

Fighting for “Natural”

The Real Food frame, aspects of which were vividly articulated in *Food, Inc.* and the *Food, Inc.* Discussion Guide, looked very different from the perspective of the food industry. A handful of articles published in one of the industry’s leading magazines throughout the summer and early fall of 2015 give a good sense of how members of the food industry, particularly those tasked with making sense of consumer behavior, thought about changes in public perceptions of “good food.” Published in *Food Processing*, this illuminating set of articles was contributed by the magazine’s product development editor, Lauren R. Hartman. In June, for example, Hartman’s “Riding the Free-From Movement” stated that food labels and ingredient statements are “under great scrutiny these days.” She described consumers as “increasingly more discerning and educated when it comes to food and beverages” and wanting to avoid a variety of ingredients—gluten, soy, GMOs—while also wanting their food to be nutritious and taste good. Hartman noted that according to the chief sales and marketing officer of a leading maker of foods made with “No Artificial Anything,” this growing interest in foods not containing undesirable ingredients or major

allergens was “part of a revolutionary change in the way people are eating.”¹

In an August article, “Food Color Evolves as Consumers Push for Cleaner Labels,” Hartman talked about a “health-conscious” movement among “educated customers” who were “reading ingredient and nutritional statements for the foods they buy,” prompting growing demand for natural colorants. The article explored the challenges product developers faced making this difficult swap, covered companies offering manufacturers natural colors, and discussed some high-profile switches that had been prompted by consumer demand. Kraft, for example, had recently pledged to remove artificial preservatives and synthetic colors from its macaroni and cheese by January 2016, and General Mills had set a goal for 90 percent of its cereals to have no artificial ingredients by the end of 2016, starting with reformulations for Trix and Reese’s Puffs. Taco Bell’s bright orange nacho cheese was soon to undergo changes as part of that company’s pledge to eliminate artificial ingredients by the end of 2015. The article quoted that company’s CEO: “Today’s customers want simplicity, transparency and choice in the foods they eat. . . . They’re also telling us less is más when it comes to ingredients, so we’re simplifying with natural alternatives and staying true to who we are and what makes us unique.”²

In September, Hartman’s “Clean Slate for Clean Labels” reported “purer food formulation” was becoming standard and discussed the serious challenges this posed for product developers. According to Innova Market Insight’s director of innovation, “Clean—or ‘clear label’ as Innova prefers to call it—is far past trend status. It’s the new rule. Companies will have to do what they can to clean up labels or be as transparent as they can going forward.” The article explained that understanding how clean labels “improve product appeal in consumers’ minds can be used

to develop products with short, natural lists of real ingredients.” While the meaning of “clean labels” was elusive, according to an analyst for the market research company Euromonitor International, “the food industry can’t wait for official clarification. It has to react swiftly to changing consumer demands, which have translated into the by now well-established clean label movement.”³ In November Hartman submitted an infographic from the Hartman Group, an unrelated consumer research company, listing the labels and phrases that influence consumer purchases. The headline explained, “Today’s consumers are increasingly aware of the personal, social, environmental and health consequences of the foods they consume. This is why . . . shoppers are likely to look for descriptions that speak to fresh, ‘clean’ or ‘free of’ ingredients, less processing and natural aspects of food.”⁴

These articles, along with many others published around the same time, translated the critical challenge of the Real Food frame into actionable consumer insights. These were the same concerns about the food system and changes in perceptions of processed food discussed in chapter 1 as seen by trend analysts, consumer researchers, and marketing professionals whose job was to track and understand demographic and cultural changes and provide insights that manufacturers and marketers could use to make decisions about product development and marketing. In this context, concerns about “the personal, social, environmental and health consequences” of food that I have presented as a form of politics were quite literally “rendered technical” as they became mandates for ingredient makers to develop alternatives that would appear more natural or simpler on ingredient panels, for manufacturers to reformulate products to appear less processed, and for marketers to emphasize descriptors like “fresh,” “clean,” “real,” “pure,” and “natural” on the front of packages.

The marketplace was clearly an important arena in which the food industry and the public interacted on the question of whether processed food was good. At the center of this encounter was the allure of “natural” claims, for both the industry and the public, as a way to identify “good food.” Promises of naturalness, both explicit and implicit, steadily gained momentum alongside the uptake of the Real Food frame. In 2008 sales for “all-natural” products were valued at more than \$22 billion, up 10 percent from 2007 and 34 percent from 2004. “All-natural” was also the second most prevalent claim on new food products in 2008, and Innova identified the increased adoption of natural ingredients as its top emerging trend that year.⁵ A 2011 survey by HealthFocus International revealed that almost three-quarters of US shoppers thought the term “processed food or beverage” had a negative connotation and that 77 percent were interested in natural foods.⁶ In 2013 sales of foods certified as organic and labeled “natural” grew at a faster pace than sales in any other categories, and the natural products industry was worth more than \$40 billion.⁷

While the appeal of naturalness was clearly powerful, legal uncertainty about the use of the term “natural” on food led many manufacturers to move away from explicit claims and turn to other means of appealing to processing-averse consumers. The FDA did not provide a formal definition of the term but had instead what it described as a long-standing policy of considering the term to mean “that nothing artificial or synthetic (including all color additives regardless of source) has been included in, or has been added to, a food that would not normally be expected to be in that food.”⁸ This vague definition, hinging on consumer expectations, resulted in a stream of lawsuits accusing companies of using the term in ways that did not align with the public’s ideas about what would “normally be expected” to be in food. In

2007 the Center for Science in the Public Interest backed a class action lawsuit alleging that the “natural” claim on Kraft’s Capri Sun beverages was misleading because they were sweetened with high fructose corn syrup and threatened to sue the makers of 7-Up regarding their introduction of a “natural” label.⁹ Hundreds of actions along these lines continued in the ensuing years, with some going nowhere and others resulting in multimillion-dollar settlements.¹⁰ Ben and Jerry’s dropped the use of the term “natural” in 2010 after coming under pressure because its ice creams contained partially hydrogenated oil.¹¹ Twenty-five lawsuits were filed over “natural” claims in a six-month period of 2012 in California alone, targeting cane juice, vegetable glycerin, soybean oil, canola oil, alkalized cocoa, yeast extract, beta-carotene, folic acid, ascorbic acid, and high fructose corn syrup. Several cases claimed nutrition bars and granola were falsely labeled “all-natural,” and a line of cases targeted major manufacturers such as ConAgra and Frito Lay for marketing their products as natural when they contained genetically modified corn or soybeans.¹²

