EATING FOR THE CLIMATE

Research Findings and Recommendations for a Low-Carbon Food Initiative

Author Statement

This work was created as a collaboration between researchers at the Berkeley Food Institute, the School of Public Health, and the Sutardja Center for Entrepreneurship & Technology and was led by Alejandra Marquez with support from Samantha Derrick, Kristine Madsen, and Ricardo San Martin. There should be no proprietary information contained in this paper. No information contained in this paper is intended to affect public relations within any firm affiliated with any of the authors. The views represented are those of the authors alone and do not reflect those of the University of California Berkeley.

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EXECUTIVE SUMMARY

In a context of a changing climate and growing concerns for healthier food systems, plant-forward dining is gaining momentum as a mainstream concept that advances the idea of plants at the center of our plates to provide both environmental and health benefits. It is advanced by a multitude of higher education institutions and by prominent initiatives such as Menus of Change and the Good Food Institute. Plant-based meat alternatives have also drastically grown in recent years.

Plant-based foods have a considerably lower carbon footprint when compared to meat-based products. Plant-based diets are also linked to lower risks of cardiovascular diseases and diabetes, among other health benefits. Yet, promotion and adoption of the plant-forward concept— a style of cooking and eating that emphasizes and celebrates plant-based foods— is still lacking.

This report asks how food service institutions can best advance plant-forward consumption patterns. It maps out the current trends and initiatives around plant-forward eating in an effort to find the most effective strategies to sway diners towards more sustainable eating patterns. Based on these strategies, we provide recommendations for Cal Dining in their plans to implement a low-carbon platform. The report is intended for dining service leaders and relevant stakeholders in the advancement of plant-forward dining, especially among higher education institutions.

Current Consumptions Trends Among Young Populations

- Plant-forward eating has drastically grown in recent years, especially among younger generations, with plant-based meat alternatives entering the mainstream market.
- College students are driving demand for healthy plant-forward dining at college campuses.
- The global COVID-19 pandemic has boosted plant-based purchases even higher, increasing the appeal of plant-based eating as meat processing facilities shut down.

Barriers and Motivations to Climate-Friendly Eating

- Our barriers framework highlights three spheres of change: barriers at the individual level, in the consumer's immediate food environment, and at the societal level.
- The most cited motivation for plant-forward consumption is health. Other common motivators are taste, environmental factors, and ethical motives such as animal welfare.
- Environmental motivations are not very common among the general American population and often, environmental education has only a weak effect on the willingness and readiness of consumers to eat more sustainably. However, younger generations are more motivated by environmental factors than the general population.

Case Studies: Successful Initiatives in University Settings

- Boston University created the Wholesome Roots program, a dining initiative that celebrates sustainable food with special low-carbon menus.
- The University of North Texas offers delicious plant-based dishes at their all-vegan dining hall, created in 2011.
- As part of a research study, Harvard added a carbon footprint labelling system in their dining halls designed to show students the environmental impact of their food choices.

Communication and Messaging: What Works?

- Our findings are summarized through five categories: language, placement, presentation, promotion, and people.
- Labels that highlight flavor, provenance, comfort, and protein are the most effective at increasing the appeal of plant-forward foods. Those that say "meat-free" or "vegan" or use health restrictive language are not effective.
- Slight adjustments to the dining environment, such as placing plant-forward options at prominent locations and next to meat dishes, can be very effective at increasing plant-forward consumption.

Recommendations for Cal Dining

For Cal Dining's low-carbon platform initiative, we make the following recommendations:

- Increase visibility and accessibility by spreading the low-carbon offerings throughout the dining hall or placing the low-carbon platform at a prominent location.
- Create a habit for plant-forward eating by making low-carbon options the default meal.
- Make low-carbon options more enticing by adding flavor-forward labels and creating eye-catching plant-forward offerings.
- Go big on educational campaigns and engage with students on their concerns, questions, and the barriers they face to making more climate-friendly dietary choices.
- Study the effect of environmental messaging on students' food choices.

UNDERSTANDING THE CURRENT SCENE

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CURRENT CONSUMPTION TRENDS AMONG YOUNG POPULATIONS

Plant-forward— a style of cooking and eating that emphasizes and celebrates, but is not limited to, plant-based foods[1]— has grown in popularity in recent years. In 2019, plant-based food sales grew five times faster than total food sales.[2] With novel plant-based products and alternative meats in the market, "plant-based" is increasingly seen as a mainstream concept, with 49% of US consumers stating that they now eat more plant-based meat substitutes than they did one year ago.[3]

Plant-forward is particularly popular among Generation Z and Millennials. According to a poll by Bloomberg News and Morning Consult, Gen Z-ers are more than twice as likely as baby boomers and Gen Xers to identify as vegan, vegetarian or pescatarian.[4] However, it is not the vegans and vegetarians who are driving the high demand for plant-based foods— omnivores are showing increased interest in lowering their consumption of meat and exploring plant-forward flavors, and their large numbers are mostly responsible for the spike in plant-based demand.[5] For instance, 65% of Gen Z members find plant-forward dishes appealing, and 79% said they would go meatless one or two times a week, according to a 2018 study by Aramark. The same study also found that Gen Z consumers are shifting their eating habits and eating less meat, with 60% wanting to reduce their meat intake, mostly motivated by the health benefits associated with plant-forward consumption patterns.[6]

Regarding the type of plant-based foods that are the most attractive for consumers, research shows that offering a variety of both whole foods such as legumes and grains as well as plant-based meat alternatives (processed substitutes designed to mimic the taste and texture of meat) is key. A recent survey found that 54% of US consumers prefer whole plant-based proteins to processed meat substitutes and yet also found that 71% of US consumers "prefer meat substitutes that closely mimic the taste and texture of real meat."[7] Thus, being able to meet consumers' contrasting preferences with diverse flavors and textures is important in plant-forward dining.

At higher education campuses, plant-forward dining has established a strong presence and as younger generations go off to college, the market size for plant-forward consumption is expected to increase. The Aramark Higher Education Team reports that the vast majority (85%) of college students are likely to order plant-forward meal options and that 43% of college students say dining programs impact their enrollment decision.[8]

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[1] "Official MOC Plant-Forward Definition Slide Deck," PDF File, Menus of Change, January 2019, https://www.menusofchange.org/images/uploads/pdf/Official_MOC_Plant-Forward_Definition_Slide_Deck_(January_2019).pdf
[2] "Plant-Based Market Overview," The Good Food Institute, accessed July 6, 2020, https://www.gfi.org/marketresearch
[3] "The Protein Report: Meat Alternatives," Mintel, January 2017.
[4] Natalie Schwartz, "Gen Z Takeover: Colleges Embrace Vegan Foods to Meet Student Demand," Education Dive, accessed July 6, 2020, https://www.educationdive.com/news/gen-z-takeover-colleges-embrace-vegan-foods-to-meet-student-demand/569368/.
[5] Zak Weston, "Plant-Forward Menus: Growing Demand and What Lies Ahead," Webinar, Global Plant-Forward Culinary Summit, May 27, 2020.
[6] "Aramark Brings Gen Z Food Trends to Life with New Back-to-School Offerings on College Campuses Nationwide," accessed July 6, 2020, https://www.aramark.com/about-us/news/aramark-general/back-to-school-2018.
[7] "The Protein Report: Meat Alternatives," Mintel.
[8] Aramark Higher Education Team. Aramark Plant Power Report, n.p. 2017. Accessed June 30, 2020, https://campusinsights.aramark.com/hubfs/2018/Aramark_infographic_plantforwarddining_2.pdf

College students in particular are demanding environmentally-friendly and healthy food choices on their campuses.[9] With this in mind, dining programs that increase their plant-forward offerings and adapt to students' eating habits and expectations are likely to increase meal plan participation, strengthen their revenue streams, and improve overall student satisfaction.

