information to consumers about what substances they are consuming. This can also help scientists and public health experts: (i) more quickly determine what ingredients are causing health concerns or problems since there would be an accurate list of all the substances used in the food at issue; and (ii) better determine the cumulative amount of substances used in the food supply. Manufacturers and companies might be concerned that this requirement would obligate them to divulge trade secrets regarding their "proprietary blends." If implemented as we suggest, this requirement should not be a concern because it does not require the disclosure of the specific amounts of each ingredient used in the flavoring. In any event, safety and health should take precedence over potential intellectual property concerns.

5. The FDA Should Require Manufacturers to Indicate How Substances Used in Food Were Processed or Derived

In the United States, manufacturers are allowed to include generic terms for ingredients on food labels without reference to the ways in which the substance was derived or processed. This is particularly concerning because some food processing techniques can add contaminants to food and beverages, while others do not. For example, some processing techniques can import heavy metal contaminants into the food.[77] The ingestion of heavy metals and their accumulation in the body can lead to harmful effects over time. They have been associated with increased risks of cancer, cardiovascular diseases, respiratory problems gastrointestinal disorders, nervous system disorders, diabetes, and kidney and liver problems.[78] Exposure to heavy metals has also been shown to cause fertility and reproductive issues in women.[79]

Additionally, certain processing techniques can cause the formation of process contaminants like acrylamide, nitrosamines and benzopyrene.[80] The consumption of acrylamide has been associated with cancer and nervous system problems.[81] Benzopyrene and some nitrosamines are classified by the IARC as carcinogenic to humans (Group 1) and probably carcinogenic to humans (Group 2A), respectively.[82]

Recommendations

Distinguish additives by production method (FDA)

In the European Union, additives are identified and regulated as distinct substances depending on the process by which they were derived, even if the starting substance is the same. This approach aligns with the *Codex Alimentarius* principle of distinguishing additives by production method.[83] On this basis, each process-defined additive is assigned its own name and E-number, with specific purity criteria and specifications, and corresponding conditions of use. The EU then determines which of these process-defined variants are authorized and under what limits.[84]

By contrast, "modified cellulose" is an umbrella term that can appear on ingredient lists in the United States, covering a family of eight cellulose-derived additives. In the European Union, these eight additives are regulated and labelled as distinct substances, with separate authorized names and E-numbers, reflecting differences in processing as well as specifications related to purity and potential contaminants.[85] Manufacturers must include the name that indicates how the ingredient was processed on ingredient labels or use the corresponding E-number—for example, hydroxypropyl cellulose (E463), hydroxypropyl methylcellulose (E464) or carboxymethylcellulose (E466).

The FDA should similarly adopt and apply the existing E-codes from Codex Alimentarius based on the manufacturing processes of substances, while also establishing corresponding purity criteria and conditions of use for each E-code. Manufacturers should be required to include these codes, or the listed name of the additive on ingredient labels. This would increase transparency and enable consumers and policymakers to better understand how food products are produced and help them reduce or avoid consumption of items that may contain harmful contaminants.

III. Policy Recommendations to Reduce Exposure to High-Risk Additives and Ultra-processed Foods

Outside of policy changes to improve the oversight of additives and ingredients in food both pre- and post-market, there are a range of policy approaches that the federal government, as well as state or local governments, could take to reduce exposure to UPF or to foods containing high risk additives. The recommendations below present some of the key opportunities.

1. Foods Containing Additives of Concern for Children Should Be Banned in Schools

Children are uniquely vulnerable to the effects of food additives. First, when a child eats the same portion of a food product as an adult, their exposure to the chemicals it contains are greater because they have a lower body weight.[86] Second, their metabolism is still developing and may lack some of the defense mechanisms that adults have.[87] Third, with still-developing brains that make them prime targets for marketers, they are disproportionately exposed to heavily marketed processed foods.[88] Yet, current U.S. regulations often fail to take these differences into account. Certain additives raise particular concerns for children. These include:[89]

- **Additives with known specific risks for children, such as synthetic food dyes:** The American Academy of Pediatrics' ("AAP") 2018 report, "Food Additives and Child Health," specifically highlights concerns regarding artificial dyes.[80] Synthetic food dyes are petroleum-based chemicals that are used in foods primarily for cosmetic purposes. Synthetic dyes have been associated with attention deficit hyperactivity disorder (ADHD)[91] and are suspected to be genotoxic (damaging to genetic material that can lead to mutations or activate hereditary diseases).[92] Children's exposure to synthetic food dyes and certain other food additives tends to be much higher than that of adults.[93] In the United States, synthetic food dyes are used in around 19% of packaged food and beverages but they are far more common in products marketed to children—for example, 54% of confectionery products contain artificial dyes.[94]

- **Additives that may trigger effects to which children are especially sensitive, such as endocrine disruptors (ED) like butylated hydroxytoluene (BHT), nitrates and nitrites:** Early-life exposure to EDs could result in promoting childhood obesity, asthma, liver dysfunction and cardiometabolic impairment by perturbing the neuroendocrine system.[95] The AAP report of 2018 notes that nitrates and nitrites can interfere with thyroid hormone production and may lead to the increased production of carcinogenic compounds, especially when used in processed meats like sausages, deli slices, and bacon, which are commonly included in daily breakfasts, lunches, or snacks served in school meal programs in the U.S.[96] BHT is an antioxidant and preservative used as a direct additive in foods and an indirect additive in food packaging.[97] It is commonly used in boxes for children's breakfast cereals.[98] BHT is an example of an endocrine disruptor that is of great concern, especially in early life, when developmental programming of organ systems is susceptible to permanent and lifelong disruption.[99] BHT has been associated with adverse effects to the nervous system, kidneys, thyroid, and liver.[100]

- **Additives without an official established threshold of concern, but with studies showing dangers for children, such as mono- and diglycerides of fatty acids (MDGs):** There are currently no maximum limits in the U.S. for the use of MDGs in foods, which is particularly concerning because they are used in products consumed throughout the day: from peanut butter on breakfast toast, to salad dressings at lunch, to biscuits, and mac and cheese at dinner.[101] In the United States, a 2017 study based on the National Health and Nutrition Examination Survey (NHANES, 2003–2010) estimated an average exposure to MDGs of about 80 mg/kg/day.[102] Yet results from recent cohort studies suggest that increased risks of cancer and cardiovascular disease could occur at exposure levels 40 to 50 times lower than this exposure (considering a child of 30kg).[103] This means that real-life exposure to MDGs in the U.S. could be far above the levels at which health risks have been observed. MDGs have also been associated with increased risks of cancer, coronary problems and cardiovascular diseases[104] and with the reduction of healthy gut bacteria and an increase in intestinal inflammation.[105]

Recommendations

A. Create a list of additives that are particularly risky for children, and remove them from school foods nationally (FDA and USDA)

The FDA should create a list of additives and substances that are most risky for children, looking both at the additives individually and at classes of additives that may pose high risk to children when used cumulatively.[106] This would help other federal agencies like USDA, as well as state and local governments and non-governmental institutions, to set better guidance for food procurement practices that support children's health.