While manufacturers and marketers continued to use “natural” and “all-natural” claims, many looked for ways to convey similar messages without the legal risks, thus contributing to the growth of a “clean label” trend. While not used on packages or other consumer-facing marketing, the term “clean label” was used within the industry to describe the growing trend. In business-to-business marketing, media, and other communication “clean label” described the attributes consumers influenced by the Real Food frame were believed to be looking for: simple ingredient statements, minimal processing, and a litany of free-from claims such as no artificial ingredients, no preservatives, and no GMOs. In 2013 the percentage of products bearing “all-natural” claims dropped to 22 percent, from 30 percent in 2010.¹³ At the same time, the industry press reported on studies showing, for

example, that nearly three-quarters of consumers “find the idea that a product is made with the fewest number of ingredients very/somewhat appealing,” 67 percent wanted “common names on the ingredient label,” and 8 in 10 equated “preservative-free” with healthy.¹⁴ By 2014 *Food Technology* reported that more than 20 percent of US products featured clean labeling of some kind.¹⁵ As mentioned above, in 2015 the head of research for Innova proclaimed that clean labeling was “the new rule.” That year Nestle, Kraft, General Mills, Panera, Taco Bell, Kellogg’s, and Pizza Hut all announced plans to remove artificial ingredients from some or all of their products.¹⁶

This chapter follows the Real Food frame “through the looking glass,” where it became natural and clean label trends. It explores an encounter between the food industry and the public that took place in the aisles of grocery stores but focuses on how the food products that appeared there—along with their claims and marketing—were shaped by the way the food industry imagined the public, including its relationship to science. It looks behind the scenes, at how the food industry struggled to make sense of, and profit from, consumer trends it viewed as existential threats. I focus on two interrelated arenas in which this struggle took place: product development and marketing, as depicted in the pages of leading food industry publications; and the regulatory arena, as depicted by a public comment process initiated by the FDA to determine the meaning of the term “natural” for human food.

THROUGH THE LOOKING GLASS:
REAL FOOD IN THE MARKETPLACE

For the food industry, the Real Food frame presented product development and marketing opportunities that came with both pragmatic and existential challenges. Advertisements and articles

(many of which functioned much like ads) in *Food Technology* and *Food Processing* explored changing consumer wants, drawing on and promoting the work of consumer research companies. They also shared technical solutions, promoting ingredient companies and their offerings to manufacturers trying to market processed foods to the processed food averse. The publications reported that alongside all the new demands for foods to be healthy and have clean labels, consumers still wanted foods that were shelf stable and expected it to taste the same as it always had and have the right texture, mouth feel, and so on. As one author put it, food product developers had to “rely heavily on their ingredient suppliers to provide them with cleaner sounding ingredients that match their customer’s requests. Developers must then creatively incorporate these new ingredients into existing products without impacting the final flavor and taste.”¹⁷

Articles and ads described the technical challenges this presented and promoted solutions in the form of “label-friendly” colors, preservatives, sweeteners, starches, thickeners, gums, dough conditioners, and more. For example, a 2010 article about breakfast cereal and cereal bars described cleaner and simpler labels as a “primary objective” for product developers and profiled ingredients like Tate & Lyle’s Promitor Soluble Corn Fiber, which is “not chemical sounding, and it’s great for adding fiber and bulk while reducing calories and sugar.”¹⁸ A 2011 article about the future of baking announced “cleaner statements are coming out of the oven” and profiled ingredients like LycoRed’s “SANTE” (Super Advanced Natural Taste Enhancer) that could be used to replace MSG and a new line of soybean-based products from Bunge Oil that undergo an enzymatic process to eliminate trans-fat because “nothing says clean label in baking like trans-fat free.”¹⁹ A 2014 article, “Label It Clean,” profiled a host of new

ingredients designed to help brands create clean label formulas, such as new lines of “functional native starches” or “functional clean-label starches” from both Ingredion and Tate & Lyle that allowed manufacturers to remove “modified food starch” from the label and substitute it with ingredients that could simply be called “corn starch” or “rice starch.”²⁰

While these publications offered insights and strategies to help food manufacturers respond to the “revolutionary changes” in how Americans were eating, they were also full of nervous uncertainty about what consumers really wanted and what “real,” “natural,” and “unprocessed” meant to them. These were, after all, imperfect and very limited translations of the Real Food frame. As discussed in chapter 1, the Real Food frame was the result of heightened social pressure for people to be “good eaters” in the context of growing concerns about public health, sustainability, and risks related to the use of technology in food production. The concerns of a public moved to seek out “natural” and less processed foods in the grocery store, in other words, far exceeded those that could be met by those foods. In the pages of the industry press, Real Food’s excesses often appeared as confusion and consternation about what consumers really wanted.

In 2011, the same year “clean label” was declared a “top trend,” *Food Technology* published an article that captured some of the confusion and tension that arose as the food industry attempted to understand the Real Food frame through the lens of consumer research. Written by the head of research for Innova and the president of HealthFocus International, “Cleaning up Processed Food” included a lot of data pointing to worrying disaffection among consumers for processed food. The authors noted with dismay that “healthy and unprocessed are clearly linked in consumers’ minds”; only 9 percent considered processed foods either “very

healthy” or “somewhat healthy.” While the industry was increasingly turning to clean labels to make processed foods more attractive, the article also talked about how the meaning of “clean label” was unstable and dependent on consumer perceptions. “Clean label” was unregulated, undefined, and subject to a variety of meanings among ingredient suppliers, manufacturers, retailers, and consumers. However, the article noted, meeting the expectations of consumers was paramount, “because in the end the only thing that matters is if consumers repeatedly purchase the product.”²¹

Consumer perceptions were, however, a great source of consternation; the way consumers thought about processed food and behaved in relation to it did not make very much sense to the researchers or the article’s authors. For example, the article described a 2011 HealthFocus International study of five thousand shoppers that explored “how [they] define processed food; the factors they consider when determining whether a food or beverage is processed or unprocessed; and which brands do the best job of communicating clean label, healthy, and less processed.” The survey results suggested “that the *perception* of processed has more impact on a shopper’s opinion than does the actual processing that the product undergoes.” While those within the industry had a technical understanding of processing, consumer attitudes reflected an understanding that was less literal and more symbolic, representing some of the broader concerns of the Real Food frame about health, sustainability, and risk. With a tone of both wonder and exasperation, the article noted, “Foods that go through processing by food industry standards, such as pasteurization and canning, are not necessarily considered processed by many shoppers.” For example, according to the research only 16 percent identified Progresso tomatoes as processed. Even fewer

said Silk soy milk was processed, “which is surprising,” noted the authors, “when you consider this is a fluid product extracted from soybeans.” There was more than a hint of the deficit model of the public understanding of science in these reactions.²²

Shoppers’ opinions of products also seemed to be influenced by “perceptions of healthfulness, product purity, and clarity of package information” that were unrelated to processing as it was understood within the industry. For example, consumers thought low-calorie frozen meals were less processed than standard frozen meals, “whole grain bread trumped white bread,” and organic yogurt was considered less processed than conventional. As the article explained, “All of these similar products were most likely manufactured in the same way, yet, because of labeling they are viewed as being less processed.” From their vantage point, processing was a technical process that could be evaluated in terms of its extent and kind, not a signifier of broader concerns about food and the food system that could be expressed in other ways such as through environmental stewardship (organic yogurt), health-promoting whole food ingredients (whole grain bread), and addressing public health concerns (low-calorie meals).²³

