

Consumer Perceptions and Purchase Motivations Related to Environmental Sustainability

Kris Sollid, RD,¹ Tamika Sims, PhD,² and Allison Dostal Webster, PhD, RD³
International Food Information Council (IFIC), Washington, DC, U.S.A.

ABSTRACT

Cereals and pulses make important contributions to carbohydrate and protein intakes. Data collected by the International Food Information Council (IFIC) show consumers reported eating fewer carbohydrates during the last decade, yet consumers consistently rank fiber and whole grains as two of the most healthful foods or nutrients to eat. IFIC data also show more favorable opinions among consumers about plant sources of protein compared with animal sources, but there is a recognition that both protein sources can be included in eating patterns that are healthy and environmentally sustainable. In addition, Americans are choosing a variety of eating styles for reasons that include personal and planetary health. Environmentally sustainable foods are viewed by many consumers as beneficial to human health, and with concerns about climate change growing, there is interest in more environmentally friendly food options. However, it is difficult for consumers to know whether a food choice is environmentally sustainable. Therefore, understanding the evolving food perceptions and values of the American consumer, particularly with regard to plant foods, is vital to communicating credible information about the impact of food choices on personal and planetary health.

The Influence of Consumer Perceptions and Values on American Food Choices

The food choices of Americans are evolving and complex, with a variety of factors affecting consumption habits. Consumer research can capture real-time insights into what factors drive food and beverage purchases, which when observed over time can be used to assess consumer knowledge and identify emerging trends. One of the objectives of the International Food Information Council (IFIC) is to elevate the understanding of Americans' food beliefs and behaviors through its consumer research, which IFIC has been conducting for three decades. IFIC's signature consumer research project, the Food & Health Survey, has been released annually since 2006, with 2020 marking its fifteenth iteration. In this article, we describe trends in recent Food & Health Surveys, along with related findings from other IFIC consumer surveys, regarding perceptions of food, nutrition, and sustainability that influence what and how Americans eat.

¹ Corresponding author. International Food Information Council (IFIC), 900 19th St, NW, Washington, DC 20006, U.S.A. Tel: +1.202.296.6540; E-mail: sollid@ific.org

² E-mail: sims@ific.org

³ E-mail: webster@ific.org

Current Dietary Choices and Drivers of Food and Beverage Purchases

With an abundant and diverse food supply offering more food and beverage options than at any point in history, today's consumers are choosing a variety of eating styles. IFIC's "2020 Food & Health Survey" (8) found that 43% of consumers have followed a specific eating plan or diet in the past year—a statistically significant increase from the 38% who reported doing so in 2019. The most popular diets in 2020 included intermittent fasting, clean eating, and other diets that emphasize strict limitations on intake of certain macronutrients (e.g., ketogenic or high-fat and low-carb diets). Although health benefits have been demonstrated in eating patterns that include foods rich in cereal fiber or mixtures of whole grains and bran (2), IFIC data show that eating patterns that encourage consumption of grain-based foods, such as the Mediterranean, vegetarian, vegan, and Dietary Approaches to Stop Hypertension (DASH) diets, are not followed as commonly as other more trendy options.

Personal decisions about food are inherently complicated, and many are made every day, with a variety of factors impacting the choices people make. In comparing the influence of convenience, healthfulness, price, sustainability, and taste on food purchasing decisions, IFIC consumer research shows that the relative order of importance given to these factors has not changed during the past decade. For the past 10 years, taste has been the top purchasing driver, followed by price, convenience, healthfulness and sustainability. However, one small shift in terminology has proven to significantly modify the impact of sustainability on food purchasing decisions: in the "2019 Food & Health Survey" (4), the response option "sustainability" was modified to "environmental sustainability," and its impact as a purchase driver consequently declined. In 2018, 39% ranked "sustainability" as having an important impact on food and beverage decisions, a number that had been relatively steady since 2012, while just 27% said the same about "environmental sustainability" in 2019. This indicates that for many, "sustainability" encompasses more than environmental concerns. This number rebounded to 34% in 2020; however, environmental sustainability remained the lowest priority compared with other purchasing drivers, demonstrating that even though a large percentage of the American public is thinking about environmental sustainability when making purchasing decisions, most people still place more value on other aspects of foods and beverages.

At the same time, many consumers appear willing to consider environmentally friendly alternatives to current purchases, provided that other purchasing influencers, like taste and price, are accounted for. In IFIC's "Climate Change and Food Production" survey (7), consumers were asked how they would respond if they found out that one of their favorite products was less envi-

ronmentally friendly than an alternative which tasted just as good. Thirty-five percent of survey takers said they would purchase the more environmentally friendly product; thirteen percent said they would continue purchasing the same less environmentally friendly product. Nearly 3 in 10 (29%), however, said that it would depend on the cost of the more environmentally friendly product.

