

Words matter in food freshness, safety messaging

October 20 2022, by Tom Fleischman



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Changing the wording about expiration dates on perishable food items—which is currently unregulated and widely variable—could help reduce food waste, according to a new Cornell-led study.

A survey of consumers found that certain wording—"best by," as opposed to "best if used by," for example—had the potential to reduce [food waste](#), but that results varied depending on the type of food in question. Predictably, the more perishable a food item, the greater the likelihood of discarding it.

This work has implications for both policy proposals regarding date labels and the market impacts of reducing food waste.

"Some consumers might do a sniff test to see if food is still good, while others might just look at the date [label](#) and throw it away," said Brad Rickard, professor in the Charles H. Dyson School of Applied Economics and Management, and senior author of "Date Labels, Food Waste and Supply Chain Implications," which published Sept. 29 in the *European Review of Agricultural Economics*.

"And the truth is, with very few exceptions, these date labels that are used in the United States are not regulated," Rickard said. "And they're not food safety dates; they're just food quality dates."

Co-authors were Shuay-Tsyh Ho, M.S. '12, Ph.D. '19, assistant professor of agricultural economics at National Taiwan University; Florine Livat, associate professor of economics at the Kedge Business School in Talence, France, and a former visiting scholar at Dyson; and Abigail Okrent of the U.S. Department of Agriculture's Economic Research Service.

Rickard and his colleagues found that the words "use" or "use by" seemed to speak more directly to the perceived food safety implications of consuming food past the date listed on the package, and could therefore lead to an increase in food waste. The wording "best by" seemed to refer solely to food quality beyond a certain date and led to less waste.

The motivation for this work, Rickard said, stems from the "wild west" landscape of food date labels which is expected to be driven, in part, by manufacturers' desire to sell more product. Nearly a year ago, the Food Date Labeling Act was introduced in both the U.S. House of Representatives and the Senate in an effort to reduce the discarding of safe food.

"You go into the yogurt section at the [grocery store](#)," he said, "and you see many different labels—some say 'use by,' some say 'best by,' some say 'best if used by' or 'fresh by,' 'sell by.' And there are no rules about this."

In the survey, the researchers asked participants to rate, on a 1-5 scale (5 being extremely likely) their likelihood of discarding 15 different food and beverage items that were one day past the stated date code. In the first section of the survey, the question included only the expiration date code (i.e. date/month/year); the second section repeated this exercise but with both a date code and a date label that included one of 10 different wording variations.

Four of the date label variations followed those that have been widely adopted in the U.S.: "Best if used by"; "Best by"; "Use by"; and "Sell by." The other six featured a date label and a biosensor, a visual indication of food quality. Biosensors—which detect microbe growth and change colors accordingly—are popular in some European markets, but are not as common in the U.S.; for the survey, the researchers chose biosensors with the colors green (fresh), blue (less fresh) and purple (past fresh).

The 15 food items selected for the survey—including bread, cookies, chicken, packaged salad greens and canned soup—all typically use date labels. Survey results showed an increase in discard intentions with the "Use by" and the "Best if used by" date label, inferring that food with

these date labels were more often discarded and replaced.

Rickard also said the novelty of the biosensor technology resonated with the U.S. survey participants, and when it was presented to participants as green (fresh), it led to substantially lower discard rates.

One of the unintended consequences of a more uniform approach to date labels, the researchers note, is a potential increase in food waste depending on the wording of the label, as well as an increase in the re-purchasing of perishable items high in protein, fat and cholesterol.

"If you tell all food manufacturers that all their 'best by' dates are now going to 'best if used by' dates, that might actually increase food waste," Rickard said.

More information: Bradley J Rickard et al, Date labels, food waste and supply chain implications, *European Review of Agricultural Economics* (2022). [DOI: 10.1093/erae/jbac021](https://doi.org/10.1093/erae/jbac021)

Provided by Cornell University

Citation: Words matter in food freshness, safety messaging (2022, October 20) retrieved 26 April 2024 from <https://phys.org/news/2022-10-words-food-freshness-safety-messaging.html>

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