The global COVID-19 pandemic has pushed these trends even further, with many predicting that the coronavirus outbreaks at meat processing facilities will boost plant-based purchases and increase their appeal.[10] Meat shortages in the United States are prompting many Americans to try plant-based meat alternatives. An illustrative example of the increased demand for these alternative products is seen in the case of Impossible Foods, which increased its presence from 150 grocery stores to 2,700 grocery stores in the month of April alone. Impossible Foods plans to sell its products in more than 10,000 stores by the end of 2020. Meanwhile, Big Meat companies such as Tyson Foods and JBS are being investigated for their unprotected working conditions following coronavirus outbreaks at their facilities.[11] Industry experts and analysts estimate that challenges to the meat supply chain will last as long as the pandemic does and for years to come.[12] The long-term trend is expected to veer towards a more plant-based food system, both due to the present situation caused by the pandemic and to changing consumer appeal.

The above-mentioned consumer trends highlight the increasing demand for plant-forward food options, especially among younger generations and in our post-COVID reality. In light of these trends, higher education institutions are in the best position to implement plant-forward initiatives, both in their leadership to solve global problems and in their responsibility to meet the expectations of students. In order to achieve successful progress towards a sustainable and plant-forward food system, institutions must first understand the drivers and deterrents to sustainable consumption patterns— a question we now turn to.

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[9] "College Students Crave High-Protein, Plant-Based Foods," FoodService Director, February 9, 2017, https://www.foodservicedirector.com/menu/college-students-crave-high-protein-plant-based-foods.

[10] Amanda Topper, "Plant-Based: Understanding Consumer and Menu Trends," Online webinar, Global Plant-Forward Culinary Summit, May 27, 2020.

[11] Alex Gangitano, "Meat Shortage Gives Opening to Plant-Based Alternatives," Text, The Hill, May 10, 2020, https://thehill.com/homenews/news/496869-meat-shortage-gives-opening-to-plant-based-alternatives.

[12] Amelia Lucas and Melissa Repko, "The Meat Supply Chain Is Broken. Here's Why Shortages Are Likely to Last during the Coronavirus Pandemic," CNBC, May 7, 2020, https://www.cnbc.com/2020/05/07/heres-why-meat-shortages-are-likely-to-last-during-the-pandemic.html.

BARRIERS AND MOTIVATIONS TO CLIMATE-FRIENDLY EATING

Barriers

We developed an overarching framework to describe the forces that might deter an individual from increasing their consumption of plant-forward meals (Figure 1). Based on a systematic review of relevant variables, we framed consumer behavior as being influenced by three general spheres of change: at the individual level, in the consumer's immediate food environment, and at the societal level. The broadest sphere— the cultural and societal barriers— highlights deeply invisible and intangible social and cultural forces that shape the way we perceive different foods or ways of eating and understand our role in relationship to our food. For example, our society's representation of meat as the center of a meal[13] is a barrier for plant-forward eating because it directly opposes the notion that plant-based foods are filling and nutritious enough to be our main food intake. The second sphere— barriers in the consumer's environment— shows how the environments in which we make food choices (e.g. grocery stores, dining halls, restaurants , social events) often create barriers through the limited visibility, availability, and convenience of plant-based foods.[14] For example, many grocery stores place plant-based alternatives in a separate section from conventional meat or dairy products, limiting the visibility of these items and making it inconvenient for consumers to choose them. Lastly, the third sphere— individual barriers— points to individual-level factors such as habits, psychological conceptions and past experiences that can act as barriers to making sustainable dietary choices. For example, an individual's psychological attachment to meat can hinder that person from even considering a reduction in meat intake, instead enabling them to justify their meat consumption through rationalization and self-exoneration.[15]

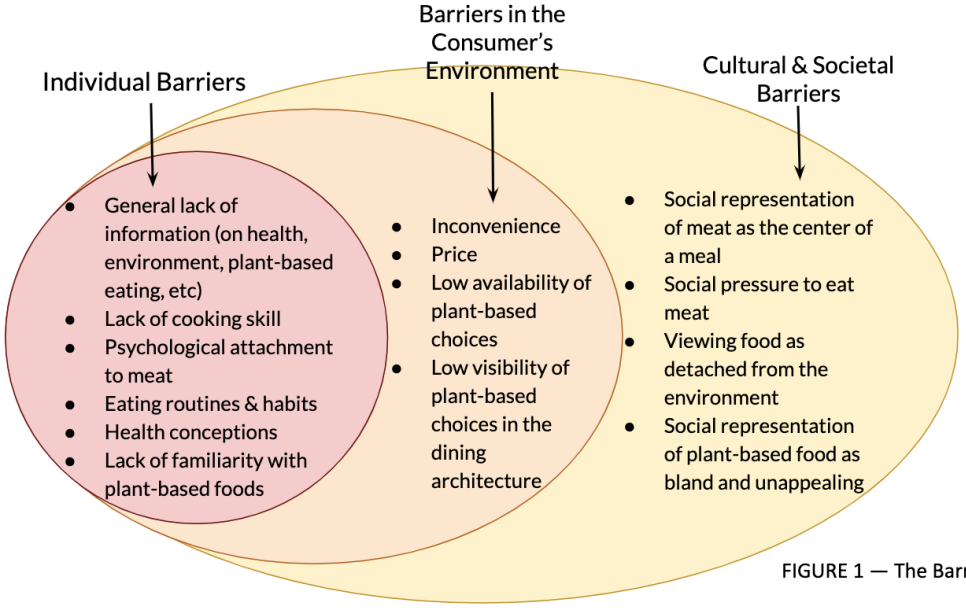

FIGURE 1 — The Barriers Framework

[13] João Graça, Cristina A. Godinho, and Monica Truninger, "Reducing Meat Consumption and Following Plant-Based Diets: Current Evidence and Future Directions to Inform Integrated Transitions," Trends in Food Science & Technology 91 (September 1, 2019): 380–90, https://doi.org/10.1016/j.tifs.2019.07.046.
[14] Annukka Vainio et al., "From Beef to Beans: Eating Motives and the Replacement of Animal Proteins with Plant Proteins among Finnish Consumers," Appetite 106 (01 2016): 92–100, https://doi.org/10.1016/j.appet.2016.03.002; Hannah Ensaff et al., "Adolescents' Food Choice and the Place of Plant-Based Foods," Nutrients 7, no. 6 (June 2015): 4619–37, https://doi.org/10.3390/nu7064619.
[15] João Graça, Abílio Oliveira, and Maria Manuela Calheiros, "Meat, beyond the Plate. Data-Driven Hypotheses for Understanding Consumer Willingness to Adopt a More Plant-Based Diet," Appetite 90 (July 1, 2015): 80–90, https://doi.org/10.1016/j.appet.2015.02.037.