Observing the dissonance between what the public appeared to care about when it came to food and what natural and clean labels actually delivered, Nadia Berenstein describes clean labels’ “dirty little secret”: what seemed on the surface to be the “unprocessing of processed food” was made possible by “the very latest advancements in food science, with a futuristic supply chain working overtime.” More importantly, these products did very little to address the actual concerns of consumers; clean labels were a way of “virtue signaling” without delivering any actual virtue. According to Berenstein, they said very little about health or any of the other factors that mattered to consumers,

such as “food justice, accessibility, environment impact and labor conditions.”²⁴ Similarly, David Scheifler and Michaela DeSoucey argue that advertisements in the business-to-business press both adopted and transformed the broader critiques of what they call the “good food” movement. The ads focused narrowly on health, ignoring structural critiques of the food system and claiming that processed foods could be healthy if formulated with the right ingredients. They did not address good food movement concerns about pesticide use, labor conditions, inequitable access to nutritious foods, or localized ownership of production. Instead, they deflected these concerns and suggested that the industrial food system could answer these critiques by providing healthier, “natural,” and “clean” food.²⁵ Clean labels, in other words, enacted antipolitics by treating the broad concerns of the Real Food frame (or good food movement) as consumer demands that could be met by removing artificial ingredients, constructing ingredients lists that were short and familiar, and using terms like simple and fresh on packages.

Furthermore, the industry press projected imaginaries of the public that were antipolitical because they assumed that people were looking for “real food” not because they had legitimate concerns about processed food or the industrial food system but because they were irrational, misinformed, and even antiscience. Even while many articles described consumers as educated, informed, and empowered, deficit thinking lived on, as articles debunked consumer concerns and dismissed them as unnecessary at best. Articles exploring the technical challenges involved in creating clean label products expressed frustration about working around irrational fears and misinformed desires. For example, a *Food Technology* article titled “Coloring Clean Labels?” offered a detailed critique of every major study pointing

to negative outcomes from artificial colors, beginning with the Feingold hypothesis, popularized in 1970, which had linked colors to hyperactivity in children. The article reminded readers of the importance of coloring for how food was experienced and pointed to the problem facing the industry: “What are popularly termed ‘artificial colors’ are overwhelmingly viewed as safe food ingredients by every major public health regulatory body in the world, yet nearly 50% of consumers believe these ingredients to be unhealthy.” It listed companies that were removing artificial colors, such as Kraft, which had recently pledged to remove #5 and #6 from its “iconic macaroni and cheese,” noting that more would likely “jump on the bandwagon” to respond to these unfounded consumer demands for foods without artificial colors. After all of this, the article ended with the requisite nod to the product development opportunity, noting that food technologists would have to figure out how to provide “appealing ‘natural’ colors that are stable within various processing environments.”²⁶

A 2015 *Food Processing* article written by a product developer lamented that there were “many healthy ingredients out there in the food scientist’s tool kit that the consumer does not perceive as healthy only because those products are described in unfamiliar or vague terms.” It discussed the challenge posed when today’s “earthwise” consumers believe they want efficient, cost-effective ingredients removed from food products, such as modified starches, artificial flavoring, and chemical preservatives. It also talked about consumers who “wrongfully conclude that natural ingredients with complicated-sounding names must be artificial or ‘bad for you,’” as well as “uninformed food bloggers [who] relay false information to the public, causing unnecessary concern.”²⁷

A pressing question facing the industry was whether ceding to these demands, which were seen as irrational and based

in knowledge deficits, was more dangerous than it was worth. A senior writer and editor for *Food Technology* addressed this issue in a 2014 article, “Quest for Clean Labels Cause Murky Legal Actions.” He questioned whether it was prudent to tweak ingredients to label products “natural or all-natural,” despite a growing consensus that consumers “want to see fresh, natural ingredients on short, clear lists.” Though asked in the context of a discussion of growing legal challenges to natural claims, he wasn’t looking for a legal answer to the question. He turned to Fergus Clydesdale, Distinguished Professor of Food Science at the University of Massachusetts, Amherst, who articulated a frank Real Facts perspective. According to Clydesdale, by promoting natural foods as better the industry risked not only damning many of its own offerings but also ceding the ground of truth to consumers who clearly did not understand the most basic scientific facts. He explained, “Sometimes the food industry shoots itself in the foot: [Food companies] label something as natural, which implies that something is wrong with [their] other products.” This was especially true “when one considers that everything on Earth, including fresh air and water, is made of elements itemized in the periodic table—i.e., chemicals.” According to Clydesdale, “If the FDA made a law about listing all of the ingredients for raw foods, there would never be another demand for natural foods.”²⁸

In 2015 the editor in chief of *Food Processing*, David Fusaro, also took up the controversy over the status of science in the midst of the natural and clean label bonanza in an opinion piece provocatively called “Science Doesn’t Matter.” He noted that “acceding to consumer demands seems to get more scorn and criticism than it does praise among industry professionals. Why? Because science doesn’t back up some of the crazy notions these consumers get in their head. High fructose corn syrup is more fattening than

sugar? Synthetic colors cause autism? Antibiotics in farm animals are creating antibiotic-resistant infections?” While these ideas may be ridiculous in the eyes of experts, he acknowledged that the industry had to nonetheless face the fact that the public’s concerns did not come out of nowhere: “Something has gone wrong lately, somewhere in our lives or the environment or we would not have autism, obesity and superbugs.” He went on to explain that regardless of what the cause was and whether it was rational to turn to clean labels as a solution, “at the very least it’s always good business to ‘give the lady what she wants’ . . . and clean labels are what at least a segment of the consuming public wants.”²⁹

Fusaro went on to applaud recent commitments among major manufacturers to remove artificial colors and flavors from macaroni and cheese (Kraft), replace aspartame in diet colas with natural alternatives (PepsiCo), and stop using human antibiotics in broiler chickens (Tyson). Then he described the kind of conflict that likely went on behind the scenes of these companies, as leaders struggled to align deficit-driven imaginaries of the public with the need to satisfy consumer demands: “I strongly suspect that scientists and leaders at each of those companies disagree with the logic behind these decisions. They undoubtedly have full faith in the science that led to the use of those ingredients in the first place. But two facts remain: 1. Consumers want things to happen. 2. Replacing these ingredients can happen.” The article ended with the author’s somewhat pained and clearly conflicted thoughts on the tension between unreasonable consumer demands and scientific authority, noting, “in the beginning science may matter . . . but in the end, it doesn’t.”³⁰ It is unclear exactly what Fusaro meant by “the beginning” and “the end,” perhaps that science matters for product formulation (the beginning of the product development process) but not for marketing

(the end), or maybe that science once mattered but does not anymore. In either case, “Science Doesn’t Matter” revealed some of the complexities behind the supposed simplicity of “clean labels.” Not only were their short, simple ingredient lists and free-from claims a distraction from the highly technical processes that were required to produce them, but their cheerful marketing to the “educated” consumer belied the industry’s deficit-driven anxiety that doing so presented a threat to science, on which it rested its own claims to authority.