For example, outside of FDA, at the federal level, the USDA maintains nutritional guidelines for schools participating in the USDA's National School Lunch Program (NSLP) and School Breakfast Program (SBP).[107] Schools are a particularly effective place to regulate the consumption of additives of concern for children because there are clear local, state, and federal structures in place that already directly control the contents of school meals. In addition, research shows that healthy food habits are more easily acquired in childhood, and that school meal programs have potential to shape food habits that can stay with children into their adulthood.[108]

Schools participating in the NSLP and SBP receive reimbursements from the federal government for free and reduced-price meals provided to eligible students.[109] To receive reimbursement, these meals must conform to the USDA's Nutrition Standards for Schools, though as seen from the state and local examples below, states and localities can also implement stricter nutrition standards. The Nutrition Standards currently set daily limits for saturated fat, added sugars, and sodium for school-provided meals[110] and can set similar limits for additives of concern to children.

In addition to the Nutrition Standards for reimbursable meals, USDA also regulates the nutritional quality of snacks sold in schools. This is done via the USDA Smart Snacks in School rule, which requires all foods sold a la carte at school to also abide by certain daily limits for sodium, total fat, saturated fat, trans fat, and total sugars.[111] The USDA can revise the Nutrition Standards for school meals and the Smart Snacks rule to prohibit foods containing substances of concern to children (ideally from a future FDA list of risky additives for children) from being eligible for reimbursement from the federal government. The USDA could also ban products containing those substances from being provided to students under the Smart Snacks in School rule. If not a complete ban, USDA could significantly limit the usage of the substances of concern and/or UPFs in reimbursable meals and snacks for sale in schools.

One model for this comes from Brazil, which has taken steps to limit UPFs in schools. The Brazilian National School Feeding Program includes mandates that promote healthy eating and local procurement.[112] Under laws to reduce the sale of UPFs, currently, only 15% of school meals may consist of processed or ultra-processed products.[113] Beginning in 2026, no more than 10% of program resources may be allocated to processed and ultra-processed foods, while at least 85% of resources must be spent on natural or minimally processed foods.[114]

B. Remove high-risk additives and/or UPF from schools at the state or local level (state or local governments)

While federal agencies such as the USDA and FDA can provide guidance on which additives are particularly risky to children and set restrictions on their use nationally, states and localities in the United States have broad authority to regulate schools within their jurisdictions, and may go above and beyond the nutritional standards set by the federal government.[115] Recent local and state policies have banned foods containing certain additives in schools. The New York City Office of Food & Nutrition Services prohibits foods containing artificial colors, certain nitrates, or BHT in the city's public schools.[116] Boston Public Schools similarly prohibits foods containing artificial colors or BHT.[117] Multiple states now prohibit the use of certain artificial dyes or substances in school foods including Texas, Louisiana, California, Virginia, West Virginia, Utah, and Arizona.[118]

California also passed legislation in 2025 prohibiting the sale of "ultra-processed foods of concern" in school meals. The legislation first defines UPF and then tasks the state Department of Public Health to define "ultra-processed foods of concern" within the broader UPF category, which will no longer be allowed in school meals.[119] The legislation instructs the agency to look at food that contains substances or groups of substances that are banned or bear warning labels in other jurisdictions, or substances for which there is strong peer-reviewed evidence of their health harms, which help to focus the inquiry on foods with high-risk additives and substances.[120] Other states and localities can enact similar school nutrition standards that limit or prohibit use of risky additives or regulate the use of UPFs in schools.

2. Reforming Government Food Procurement Outside School Settings to Protect Public Health

In addition to banning or limiting additives in school foods, governments can constrain the purchase of food that contains risky additives in other institutional settings by reforming procurement policies. This can be done at any level of government.

At the federal level, the federal government purchases billions of dollars' worth of food each year for military service members, veteran hospitals, and senior citizens.[121] Considering its purchasing power, it has a unique opportunity to shape the food industry and encourage vendors to produce foods that do not contain high-risk additives, while also ensuring that the populations it serves have access to healthier foods.[122]

Currently, federal agencies do not have uniform health standards for feeding programs. The Federal Acquisition Regulation (FAR), which is maintained and updated by the FAR Council, generally governs acquisitions of goods and services by federal agencies.[123] The FAR details the guiding principles for acquisition, which include satisfactory cost, quality, and timeliness of the delivered goods and services, as well as the fulfillment of public policy objectives.[124] However, the FAR does not contain any provisions on health or nutrition. Additionally, agencies subject to the FAR may deviate from it in certain circumstances, creating fragmentation in food purchasing policy across agencies.[125] Outside of the FAR, the Centers for Disease Control and Prevention (CDC) has developed Food Service Guidelines for Federal Facilities (Food Service Guidelines), which contains model nutrition standards that federal agencies can choose to implement to improve the healthfulness of their offerings.[126] However, the CDC Guidelines are voluntary and have been adopted by only a few agencies. Importantly, neither the FAR nor the CDC Guidelines specifically address high-risk additives or UPFs.

Because federal procurement policy generally does not consider the healthfulness of purchased food, vendors that offer the lowest cost food products tend to win contracts in the traditional procurement model.[127] Considering the association between price and additives shown in this study, those products utilized in successful bids thus likely have more high-risk additives on average. While the lowest-cost approach minimizes immediate costs, it ignores the long-term healthcare expenses associated with diet-related disease and other cumulative health impacts of high-risk additives and UPF, making the "true cost" of the food significantly higher.[128] For example, a study looking at the "true cost" of food found that in 2019, U.S. consumers spent approximately $1.1 trillion on food.[129] Meanwhile, the economic burden of diet-related disease such as cardiovascular disease and diabetes was estimated to cost the U.S. an additional $1.1 trillion, doubling the actual cost of food borne by the U.S. that year.[130] Reducing costs in the short-term thus is poor public policy.

Outside of federal procurement policy, states and localities also have their own procurement standards. However, like with federal procurement standards, state and local procurement standards generally do not specifically address the use of high-risk additives or UPF, outside of a small but growing number of states such as California that address additives or UPF in their school food policies.[131]

Recommendations

A. Improve procurement standards for federal agencies to reduce UPF or high-risk additives (Federal Government)

Federal agencies should adopt procurement requirements or procurement incentives for food that does not contain high-risk additives. Such a procurement policy can be designed in multiple ways. One way is to prohibit or limit the procurement of UPFs, for example, by setting a standard that no more than 25% of food procured be UPF, similar to the Brazil example limiting the percent of food that can be UPF in schools.[132] Another way is to create a list of high-risk additives that cannot be included in food that is procured. In any event, the policy should ensure that additive content and safety is a factor in decisions on food acquisition.

At the federal level, the FAR could be amended to include food procurement standards that restrict or prohibit the use of high-risk additives in foods. The FAR Council can amend the FAR on its own, or Congress could explicitly direct that the FAR be amended in this way.[133]

The CDC Food Service Guidelines should also be updated to include limits on high-risk additives and/or reduce the purchase of UPF. Additionally, more agencies should adopt the CDC Food Service Guidelines for their facilities. States and localities can also use the CDC Food Service Guidelines for their own facilities.