It is important to note that this framework is meant to encapsulate compounded and mutually reinforcing barriers that act as a complex network of influences on the individual consumer (highlighted through the visual interconnection of the spheres). Thus, the barriers are listed in no particular order of importance.

The framework is intended to better equip dining service leaders to educate, motivate, and create the best environments for plant-forward change. For instance, by understanding that many individuals are unfamiliar with plant-based foods and that most dining environments make it inconvenient for individuals to try these foods (e.g. by keeping plant-based foods in location with low visibility or having low availability), dining service leaders can make appropriate changes to the dining environment to make plant-forward options more appealing and easily accessible, leading to higher rates of success for environmental efforts in dining spaces. Additionally, the framework helped inform our recommendations for Cal Dining's low-carbon initiative and served as a basis to frame our findings on successful messaging strategies (described in Part 2 of this report).

Motivations

Our research showed that the most cited motivation for plant-forward consumption is health. Other common and popular reasons for increasing plant-based eating are: weight concerns, incline to eat "natural" foods, taste, environmental factors, and ethical motives such as animal welfare.[16]

Consumer studies show that environmental motivations might not be very common among the general American population— in a survey among internet users who eat plant-based proteins, only 16% cited environmental impact as one of their motivations while 56% cited health.[17] However, other studies show that younger generations are more motivated by environmental factors than the

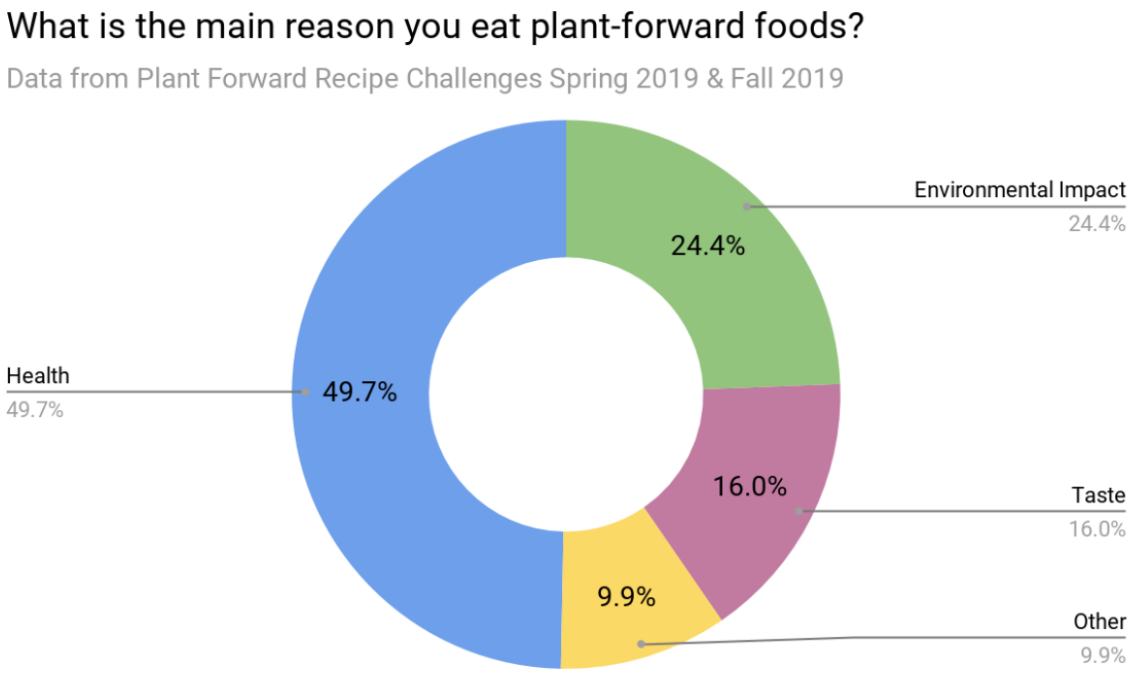

FIGURE 2— Motivations for Plant-Forward Eating Among UC Berkeley undergraduates

[16] Vainio et al., "From Beef to Beans"; Ruben Sanchez-Sabate, Yasna Badilla-Briones, and Joan Sabaté, "Understanding Attitudes towards Reducing Meat Consumption for Environmental Reasons. A Qualitative Synthesis Review," Sustainability 11, no. 22 (January 2019): 6295, https://doi.org/10.3390/su11226295; Christina Tobler, Vivianne H. M. Visschers, and Michael Siegrist, "Eating Green. Consumers' Willingness to Adopt Ecological Food Consumption Behaviors," Appetite, Feeding infants and young children: guidelines, research and practice, 57, no. 3 (December 1, 2011): 674–82, https://doi.org/10.1016/j.appet.2011.08.010.

[17] "The Protein Report: Meat Alternatives," Mintel.

general population. For example, research by Aramark found that nearly one third of Gen Z and Millennials are motivated to go plant-forward because "they feel it's more environmentally friendly and considerate of animal welfare."[18] Data gathered through multiple surveys during the Plant Forward Recipe Challenges at UC Berkeley (Figure 2) show similar results, with most undergraduate students surveyed being motivated by health reasons but a considerable portion also being motivated by environmental impact.

These trends are important for dining services to consider because they shed light on the types of messages and advertising that are most likely to move individuals towards plant-forward change. It is also worthwhile to note that motivations may vary based on an individual's diet type— omnivores and flexitarians are more likely to be motivated by health and, to a lesser extent, environmental impact, while vegans and vegetarians are more likely to be motivated by animal welfare.[19] Thus, if a particular goal is to encourage more omnivores to try plant-based eating, the better approach may be to appeal to them through health and environmental messages.

Can the Environment Be a Strong Motivator?

There is a general lack of awareness of the environmental impact of food, especially around the high carbon footprint of animal products versus the much lower footprint of plant-based products. Tobler et al. found that consumers are largely uninformed or misinformed about ecological food consumption patterns.[20] For example, their study showed that consumers believed avoiding excessive packaging had the strongest impact on the environment and that purchasing organic food and reducing meat consumption were least environmentally beneficial — when in reality, meat consumption has the largest impact. This lack of awareness of the environmental impact of meat is an important barrier to more climate-friendly eating patterns.[21]

Considering this gap in consumers' environmental knowledge, we might conclude that the natural solution would be to promote educational campaigns on sustainable eating. However, some studies have shown that environmental education has only a weak effect on the willingness and readiness of consumers to eat more plant-based meals. Most consumers who do not follow a type of plant-based diet have some level of psychological attachment to meat. Given this culturally inculcated and largely unconscious attachment, research suggests that environmental knowledge is not enough to create change.[22] Although sustainability motivations do play a role in consumers' choices to eat plant-forward, these motivations are often not self-standing. As Tobler et al. write, "environmental arguments alone might not persuade consumers to eat ecologically"— sociocultural, physiological, and culinary reasons that are mostly unconscious often trump the more conscious environmental motives.[23] This shows the need for climate-friendly consumption campaigns to also highlight non-environmental benefits, especially taste and health. It may even be more effective to focus campaign messages on either taste or health, since these are much stronger motivations for consumers, and conveying too many messages in a single campaign could prove inefficient.