REGULATING “NATURAL”

The tensions that surfaced in the industry press as manufacturers responded to the Real Food frame in the marketplace also erupted in a debate over whether the use of the term “natural” should be more tightly regulated by the FDA, and if so, how. What should it mean when it appeared on a food product? Whose opinions and what kind of knowledge mattered when it came to deciding if and how to regulate the use of the term? District courts handling misbranding lawsuits related to natural claims had long implored the FDA to provide greater clarity, and pressure mounted in 2014 when the FDA received contesting citizens’ petitions on the subject. In March, the Grocery Manufacturers Association (GMA), a trade group representing over three hundred consumer packaged goods companies, petitioned the FDA to issue a regulation clarifying that “natural” foods can contain ingredients derived from biotechnology. The petition argued that the FDA had a long-standing position that foods derived from biotechnology are just as safe as traditional foods, that biotechnology does not change the essential nature of a food, and that plant breeding methods are “not material information for the purposes of labeling or advertising a food.” Therefore, it argued, a “natural” claim would be neither

false nor misleading on a food derived from biotechnology solely because it had been so derived. Reflecting the food scientism of the Real Facts frame, the GMA petition also argued that the question of what “natural” should mean was a scientific one, best addressed by experts, and portrayed any argument against considering the products of biotech natural as “illogical.” The petition described the regulation of the term as a “complex scientific issue that deals with molecular biology, chemistry and nutrition science” and argued that “the FDA has extensively developed agency expertise and agency resources that put it in the best position to address ‘natural’ labeling for foods derived from biotechnology.”³¹

A few months later Consumers Union, the lobbying wing of the Consumer Reports National Research Center (which publishes *Consumer Reports*), submitted a petition requesting that the FDA ban the use of the term “natural” on food products on the basis that it was misleading to consumers and caused confusion with the much more strictly regulated “organic” label. If the agency declined to ban “natural” claims, Consumers Union requested that the FDA require any product labeled “natural” to also be certified organic, which would guarantee that “natural” claims would not be allowed on foods containing or derived from the products of biotechnology. According to its research, the majority of consumers believed that “natural” on the label meant, or thought it should mean, that no toxic pesticides, GMOs, antibiotics, artificial growth hormones, artificial ingredients, or chemical processing aids were used. Consumers Union argued that the FDA’s process should be driven by the public’s expectations rather than scientific expertise and criticized the GMA proposal as “out of line” with those expectations.

After receiving additional petitions from the Sara Lee Corporation and the Sugar Association, in fall 2015 the FDA announced the opening of a docket to receive information and public comments

on the use of the term “natural” in the labeling of human food products. This effort to seek guidance from the public on the question of a meaningful definition of “natural” followed a failed attempt in 1991 to do the same. At that time the FDA decided not to engage in rule making following a comment period that, according to the agency, failed to provide the FDA with “a specific direction to follow for developing a definition” of the term. Instead, the FDA decided to maintain its existing policy of interpreting “natural” to mean that “nothing artificial (including all color additives regardless of source) has been included in, or has been added to, a food that would not normally be expected to be in the food.”³² In the 1991 process the FDA did not even consider agricultural production methods and did not explicitly address processing. In 2015 those issues were not only on the table, but at the center of it.

In its Proposed Rule document notifying the public of its request for comments, the FDA asked if it should prohibit or define the term “natural” and then posed a series of questions about what types of foods should be allowed to bear the term if it is defined, how consumers currently understand the term, and what kind of education and enforcement they should consider. Among the questions were the following: Should only raw agricultural commodities be allowed to bear the term? Only single ingredient foods? Or also multi-ingredient foods? Do consumers confuse “natural” with “organic”? Should production practices used in agriculture be a factor? Do consumers associate or confuse “natural” with “healthy”? Should manufacturing processes be considered? Should the term apply only to “unprocessed” food? If so, how should “unprocessed” and “processed” be defined? Should the manner in which an ingredient is sourced be considered? How can we ensure consumers understand what the term means and it is not misleading? Are there public health benefits to defining the term? Should “natural” have nutritional

benefits associated with it? How should we determine compliance with any criteria for bearing the term?³³

The rest of this chapter explores the approximately 7,690 comments that the FDA received in response to these questions during the time the docket (FDA-2014-N-1207) was open, from November 12, 2015, to May 10, 2016. The docket received comments directly in the online interface, largely from lay members of the public, and as attachments on letterhead from corporations, trade groups, NGOs, and others with professional stakes in the debate. As described in the introduction, I worked with these two types of submissions separately, using a computational process to identify themes in the online comments and traditional qualitative methods to code and thematize the attachments, which were fewer but much longer. After identifying the key themes in each data set, it became clear that for the most part the comments from the lay public articulated arguments about what “natural” should mean and how it should be regulated that expressed the critical challenges of the Real Food frame and urged the FDA to regulate more strictly so that “natural” could be meaningful rather than misleading. The public was joined and supported in these demands by consumer advocates as well as corporations and trade groups in the organic sector, whose commercial interests aligned with public perceptions. The attachments were dominated by corporate perspectives that pushed back against these demands, arguing that the FDA should be guided by science rather than the ill-informed perceptions of the public.

“NATURAL” AS A CRITICAL CHALLENGE

From the perspective of many individual members of the public as well as consumer advocates who submitted comments to the FDA, the problem with foods labeled “natural” was that the

public wrongly believed they were more aligned with their concerns about and aspirations for the food system than they really were. From this point of view, the public was seeking to avoid processed food because of the overlapping concerns about health, sustainability, and risk related to technology in food production discussed in chapter 1. They were turning to “real” and “natural” food to act on these concerns and aspirations, but the term was being used in misleading ways and not delivering on these expectations. Thus, the FDA needed to step in to either ban or more strictly regulate use of the term.

This perspective was articulated in and supported by the work of Consumers Union, which influenced the docket both in its own submissions (including its initial citizens petition, an extensive comment, and a petition) and in publishing its research on consumer opinions about what “natural” should mean in *Consumer Reports* and rallying the public to submit comments to the docket. In the comment submitted to the FDA, Consumers Union wrote, “Consumers who buy food with the ‘natural’ label feel strongly about health, safety and environmental objectives.” It described consumers as interested in issues “such as avoiding foods grown with pesticides, foods processed with chemical processing aids, and foods containing GMOs and artificial ingredients” and pointed to data showing that the intensity of interest in these issues had steadily increased across its 2014, 2015, and 2016 studies. During the time the docket was open, it published an article in *Consumer Reports*, which it also submitted to the docket, noting that according to its research 62 percent of shoppers usually buy foods labeled “natural,” nearly two-thirds believe it means more than it does, and nearly half incorrectly believe natural claims have been independently verified. People wanted “natural” to mean no chemicals used

in processing, no artificial ingredients, no toxic pesticides, and no GMOs. A majority of shoppers (more than the previous year) cared about supporting local farmers, reducing exposure to pesticides in foods, protecting the environment from chemicals, and providing better living conditions for animals.³⁴ Consumers Union also submitted a petition with over 242,000 signatures stating that “natural” labels led consumers to believe the food they buy does not contain such things as artificial ingredients, GMOs, pesticides, and hormones but that without oversight or enforcements, companies can use the label deceptively on almost any food. It urged the FDA, “Fix it or drop it!”