Perceptions of Sustainability and Climate Change

Defining “sustainability” for consumers remains an elusive but important goal. In 2019, IFIC’s “Survey of Consumers’ Attitudes and Perceptions of Environmentally Sustainable and Healthy Diets” (5) found discrepancies in whether the term “sustainability” addressed planetary health. Forty percent of consumers said they were unsure whether an “environmentally sustainable diet” was the same as a “sustainable diet,” while thirty-four percent said that they were not the same. Although there is no consensus definition of a sustainable diet, the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) have established guiding principles for “sustainable healthy diets” that encompass international nutrition recommendations, the environmental cost of food production and consumption and adaptability to local social, cultural, and economic contexts (3).

Americans’ concerns about climate change are growing (10). An IFIC survey (7) conducted in April 2020 assessed how concerns about climate change affect food purchasing decisions. Two-thirds of survey participants reported being at least somewhat concerned about the impact of food production on climate change (34% very concerned; 33% somewhat concerned). Of those who indicated concern, 7 in 10 (71%) said that their food and beverage purchases are impacted (52% sometimes; 19% always) as a result. In IFIC’s “2020 Food & Health Survey” (8), 59% of survey respondents stated that it is important for the foods they purchase or consume to be produced in an environmentally sustainable way. However, as Americans continue to migrate from rural to urban communities, there is a growing disconnect from knowledge of agricultural practices and farming methods that contribute to the production of environmentally sustainable foods. Therefore, it is not surprising that 63% agree that it is hard to know whether the food choices they make are environmentally sustainable. Of those who agree on this difficulty, 69% also agree that if it were easier to know whether their food choices are environmentally sustainable, it would have a greater influence on the choices they make.

The desire for more information about the environmental sustainability of food choices may extend beyond the impact of food production on planetary health: environmentally sustainable food choices are also viewed by some consumers as being more beneficial to human health. When presented with two food products that have identical Nutrition Facts labels, IFIC consumer research has found that the product described as being “produced in a more environmentally sustainable way” was more likely to be considered the healthier option than a product described as “produced in a less environmentally sustainable way” (4,8). Products described as “all natural” and “plant-based food” are also more likely to be perceived as healthier than products that are not described as such (8).

IFIC consumer research also shows that perceptions of a food or beverage product’s impact on climate change is influenced by on-package terminology, including “natural,” “organic,” “locally

produced,” and “non-GMO” (7). However, there are no official definitions for some of these terms (e.g., “natural” or “local”) nor are they validated indicators of a product’s impact on climate or the environment. With some consumers equating label descriptions or icons with environmental benefits and using them to make food choices, there is a need to provide consumers with credible and verified information about environmentally sustainable food choices.

Self-Reported Healthfulness and Dietary Changes Over Time

Adherence to recommendations in the *Dietary Guidelines for Americans* is low (13), although the average American diet has made slight improvements in the last 15 years according to the Healthy Eating Index (HEI). The most current HEI score for Americans is 59 out of 100, which is a small increase from 2005 to 2012 but a slight decrease from 2013 to 2014 (12). Interestingly, in the 2020 Food & Health Survey, respondents rated the healthfulness of their overall diet at 59 on a scale of 0 to 100—exactly matching the current HEI score. In the 2019 Food & Health Survey, participants were asked to think about changes they have made to their personal diet over the last decade. Nearly 4 in 10 (39%) reported that their diet was extremely or very different than it was 10 years ago. The most common dietary change reported was limiting sugar intake, followed closely by eating more fruits and vegetables and eating less carbohydrates, with 16, 15, and 14% of the sample reporting this, respectively. IFIC 2019 data on reductions in added sugar and carbohydrate intakes among adults during the last decade aligns with recent data from the National Health and Nutrition Examination Survey (1,11).

At the same time, two sources of carbohydrate (fiber and whole grains) lead the way in perceptions of healthful foods and nutrients. Eighty-two percent of participants in the 2020 Food & Health Survey rated fiber as healthy, followed closely by seventy-nine percent who rated whole grains as healthy. Fiber and whole grains also top the list of foods and nutrients people are trying to eat more of, with 54 and 50% indicating they try to consume fiber and whole grains, respectively.

Plant-Based Proteins

Protein consumption in the United States has increased over the last two decades driven by increases in calories from both plant and animal protein sources (11). Increased consumption of whole grains, nuts, and soy has led to a rise in total plant protein intake, and increased consumption of poultry and eggs is the top contributor to a rise in total animal protein intake. In a 2019 IFIC survey (5), 72% of survey participants reported consuming protein from plant-based sources, and 92% reported consuming protein from animal sources. While the top reason for choosing to eat protein from either source was the same (“I like the taste”), reasons for choosing a protein source differed based on culinary confidence, access, and perceived healthfulness. More people reported choosing to consume animal sources of protein because they “know how to cook with it” (45%), and they are “more widely available than other sources of protein” (34%) compared with those who said the same about plant protein sources (22 and 15%, respectively). Conversely, more people reported choosing to consume plant sources of protein because they are “healthier than other sources of protein” (33%) than those who said the same about animal sources of protein (15%). Being “produced in an environmentally sus-

tainable way” was the least influential factor for choosing either a plant or animal source of protein.