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[18] Aramark Higher Education Team. "Aramark Plant Power Report"
[19] "The Protein Report: Meat Alternatives," Mintel.
[20] Tobler, Visschers, and Siegrist, "Eating Green. Consumers' Willingness to Adopt Ecological Food Consumption Behaviors."
[21] Sanchez-Sabate, Badilla-Briones, and Sabaté, "Understanding Attitudes towards Reducing Meat Consumption for Environmental Reasons. A Qualitative Synthesis Review."
[22] Graça, Oliveira, and Calheiros, "Meat, beyond the Plate. Data-Driven Hypotheses for Understanding Consumer Willingness to Adopt a More Plant-Based Diet."
[23] Sanchez-Sabate, Badilla-Briones, and Sabaté, "Understanding Attitudes towards Reducing Meat Consumption for Environmental Reasons. A Qualitative Synthesis Review."

There might, however, be a generational difference between older and younger populations on how they receive and value environmental knowledge. Studies have shown that university-educated individuals and younger people are more likely to change their diets towards climate-friendly patterns and are more likely to be motivated by climate-related factors to change their behavior.[24] Thus, while it is true that the general public might not be sufficiently moved by environmental education to shift their consumption patterns, Gen Z members and teenagers might have a stronger reaction to dietary sustainability efforts.

The Unconscious Nature of Food Choices

In analyzing the factors that might drive individuals to eat more plant-based meals, it is important to note that food choices are largely unconscious and that people are not necessarily aware of the factors that motivate their choices—unreflective and even unconscious habits shape our eating to a large extent. Thus, perceived barriers and motivations to adopting a more climate-friendly diet can be different from actual barriers and motivations. In a cross-sectional study looking at young adults' stated reasons for not eating more climate-friendly foods, researchers found that the most frequently stated barrier was price, yet this was different from the factors that were actually impacting the participants' decisions (i.e. the factors that the researchers found had the strongest negative association with self-reported food choices), which were habit and disbelief in the environmental impacts of their food choices.[25]

The unreflective nature of our eating habits highlights the need to influence consumers' choices towards better and more sustainable foods through "nudges" such as product placement and visibility, labelling, and presentation. The intervention did not involve any changes to the cafeteria's food options and the nudges were not publicized to students. The researchers found that selection of plant-based items significantly increased during the intervention and post-intervention periods—compared to the baseline, students were 2.5 times as likely to choose the promoted items. In essence, small changes to the choice architecture nudged students towards more plant-based food choices in a mostly unconscious manner.[26]

Consumers use parameters such as taste, familiarity, convenience, and habit in making their food choices. They are also strongly influenced by cues such as product visibility and accessibility. These food choice parameters are usually not in line with plant-based products due to the fact that most grocery stores, dining areas and restaurants usually place their plant-based offerings in a separate section that might be less visible. Common uses of plant-based labels such as "vegetarian chili" also create a barrier by disconnecting non-vegetarian consumers' identities and habits from the food item. In other words, if the consumer is not vegetarian, the food will not be in line with their current eating habits and will not resonate with their food identity.[27] These subtle barriers to plant-based foods can be overcome by better aligning young individuals' food choice parameters with plant-based options through small nudges in the choice architecture. For example, by labelling plant-based items to highlight their flavor and not their lack of meat,

[24] E J Lea, D Crawford, and A Worsley, "Public Views of the Benefits and Barriers to the Consumption of a Plant-Based Diet," European Journal of Clinical Nutrition 60, no. 7 (July 2006): 828–37, https://doi.org/10.1038/sj.ejcn.1602387; Tobler, Visschers, and Siegrist, "Eating Green. Consumers' Willingness to Adopt Ecological Food Consumption Behaviors"; Vainio et al., "From Beef to Beans."

[25] Jaana-Piia Mäkiniemi and Annukka Vainio, "Barriers to Climate-Friendly Food Choices among Young Adults in Finland," Appetite 74 (March 1, 2014): 12–19, https://doi.org/10.1016/j.appet.2013.11.016.

[26] Hannah Ensaff et al., "Food Choice Architecture: An Intervention in a Secondary School and Its Impact on Students' Plant-Based Food Choices," Nutrients 7, no. 6 (June 2015): 4426–37, https://doi.org/10.3390/nu7064426.

[27] Ensaff et al., "Adolescents' Food Choice and the Place of Plant-Based Foods."

these items will be made more appealing to non-vegetarian consumers and will resonate with their parameters of taste and familiarity. Plant-based foods can also be made more accessible by placing them at the front of offerings and next to non-vegetarian options. These small nudges towards more sustainable consumption patterns provide an opportunity to rethink how we promote plant-based offerings and overcome the unreflective nature of our food choices.

CASE STUDIES: SUCCESSFUL INITIATIVES IN UNIVERSITY SETTINGS

A growing number of universities have increased their plant-forward options and created sustainable food programs at their dining halls. By sharing successful strategies and initiatives, higher education institutions will be better able to meet student demands for healthier plant-based food and also create a robust framework for improving sustainable food systems. This section provides three examples of universities who have implemented innovative strategies to offer sustainable options in a way that is inclusive of everyone, and some insights into their culinary and communications strategies.

Boston University

Every week, BU's three dining halls participate in the Wholesome Roots program, intended to celebrate sustainable food with special low-carbon menus that showcase innovative plant-based dishes, lower-impact animal proteins such as poultry and fish, local and seasonal fruits and vegetables, and Fair Trade organic coffee. The Wholesome Roots program rotates through the dining halls, with each dining hall offering the program one day a week. No red meat is offered except for hamburgers by request (which are not listed on the menu). The program aims to educate students on the importance of low-carbon dining and expose students to novel plant-based and sustainable options.[28]

Wholesome Roots came out of a student initiative to adopt a more plant-based menu. Before Wholesome Roots, BU Dining experienced backlash from a previous program called "Make-A-Difference Monday," which eliminated red meat from the menus every Monday. The dining team worked with the student government and other student groups to find a better way to encourage plant-forward and sustainable consumption without restricting the food options available at the dining halls. This was how Wholesome Roots came to be— even though red meat is still eliminated through the program, it takes place at one dining hall at a time, so students seeking red meat have the option of going to another dining hall instead of the one hosting Wholesome Roots on any given day.[29]

Lexie Raczka, Sustainability Director at BU Dining Services, shared insights on the culinary and messaging strategies implemented to boost