From the perspective of Consumers Union, “natural” labels had the potential to help consumers act on their concerns, values, and aspirations related to the food system. For them, along with others who saw the public (or themselves) as trying to act on legitimate concerns by choosing food labeled “natural,” confusion with the label “organic” was a central concern. Prompted by the initial petitions from the GMA, which advocated the inclusion of biotechnology, and Consumers Union, which highlighted confusion between what was natural and what was organic, the FDA had solicited comments on whether production practices used in agriculture should be considered relevant to natural claims and whether consumers confused “natural” with “organic.” These questions and their answers were deeply intertwined, because the National Organic Program (NOP) already provided a regulatory mechanism for designating foods produced without the use of biotechnology and synthetic pesticides.³⁵ As Julie Guthman has shown, organic agriculture and marketing evolved from a social movement driven by alternative values and aspirations for the food system into a massive industry, held together by a USDA certification program focusing on allowable agricultural

inputs and practices.³⁶ “Organic” labels verified that foods were produced without certain synthetic inputs and without biotechnology. The label may not have meant everything the public imagined, or wanted it to mean—research has shown that many assume organic food is more natural, healthier, and safer—but it was a highly regulated claim, expensive to attain and lucrative to deploy.³⁷ Thus, companies and trade groups representing the organic industry argued that the meaning of “natural” should be more tightly regulated to align with public perceptions and avoid confusion with organic foods.

The Organic Trade Association (OTA), for example, submitted a forceful fourteen-page argument citing its own consumer studies, Consumer Union’s surveys, and research conducted by the Organic and Natural Health Association, all of which showed that consumers were being misled by natural claims. According to the OTA, “As food companies and marketers currently utilize it, the term has misled consumers by implying a slate of benefits that are simply not borne out by current regulations or verified under a product certification program.” They made the threat to the organic industry clear: “Allowing companies to use the term ‘natural’ in a way that can be conflated with ‘organic’ by consumers misleads consumers about the nature of the food they purchase for their families, and free-rides on the hard work of the certified organic industry in creating, abiding by, and educating consumers about a robust set of standards.” Cropp Cooperative, “the nation’s largest organic, independent farmer-owned cooperative,” described “natural” as “one of the most abused and misunderstood claims currently in use,” explaining that consumers perceive “natural” as not only equal to, but in some cases “of higher value or integrity than organic.” “Yet this perception is not the reality,” the cooperative stated.

Based on these concerns, companies and trade groups seeking to protect the value of organic labeling urged the FDA to either ban or very strictly regulate use of the term, making it much harder—if not impossible—for “natural” to appear on food products. Two basic themes emerged across the comments they submitted. Some argued that the best protection for “organic” was to ensure that “natural” not be allowed to pertain to agricultural production, while others argued that “natural” products should be required to be certified organic and then meet additional standards. The OTA, whose position was also taken up in comments submitted by many of its members, argued that “natural” should be banned and replaced with single-attribute claims such as “no synthetic ingredients,” “minimally processed,” or “produced without the use of GMOs.”³⁸ Their perspective was that the “natural” label should never be allowed to include production practices because those were already covered by the National Organic Program. Others, following the lead of Consumers Union, advocated for a different solution. The National Organic Coalition, the Organic and Natural Health Association, and the Organic Seed Growers and Trade Association, among others, argued that “natural” should be banned but that if it was not banned it should incorporate organic certification. In this “organic plus” framework, products claiming to be all-natural first would have to be certified organic and then meet additional requirements to align with consumer expectations of artificial and synthetic ingredients. As the comments explained, this would entail clearly defining “artificial” and explicitly excluding products containing nano materials or produced through synthetic biology or genome editing, as well those containing artificial and synthetic vitamins.

The comment advancing perhaps the most explicitly political and optimistic view of what “natural” could be, if properly

regulated, was submitted by the Organic and Natural Health Association, which described itself as representing consumers, retailers, and corporations working together to create “a new paradigm of trust between consumers and the natural health industry.”³⁹ Drawing on a 2015 consumer research study conducted by the Natural Marketing Institute, it argued that consumers of natural food were seeking to have the same kind of impact on the food system that consumers of organic food were seeking to have, but they were being misled into buying natural products. They concluded that consumers “are seeking a ‘true’ natural definition that mirrors organic” and argued that the FDA should adopt a natural standard that “ensures a continual improvement of the food system by supporting” a comprehensive set of values and practices. This included “reducing the amount of toxic chemicals used to produce food or used as food ingredients,” using production methods that don’t require synthetic fertilizers or toxic pesticides, accounting for “external costs of human disease, animal confinement, environmental degradation, and community dissolution,” and promoting “sustainable farming and consumption that meets present needs without compromising the ability of future generations to meet their needs.”

Like the corporations and trade groups seeking to make “natural” a meaningful way for the public to act on the concerns of the Real Food frame in the marketplace, many individual members of the public urged the FDA to ban the term or make it much more difficult to use. Comments submitted by individuals asserted the values and concerns that motivated people to seek out natural foods, castigated the industry for using “natural” claims in misleading ways, and called on the FDA to prioritize consumers and regulate the term to ensure its meaningfulness. These comments were different from those submitted by corporations and trade

groups because instead of focusing on regulatory technicalities and angling for a definition that aligned with their business interests, they tended to debate the meaning of “natural” as both a marketing term and an ideal. In many cases, they articulated ideas about what natural meant or should mean that were illogical from an industry point of view because they did not translate to the context of food production. From a Real Facts perspective, they were irrational, emotional, based in a lack of scientific knowledge and understanding. From my perspective, they were operating on an ideological level and articulating a critical challenge rooted in a refusal of the way things were. My analysis emphasizes how individuals asserted lay expertise and authority in a context they perceived as unfairly influenced by industry interests and scientific authority.

I understand these comments as part of a long history of natural food proponents expressing oppositional politics and identities while also challenging established forms of power and authority. Warren Belasco, for example, describes the oppositional politics of a 1970s countercuisine that expressed many of the same values as the counterculture by eschewing “plastic” food in favor of “natural.”⁴⁰ Michael Kideckel illuminates a long history of food activists using the language of nature to claim authority for themselves over and against formal expertise.⁴¹ Laura Miller’s history of the natural food movement shows that natural food proponents have historically challenged assurances of safety about the conventional food supply from established scientific and medical authorities and questioned “the very basis of professional authority.”⁴² In addition, scholars working across fields have discussed the semiotic flexibility and power of the terms “nature” and “natural.”⁴³ Anders Hansen notes in his analysis of media coverage of genetics and biotechnology, that “nature” has

a remarkable ability to accommodate contradictory meanings; Raymond Williams called it “perhaps the most complex word in the language.”⁴⁴ While this semantic richness makes “nature” an extremely powerful construct, “natural” may be even more powerfully ideological, often being used to evoke non-negotiability and preempt further discussion.⁴⁵

In response to the complex, layered questions posed by the FDA about what “natural” should mean, many individuals told the agency to simply “look it up.” Many comments included or consisted entirely of dictionary definitions of *natural* or links to them. The *Oxford English Dictionary (OED)* was frequently cited: “existing in or caused by nature; not made or caused by humankind.” As was *Merriam-Webster*’s: “existing in nature and not made or caused by people: coming from nature: not having any extra substances or chemicals added: not containing anything artificial: usual or expected.” One person wrote, “Only a corrupt organization would need someone to explain what the obvious definition of ‘natural’ means,” then cited both the *OED* and *Merriam-Webster* definitions. In addition to citing the dictionary, others wrote comments such as: “Why are we needing to define a word that already has a definition?”; “This is not a real question right?”; “Seriously, go to the dictionary and look up ‘natural.’” Comments about the sheer obviousness of the meaning of *natural* contested the scientific expertise powerful companies and trade groups would leverage, asserting that no such expertise was necessary to know what it meant or should mean.