B. Restrict purchase of risky additives or UPF in foods purchased with state or local funds (state or local governments)

States and localities can also change their own procurement policies to limit the procurement and thus the consumption of foods high in risky additives. Many state and local governments have adopted values-driven food procurement standards, which can serve as a model for this. For example, Hawaii's law promotes the use of Hawaiian agricultural goods by requiring governmental agencies to give a preference to bids that include products raised, grown, or harvested in the state.[134] At the city level, some cities such as Boston have enacted policies requiring emphasis on a broad range of values in food purchasing, including the promotion of health through the elimination of artificial additives, as well as the reduction of salt, added sugars, fats, and oils.[135]

3. Federal, State, and Local Governments Should Consider Tax Policies That Encourage the Manufacture and Consumption of Foods with Fewer Risky Additives

Tax policies, including tax incentives and subsidies, can push both industry towards producing and consumers towards choosing foods that do not have harmful additives. These policies can be implemented at the national, state, and local levels. There is strong evidence that tax policies can be effective in producing better health outcomes.[136] For example, studies show that demand for products such as tobacco, alcohol, and sugar-sweetened beverages are highly price-responsive, showing that tax changes that are passed on to consumers impact their behavior.[137]

In addition to driving consumer changes, tax policies can lead to beneficial product reformulation. This was the case in Colombia, where a tax on UPF resulted in industry reformulation of products to avoid categorization as UPF.[138] In the U.S. as well as other countries, subsidies also have been shown to work in encouraging consumption of healthy food like fruits and vegetables.[139] While there are limited examples of implementation of tax policies on additives in particular, the U.S. can be a pioneer in this space.

Recommendations

Utilize tax credits or excise taxes to support product reformulation (Federal, state, or local governments)

Tax policies are a flexible tool, and could be designed to address high-risk additives in a variety of ways and at different levels of government. Tax credits (to reduce the cost of healthier products) or excise taxes (to increase the cost of unhealthy products) could be applied either to foods with certain types of high-risk additives or to UPFs.

One of the biggest challenges in reducing consumption of UPFs is that they are highly competitive for their price and require little to no preparation.[140] To incentivize the industry to make healthier foods cheaper, manufacturers that make foods without using harmful additives should be able to claim a tax credit. For example, if a mac & cheese manufacturer is able to make their product without risky additives, it could claim a tax credit of up to a certain amount per year. To make the most impact and keep the incentive cost effective, the categories of food for which a tax credit is available could be limited to the ones that are highly consumed in the U.S., such as the ones analyzed in this study: store-bought bread, cookies, breakfast cereal, pizza, barbecue sauce, crackers, mayonnaise, mac and cheese, chips, cereal bars, ice creams and wraps.

An excise tax on either foods with high-risk additives or on certain UPFs is also possible, but would likely be more controversial due to its effect on food prices, which raises concerns at a time when food prices are already high and rising. An excise tax is a tax imposed on certain goods, services, and activities.[141] It can be imposed at the time of sale or use by the manufacturer, distributor, or retailer, which allows the tax to target industry actors or food businesses rather than consumers.[142] While excise taxes can be imposed by the federal government, state and local excise taxes are more commonly used. This could be an especially powerful tool for use in states with large food processing industries. Together, California, Texas, and New York accounted for nearly thirty percent of all U.S. food and beverage processing plants in 2022.[143] Taxing manufacturers who produce foods with high-risk additives or certain UPFs in these states could therefore have a significant impact. Such a tax would make UPFs more expensive for manufacturers in the state, but also for downstream entities in the supply chain, such as distributors and retailers, even if they are located in other states.

Because excise taxes are often passed on to the consumer, an excise tax on commonly-consumed food can raise the price floor for all such foods and disproportionately affect low-income groups, which are already facing food access challenges. Thus, any excise tax should be accompanied by measures that would offset this disproportionate effect. For example, when Seattle enacted a sugar-sweetened beverage tax, the enacting ordinance also created a Community Advisory Board to help advise the city on how to use the revenue from the tax to support programs and services that benefit marginalized community members, such as helping residents afford fruits and vegetables.[144] Legislators can consider a similar program for the revenue from an excise tax on foods with high-risk additives or UPFs.

The current U.S. regulatory system for additives allows many potentially harmful substances to remain widespread in the food supply. Federal, state and local governments can better safeguard public health by implementing a wide array of policies. The policy recommendations above focus on a combination of improving the oversight of food additives, as well as reducing the public's exposure to high-risk additives and ultra-processed foods.

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[4] *HHS, FDA, and USDA Address the Health Risks of Ultra-Processed Foods, U.S. Food & Drug Admin. (July 23, 2025), https://www.fda.gov/news-events/press-announcements/hhs-fda-and-usda-address-health-risks-ultra-processed-food.*

[5] *See id.; White House, The MAHA Report 22 (2025), https://www.whitehouse.gov/wp-content/uploads/2025/05/MAHA-Report-The-White-House.pdf.*

[6] *See Melissa M. Lane et al., Ultra-processed food exposure and adverse health outcomes: umbrella review of epidemiological meta-analyses, 384 BMJ e077310 (2024), https://www.bmj.com/content/384/bmj-2023-077310; Alice Callahan, How Bad Are Ultraprocessed Foods, Really?, N.Y. Times (May 6, 2024), https://www.nytimes.com/2024/05/06/well/eat/ultraprocessed-foods-harmful-health.html; Dani Blum, What Makes a Food Ultraprocessed? The FDA Is About to Weigh In, N.Y. Times (June 10, 2025), https://www.nytimes.com/2025/06/10/well/ultraprocessed-food-fda.html.*

[7] *See HHS, FDA, and USDA Address the Health Risks of Ultra-Processed Foods, supra note 4.*

[8] *White House, The MAHA Report, supra note 5, at 21; see also Carlos Augusto Monteiro et al., Ultra-Processed Foods, Diet Quality, and Health Using the NOVA Classification System, Food & Agric. Org. [FAO]8–9(2019), https://openknowledge.fao.org/server/api/core/bitstreams/5277b379-0acb-4d97-a6a3-602774104629/content (defining UPFs as "formulations of ingredients, mostly of exclusive industrial use [meaning that the ingredients have rare or no culinary use in home kitchens], typically created by a series of industrial techniques and processes.").*

[9] *See Food Additives, World Health Org. [WHO] (Nov. 16, 2023), https://www.who.int/news-room/fact-sheets/detail/food-additives.*

[10] *See Barry M. Popkin et al., A Policy Approach to Identifying Food and Beverage Products That Are Ultra-Processed and High in Added Salt, Sugar and Saturated Fat in the United States: A Cross-Sectional Analysis of Packaged Foods, 32 Lancet Reg'l Health 100713 (2024), https://doi.org/10.1016/j.lana.2024.100713.*

[11] *See John O. Warner, Artificial Food Additives: Hazardous to Long-Term Health?, 109 Archives Disease Childhood 882 (2024), https://doi.org/10.1136/archdischild-2023-326565.*

[12] *See Leonardo Trasande et al., Food Additives and Child Health, 142 Pediatrics e20181410 (2018) https://doi.org/10.1542/peds.2018-1410 (discussing increased risk of cancer and harm to neurologic developmental processes from nitrites and nitrates); L. Kavitha & M. K. Sangeetha, The Role of Food Additives in Reproductive Endocrine Disruption: a Revised Perspective, 11 Current Pharmacology Reps. (2025), https://doi.org/10.1007/s40495-024-00389-5 (discussing potential fertility impairment of most commonly used additives); Laury Sellem et al., Food Additive Emulsifiers and Risk of Cardiovascular Disease in the Nutrinet-Santé Cohort: Prospective Cohort Study, 382 BMJ e076058 (2023), https://doi.org/10.1136/bmj-2023-076058 (finding positive association between widely used food additive emulsifiers and risk of cardiovascular disease) .*