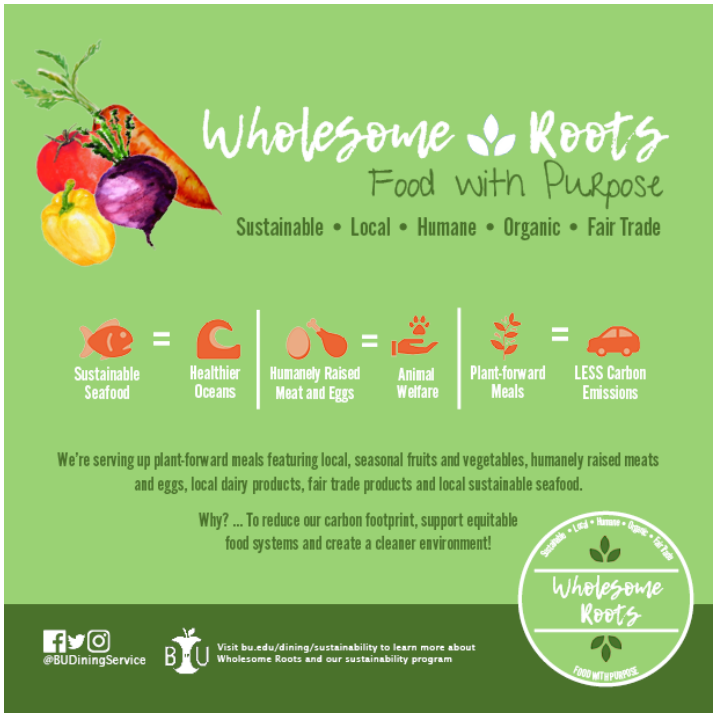

IMAGE 1: Wholesome Roots Program Promotional Poster, BU Dining Services [30]

[28] Boston University Dining Services, "Low Carbon Dining," Boston University, accessed July 9, 2020, https://www.bu.edu/dining/low-carbon-dining/.
[29] Raczka, Lexie. (Sustainability Director, Boston University Dining). Interview with Alejandra Marquez. June 25, 2020
[30] From *Wholesome Roots: A Celebration of Sustainable Foods*, by Boston University Dining Services, https://www.bu.edu/dining/sustainability/wholesome-roots/

the success of Wholesome Roots. On culinary strategies to make innovative and appealing plant-forward dishes, Raczka stated that the most popular dishes usually follow trendy flavors and that creating familiar flavors is essential to appeal to the students who are not used to eating plant-based foods. She shared examples such as buffalo cauliflower and vegan chili, which have been popular at BU. Raczka also explained that there is a split between students seeking plant-based dishes that resemble meat and those looking for less processed options such as whole grains and legumes. Thus, it is important to have a balance between foods that cater towards alternative meat-eaters and foods that are more traditional and culturally-diverse such as Indian lentils. In regards to marketing strategies, BU Dining has found that digital menu boards are both easy for the staff to keep updated and highly visible in the dining areas. They also use physical posters and napkin inserts to promote the program. The dining team also decided to mainly advertise the Wholesome Roots program as "low-carbon" because, as Raczka described, this term might be easier than "plant-forward" for people to wrap their head around, especially people who have a high attachment to meat and might get defensive if it seems that BU is advertising a certain type of diet. The climate focus in "low-carbon" also ties in with the university's climate action plan, so it works well as a messaging strategy.[31]

University of North Texas

In 2011, UNT created Mean Greens Café, an all-vegan dining hall offering flavor-forward options meant to appeal to the entire UNT student population. Serving around 4,500 people a day, Mean Greens Café offers both comfort foods and

IMAGE 2: Meal at Mean Greens Cafe, UNT [34]

healthy innovative dishes such as made-to-order paninis, jambalaya, sushi, macaroni and cheese and black forest cake. Mathew Ward, general manager and chef at Mean Greens, stated that the dining team makes all of their entrees and side dishes from scratch to ensure that the options are healthy and focused on whole foods instead of processed alternative meats. Mean Greens has grown in popularity throughout the years, with an estimated 15% increase in foot traffic annually.[32]

The idea for a fully plant-based dining hall arose from student feedback for healthier menus and an increase in vegetarian and vegan options on the campus, according to Ken Botts, director of special projects at UNT dining. Initially, UNT dining services started out by highlighting existing vegetarian options on campus and adding a vegan hot food line at one of their dining locations. However, as demand for those healthier plant-based options surged, the dining team decided to go further with the creation of Mean Greens Café.[33]

The dining team at UNT has made efforts to show that Mean Greens is not just for vegans and that any type of student will find delicious and comforting food in their plant-based options. Chef manager Carla Trujillo said that the dining team

[31] Raczka, Lexie. Interview with Alejandra Marquez. June 25, 2020.
[32] Natalie Schwartz, "Gen Z Takeover."
[33] Teresa Mioli, "All-Vegan Dining Hall at UNT Making Waves," GreenSource DFW, September 6, 2011, https://www.greensourcedfw.org/articles/all-vegan-dining-hall-unt-making-waves.
[34] From *Mean Greens Café*, *University of North Texas Dining Services*, https://dining.unt.edu/mean-greens-caf%C3%A9

focuses on delicious and healthy food served in a welcoming atmosphere. This focus on appealing to every type of diner is one of the reasons why Mean Greens Café has become a favorite destination for many, even among residents of Denton.[35]

Harvard University

Harvard has implemented various efforts to increase their food sustainability such as adopting the Sustainable and Healthful Food Standards and providing Food Forward plant-based culinary training. A program worth noting is the VerEatTas study, a labeling system designed to show students the environmental impact of their food choices and to improve the sustainability of dietary choices and behaviors on campus . This project, piloted from fall 2018 until spring 2019, came out of the Climate Change Solutions Fund and it was led by researchers at the School of Public Health.[36]

The VerEatTas project consisted of calculating the carbon, nitrogen, and water footprint of a standard serving of each of the dining services' menu items and then categorizing them into high, medium, or low impact categories. Environmental labels with these categories were then added on each of the menu cards in the dining halls. The research team also created plenty of educational materials for the program, to ensure that students were aware of what the labels meant and what they could do to lower their foodprint. Educational materials included physical posters around the dining halls, postcards that were mailed to students, and stickers on the dining hall trays. Results from the study indicate that the carbon, nitrogen, and water footprints of diets that students reported consuming decreased during the study (once the labels were implemented) compared to the baseline data. The decreases were primarily due to reduced beef consumption. Stacy Blondin, director of the VerEatTas program, said that students were very receptive to labels, with around 75% of surveyed students stating that they would like to continue to see such labels in the dining halls. Blondin also shared that labelling and informing people about the environmental impact of food is hopeful, but after conducting another study that simply switched the default in the dining halls' "Bistro Bowl" station to a vegetarian bowl default, she found that the latter approach had a much higher impact on people's choices. However, the research team continues to explore the impact of different types of environmental labels and is looking to expand on our understanding of how environmental information can sway consumers towards more sustainable dietary choices.[37]

IMAGE 3: Environmental Labels for VerEatTas Program [38]

[35] UNT News Service, "Mean Greens, First All-Vegan University Cafeteria, Celebrates 5th Anniversary," University of North Texas, October 6, 2016, https://news.unt.edu/news-releases/mean-greens-first-all-vegan-university-cafeteria-celebrates-5th-anniversary.
[36] Harvard University, "Food," Sustainability at Harvard, accessed July 19, 2020, https://green.harvard.edu/topics/food.
[37] Blondin, Stacy. (Director of VerEatTas project). Interview with Alejandra Marquez. July 16, 2020.
[38] From *VER-EAT1-TAS*, by Harvard University Dining Services, https://dining.harvard.edu/ver-eat-tas

MARKETING AND MESSAGING: WHAT WORKS?