Individuals also frequently asserted that “natural” should ensure that foods were produced without science, technology, and scientific expertise. “Nothing chemically derived in a laboratory is natural,” commented one person. “If something was done in a laboratory it is not natural,” wrote another. One comment began,

“If the food is whatsoever handled by a scientist and changed from its original state or modified from how it came to be from nature then it is not natural.” While this logic ran through the comments submitted by individual members of the public, it was especially prevalent in arguments against allowing foods produced using genetic engineering to bear the term “natural.” Comments like this one captured a widely shared sentiment: “Anything created in a laboratory is not Natural, so GMOs are not natural. . . . Natural should mean nothing man made. Natural should mean nothing that was created in a laboratory.” One person commented, “Nothing that is created in a lab and can only be created in a lab by a trained person with specific and advanced equipment should be called natural. Genetically Engineered Organisms can only be created in a lab through the use of advanced scientific knowledge and equipment and therefore is NOT natural.” Another wrote, “It doesn’t take a scientist (or, perhaps, it does) to tell you that if some biological material was tinkered with in a lab then ‘natural’ is far from what it is!! Nature produces what it will, hybridization included. Laboratories do not produce a natural product.”

While these were exactly the views on genetic technologies that those influenced by the Real Facts frame dismissed as emotional and irrational, through them the public asserted its own authority by claiming that “natural” food is not something that could be created by or should be governed by experts; in other words, they leveraged the ideological power of “natural” to contest the ideological power of “science.” As Hansen notes, uses of “nature” are ideological “in the sense that they serve ultimately the purpose . . . of presenting particular views” as right. Hansen argues that “natural” serves as a “discursive stopper,” invoking a sense of non-negotiability and preempting further questioning.⁴⁶ Describing something as “natural” shuts down discussion,

implying “‘we all know what this means or ‘this does not require scientific knowledge.’”⁴⁷ Comments submitted by the lay public harnessed this ideological power to assert commonsense meanings of “natural” and to invoke their non-negotiability. Thus, while they may appear antiscience through the lens of the Real Facts frame, these comments were more accurately anti-food scientism. They contested the ideological power of science as a vague but powerful signifier of authority and used the ideological power of “natural” to present the views of the lay public as right and beyond further questioning.

Comments submitted by individual members of the public also addressed the issue of power and authority in the food system directly, pointing to collusion between industry and the government and expressing frustration about uneven power dynamics. The docket was an opportunity for the public to speak directly to the FDA, vent anger and frustration, and demand that the FDA take their concerns seriously. One comment asked sarcastically, “Should the FDA do anything? No, we should have a government that just stands by, collects a paycheck, and watches major food corporations lie to consumers.” Another demanded, “You need to label food with the correct ingredients and stop allowing companies to poison Americans.” Many of the comments that expressed the most anger about power dynamics implicitly or explicitly concerned the possibility that foods produced using genetic engineering might be allowed to bear natural claims.⁴⁸ One argued, “There is nothing natural about it! Stop poisoning our people!! Do your jobs and listen to the people instead of being bought and paid for”; and another wrote, “Label GMOs and stop taking bribes.” Many comments were laced with similar outrage that the FDA seemed to work for the industry rather than consumers. “Who does the FDA work for?,” asked another, before accusing

the agency of supporting the “greed of the industry” that earns “its millions” deceiving consumers. One person wrote, “I have given up completely on you guys. WAKE Up and do your JOB. Protect the people stop trying and letting companies find loopholes around telling the public what we put in our bodies. The amazing part is your guys let it happen.”

Seen through a Real Facts lens, comments from the lay public arguing that “natural” should mean what it already obviously meant and that no expertise or science was necessary for defining it would likely be taken as further evidence of the public’s lack of understanding of the scientific and technical aspects of food production. These were exactly the misinformed expectations and antiscience sentiments that the industry press was wringing its hands about. But while the public may have embraced notions of what the term should mean that were impractical from an industry perspective, they were not antiscience so much as they were anti-food scientism. They asserted lay authority over the question of what “natural” should mean, contested the role of scientific expertise, and brought power dynamics—that is, politics—to the fore. Along with the comments from consumer advocates and trade groups aligned with a consumer-driven definition of *natural*, these comments took the concerns of the Real Food frame seriously and urged the FDA to do so as well.

DEFINING *NATURAL* THROUGH “SCIENCE-BASED REASON”

For companies and trade groups influenced by the Real Facts frame, the problem with natural foods was not misleading marketing but misinformed consumers and their advocates whose unreasonable expectations might cause the FDA to take up a

restrictive definition that harmed their commercial interests. Even though these comments differed on how exactly *natural* should be defined and regulated, they shared a central argument that “science-based reason” should prevail over irrational consumer expectations when it came to determining the use of the “natural” label on food. Driven by food scientism, these comments claimed science as a source of authority to set policy and made the case for asserting this authority over and against uninformed or misinformed consumer perceptions.

The FDA’s mandate to prevent misleading labeling, along with the fact that the existing policy on labeling foods “natural” hinged on consumer expectations, meant that public perceptions of “natural” had to be contended with even if they would ultimately be overridden. As discussed above, organic interests, consumer advocates, and the lay public all argued that consumer expectations should be the central consideration in defining what was natural. For conventional food businesses and the trade groups representing them, however, negotiating consumer expectations was more complicated. It often entailed acknowledging the importance of the public’s perceptions while urging the FDA to prioritize scientific reason. The comment from the American Bakers’ Association (ABA), for example, navigated this balancing act by arguing that the policy on natural foods should be based on evidence from “both science (as appropriate) and concrete consumer research.” It argued that the FDA needed to thoroughly understand what consumers think natural means—“particularly on clearly processed food products such as bread or baked goods”—and suggested it conduct consumer research studies to do so. But the ABA also argued that in cases where expectations were “unreasonable,” the FDA should educate consumers to align their expectations with a rational use of

the term. They explained, “To the extent that consumer expectations may be unreasonable or inappropriate, the FDA should not be bound by them, but instead should remain science- or evidence-based and educate consumers about a more appropriate understanding of ‘natural.’” This approach, they explained, would “provide consumers with more scientifically valid information about the food they eat.” As an example of “unreasonable or inappropriate” consumer expectations, the ABA pointed to the expectations that might hinder their members’ use of the term “natural”: “when a ‘natural’ claim is made on a food that obviously has been processed (e.g., bread that has been baked), any consumer expectation that such claim must mean that the food is unprocessed is not reasonable.”