[13] *See Monteiro et al., supra note 8, at 8–9; White House, The MAHA Report, supra note 5, at 21; Blum, supra note 6.*

[14] *See Codex General Standard for Food Additives (GSFA) Online Database, FAO, https://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/gsfa/en/ (last visited Feb. 5, 2026).*

[15] *See Monteiro et al., supra note 8, at 8–9. Classes of additives used for these purposes include "flavours, flavour enhancers, colours, emulsifiers, emulsifying salts, artificial sweeteners, thickeners, and foaming, anti-foaming, bulking, carbonating, gelling and glazing agents."*

[16] *Gabriela Mourad Vicenssuto & Zoé Kerlo, Yuka Study on Food Additive Usage Restrictions in the European Union and the United States, Yuka, https://yuka.io/en/yuka-study-food-additive-usage-restrictions/ (last visited Dec. 16, 2025).*

[17] *See'MAHA' Movement: Defining Ultra-processed Foods, Nat'l Agric. L. Ctr., https://nationalaglawcenter.org/maha-movement-defining-ultra-processed-foods/ (last visited Feb. 5, 2026) (discussing how California's definition differs from NOVA, namely, that unlike NOVA which is based on use of certain types of cosmetic additives or non-culinary ingredients, California law includes both presence of a cosmetic additive from one of several listed categories as well as being high in saturated fat, sodium or added sugar or containing a non-nutritive sweetener).*

[18] *See A.B. 1264, 2025–2026 Leg., Reg. Sess. §§ 5, 8 (Cal. 2025) (directing California State Department of Public Health to define ultra-processed foods of concern based on whether other states ban, restrict, or require a warning label for a substance, or when scientific evidence shows harm).*

[19] *See, e.g., H.B. 2164, 57th Leg., 1st Reg. Sess. (Ariz. 2025); H.B. 3292, 89th Leg., Reg. Sess. (Tex. 2025); Assemb. B. 1264, 2025-2026 Leg., Reg. Sess. (Cal. 2025).*

[20] *See 21 C.F.R. 170.30; What is GRAS?, Env't Working Grp. (Mar. 5, 2024), https://www.ewg.org/news-insights/news/2024/03/what-gras; Olivia Backhaus, EWG analysis: Almost All New Food Chemicals Greenlighted by Industry, Not the FDA, Env't Working Grp. (Apr. 13, 2022), https://www.ewg.org/news-insights/news/2022/04/ewg-analysis-almost-all-new-food-chemicals-greenlighted-industry-not-fda.*

[21] *David Hilzenrath, How the FDA lets chemicals pour into America's food supply, CBS News (Mar. 7, 2025), https://www.cbsnews.com/news/fda-chemicals-food-supply/.*

[22] *See FDA Advances Robust, Transparent Post-Market Chemical Review Program to Keep Food Supply Safe and Healthy, U.S. Food & Drug Admin. (May 15, 2025), https://www.fda.gov/news-events/press-announcements/fda-advances-robust-transparent-post-market-chemical-review-program-keep-food-supply-safe-and.*

[23] *See 21 U.S.C. § 321(s) (exempting substances generally recognized as safe from the definition of "food additive")*

[24] *See 21 U.S.C. § 348(b).*

[25] *See 21 C.F.R. 170.30; What is GRAS?, supra note 20; Backhaus, supra note 20.*

[26] *See EU Rules - Food Additives, Eur. Comm'n., https://food.ec.europa.eu/food-safety/food-improvement-agents/additives/eu-rules_en (last visited Nov. 17, 2025).*

[27] *See Food Additives Amendment of 1958, Pub. L. No. 85-929, § 2, 72 Stat. 1784, 1784 (1958) (codified at 21 U.S.C. § 321(s); Backhaus, supra note 20.*

[28] *See Substances Generally Recognized as Safe, 62 Fed. Reg. 18938-01 (proposed Apr. 17, 1997) (codified at 21 C.F.R. 170).*

[29] *U.S. Food & Drug Admin., Regulatory Framework for Substances Intended for Use in Human Food or Animal Food on the Basis of the Generally Recognized as Safe (GRAS) Provision of the Federal Food, Drug, and Cosmetic Act: Guidance for Industry 5–6 (Nov. 2017), https://www.fda.gov/media/109117/download.*

[30] *How U.S. FDA's GRAS Notification Program Works, U.S. Food & Drug Admin. (Jan. 2006), https://www.fda.gov/food/generally-recognized-safe-gras/how-us-fdas-gras-notification-program-works.*

[31] *Tom Neltner & Maricel Maffini, Nat. Res. Def. Council, Generally Recognized as Secret: Chemicals Added to Food in the United States 2, 9 (2014), https://www.nrdc.org/sites/default/files/safety-loophole-for-chemicals-in-food-report.pdf (discussing how effect of withdrawal of GRAS notice does not prevent company from continuing to market product for use in food).*

[32] *See FDA Update on the Post-market Assessment of Tara Flour, U.S. Food & Drug Admin. (2024), https://www.fda.gov/food/hfp-constituent-updates/fda-update-post-market-assessment-tara-flour (declaring tara flour not GRAS two years after it was introduced into the market); Investigation of Adverse Event Reports: French Lentil & Leek Crumbles, U.S. Food & Drug Admin. (June 2022), https://www.fda.gov/food/outbreaks-foodborne-illness/investigation-adverse-event-reports-french-lentil-leek-crumbles-june-2022 (reporting 393 total adverse illness events and 133 hospitalizations from consumption of tara flour product).*

[33] *See Neltner & Maffini, supra note 31, at 11 (explaining difficulty of determining source of illness ex post); Marilyn Urrutia-Pereira et al., Food Additives And Their Impact On Human Health, 53 Allergologia et Immunopathologia (2025), http://dx.doi.org/10.15586/aei.v53i2.1149.*

[34] *See GRAS Notices, U.S. Food & Drug Admin., https://www.hfpappexternal.fda.gov/scripts/fdcc/index.cfm?set=GRASNotices&sort=Date_of_closure&order=DESC&type=basic&search= (last visited Mar. 6, 2025).*

[35] *In addition, there is a several year gap between this database and its predecessor, meaning any substances determined GRAS during that time period—even with FDA notification—are not captured. See id.*

[36] *Thomas Galligan et al., How Food Companies Sneak New Ingredients Past the FDA, Ctr. for Sci. in the Pub. Int. (2024), https://www.cspi.org/cspi-news/how-food-companies-sneak-new-ingredients-past-fda.*

[37] *See Tom Neltner, Broken GRAS: Scientists' Safety Concerns are Hampered by FDA's Inactions on Food Chemicals, Environmental Defense Fund (Dec. 21, 2021), https://blogs.edf.org/health/2021/12/21/broken-gras-scientists-safety-concerns-are-hampered-by-fdas-inactions-on-food-chemicals/.*

[38] *See Functional Chocolate Co., Sleepy Chocolate, https://funcho.co/products/sleepy-chocolate (last accessed Jan. 22, 2025) (enumerating ingredients of Sleepy Chocolate without listing PharmaGABA).*