2

How does the way we present plant-forward foods and dishes in a dining hall setting affect people's perceptions of them? Does the way we present these sustainable options decrease or increase the likelihood that consumers will choose them? We underwent a systematic review of the literature to find out exactly what works and what doesn't when it comes to describing and presenting plant-forward foods. Inspired by the World Resources Institute's playbook, we grouped our findings into five categories: language, placement, presentation, promotion, and people.[39] Each category below provides specific recommendations to present plant-forward options based on scientific research along with a brief description of the relevant studies that provide evidence for why the recommendations work.

The recommendations are meant to be understood as "best practices" that have worked in locations where they have been implemented—they are not a step-by-step guide on how to increase diners' consumption of plant-forward offerings. Dining service leaders should feel free to adapt and use any of the recommendations that best fit their needs and operations. We recommend that these practices be tested out as appropriate before scaling them to the entire dining operation.

Language

The way food is described and labelled provides important cues that people use to create expectations of the food's taste and decide if they want to eat it or not. The tables below provide key insights into strategies that work best (Table 1) and those that should be avoided (Table 2) when it comes to labelling plant-forward dishes.

DO'S

Spotlight flavor	Renaming dishes to highlight their taste has been the single most cited way to increase plant-based food sales through labelling. The DISH study by Menus of Change found that, compared to health-focused labels, taste-focused labels increased selection of plant-forward dishes by 29% and consumption by 39%. Taste-focused labels increase the expectation of a positive food experience and undermine the general perception that healthy foods are not as tasty.[40] Similarly, a study from Stanford found that "Rich Butter Roasted Sweet Corn" and "Zesty Ginger Turmeric Sweet Potatoes" were selected 41% more often over the same dishes when they had a healthy-restrictive label and 25% more often than those with basic labels such as "sweet potatoes."[41] Taste-focused labels should highlight specific flavors or ingredients and positive experiences with words that are indulgent. They should not merely list ingredients or rely on fancy language and vague positives like "awesome." This strategy works best when dishes are tastier and well-prepared.[42]

[39] Sophie Attwood et al., "Playbook for Guiding Diners Toward Plant-Rich Dishes in Food Service," July 1, 2020, https://www.wri.org/publication/playbook-guiding-diners-toward-plant-rich-dishes-food-service.
[40] "Delicious Impressions Support Healthy Eating (DISH) Study Executive Summary," PDF File, Menus of Change University Research Collaborative, October 2019, https://www.moccollaborative.org/images/uploads/pdf/MCURC_DISH_Study_Executive_Summary.pdf
[41] Bradley P. Turnwald, Danielle Z. Boles, and Alia J. Crum, "Association Between Indulgent Descriptions and Vegetable Consumption: Twisted Carrots and Dynamite Beets," JAMA Internal Medicine 177, no. 8 (01 2017): 1216-18, https://doi.org/10.1001/jamainternmed.2017.1637.
[42] "Edgy Veggies Toolkit: How to Incorporate Taste-Focused Labeling to Encourage Healthier Eating," PDF File, Menus of Change University Research Collaborative, http://sparqtools.org/wp-content/uploads/2019/10/20190925_EdgyVeggiesToolkit-1.pdf

Emphasize a food's look and feel	Research shows that a dish's appearance and mouth-feel can have a big impact on consumers' preferences. Color has been shown to be the single most important cue that diners use to know what to expect from a dish's taste. Emphasizing the color in a dish through labels such as "Rainbow Salad" can create an expectation of fresh and flavorful food that is also visually appealing. Emphasizing mouth-feel (sensations and textures) can also be a powerful tool to make plant-forward dishes more appealing, as shown by the Better Buying Lab's research that used a "melt in the mouth" label to increase sales of a dish.[43]
Highlight provenance	Mentioning where the dish or ingredients originate from is an effective way to increase the dish's appeal. Panera switched the name of "Low Fat Vegetarian Black Bean Soup" to "Cuban Black Bean Soup" in some of its LA locations, resulting in a 13% sales increase of the black bean soup. Similar results have been obtained in studies by the Better Buying Lab when switching the name "Chickpea and Potato Curry" to "Indian Summer."[44]
Highlight familiarity, tradition, and comfort	Research by the Good Food Institute finds that familiarity and tradition are strong drivers of purchase intent, indicating that consumers are more likely to buy products that appear familiar to them than those which appear novel. Correspondingly, meat-eaters are more highly drawn to plant-based products that look similar to conventional meat products. The term "comfort food" is also a moderately positive driver of purchase intent, performing better than "exciting" and "interesting."[45]
Use "fresh" and "natural"	A study by Morning Consult that asked consumers to rank the relative appeal of 21 different labels found that "fresh" was the most appealing label, with 81% of participants saying that a food or beverage product would be more appealing if "fresh" was on the label. "Natural" is also important to consumers and is positively correlated with purchase intent.[46]
Emphasize protein	Many consumers perceive plant-based diets as lacking in protein, so highlighting high protein content in meat-alternatives, legumes, and grains can be appealing for many omnivores. In a 2017 report by Mintel, 44% of consumers indicated that protein content is an important and desired attribute in meat-alternatives.[47]
Use "plant-based" paired with protein	Mindlab's study on perceptions of plant-based foods found that "plant protein" and "plant-based protein" were the most effective ways of communicating that a product was plant-based. These terms performed significantly better than "vegan" and "vegetarian" labels.[48]

TABLE 1: Language strategies that work best

[43] "It's All in a Name: How to Boost the Sales of Plant-Based Menu Items," World Resources Institute, February 5, 2019, https://www.wri.org/news/its-all-name-how-boost-sales-plant-based-menu-items.
[44] "It's All in a Name."
[45] James Parry and Keri Szejda, "Key findings from a Mindlab study into implicit perceptions of the plant-based category," PDF File, The Good Food Institute, October 2019, https://www.gfi.org/images/uploads/2019/10/GFI-Mindlab-Report-Implicit-Study_Strategic_Recommendations.pdf
[46] "Consumer Trends in the Food and Beverage Industry," PDF File, Morning Consult, May 2018, https://morningconsult.com/wp-content/uploads/2018/05/Morning-Consult-Consumer-Trends-In-The-Food-and-Beverage-Industry.pdf
[47] "The Protein Report: Meat Alternatives," Mintel.
[48] Parry and Szejda, "Key findings from a Mindlab study into implicit perceptions of the plant-based category."

DON'TS

Don't use "meat-free"	This term emphasizes a dishe's lack of meat, which does not work in appealing to meat-eaters and omnivores. A series of trials by the World Resources Institute's Better Buying Lab show that labelling dishes as "meat-free"lowers their sales and that virtually any other name performs better.[49]
Be judicious with the use of "vegan"	Research by the John Hopkins University shows that labelling a product "vegan" can cause sales to drop by 70%.[50] However, vegan perception varies with generation— according to research by Morning Consult, 29% of Gen Z say a "vegan" label would make a product more appealing while only 14% of Boomers say the same. Thus, depending on your audience, it may be appropriate to use "vegan".[51]
Be judicious with the use of "vegetarian"	Vegetarian diets are generally seen as healthy but bland, so labelling a dish "vegetarian" does not promote a tasty experience for meat-eaters. This is important because research shows that taste is a primary driver in food purchasing decisions. However, there is mixed evidence with terms like "veggie" and "vegetable."[52]
Don't use healthy-restrictive language	Consumers say that health is important explicitly, but when it comes to actual purchasing decisions, health falls in importance. As an aspirational driver, it is important to acknowledge health without overruling more relevant drivers like taste— in other words, "scream flavor and whisper health".[53] Healthy-restrictive terms such as "low-calorie" and "low-sugar" are especially unsuccessful. Healthy-positive terms such as "high-protein" can be more effective.

