

Mitigating Food Waste – Are “Best Before” Dates Past Their Due Dates?

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SUMMARY

Food waste is becoming an increasingly popular topic, and the conversation surrounding the need for “best before” dates is also gaining interest globally. With a few exceptions, there is no requirement for “best before” dates on many food products in many countries. In this article, the links between “best before” dates and food waste, as well as climate implications and consumer implications, will be explored. The article also explores the history of food safety and “best before” dates and the current use of these food labeling practices in Canada, the United States, and the United Kingdom. Based on the limited requirements for “best before” date labeling across several jurisdictions and the implications that accompany high levels of food waste, there is an opportunity to address current policy for food labeling that can address these issues. Further research should look at how policy could be used to create greater awareness of what “best before” or “use by” dates indicate and should consider policy changes to remove labels from certain foods that do not currently require “best before” dates, such as fresh, uncut produce.

OVERVIEW

The labeling of dates on food in Canada for prepackaged foods with a durable life of 90 days or less has been a standard practice dating back to 1974 (8). During this time, there have been significant changes to the Food and Drug Regulations (FDR) surrounding labeling ingredients; currently, under the FDR, certain consumer prepackaged foods must contain a “best before” date or a “packaged-on” date if packaged at retail, in addition to the durable life. However, consumers misunderstand what the date on packaged food indicates (13). They mistakenly perceive food label dates as indicators of the food’s safety; however, in many cases, the dates are set by producers to indicate the quality or freshness of an item. This contributes to food waste in households. In the United States between 30 and 40% of the food supply is wasted; at least 75% of this loss occurs at the retail and consumer level (9). By comparison, 10%, or 88 million tonnes, of food waste in the European Union is linked to date marking (10).

Food waste is an important topic in food policy because it has implications from both a climate and a consumer perspective. Food waste can contribute to greenhouse gas (GHG) emissions in two ways: the decomposition of wasted food after disposal in landfills and the impact from

the emissions that come with the production, processing, transportation, and retailing of food that is ultimately wasted (25). In the United States, avoidable food waste accounts for at least 113 million metric tonnes of CO₂ annually, equal to 2% of national emissions. From a consumer perspective, food waste can contribute to household costs and negatively impact household budgets. It is predicted that a family of four will spend \$16,288.41 on food in 2023 (1). In the United States, the average individual wastes approximately 1 pound of food per day, and, on average, 25% of the daily food budget is spent on food that ends up being wasted. Overall, this accounts for \$1,300 spent annually on wasted food (4).

In this article, we further explore the links between “best before” dates and food waste, as well as the implications this waste creates for the climate and consumers. This article will then explore the use of “best before” dates by looking at their history, the use of “use by” and “best before” dates, and consumer behaviors in response to these indicators. Overall, the aim of this article is to challenge the current use of “best before” dates and see a way forward for Canada in its use of “best before” dates to mitigate food waste by consumers.

FOOD WASTE

Climate implications

The well-documented impacts of food production and food consumption on climate change are a highly discussed topic in food policy. As countries work to reduce GHG emissions and meet climate targets, all avenues for achieving these goals should be explored. Canada’s 2030 Emissions Reduction Plan sets a goal of reducing emissions by 40% below 2005 levels and reaching net-zero emissions by 2050 (10). In Canada, 2.3 million tonnes of avoidable food waste, the equivalent of 6.9 million tonnes of CO₂, or 2.1 million cars on the road (16), contributes to GHG emissions. Food is also wasted significantly in the food service industry (3).

Wasted food contributes to climate change at several points, as it decomposes in landfills and as it is transported to a landfill (25). As food breaks down in landfills, it releases methane; the impact of this GHG on climate change is 21 times greater than that of carbon dioxide (19). In a recent UK report, an estimated 2 million tonnes of food that could have been eaten was instead thrown away (19).

In 2015, 193 members of the United Nations set out the Sustainable Development Goals. One of the goals was environmental protection, and some countries have looked

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to minimizing food waste to contribute to sustainable development (15). Among causes of food waste identified at the household level in developed countries are expectations about aesthetics, expiration dates, and shopping and eating habits (15). Addressing these areas could directly impact the 12th goal of the Sustainable Development Goals, “Responsible Production and Consumption,” by targeting how consumers utilize and make decisions surrounding their choice to throw away food.