[39] *See, e.g., A.B. A1556A, 2025–2026 Leg., Reg. Sess. (N.Y. 2025); H.B. 1130, 2025–2026 Leg., Reg. Sess. (Pa. 2025); A. 4640 221st Leg., Reg. Sess. (N.J. 2024); Cal. Exec. Order No. N-1-25 (2025), https://www.gov.ca.gov/wp-content/uploads/2025/01/2025-1-1.Revised-Healthy-Foods-EO-Final-Gov-Signed.pdf.*

[40] *See, e.g., Ensuring Safe and Toxic-Free Foods Act of 2025, S.2341, 119th Cong. (2025); Better FDA Act of 2025, S. 3122, 119th Cong. (2025); GRAS Act, H.R. 4958, 119th Cong. (2025).*

[41] *White House, Make Our Children Healthy Again 8 (2025), https://www.whitehouse.gov/wp-content/uploads/2025/09/The-MAHA-Strategy-WH.pdf.*

[42] *GRAS substances known by FDA are those listed by regulation or listed in the GRAS Notice Inventory.*

[43] *See Jennifer L. Pomeranz et al., Advancing the FDA's Human Foods Program Through Additional Authorities and User Fees, 44 Health Affs. 4 (2025), https://doi.org/10.1377/hlthaff.2024.01342, E280: Industry User Fees Could Fix a Food Safety Loophole for FDA, World Food Pol'y Ctr. (Aug. 25, 2025), https://wfpc.sanford.duke.edu/podcasts/industry-user-fees-could-fix-a-food-safety-loophole-for-fda/.*

[44] *See generally Jennifer L. Pomeranz et al., Regulation of Added Substances in the Food Supply by the Food and Drug Administration Human Foods Program, 114 Am. J. Pub. Health 1061 (2024) (discussing FDA's lack of formal approach for reviewing food additives and GRAS substances already found in the food supply).*

[45] *See Pieter A. Cohen & Emily M. Broad Leib, Ingesting Risk – The FDA and New Food Ingredients, 391 N. Engl. J. Med. 875, 875–76 (2024); U.S. Gov't. Accountability Off., GAO-10-246, FDA Should Strengthen Its Oversight of Food Ingredients Determined to Be Generally Recognized as Safe (GRAS) 20–21 (2010).*

[46] *See Pomeranz et al., Advancing the FDA's Human Foods Program Through Additional Authorities and User Fees, supra note 43, at 460.*

[47] *Development of an Enhanced Systematic Process for the Food and Drug Administration's Post-Market Assessment of Chemicals in Food; Public Meeting; Request for Comments, 89 Fed. Reg. 65633 (Aug. 12, 2024), https://www.federalregister.gov/documents/2024/08/12/2024-17791/development-of-an-enhanced-systematic-process-forthe-food-and-drug-administrations-post-market.*

[48] *Lauren Limbach & Emily Broad Leib, Harvard L. Sch. Food L. & Pol'y Clinic, Improving FDA's Post-Market Review of Chemicals: Summary of Key Themes from Comments on FDA's Proposed Framework (2025), https://chlpi.org/wp-content/uploads/2025/06/FLPC-Report-FDA-post-market-review.pdf.*

[49] *FDA Advances Robust, Transparent Post-Market Chemical Review Program to Keep Food Supply Safe and Healthy, supra note 22.*

[50] *How U.S. FDA's GRAS Notification Program Works, supra note 30; see Substances Generally Recognized as Safe, 62 Fed. Reg. 18938-01 (proposed Apr. 17, 1997) (codified at 21 C.F.R. 170).*

[51] *Commission Regulation 257/2010, 2010 O.J. (L 80) 19; see also Re-Evaluation, Eur. Comm'n, https://food.ec.europa.eu/food-safety/food-improvement-agents/additives/re-evaluation_en (last visited Feb. 5, 2026).*

[52] *See Pesticide Reevaluation Registration Review Process, U.S. Env't Prot. Agency, https://www.epa.gov/pesticide-reevaluation/registration-review-process (last visited Oct. 7, 2025).*

[53] *See Prioritization of Existing Chemicals Under TSCA, U.S. Env't Prot. Agency, https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/prioritization-existing-chemicals-under-tsca (last visited Oct. 7, 2025).*

[54] *See Carrageenan, WHO, https://apps.who.int/food-additives-contaminants-jecfa-database/Home/Chemical/377 (last visited Oct. 7, 2025); Barbara Borsani et al., The Role of Carrageenan in Inflammatory Bowel Diseases and Allergic Reactions: Where Do We Stand?, 13 Nutrients 3402 (2021).*

[55] *See generally Borsani et al., supra note 54; Paulina Komisarka et al., Carrageenan as a Potential Factor of Inflammatory Bowel Diseases, 16 Nutrients 1367 (2024).*

[56] *See generally Komisarka et al., supra note 55; Dale Lee et al., Children with Crohn's Disease Frequently Consume Select Food Additives, 63 Digestive Diseases Scis. 2722 (2018).*

[57] *Colby J. Vorland et al., Effects of Excessive Dietary Phosphorus Intake on Bone Health, 15 Current Osteoporosis Reps. 473 (2017), https://doi.org/10.1007/s11914-017-0398-4.*

[58] *EFSA Issues New Advice On Phosphates, Eur. Food Safety Auth. (Jun. 12, 2019), https://www.efsa.europa.eu/en/press/news/190612.*

[59] *EFSA Panel on Food Additives and Flavourings (FAF) et al., Scientific Opinion on the Re-evaluation of Phosphoric Acid–Phosphates – Di-, Tri- and Polyphosphates (E 338–341, E 343, E 450–452) as Food Additives and the Safety of Proposed Extension of Use, 17 EFSA J. 5674, 1, 5 (2019).*

[60] *21 U.S.C. § 321(s)*

[61] *See Neltner & Maffini, supra note 31, at 8.*

[62] *Vicenssuto & Kerlo, supra note 16.*

[63] *Id.*

[64] *See generally Off. of Env't Health Hazard Assessment, Potential Neurobehavioral Effects of Synthetic Food Dyes in Children 20 (2021), https://oehha.ca.gov/sites/default/files/media/downloads/risk-assessment/report/healthefftsassess041621.pdf; Joel Nigg et al., Meta-Analysis of Attention-Deficit/Hyperactivity Disorder or Attention-Deficit/Hyperactivity Disorder Symptoms, or Restriction Diet, and Synthetic Food Color Additives, 51(1) J. Am. Acad. Child Adolescent Psychiatry 86 (2012).*

[65] *See Food and Feed Informational Portal Database, Brilliant Blue FCF, Eur. Comm'n, https://ec.europa.eu/food/food-feed-portal/screen/food-additives/search/details/POL-FAD-IMPORT-2998 (last visited Oct. 8, 2025).*

[66] *See HHS, FDA to Phase Out Petroleum-Based Synthetic Dyes in Nation's Food Supply, U.S. Food & Drug Admin. (April 22, 2025), https://www.fda.gov/news-events/press-announcements/hhs-fda-phase-out-petroleum-based-synthetic-dyes-nations-food-supply.*

[67] *21 U.S.C. § 350g(b)(1)(A).*

[68] *U.S. Food & Drug Admin., Hazard Analysis and Risk-Based Preventive Controls for Human Food: Guidance for Industry 20–21, 29–30 (2024), https://www.fda.gov/media/100002/download (draft guidance distributed for comment purposes).*