TABLE 2: Language strategies to avoid

In summary, the most impactful action that dining services can take to describe plant-based foods in a more appealing way is to spotlight their delicious taste with specific flavor-forward descriptors. The underlying intuition is that people generally associate plant-based diets or healthy foods with bland and unappealing taste, so by showcasing plant-forward foods as flavorful, enjoyable and exciting, people are more likely to give them a try. Labels with restrictive or prohibitive connotations such as "meat-free" and "low-fat" are unappealing because they highlight what the dish will not be without giving any positive expectations. Using familiar formats, flavors, and presentations is also effective to appeal to meat-eaters who are not familiar with plant-based diets.

Placement

Placement has to do with the physical space given to plant-forward options. Making this space highly visual and engaging is a powerful way to sway consumers towards sustainable offerings, as demonstrated through the recommendations in Table 3.

[49] "It's All in a Name."
[50] Hayley Bromfield, "How to Market Your Vegan Product," The Pha Group, May 2019, https://thephagroup.com/insights/consumer-pr-insights/how-to-market-your-vegan-product/.
[51] "Consumer Trends in the Food and Beverage Industry."
[52] "It's All in a Name."
[53] Zak Weston, "Plant-Forward Menus: Growing Demand and What Lies Ahead," Online webinar, Global Plant-Forward Culinary Summit, May 27, 2020.

Make the plant-forward option the first thing noticed	By simply placing plant-forward dishes at the front of self-serving stations where they will be the first thing that people see, dining service leaders can increase demand for their plant-forward offerings.[54]
Increase the space dedicated to plant-forward dishes	Research shows that when more attention is given to a particular option, it is more likely to be bought.[55] Dining service leaders can achieve this by increasing the amount of space that plant-forward dishes take up in buffets, self-service sections or in shelf displays. Distributing plant-forward foods across different areas where meat options are available is another way to ensure that they are noticed by meat-eaters. Sodexo is a prominent food service player that has implemented this strategy by doubling the size of its plant-rich station, adding new menu items, and spreading plant-based options throughout different display areas.[56]
Engage diners through multi-sensory plant-forward displays	A study on food choice found that background music can influence consumers to choose foods that fit the mood and culture of the music playing.[57] This is an example of how multi-sensory elements such as music, textures, odors, and visual displays can all be used to draw diners towards plant-rich foods. Showcasing how plant-forward dishes are prepared through open food-prep stations is another great way to engage with diners and build their anticipation to eat. These cooking stations are also an opportunity for diners to interact with chefs and discuss the benefits of plant-based eating.[58]

TABLE 3: Placement recommendations.

Presentation

Presentation has to do with the visual cues in the food environment that are used to make plant-forward dishes more appealing for all types of diners. Our recommendations regarding the presentation of sustainable options are listed in Table 4 below.

Make plant-forward dishes visually appealing	Research on how a food's color affects diners' evaluations of that food shows that different colors produce different expectations. For example, strong colors are interpreted as a sign of strong flavors.[59] Dining services can use the natural vibrant colors of fruits and vegetables to draw customers towards plant-forward options. This can include adding colorful and appealing garnishes or pictures that will catch a diner's eye.[60]
List plant-forward dishes in the main body of a menu, not in a separate 'vegetarian' box	A study by the London School of Economics found that meat-eaters are 56% less likely to order a plant-forward dish that is contained in a "vegetarian" box than one that is on the main menu. Vegetarian boxes are alienating towards meat-eaters because they do not identify with such food options and thus, they quickly screen out this section of the menu. Having plant-forward options in the menu along with meat-based options is a simple way to help meat-eaters notice them.[61]

[54] Braverman, Ilana. (Director of Outreach at Farm Forward & The Better Food Foundation). Interview with Alejandra Marquez. May 29, 2020.
[55] Smith, S.M., and I. Krajbich. 2018. "Attention and Choice across Domains." Journal of Experimental Psychology 147 (12): 1810–26. https://doi.org/10.1037/xge0000482.
[56] Attwood et al., "Playbook for Guiding Diners Toward Plant-Rich Dishes in Food Service."
[57] Joanne Yeoh and A. North, "The Effects of Musical Fit on Choice between Two Competing Foods," Musicae Scientiae 14 (March 20, 2010): 165–80, https://doi.org/10.1177/102986491001400107.
[58] Attwood et al., "Playbook for Guiding Diners Toward Plant-Rich Dishes in Food Service."
[59] Francesco Foroni, Giulio Pergola, and Raffaella Rumiati, "Food Color Is in the Eye of the Beholder: The Role of Human Trichromatic Vision in Food Evaluation," Scientific Reports 6 (November 14, 2016): 1–6, https://doi.org/10.1038/srep37034.
[60] Attwood et al., "Playbook for Guiding Diners Toward Plant-Rich Dishes in Food Service."
[61] Jillian Holzer, "Don't Put Vegetables in the Corner: Q&A with Behavioral Science Researcher Linda Bacon," World Resources Institute, June 12, 2017, https://www.wri.org/blog/2017/06/dont-put-vegetables-corner-qa-behavioral-science-researcher-linda-bacon.

Shift the order of offerings to make plant-forward options the default	Multiple studies have discovered that simply shifting the order in which meal options are offered— by making plant-forward options the first option—is one of the most effective ways of swaying consumers towards sustainable eating. In a study by the Harvard School of Public Health, researchers divided conference participants into two groups, one with a vegetarian meal as the default and the other with a meat-based meal as the default. All participants could ask for the option that was not their default. The study found that including a vegetarian default option increased the selection of vegetarian meals by 181%.[62] Similarly impressive results have been found in various other studies.[63]
Use language on menus to recommend plant rich dishes	Attracting attention towards particular plant-based dishes can be done by highlighting these as a "recommended choice." Researchers at the Université Catholique de Louvain in Belgium found that recommending a novel plant-forward dish at university canteens resulted in a significant increase in diners' selection of the plant-forward soup, going up from 9.7% of soups sold to 17.2% when the suggestion was put up.[64]

TABLE 4: Presentation recommendations

Promotion

Promoting plant-forward options through free-tasting and educational campaigns (Table 5) can go a long way in familiarizing meat-eaters with plant-based eating, especially in the presence of psychological barriers such as food aversions and meat-attachment. We provide our recommendations below.

Offer free samples or taste testing events for plant-forward dishes	Taste-testing events or food stands in dining halls are great ways of engaging diners with new plant-forward offerings. A study found that giving students free samples of sweet red pepper significantly increased how much they liked it over time, when they were offered a sample every day throughout several days.[65] Free tasting and promotional events break the barrier that diners might have to new foods and ways of eating.

[62] Adam Meier, "Workshop on Behavioral Insights and Health," Harvard School of Public Health, 2016.