The Sugar Association argued, similarly, that the definition of *natural* needed to be based on “the preponderance of scientific evidence.” The association, which represented sugarcane and sugar beet refiners and farmers, elaborately described public knowledge deficits in making the case that the regulation must be science based rather than conform to consumer expectations. They described consumers as having “an inherent lack of knowledge about food ingredients, food technology and food ingredient terminology” that placed them at a “disadvantage when trying to evaluate when a product or ingredient is ‘natural.’” They maintained that surveys purporting to report on consumer expectations were unreliable because consumers “often base answers to complicated questions on limited knowledge of complex processes and systems.” Consumers must rely, therefore, “on the oversight of regulatory agencies to provide clear, concise and science-based regulations.” Driving home these deficit-driven arguments, the comment continued, “It is the duty of experts to ensure that any evaluation of a definition for ‘natural’

is undertaken within the proper context of the food supply and food technology, and is accurate and science-based to ensure that consumers are not misled based on opinions that are not supported by facts.”

While scientific knowledge was certainly relevant to many of the questions posed by the FDA about natural claims, the question of what the term “natural” should be allowed to mean in the marketplace for food was not one that could be answered scientifically. For example, the central question of whether production practices used in agriculture should be a factor in determining the use of natural claims was blatantly a question of judgment, and a highly charged one at that. Similarly, whether manufacturing processes should be considered and if so, how “processed” and “unprocessed” should be defined and whether the manner in which an ingredient is sourced should be considered were also not questions that could be scientifically determined. Arguments that the question of what *natural* should mean could and should be answered scientifically reflected a larger shift in the role of science in public life, as described by Wynne, from informing policy to determining what kind of information matters and defining acceptable (i.e., “reasonable”) public interpretations and concerns. Comments shaped by the Real Facts frame conjured science as what Wynne and Ian Welsh have called a “catch-all signifier of authority” and treated the project of defining *natural* not as a public issue *involving* science but as one that should be defined by it.⁴⁹

As they answered the questions posed by the FDA about where the line should be drawn between natural food and food that should not be allowed to bear the term, companies and trade groups advocated every possible position based on their being scientific, even though the logic rarely involved the application of specific scientific or technical knowledge. For example, many

comments argued that there was a rational, scientific basis for determining a definition of *natural* based on the extent of processing involved and whether the basic composition of the food had been changed. Trade groups representing pistachio growers, frozen food makers, seasoning manufacturers, and juice producers, as well as corporations supplying stevia, sugar, algae, and more, made the case that processes that do not change the “fundamental nature” of the product or its “natural character” or “molecular structure” or “original chemical form and structure” should be allowed to be considered natural.⁵⁰ Pistachio growers, for example, systematically made the case that roasted, salted, and flavored nuts should be considered natural because “flavoring does not alter the genetic or biological make-up of the nut” and roasting “does not alter the structural make-up of the product.” Similarly, the Sugar Association advanced this perspective in seeking to protect its distinction as natural in contrast to high fructose corn syrup.⁵¹ It argued that starch-based sweeteners were not natural, despite being derived from a natural source, because processing changes the molecular structure of the raw material from which it was physically separated. While these arguments advocated a determination of natural food that could be made scientifically (i.e., whether or not the original chemical form or structure of a food had been changed), the argument that the determination *should* be made in this way was itself subjective and driven by the specific interests of those advocating for it.

Commenters bolstered these scientific claims to authority by also arguing that their positions were in the public interest. As David Hess explains in his work on “undone science,” in the context of contestation over visions of desirable futures competing parties often express their positions in terms of the public good. He explains that members of the “official public”—that is,

incumbents in political, industrial, or other social fields—generally support their positions not by arguing how their own interests will be advanced but by arguing that “their position is the best road toward the goal of producing an outcome in the broad public interest.”⁵² Furthermore, as Claire Marris argues in her analysis of communication and public engagement initiatives related to synthetic biology, scientific institutions routinely “see ‘public attitudes’ as a major obstacle to the field that needs to be surmounted in order to deliver its ‘public benefit.’”⁵³ While comments to the FDA from trade groups and corporations were generally very explicit about the business interests at stake, they also frequently argued that their position on how “natural” should be used was in the public interest and that public perceptions should be overcome, if need be, to provide this public benefit. According to their logic, “natural” was such a compelling marketing term that disqualifying ingredients or technologies that made products safer or more nutritious from being called natural was a threat to public health.

Commenters marshaled science-based authority and argued that public objections needed to be overcome for the sake of the public good when it came to whether technologies that reduced safety risks or added vitamins should be considered “natural.” According to the Juice Products Association, for example, pasteurization, heating, freezing, high-pressure processing, and irradiation should not disqualify a food from using a “natural” claim because they reduced or eliminated food safety risk, and “it would be contrary to public policy to force foods in the ‘natural’ segment to sacrifice food safety.” The National Seasoning Manufacturers Association wrote that “any approved treatments that make the product microbiologically cleaner and safer for consumers should not impact the ‘natural’ status of the product.”

Thus, they argued, “FDA-approved microbial reduction process, which currently includes ethylene oxide, irradiation, steam and propylene oxide” should be considered acceptable for use in products labeled “natural.” Using the same logic, the National Turkey Federation argued that “use of chlorine in the chiller (and other processing aids such as chlorine dioxide and acid rinses)” should not disqualify a product from being labeled “natural.” It urged the FDA to consider the potential economic impacts of an “inappropriate definition” and argued that the ability of the industry to “adopt new technologies to improve the safety of their products is very important and should not be hindered” by disqualifying a product from being labeled as natural.

Commenters made similar arguments in favor of exempting synthetic vitamins from disqualifying a product from being considered natural. The Council for Responsible Nutrition, a trade group representing ingredient suppliers and manufacturers in the dietary supplement and functional foods industry, acknowledged that the current policy on natural food “hinges in part on the absence of synthetic ingredients” but argued that essential nutrients should be exempted from having to meet this qualification because of their importance for the health of the population. They noted that because consumers increasingly seem to be “substituting fortified foods with those that are fresh or minimally processed, made from all-natural ingredients, or organically grown, the prevalence of under-nutrition might increase across the population unless natural and organic foods are fortified with vitamins.” Similar arguments were made by a wide range of corporations and trade groups, including the GMA, the National Restaurant Association, Unilever, the Enzyme Technical Association (representing enzyme makers), Citrus World (a grower’s cooperative), the Juice Products Association, and the International Dairy

Foods Association. Like the Council for Responsible Nutrition, the GMA argued that an exception to the no-synthetic-ingredients component of “natural” should be made for fortification with synthetic vitamins because “there is a clear benefit to not stigmatizing the addition of vitamins and minerals to foods in relation to the use of the term ‘natural’ on a food or ingredient label.” While these arguments were made in the name of the public good, they were also based in self-interest, and while applying forms of scientific knowledge, they also enacted food scientism by extending the purview of science beyond those forms of knowledge to a general sense of authority over meaning and policy.⁵⁴

All these themes—the deployment of science as a catchall signifier of authority over both meaning and policy, bolstered through alignment with public interests, and asserted over and against public deficits of knowledge and understanding—were especially evident in comments addressing whether agricultural practices should be relevant in determining whether a product could be called natural. As discussed above, the competing citizens’ petitions filed by Consumers Union and the GMA made this question central to the negotiation and brought controversy over the relationship between scientific authority and public perceptions to the fore. Consumer research—including Consumer Union’s widely cited studies—suggested that most consumers mistakenly conflated “natural” claims with organic certification, but those companies and trade groups who were using “natural” on the products of conventional agriculture and / or biotechnology sought to protect their ability to do so. They criticized the Consumer Union survey results as methodologically flawed and unreliable, cited their own studies suggesting that consumers perfectly understood the difference between natural and organic, and advocated a “harvest forward” approach in which agricultural practices would be considered outside the scope of natural claims.