[69] *21 C.F.R. § 101.4(a)(1).*

[70] *21 C.F.R. § 101.4(b).*

[71] *21 C.F.R. § 101.4(b)(2).*

[72] *21 C.F.R. § 101.4(b)(1).*

[73] *21 C.F.R. § 101.22(h)(1).*

[74] *See Neil C. Da Costa & Sanja Eri, Identification of Aroma Chemicals, in Chemistry and Technology of Flavors and Fragrances 12 (D.J. Rowe ed., 2004) (discussing how complex matrices of aroma compounds present in foods can be); Mariana Buranelo Egea et al., A Narrative Review of the Current Knowledge on Fruit Active Aroma Using Gas Chromatography-Olfactometry (GC-O) Analysis, 26 Molecules 5181 (2021) (explaining that characteristic aroma of foods is generally result of perception of dozens or hundreds of odorants).*

[75] *21 C.F.R. § 101.22(i).*

[76] *See, e.g., What is SmartLabel?, Cons. Brands Ass'n, https://smartlabel.org/ (last visited Feb. 5, 2026); Stephanie Storm, Food Companies to Add Scan Codes with More Product Details, N.Y. Times (Dec. 2, 2015) https://www.nytimes.com/2015/12/03/business/food-companies-to-add-scan-codes-with-more-product-details.html#:~:text=Hershey%20announced%20the%20program%20last,ingredients%2C%20allergens%20and%20the%20company; Chantal Tode, Nestlé puts OR codes at center of global effort to provide nutritional information, Mktg. Dive, https://www.marketingdive.com/ex/mobilemarketer/cms/news/content/14721.html (last visited Feb. 5, 2026). Additionally, products containing bioengineered ingredients are required to disclose that fact and can use a QR code, in combination with on-package text, to meet this requirement. See 7 C.F.R. §§ 66.100(b), 66.106.*

[77] *See generally Swathika Balasubramaniyan Saravanan et al., Impact of Processing Techniques on Reduction of Heavy Metal Contamination in Foods, 5 Discover Food (2025), https://doi.org/10.1007/s44187-025-00402-w (synthesizing findings of different recent reports on emerging processing technologies for potential to reduce heavy metals).*

[78] *See generally id.; Elena Christina Scutaraşu & Lucia Carmen Trincă, Heavy Metals in Foods and Beverages: Global Situation, Health Risks and Reduction Methods, 6 Foods 3340 (2023), https://doi.org/10.3390/foods12183340; Ahmadullah Zahir et al., Public Health Risks Associated with Food Process Contaminants – A Review, 88 J. Food Prot. 100416 (2025), https://doi.org/10.1016/j.jfp.2024.100426.*

[79] *See generally Scutaraşu & Trincă, supra note 78.*

[80] *See Dilini N. Perera et al., Comprehensive Study on the Acrylamide Content of High Thermally Processed Foods, 2021 BioMed Rsch. Int'l 6258508 (2021), https://doi.org/10.1155/2021/6258508; Burçe Ataç Mogol & Vural Gökmen, Thermal Process Contaminants: Acrylamide, Chloropropanols, and Furan, 7 Current Op. Food Sci. 86–92 (2016), https://doi.org/10.1016/j.cofs.2016.01.005; Vural Gökmen & Tunç Koray Palazoğlu, Acrylamide Formation in Foods during Thermal Processing with a Focus on Frying, 1 Food & Bioprocess Tech. 35–42 (2008), https://doi.org/10.1007/s11947-007-0005-2; Joanna Michalak et al, Effect of Microwave Heating on the Acrylamide Formation in Foods, 25 Molecules 4140 (2020), https://doi.org/10.3390/molecules25184140.*

[81] *See Nat'l Toxicology Program, U.S. Dep't of Health & Hum. Servs., Acrylamide, Report on Carcinogens 1 (15th ed. 2021); https://ntp.niehs.nih.gov/sites/default/files/ntp/roc/content/profiles/acrylamide.pdf; Octavian Augustin Mihalache & Chiara Dall'Asta, The Burden of Disease Due to Dietary Exposure to Acrylamide in Italy: A Risk-Assessment Based Approach, 188 Food & Chem. Toxicology 114699 (2024), https://doi.org/10.1016/j.fct.2024.114699; Burhan Başaran et al., Dietary Acrylamide Exposure and Cancer Risks: A Systematic Approach to Human Epidemiological Studies 12 Foods 346 (2023), https://doi.org/10.3390/foods12020346; Agency for Toxic Substances & Disease Registry, U.S. Dep't of Health & Hum. Servs., ToxFAQs for Acrylamide 1 (2012), https://www.atsdr.cdc.gov/toxfaqs/tfacts203.pdf.*

[82] *See Agents Classified by the IARC Monographs, Volumes 1–140, Int'l Agency for Rsch. on Cancer (2025), https://monographs.iarc.who.int/agents-classified-by-the-iarc/.*

[83] *See Codex Alimentarius Comm'n, FAO, Class Names and the International Numbering System for Food Additives, CXG 36-1989 (1989) (amended 2025), https://www.fao.org/fao-who-codexalimentarius/sh-proxy/fr/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B36-1989%252FCXG_036e.pdf ("The alphabetical designations are included in order to further characterize the different classes of additives (e.g. caramel produced by different processes).").*

[84] *An E-Code is an identification number assigned to each permitted food additive in the European Union after it has passed the EFSA safety evaluation and been approved for use in food. Food Additives, Eur. Food Safety Auth. (Dec. 3, 2025), https://www.efsa.europa.eu/en/topics/topic/food-additives.*

[85] *Comm'n Regulation (EU) No. 231/2012, 2012 O.J. (L 83) 1.*

[86] *See Trasande, supra note 12, at 2; Philip J. Landrigan & Lynn R. Goldman, Children's Vulnerability to Toxic Chemicals: A Challenge and Opportunity to Strengthen Health and Environmental Policy, 30 Health Aff. (Millwood) 842, 843 (2011); see generally Elizabeth K. Dunford et al., All the Colors of the Rainbow: Synthetic Dyes in US Packaged Foods and Beverages in 2020, 125 J. Acad. Nutrition & Dietetics. 1207 (2025); Off. of Env't Health Hazard Assessment, Potential Neurobehavioral Effects of Synthetic Food Dyes in Children 20, 21 (Cal. 2021), https://oehha.ca.gov/sites/default/files/media/downloads/risk-assessment/report/healthefftsassess041621.pdf.*

[87] *See Trasande, supra note 12, at 2; Landrigan & Goldman, supra note 86, at 842, 843; see generally Dunford et al., supra note 86.*

[88] *See Trasande, supra note 12, at 2; Landrigan & Goldman, supra note 86, at 842, 843; see generally Dunford et al., supra note 86.*

[89] *This is a non-exhaustive list.*

[90] *See generally Trasande, supra note 12.*

[91] *See Off. of Env't Health Hazard Assessment, supra note 86, at 165–66.*

[92] *See generally Yu F. Sasaki et al., The Comet Assay with 8 Mouse Organs: Results with 39 Currently Used Food Additives, 519 Mutation Rsch. 103 (2002). A genotoxic substance has the potential to damage the genetic material in cells which can lead to mutations in DNA, diseases, and cancer. See generally David H. Phillips & Volker M. Arlt, Genotoxicity: Damage to DNA and its Consequences, 99 EXS 87 (2009).*