[63] Rasmus Friis et al., "Comparison of Three Nudge Interventions (Priming, Default Option, and Perceived Variety) to Promote Vegetable Consumption in a Self-Service Buffet Setting," PloS One 12, no. 5 (2017): e0176028, https://doi.org/10.1371/journal.pone.0176028; Pelle G. Hansen, Mathilde Schilling, and Mia S. Malthesen, "Nudging Healthy and Sustainable Food Choices: Three Randomized Controlled Field Experiments Using a Vegetarian Lunch-Default as a Normative Signal," Journal of Public Health (Oxford, England), November 30, 2019, https://doi.org/10.1093/pubmed/fdz154; Marc Gunther, "When Behavioral Economics Meets Climate Change, Guess What's Coming for Dinner? | Greenbiz," GreenBiz, November 17, 2009, https://www.greenbiz.com/article/when-behavioral-economics-meets-climate-change-guess-whats-coming-dinner.

[64] Attwood et al., "Playbook for Guiding Diners Toward Plant-Rich Dishes in Food Service."

[65] J. Wardle et al., "Modifying Children's Food Preferences: The Effects of Exposure and Reward on Acceptance of an Unfamiliar Vegetable," European Journal of Clinical Nutrition 57, no. 2 (February 2003): 341–48, https://doi.org/10.1038/sj.ejcn.1601541.

Promote the environmental benefits of plant-forward eating	Helping diners understand the impact of their individual choices on the environment—for instance, by communicating the greenhouse gas emission savings of choosing a plant-based option— may persuade consumers to choose more sustainable dishes. For example, researchers at the University of Gothenburg in Sweden added carbon emission labels to food items in their university canteen using a traffic signal color scheme. Sales of green-labeled dishes (those that were the most sustainable) increased by 5.6% when the labels were present, and red-labeled dishes decreased by 2.4%. The researchers also found that the climate-focused labels were most impactful when they were placed at the diners' point of decision, with additional information also visible around the dining environment.[66] However, this type of intervention has shown to be less effective than other strategies to encourage sustainable eating behavior. It also may be met with resistance from certain groups who do not hold strong environmental values.[67]

TABLE 5: Promotion Recommendations

People

Dining staff and managers are in a unique position to advance the goal of increasing food sustainability in their operations and community. By motivating, informing and empowering them, the people within dining operations can become advocates for sustainable consumption patterns. Below are the top two recommendations to motivate the dining team towards this end.

Empower the dining team with information about the health and environmental benefits of plant-based eating	Chefs, managers, and the entire kitchen staff have an important role when it comes to encouraging sustainable eating behavior. Supplying the dining team with facts about the benefits of plant-forward eating can motivate them to create more delicious plant-forward dishes, give publicity to this important issue, or implement sustainable food programs and campaigns. A dining team who is conscious of the importance to provide diners with plant-based options will go a long way to advance the sustainability agenda.[68]
Reward chefs and food preparation staff who innovate with plant-forward recipes	Setting up dish-creation challenges between dining staff not only increases the number of delicious and innovative plant-forward options, it also builds a sense of community through healthy competition and it enhances chefs' drive and pride for their work. For instance, UC Berkeley created Plant Forward Recipe Challenges, a competition where chefs were challenged with two plant-based ingredients and had to create a globally-inspired plant-forward dish. Along with participating in educational campaigns, students got the opportunity to get to know the chefs and rate their dishes. Some of these dishes were so popular that they got integrated into the regular menu cycle.

TABLE 6: People Recommendations

[66] Florentine Brunner et al., "Carbon Label at a University Restaurant - Label Implementation and Evaluation," Ecological Economics 146 (April 1, 2018): 658–67, https://doi.org/10.1016/j.ecolecon.2017.12.012.
[67] Attwood et al., "Playbook for Guiding Diners Toward Plant-Rich Dishes in Food Service."
[68] Attwood et al.

RECOMMENDATIONS FOR CAL DINING

3

Cal Dining's initiative to create a low-carbon platform at their dining halls starting Fall 2020 presents a unique opportunity to build a more sustainable dining culture and set an example of what can be achieved at higher education settings, while also studying the effects of environmental platforms in students' dietary choices. Drawing from the research findings outlined in this report and taking into account Cal Dining's current situation, goals and capabilities, we make the following recommendations:

- **Increase visibility and accessibility**
  - Barriers Addressed:
    - Inconvenience and low visibility of plant-based choices in the dining architecture (Barriers in the Consumer's Environment, Figure 1).
  - Possible Actions:
    - Spread low-carbon offerings throughout the dining hall, potentially by having a low-carbon option at every station, instead of having one low-carbon station. Distributing plant-forward foods across different areas where meat options are available is a way to ensure that they are noticed by meat-eaters.
    - Position the low-carbon station at a prominent location where students will be more likely to notice it. Bringing more attention to low-carbon options through the space and location they occupy is another approach to making the low-carbon station more visible.
    - Shift the order of offerings to make the low-carbon option the first dish that diners see at a station. (This implies that the low-carbon offerings are spread throughout different stations.)
- **Create a habit for plant-forward eating**
  - Barriers Addressed:
    - Eating routines and habits (Individual Barriers, Figure 1).
  - Possible Actions:
    - Make low-carbon options the default meal, which diners can opt out of if they want a meat-based meal. This strategy has been shown to be the most effective to nudge consumers towards plant-forward patterns.
    - Alternatively, make meals plant-based by default and have diners opt into animal protein as a topping.
- **Make low-carbon options more enticing**
  - Barriers Addressed:
    - Social representation of plant-based food as bland and unappealing (Cultural and Societal Barriers, Figure 1).
  - Possible Actions:
    - Highlight the taste of plant-forward dishes through flavor-forward labels. This strategy has been shown to be the most impactful messaging strategy in swaying diners towards sustainable eating.
    - Get chefs and food preparation staff involved in creating irresistible and eye-catching plant-forward offerings. This way, the low-carbon station can attract the attention of all types of diners, even if they are not motivated by climate related issues.
    - Offer a variety of indulging and healthy plant-forward meals that can appeal to all types of consumers.
- **Go big on educational campaigns**
  - Barriers Addressed:
    - Lack of information on environmental and health benefits of plant-based eating (Individual Barriers, Figure 1).

- Possible Actions:
  - Create physical posters to educate about the environmental impact of food and display them around the dining halls.
  - Use digital menu boards to inform students about the low-carbon platform and what it means.
  - Give students leaflets or information through their residence halls on how they can lower their "foodprint."
  - Specific words also matter. Communicate the low-carbon platform as "climate-friendly" or "plant-powered," both of which are more positive terms that can give consumers a sense of agency and positive change towards sustainability.
  - Engage with students on their concerns, questions, and the barriers they face to making more climate-friendly dietary choices.
  - Get a sustainability working team involved (e.g. HASDA) to make the campaign as visible and loud as possible.

- **Study the effect of environmental messaging on students' food choices**
  - Barriers addressed:
    - A lack of research looking at the effects of climate-focused messaging on consumers' willingness and readiness to eat more plant-based meals.
  - Possible Actions:
    - Study the effects of adding climate-focused messaging in a low-carbon dining hall initiative.
    - Report on changes in plant-forward and meat consumption before and during the implementation of this initiative. Share these findings with relevant stakeholders, such as the Menus of Change University Research Collaborative (MCURC).