Plant-based protein is a food category that has experienced rapid growth in recent years. The original veggie burger dates back decades, but a new generation of plant-based meat is distinguished from its predecessors by characteristics that attempt to mimic the taste and texture of animal proteins. According to a 2020 IFIC survey (6), along with various factors led by liking to try new foods, a belief that plant alternatives to meat are better for the environment was one reason cited by individuals who decided to try a plant alternative to meat.

Although differences in the environmental impacts of production of animal meat and plant alternatives to meat continue to be studied, it appears that consumers have already formed strong opinions. Close to half of consumers in the survey (47%) (6) believed that plant alternatives to meat are better for the environment than animal meat (26% “much better”; 21% “somewhat better”). Twenty-three percent said that neither option was better or worse for the environment, while 5% said that plant alternatives to meat were worse (3% “much worse”; 2% “somewhat worse”) and nearly 1 in 4 (24%) said they were unsure. It remains unclear, however, if perceptions of environmental impact are driving changes in consumption of protein sources. IFIC’s 2020 Food & Health Survey (8) found that in the last year, many reported eating the same amount of dairy (56% of survey participants), poultry/eggs (53%), red meat (47%), seafood (45%), protein from plant sources (44%), plant-based dairy alternatives (34%), and plant-based meat alternatives (32%). The most common protein sources that survey participants reported never having consumed were plant-based meat alternatives (33%), plant-based dairy alternatives (29%), and plant sources of protein (15%).

In another IFIC survey (9), consumers were asked which type of burger they believed to be healthier: a plant alternative to meat or 100% ground beef. More people (41%) said the plant alternative to meat was healthier than said the 100% ground beef burger was healthier (31%), while 17% said neither is healthier and 11% were not sure. To eat healthier and more environmentally sustainable foods, nearly 2 in 3 (65%) believed they should be eating the same amount (38%) or more protein (27%) from plant sources, and just over half of those surveyed thought they should be eating the same amount (42%) or more protein (11%) from animal sources (5). While IFIC data indicate more favorable opinions among consumers regarding plant sources of protein, there is also a recognition that there is room for both protein sources in eating patterns that are healthy and environmentally sustainable (5).

Conclusions

Food choices are personal and made based on many factors beyond nutrition. Although research has shown that consumers make purchases based on qualities that benefit themselves (such as price, taste, and healthfulness), many also consistently demonstrate that they care about the environmental impacts associated with their food choices. Because environmental sustainability is an ongoing concern, it is important for consumers to have access to clear information on what farmers and food manufacturers are doing to be upstanding environmental stewards and how environmentally friendly food choices can be made. These are two elements linked to the importance of asserting transparency in information provided to consumers by food producers. Understanding the evolving food percep-

tions and values of the American consumer, particularly with regard to plant foods and how they impact behavior, is critical if food and nutrition professionals are to guide consumers in making food choices that better align with dietary guidelines that can simultaneously benefit personal and planetary health.

Conflict of Interest Disclaimer

The International Food Information Council (IFIC) is a §501(c)(3) nonprofit educational organization supported by food, beverage, and agriculture companies. Its mission is to effectively communicate science-based information about health, nutrition, and food safety and agriculture.

