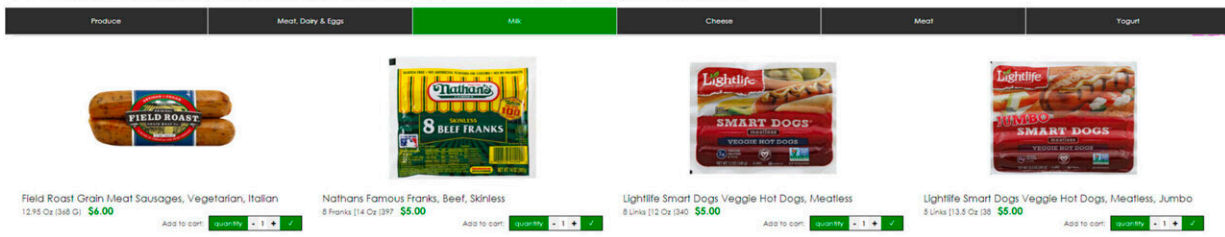


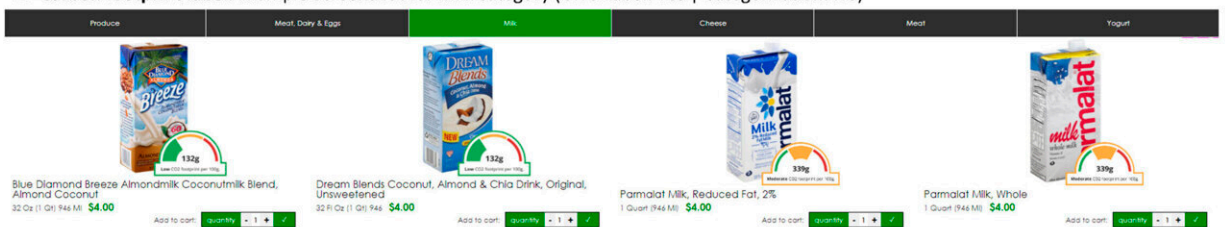
# Online shopping nudges can effectively promote plant-based food choices

January 27 2025, by Steve Koppes

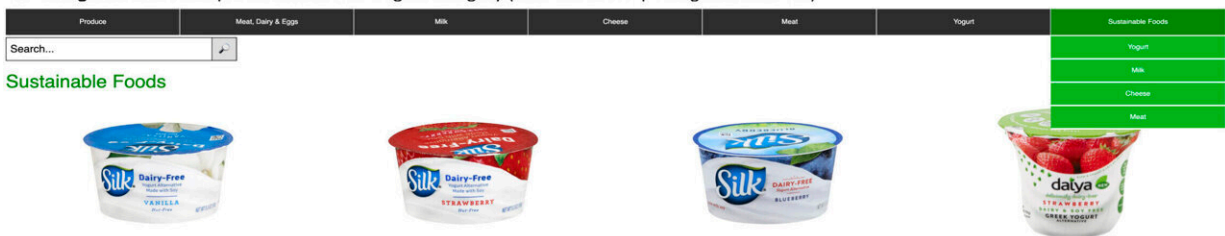
**A Control.** Example Screenshot for Meat category (GHG Label: No | Categorization: No)



**B Carbon footprint label.** Example Screenshot for Milk category (GHG Label: Yes | Categorization: No)



**C Categorization.** Example Screenshot for Yogurt category (GHG Label: No | Categorization: Yes)



The OSOG platform experimental setup. Panel (A) shows the example screenshot for the control with example products for the meat category. Panel (B) shows the example screenshot for the carbon footprint label treatment with example products for the milk category. Panel (C) shows the example screenshot for the categorization treatment with example products for the yogurt category. The curated category has the label "Sustainable Foods." Panel (D) shows the example screenshot for combined treatment with example products for the cheese category. This figure shows parts of a webpage that the participants saw

during their online shopping experience on the website. Please note that participants navigated through several web pages displaying products on this website. Credit: *Proceedings of the National Academy of Sciences* (2024). DOI: 10.1073/pnas.2319018121

Nudging with carbon footprint labeling and product categorization motivates online shoppers to select plant-based foods, according to new research published by agricultural economists at Purdue University and the University of Kentucky.