[93] *See generally Off. of Env't Health Hazard Assessment, supra note 86; Trasande, supra note 12.*

[94] *See Dunford et al., supra note 86.*

[95] *Giada Di Pietro et al., Endocrine Disruptor Chemicals and Children's Health., 24 Int. J. Molecular Scis. 2671 (2023), https://doi.org/10.3390/ijms24032671.*

[96] *See generally Trasande, supra note 12.*

[97] *See Veronica Garcia Ibarra et al., Migration Studies of Butylated Hydroxytoluene, Tributyl Acetylcitrate and Dibutyl Phthalate into Food Simulants, 99 J. Sci. Food & Agric. 1586, 1587 (2019); see generally Chi Haitao et al., Antioxidant BHT Modelling Migration from Food Packaging of High Density Polyethylene Plastics into Food Simulants, 9 Advanced J. Food Sci. & Tech. 534 (2015); C. Wessling et al., Mobility of Alpha-tocopherol and BHT in LDPE in Contact with Fatty Food Simulants, 15 Food Additives & Contaminants 709 (1998).*

[98] *See Iris Myers, Cereal Offenders: Potentially Harmful Ingredients in 'Healthy' Breakfast Food, Env't Working Grp (Jan. 3, 2022) https://www.ewg.org/news-insights/news/2022/01/cereal-offenders-potentially-harmful-ingredients-healthy-breakfast-food; Integris Health, Foods and Drinks to Avoid Giving to Your Child, (Jul. 13, 2023), https://integrishealth.org/resources/on-your-health/2023/july/foods-and-drinks-to-avoid-giving-to-your-child.*

[99] *Xin Zheng et al, Ovarian toxicity of 2,6-di-tert-butyl-hydroxytoulene on female Ruditapes philippinarum: Reproductive endocrine disruption and oxidative stress, 492 J. Hazardous Materials 138289 (2025), https://doi.org/10.1016/j.jhazmat.2025.138289; Olubusayo Alofe et al., Determining the endocrine disruption potential of industrial chemicals using an integrative approach: Public databases, in vitro exposure, and modeling receptor interactions, 131 Env't Int'l 104969 (2019); Inês Paciência et al., Exposure to indoor endocrine-disrupting chemicals and childhood asthma and obesity, 74 Allergy 1277 (2019).*

[100] *See generally Jing Ren et al., Exploring the Mechanisms of the Antioxidants BHA, BHT, and TBHQ in Hepatotoxicity, Nephrotoxicity, and Neurotoxicity from the Perspective of Network Toxicology, 14 Foods 1095 (2025); Rebecca S. Lanigan & Torill A. Yamarik, Final Report on Safety Assessment of BHT (1), 21 Int'l J. Toxicology 19 (2002).*

[101] *See WHO, Acetic Acid Esters of Mono- and Diglycerides, https://apps.who.int/food-additives-contaminants-jecfa-database/Home/Chemical/1243 (last visited Oct. 5, 2025); WHO, Mono- and Diglycerides, https://apps.who.int/food-additives-contaminants-jecfa-database/Home/Chemical/917 (last visited Oct. 5, 2025)*

[102] *Romina Shah et al., Dietary exposures for the safety assessment of seven emulsifiers commonly added to foods in the United States and implications for safety, 34 Food Additives & Contaminants: Part A 905 (2017).*

[103] *Laury Sellem et al., Food additive emulsifiers and cancer risk: Results from the French Prospective NutriNet-Santé Cohort, 21 PLOS Med. e1004338, https://doi.org/10.1371/journal.pmed.1004338.*

[104] *Sellem et al., Food Additive Emulsifiers and Risk of Cardiovascular Disease in the Nutrinet-Santé Cohort: Prospective Cohort Study, supra note 12.*

[105] *Suraphan Panyod, Common Dietary Emulsifiers Promote Metabolic Disorders and Intestinal Microbiota Dysbiosis in Mice, 7 Commc'ns. Biology 729 (2024); Natasha Katsoudas, et al., Dietary Emulsifier Exposure in People with Inflammatory Bowel Disease Compared with Healthy Controls: Is There a Cause for Concern?, 30 Inflammatory Bowel Diseases 1241 (2024).*

[106] *We recommend that this list include artificial dyes, preservatives and antioxidants (including parabens, benzoates, sulphites, nitrates and nitrites, gallates, BHA, BHT, and TBHQ, emulsifiers (including, but not limited to, polysorbates, MDGs, and carrageenan), flavor enhancers (including, but not limited to glutamates and ribonucleotides), and artificial sweeteners (including but not limited to, aspartame, sucralose, and acesulfame K)—all of which meet the "high-risk" criteria.*

[107] *U.S. Dep't of Agric., Updates to the School Nutrition Standards, https://www.fns.usda.gov/cn/school-nutrition-standards-updates (last visited Oct. 6, 2025).*

[108] *See Marije Oostindjer, Are School Meals a Viable and Sustainable Tool to Improve the Healthiness and Sustainability of Children's Diet and Food Consumption? A Cross-National Comparative Perspective, 57 Critical Revs. Food Sci. & Nutrition, 3942–58 (2017); Mary Story et al., The School Nutrition and Meal Cost Study-I: Overview of Findings Related to Improving Diet Quality, Weight, and Disparities in US Children and Policy Implications, 13 Nutrients 1357 (2021), https://doi.org/10.3390/nu13041357; Transforming Food Systems Worldwide with School Meals, INRAE (Oct. 19, 2023), https://www.inrae.fr/en/news/transforming-food-systems-worldwide-school-meals.*

[109] *See U.S. Dep't of Agric., National School Lunch Program (2021) https://www.fns.usda.gov/fns-101-nslp; U.S. Dep't of Agric., School Breakfast Program Fact Sheet (2017), https://www.fns.usda.gov/sbp/factsheet.*

[110] *See U.S. Dep't of Agric., National School Lunch Program Meal Pattern (2024), https://fns-prod.azureedge.us/sites/default/files/resource-files/nslp-meal-pattern-2024.pdf; U.S. Dep't of Agric., School Breakfast Program Meal Pattern (2024), https://fns-prod.azureedge.us/sites/default/files/resource-files/sbpmealpattern2024.pdf.*

[111] *See Smart Snacks in Schools, U.S. Dep't of Agric., https://www.fns.usda.gov/school-meals/nutrition-standards/smartsnacks (last visited Oct. 18, 2025); see also U.S. Dep't of Agric., A Guide to Smart Snacks in School 9 (May 2022), https://fns-prod.azureedge.us/sites/default/files/resource-files/smartsnacks.pdf (last visited Oct. 18, 2025).*

[112] *Pedro Rafael Vilela, Brazil Limits Ultra-Processed Foods in School Meals to 15%, Agencia Brasil (May 2, 2025), https://agenciabrasil.ebc.com.br/en/politica/noticia/2025-02/brazil-limits-ultra-processed-foods-school-meals-15.*

[113] *See World Obesity, Brazil 1 (2025), https://data.worldobesity.org/country/brazil-27/actions.pdf; Vilela, supra note 112; PNAE National Meeting Proposes Changes to the Limits on Ultra-Processed Foods in School Meals, World Food Programme, (July 2, 2025), https://centrodeexcelencia.org.br/en/encontro-nacional-do-pnae-propoe-alteracoes-no-limite-de-ultraprocessados-na-alimentacao-escolar/.*