In its comment, for example, Tyson noted that many organizations submitting comments to the FDA claimed to speak for or understand the desires of consumers, but, they warned, “such claims should be viewed with skepticism in the absence of reliable survey data. As the FDA knows well, not all consumer surveys are created equal. Some surveys are designed to produce results to support a pre-determined point of view or political agenda.” The comment went on to name the surveys submitted by *Consumer Reports* as “potentially biased” and to assert that Tyson, “on the other hand, is in the business of meeting, rather than shaping, consumer expectations.” According to Tyson’s survey of over five thousand consumers, 93 percent “profess to either ‘exactly’ or ‘generally’ understand the meaning of ‘natural’ claims on meat and poultry products.” Furthermore, they found that consumers “typically do *not* associate the ‘natural’ claim with crop production or animal raising methods,” including GMOs.⁵⁵

Companies seeking to continue using the term “natural” on foods produced using conventional agriculture and/or biotechnology argued that if natural was to pertain to production practices, the only rational approach would be to maintain the FDA’s policy of focusing on the objective characteristics of a food, rather than its source, and allow the products of biotechnology to bear the natural claim. Deficit thinking haunted comments arguing that when it came to deciding whether or not the products of biotechnology should be allowed to be labeled “natural” consumer expectations were too irrational to be taken seriously. These arguments, which echoed the GMA petition but came from a wide range of corporations and trade groups, clearly reflected the discourse on biotechnology taking place outside of the comments, in which a scientific view of the controversy defined risk as the only legitimate concern, dismissed concerns about risk as scientifically invalid, portrayed remaining concerns about the

technology and its uses as irrational, and called for education to address the deficits behind the problem of public acceptance.⁵⁶

As in the arguments about safety and fortification, those addressing biotechnology deployed science as a vague but superior form of reason for deciding what "natural" should mean. They also invoked the public good, which they aligned with the nation's role as a leader in agricultural innovation and characterized as threatened by irrational public perceptions that needed to be overcome.⁵⁷ The Farm Bureau Federation (FBF), "the country's largest general farm organization," for example, submitted a comment that conflated the question of what "natural" should mean with the viability of the products of biotechnology in the marketplace. The FBF reminded the FDA that to "remain internationally competitive and lead the world in achieving productivity and efficiency gains . . . U.S. agriculture must stay on the cutting edge of technology." The comment argued there was no "scientific justification" for treating the products of natural gene transfer differently from the products of genetic engineering and no "scientific rationale" for the FDA to deviate from its long-standing policy of not considering plant breeding methods relevant when it came to considering whether a product can be called "natural." The FBF described the controversy surrounding genetic engineering as "contrary to scientific consensus" and characterized comments against allowing the products of biotechnology to be called natural as in some cases seeking market advantage and coming from "what, in many cases, is emotional or uninformed points of view."

While comments like this one explicitly characterized public attitudes as irrational, others implicitly projected public knowledge deficits by assuming that the public did not see the products of biotechnology as natural because they didn't understand basic facts about agriculture and genetic engineering. The

Biotechnology Innovation Organization (BIO), "the world's largest biotechnology trade association," was also among those positing that the only rational approach would be to disregard production practices or to allow the products of biotechnology to be labeled "natural." The central argument of BIO's extensive "Discussion" section was that "there is no sound legal or policy basis" for forbidding the products of biotechnology from being considered natural because "if natural means the absence of human influence, then *no* agricultural or food production activity is natural." The central assumption of its argument supporting this conclusion was that genetic engineering was perceived as unnatural only because people did not understand basic facts about agricultural breeding, which it summarized as follows: modern biotechnology is a refinement of breeding techniques that have been used for thousands of years; all agriculture has been altered by human intervention; most of our existing crops cannot survive without human aid; the tools used to genetically alter plants and animals come from nature.

BIO's fourteen-page comment also included an extensive "Note on Science and Regulation" that implicitly projected public knowledge deficits by assuming that concerns about genetic engineering being labeled "natural" were the result of the public not understanding basic facts about the safety of foods produced using biotechnology. This section was consistent with the scientism of expert discourse on genetic engineering, in which safety was seen (and dispensed with) as the only legitimate issue for public concern. Yet, as Wynne argues, public concerns embodied "much larger political-economic and human questions and concerns" about how scientific research and innovation, as well as "scientific advice to policy, [are] selectively conducted and controlled."⁵⁸ BIO's "Note on Science and Regulation" began by

stating that “there are hundreds of scientific studies supporting the safety of foods improved through biotechnology, including studies from the most credible scientific authorities in the world,” such as the National Academy of Sciences, the United Nations Food and Agricultural Organization, the World Health Organization, and the American Medical Association. In a bullet-point list, it cited key points from eight of these studies, noting that these statements were supported by “an abundance of scientific research.” By providing an education about agricultural breeding practices and citing scientific assurances of safety, BIO’s comment dismissed the view that products of genetic engineering should not be allowed to bear “natural” claims as irrational and emotional without ever even mentioning them.

The comments submitted to the FDA by corporations and trade groups seeking to be able to continue to use the term “natural” in ways that were considered misleading by the public enacted food scientism in its many forms. They assumed that science could and should not only answer relevant research questions but also determine policy and shape public meanings. They were motivated by the assumption that public perceptions of processed food were based on irrational fears of food science and technology and haunted by persistent misunderstandings of public concerns about the uses of science and technology as the result of knowledge and trust deficits.

The fact that the FDA failed to act after collecting comments on whether and how the term “natural” should be regulated aside, the tussle over its meaning is a very good place to see the Real Facts frames in action and track its side effects. Concerned about health, sustainability, and risk and wanting change in the food system, the public sought to act on its values and aspirations in

the marketplace. Narrowly reframing those concerns as demands that could be met through product reformulations and new approaches to marketing—but without serious, systemic engagement with the broader issues they reflected—the food industry provided products that appeared to be more natural, less processed, and therefore better. The antipolitics of this narrow interpretation of what it meant to respond to the Real Food frame was amplified by the imaginary of the public that accompanied it; articles in the industry press and comments to the FDA show that many perceived the consumers of “real food” as irrational and misinformed. Seen through the food scientism of the Real Facts frame, consumer perceptions of processing and what “natural” meant, or should mean, were further proof that the public lacked the skills and understanding to meaningfully participate in the regulatory process, let alone act as knowledgeable participants in the governance of technology and the shaping of the food system.