"A lot of research has been done on point-of-purchase nudges, but that has been done in a physical setting. In this study, we look at that in the growing domain of online grocery shopping," said Bhagyashree Katare, associate professor of agricultural economics at Purdue University.

"It provides actionable evidence that small interventions can increase the selection of plant-based products or healthy products."

Katare and co-author Shuoli Zhao, assistant professor of agricultural economics at the University of Kentucky, generated their results using the Open Science Online Grocery platform. The platform simulates a typical online grocery shopping experience by listing more than 11,000 [food products](#) across all product categories, from produce to beverages.

Katare and Zhao [published](#) their results in the *Proceedings of the National Academy of Sciences (PNAS)*. The paper appears in the *PNAS* collection of special features on the sustainability of animal-sourced foods and plant-based alternatives.

Restaurants and cafeterias have effectively used nudges to promote sustainable consumption. Such nudges have been less effective, however,

in educating consumers with information about the environmental impact of their choices.

"Empirical evidence shows that carbon footprint labeling can steer consumers toward more sustainable food choices at supermarkets," Katare and Zhao noted. "However, most studies involving purchase decisions were primarily composed of hypothetical surveys and laboratory experiments that may not always reflect actual consumer behavior in real-world situations."

Previously, researchers have relied on online surveys in which they ask consumers whether or not they would buy certain products. The paper cited [2021 data](#) reporting that more than 45% of consumers regularly shop for groceries online. This led the duo to study the effectiveness of carbon footprint labeling in an online shopping environment that more realistically represented a common consumer shopping experience.

More than 2,350 U.S. residents took part in the study. Participants selected from an array of products in the meat, milk, yogurt and cheese categories. Of the 8,320 grocery items the group checked out in their virtual carts, 5,200 were plant-based products.

"The average price showed a marginal premium for plant-based products at \$3.65 compared to \$3.13 for their animal-sourced counterparts," Katare and Zhao wrote. "Almost 16% of the participants did not select any plant-based products."

Previous studies have found that providing information alone works less effectively than combining it with some form of nudging.

"We saw that labeling had the most effect," Katare said. The finding differed from the results of other studies. Providing information alone has proven less effective, as found in studies both by Katare and others.

"Labeling probably is the more effective strategy when it comes to choices for food consumption," she said. "Information plus categorization, which was our other nudge, had a higher effect than just categorization."

In 2018, Katare and a co-author [published a study](#) on "Low-cost approaches to increasing gym attendance" in the *Journal of Health Economics*. In that study, Katare sent two types of nudges to [college students](#) that encouraged them to visit the campus recreation center.

The first nudge, a financial incentive, offered to enter the students into a lottery to win a gift card for making regular visits to the rec center. The second nudge told students how their physical exercise activity compared to that of their peers. Katare found that the lottery nudge had a modest positive effect on rec center visits. The peer-comparison nudge, however, had little impact.

Katare and her collaborators have plans to add new functions to the online shopping app to encourage further research of this type. They also plan to see if their methods may help reduce food access issues that plague many rural areas. It may be possible to use the Supplemental Nutrition Assistance Program—Education and online shopping to show [rural residents](#) in Indiana and elsewhere how they can best access a nutritious diet.

"Rural areas have food access issues, and online shopping is one way that we can reduce the food access issues that we have," she said.

**More information:** Bhagyashree Katare et al, Behavioral interventions to motivate plant-based food selection in an online shopping environment, *Proceedings of the National Academy of Sciences* (2024). [DOI: 10.1073/pnas.2319018121](https://doi.org/10.1073/pnas.2319018121)

Provided by Purdue University

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