Household waste

Because 75% of food waste occurs at the consumer level in the United States (9), this indicates that there is an opportunity to change behavior at the consumer level to combat food waste. For individuals, the annual cost of food waste in the United States is \$1,300 – more than is spent annually on gas, home heating and electricity, property taxes, and household maintenance, repairs, and insurance, respectively (4). With inflation at a 40-year high, food prices are exceeding expectations, with a 10.3% increase in 2022 (1). It is expected that, in 2023, a family of four will spend \$16,288.41; food waste could increase this figure if families rebuy items and waste food they have bought (13). The 2022 National Zero Waste Council study on household food waste in Canada found that 63% of the food Canadians threw away could have been consumed, and the average food waste per year (140 kg) cost households over \$1,300 per year, similar to the numbers from the United States (16).

Food affordability is increasingly an issue, with 1.5 million visits to food banks last year in Canada alone; with food costs rising, 20% of Canadians reported that their household would be likely or very likely to use either a food bank, community center, or other access point in the next 6 months to get food or meals (6, 21). The additional costs that families and individuals incur as a result of food waste impacts their ability to spend on other necessities like housing, electricity, health care, and insurance.

HISTORY OF “BEST BEFORE” DATES

Prior to 1906 in the United States, when the Food and Drug Act and the Meat Inspection Act were passed, there were no national food safety regulations (22). In the 1970s, consumers became more concerned with the freshness of food; in response, stakeholders within the food industry, government, and public interest sector explored what was then known as open dating – a system that uses a date label (with month, day, and year) in a format that is clear to consumers (14). A 1975 survey found that 89% of respondents were in favor of this system, and another survey found that 95% considered it “the most useful consumer service for addressing product freshness” (14). By 1973, 10 states had adopted laws or regulations that required open dating for certain food products. The federal government began to increase its interest in date labeling, and, in 1975, the Government Accountability Office issued a report

advocating for a uniform date labeling system. At least 10 bills were introduced between 1973 and 1975 to institute a uniform open code dating system nationwide; although none passed, grocers were already voluntarily labeling foods. In 1999, a Food Freshness Disclosure Act was introduced, and similar bills from 2001, 2003, 2005, 2007, and 2008 were reintroduced that would require application of uniform freshness dates on food; however, none passed (17).

In Canada, the history of food safety, or “best before” dates, dates back to the basic policy infrastructure of the food system that came from the Inland Revenue Act of 1875 and the Adulteration Act of 1884. This became the Food and Drugs Act and early versions of the Pest Control Products Act (7). However, Canada, like most industrial countries, has not had a coherent or integrated national food policy (18). In 1998, Canada’s Action Plan on Food Security was adopted but was later aborted because it had conflicting social, economic, and environmental priorities (18). In 2002, separate from the Action Plan on Food Security, the federal, provincial, and territorial governments agreed to an agricultural policy framework with five pillars, including risk management, environment, food safety, innovation, and rural renewal. However, this approach still failed to address the full issues that needed to be included in a national food policy, and it did not adequately address health, social, and cultural issues beyond those linked to food safety (18).

In essence, Canada’s food safety culture is reflected in the attitudes and behaviors of its citizens, who place a high value on the safety and quality of their food. This is reflected in the country’s strong tradition of food safety education and awareness-raising initiatives, which aim to educate consumers about the importance of food safety and how to minimize the risk of foodborne illness. Canada’s food safety culture is characterized by a commitment to protecting public health through comprehensive regulation, collaboration among stakeholders, and ongoing education and awareness-raising efforts. That culture has arguably driven the country’s reliance on labels and “best before” dates on packages.