[114] *See World Obesity, supra note 113; RAES Presents its Experience During the National Meeting of PNAE Brazil, FAO (Feb. 6, 2025), https://www.fao.org/in-action/program-brazil-fao/news/ver/fr/c/1733024/#:~:text=Advancements,million%20Brazilians%20attending%20public%20schools.*

[115] *Federal Role in Education, U.S. Dep't of Educ. (Jan. 14, 2025), https://www.ed.gov/about/ed-overview/federal-role-in-education#:~:text=Education%20is%20primarily%20a%20State,requirements%20for%20enrollment%20and%20graduation (;ast visited Oct. 6, 2025).*

[116] *See NYC Pub. Schs., Prohibited Ingredients (Mar. 19 2025), https://pwsblobprd.schools.nyc/prd-pws/docs/default-source/school-menus/prohibitedingredient.pdf?sfvrsn=93d87835_8 (prohibiting extensive amount of substances from public school meals).*

[117] *Menu and Ingredient Guidelines, Boston Pub. Schs., https://www.bostonpublicschools.org/bps-departments/food-and-nutrition-services/menu-and-ingredient-guidelines (last visited Oct. 6, 2025) (prohibiting an extensive list of substances from being used in school foods).*

[118] *See Ariz. Rev. Stat. Ann. § 15-242.01 (prohibiting use of artificial dyes, potassium bromate, brominated vegetable oil (BVO), propylparaben, and titanium dioxide in schools); Cal. Educ. Code §§ 48431.2, 49431, 49431.5, 49501.5, 49531 (prohibiting use of artificial dyes and ultra-processed foods of concern in schools); La. Rev. Stat. Ann. § 17:197.2 (prohibiting use of artificial dyes, azodicarbonamide (ADA/AZA), butylated hydroxyanisole (BHA), potassium bromate, propylparaben, acesulfame potassium, aspartame, sucralose, and butylated hydroxytoluene (BHT) in schools); Tex. Educ. Code Ann. § 33.9011(b) (prohibiting use of artificial dyes, BVO, potassium bromate, propylparaben, ADA/AZA, and titanium dioxide in schools); Utah Code Ann. § 53G-9-205.2 (prohibiting use of artificial dyes, potassium bromate, and propylparaben in schools); Va. Code Ann. § 22.1-207.4:3 (prohibiting use of artificial dyes in schools); W. Va. Code § 18-5D-3A (prohibiting use of artificial dyes in schools).*

[119] *See A.B. 1264 §§ 5, 8 (Cal. 2025).*

[120] *A.B. 1264 § 8 (Cal. 2025).*

[121] *See Chloe Waterman et al., Data for Progress, Food Procurement and Infrastructure 2 (2021), https://www.filesforprogress.org/memos/food-procurement-and-infrastructure.pdf.*

[122] *See Policy Link, Equitable Development Toolkit: Local Food Procurement 2 (Mar. 2015), https://edtk.policylink.org/sites/default/files/edtk_local-food-procurement.pdf.*

[123] *See generally FAR; Cong. Rsch. Serv., The Federal Acquisition Regulation (FAR): Answers to Frequently Asked Questions (2025), https://www.congress.gov/crs_external_products/R/PDF/R42826/R42826.13.pdf.*

[124] *See Cong. Rsch. Serv., supra note 123, at 6.*

[125] *Id.*

[126] *See Food Serv. Guidelines Fed. Workgroup, Food Service Guidelines for Federal Facilities (2017), https://www.cdc.gov/nutrition/media/pdfs/2024/06/guidelines_for_federal_concessions_and_vending_operations.pdf.*

[127] *See Ctr. For Health L. & Pol'y Innovation, Maximizing the Impact of Nutrition Interventions with Local Food Procurement 9 (2025), https://chlpi.org/wp-content/uploads/2025/07/Maximizing-the-Impact-of-Nutrition-Interventions-with-Local-Food-Procurement_FINAL_.pdf.*

[128] *See generally Sheryl Hendriks et al., The True Cost of Food: A Preliminary Assessment, in Science and Innovations for Food Systems Transformation (2023), https://doi.org/10.1007/978-3-031-15703-5_32.*

[129] *The Rockefeller Foundation, True Cost of Food: Measuring What Matters to Transform the U.S. Food System 5 (2021), https://www.rockefellerfoundation.org/wp-content/uploads/2021/07/True-Cost-of-Food-Full-Report-Final.pdf; see Dariush Mozaffarian et al., The Real Cost of Food - Can Taxes and Subsidies Improve Public Health? 312 JAMA 889 (2014), https://doi.org/10.1001/jama.2014.8232.*

[130] *See The Rockefeller Foundation, supra note 129, at 5.*

[131] *See supra notes 116–120 and accompanying text.*

[132] *See supra notes 112–114.*

[133] *See Cong. Rsch. Serv., supra note 123.*

[134] *Haw. Rev. Stat. § 103D-1002.*

[135] *Bos. City, An Ordinance Regarding Good Food Purchasing Standards in the City of Boston 2 (2019), https://drive.google.com/file/d/17rgJwVF8BZ9xaI3Q5DGLZWpZ7wweLcT0/view?usp=sharing ([T]he City of Boston [adopts and implements] Good Food Purchasing Standards, which emphasize values that would … [p]romote health and well-being by . . . reducing salt, added sugars, fats, and oils; and by eliminating artificial additives.").*

[136] *See, e.g., Guillermo R. Paraje et al., Taxation of Tobacco, Alcohol, and Sugar-Sweetened Beverages: Reviewing The Evidence And Dispelling The Myths, 8 BMJ Glob. Health e011866 (2023), https://doi.org/10.1136/bmjgh-2023-011866; Elisa M. Cadena et al., Reformulation of Ultra-Processed Products in Colombia After the Introduction of Public Health Regulations, 23 BMC Med. 446 (2025), https://doi.org/10.1186/s12916-025-04215-7; Ruopeng An, Effectiveness of Subsidies in Promoting Healthy Food Purchases and Consumption: A Review of Field Experiments, 16 Pub. Health Nutrition 1215 (2012) https://doi.org/10.1017/S1368980012004715.*

[137] *See Paraje et al., supra note 136.*

[138] *See Cadena et al., supra note 136.*

[139] *See An, supra note 136.*

[140] *See Venkata Sushma Chamarthi et al., The Impact of Ultra-Processed Foods on Pediatric Health, 16 Obesity Pillars 100203 (2025), https://doi.org/10.1016/j.obpill.2025.100203.*

[141] *Excise Tax, Internal Revenue Serv., https://www.irs.gov/businesses/small-businesses-self-employed/excise-tax (last visited Oct. 28, 2025).*

[142] *Id.*

[143] *Processing & Marketing - Food and Beverage Manufacturing, Econ. Rsch. Serv. (Jan. 5, 2025), https://www.ers.usda.gov/topics/food-markets-prices/processing-marketing/food-and-beverage-manufacturing.*

[144] *See Seattle, Wash., Ordinance 125324 § 4 (2017); Sweetened Beverage Tax Community Advisory Board, Seattle City, https://www.seattle.gov/sweetened-beverage-tax-community-advisory-board/what-we-do (last visited Nov. 25, 2025) (stating that Seattle's Sweetened Beverage Tax Community Advisory Board has expanded Fresh Bucks).*