References

1. Bowman, S. A., Clemens, J. C., Friday, J. E., Schroeder, N., Shimizu, M., LaComb, R. P., and Moshfegh, A. J. Food Patterns Equivalents Intakes by Americans: What We Eat in America, NHANES 2003–2004 and 2015–2016. Dietary Data Brief No. 20. Published online at www.ars.usda.gov/ARSUserFiles/80400530/pdf/DBrief/20_Food_Patterns_Equivalents_0304_1516.pdf. Food Surveys Research Group, Beltsville, MD, 2018.
2. Cho, S. S., Qi, L., Fahey, G. C., Jr., and Klurfeld, D. M. Consumption of cereal fiber, mixtures of whole grains and bran, and whole grains and risk reduction in type 2 diabetes, obesity, and cardiovascular disease. *Am. J. Clin. Nutr.* 98:594, 2013.
3. Food and Agriculture Organization of the United Nations and World Health Organization. Sustainable healthy diets: Guiding principles. Published online at www.fao.org/3/ca6640en/ca6640en.pdf. FAO and WHO, Rome, Italy, 2019.
4. International Food Information Council. 2019 Food & Health Survey. Published online at <https://foodinsight.org/2019-food-and-health-survey>. Food Insight, Washington, DC, 2019.
5. International Food Information Council. Consumers’ attitudes and perceptions of environmentally sustainable and healthy diets. Published online at <https://foodinsight.org/sustainability-healthy-diets>. Food Insight, Washington, DC, 2019.
6. International Food Information Council. Consumer survey on plant alternatives to meat shows that nutrition facts are more influential than the ingredients list. Published online at <https://foodinsight.org/consumer-survey-plant-alternatives-to-meat>. Food Insight, Washington, DC, 2020.
7. International Food Information Council. Consumer survey: Climate Change and Food Production. Published online at <https://foodinsight.org/consumer-survey-climate-change-and-food-production>. Food Insight, Washington, DC, 2020.
8. International Food Information Council. 2020 Food & Health Survey. Published online at <https://foodinsight.org/2020-food-and-health-survey>. Food Insight, Washington, DC, 2020.
9. International Food Information Council. Consumer research on plant alternatives to animal meat 2.0. Published online at <https://foodinsight.org/consumer-research-on-plant-alternatives-to-animal-meat-part-2-what-nutrition-facts-information-do-people-use-to-decide-which-product-is-healthier>. Food Insight, Washington, DC, 2020.
10. Pew Research Center. Climate change still seen as the top global threat, but cyberattacks a rising concern. Published online at www.pewresearch.org/global/wp-content/uploads/sites/2/2019/02/Pew-Research-Center_Global-Threats-2018-Report_2019-02-10.pdf. Pew Research Center, Washington, DC, 2019.
11. Shan, Z., Rehm, C. D., Rogers, G., Ruan, M., Wang, D. D., Hu, F. B., Mozaffarian, D., Zhang, F. F., and Bhupathiraju, S. N. Trends in dietary carbohydrate, protein, and fat intake and diet quality among US adults, 1999–2016. *J. Am. Med. Assoc.* 322:1178, 2019.
12. U.S. Department of Agriculture, Food and Nutrition Service. HEI scores for Americans. Published online at www.fns.usda.gov/resource/healthy-eating-index-hei. USDA FNS, Alexandria, VA, 2019.

13. U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2015–2020*, 8th ed. Published online at <http://health.gov/dietaryguidelines/2015/guidelines>. U.S. Government Printing Office, Washington, DC, 2015.
-



Kris Sollid, RD, is a registered dietitian and senior director of nutrition communications at the International Food Information Council (IFIC), where he leads IFIC's nutrition team. Since joining IFIC in 2009, his role has included creating continuing professional education resources, leading consumer research projects, engaging with social and traditional media, and authoring articles for IFIC's website, as well as external consumer and peer-reviewed publications. Kris has earned degrees from the University of Colorado, Boulder

(B.A., geography) and the University of Maryland, College Park (B.S., dietetics) and completed his dietetic internship at the Medical University of South Carolina. Kris is an active member of the Academy of Nutrition and Dietetics and currently serves as past president of DCMAND, the academy's District of Columbia Metro affiliate.



Tamika Sims, PhD, senior director of food technology communications, leads IFIC's Agricultural Technology and Safe Food Production Issue Group, which focuses on communication efforts and strategies linked to food sustainability, biotechnology, and safety. A native of Atlanta, GA, Tamika received her B.S. degree in biology from Spelman College, M.S. degree in biomedical science (with an emphasis in microbiology) from Georgia State University, and Ph.D. degree in virology and immunology from Morehouse School

of Medicine. Prior to joining IFIC, Tamika was the director of human health policy for CroLife America (CLA), where she helped analyze the impact of regulatory initiatives on consumer health and the crop protection industry. Before joining CLA, Tamika was the director of science and research for the International Bottled Water Association (IBWA), where she managed the IBWA Environmental Sustainability Committee, the Packaging Subcommittee, the Virus/Microbial Subcommittee, and IBWA's Drinking Water Research Foundation.



In her role as director of research and nutrition communications, **Allison (Ali) Dostal Webster, PhD, RD**, is responsible for developing and coordinating IFIC's consumer research efforts, as well as nutrition science-focused communication programs. In 2017, Ali joined IFIC from the University of Minnesota, where she conducted research on the effect of diet on the gut microbiome and worked as a registered dietitian counseling patients with gastrointestinal conditions. She has also served as a science policy fellow for

the American Society for Nutrition from 2016 to 2017 and, in 2015, was the recipient of IFIC's Sylvia Rowe Fellowship. Ali holds a Ph.D. degree in nutrition and a B.S. degree in nutrition science, both from the University of Minnesota, and she completed her dietetic internship at the University of Minnesota Medical Center.