“Best before,” “use by,” and expiration dates

In current policy, the Government of Canada outlines the differences between forms of date labeling on prepackaged foods. “Best before” dates indicate the durable life date, that is, the freshness, taste, nutritional value, or qualities claimed by the manufacturer; “best before” dates are not indicators of food safety (2). An expiration date is the date after which the compositional and nutritional specifications of the product might not be met (2). Expiration dates are necessary only on formulated liquid diets, foods represented for use in low-energy diets, meal replacements, nutritional supplements, and human milk substitutes. The FDR states that other terms may be used in place of “best before” as long as they are not misleading; these could include “sell by,” “prepared on,” “freeze by,” or “manufactured on” dates.

In the United Kingdom, the Food Safety Agency dictates that prepackaged food must display either a “best before” or “use by” date (11). It is specified that a “use by” date should only be used if there is a safety issue with eating the food beyond the specified date and that it is not necessary to use a “best before” or “use by” date on fresh fruit and vegetables (uncut and unpeeled), drinks that contain 10% or more alcohol by volume, baked or pastry goods normally consumed within 24 h of being made, and such items as vinegar, cooking salt, and solid sugar.

In the United States, with the exception of infant formula, dates on products are not required under federal regulations (23). For other categories, including meat, poultry, and egg products, voluntary date labels can be provided as long as they are truthful, are not misleading, and comply with the U.S. Food Safety and Inspection Service (FSIS) regulations. These regulations specify that calendar dates must include both the month and day of the month and that, in the case of shelf-stable or frozen products, the year must also be provided (23). It also states that immediately adjacent to the date there must be an explanation of the meaning of the date such as “best if used by” (16). The FSIS also explains that “best before” dates do not indicate when the food is safe to eat, but rather when the food is of the best quality. Among other date labeling phrases commonly used in the United States are “best if used by/best before,” “sell by,” “use by,” and “freeze by.”

Consumer knowledge and behavior

Several studies have been conducted to assess consumer knowledge about the meaning of “best before” and “use by” dates. Many consumers mistakenly believe that food label dates indicate the food’s safety, although, in many instances, the dates indicate the freshness or quality of the food. In the United States, a study was conducted to determine how often consumers used dates on food labels and also to assess whether they knew what “best by/use by,” “sell by,” and “expiration” dates meant. Of respondents, 81.6% often or always looked at food labels, whereas only 37.2% of them were able to correctly identify the meaning of all three categories (12). Research in Belgium found that 30% of consumers did not know the difference between “use by” and “best before” labels (24). Similarly, a study in Poland found that almost half of respondents never consumed food after the expiration date and that 40% of respondents believed that “best before” was an indicator of food safety; a similar percentage of respondents mistakenly identified “use by” dates as quality indicators (27).

Other studies have looked at consumer behavior with regard to food and date labels. A study in the European Union analyzed the impact that an understanding of date labeling has on food waste behavior (5); they found that perceptions of “best before” and “use by” labels had significant impacts on food waste behavior and that the frequency of checking

labels when shopping and preparing meals also contributed to food waste behavior (22). In the UK, date labels were mentioned as the reason for disposing of food in one-third of instances reported; this added up to 2 million tonnes of food that could have been consumed but was instead thrown away (27). In an Italian study, 68% of respondents said they always looked at “best before” dates when shopping and preparing meals; however, approximately 20% of them were mistaken about the meaning of “best before” and “use by” labels. This was then tested against a hypothetical question. Asked if they would consume a product that they found in their pantry that had no “best before” date and whose date of purchase they could not remember (20), approximately 43% said that if the product looked okay and the packaging was not damaged, they would consume the product without the date.

ABANDONING “BEST BEFORE” DATES

United Kingdom

In the United Kingdom, several grocers have now abandoned the use of “best before” dates to combat food waste (17). In 2022, the retailer Waitrose announced they would no longer be displaying the labels on nearly 500 fresh products. Other retailers have announced a similar move; M&S removed “best before” dates from 300 fruit and vegetable items. In 2018, Tesco, the UK’s biggest supermarket chain, took the labels off 100 products, and Morrisons made the move to take dates off 90% of its own-brand milk bottles. These steps follow information released by the NGO Waste and Resources Action Programme (26), which noted that £1 billion in avoidable food waste is thrown away by households every year (26).

In the history of food safety, the use of “best before” dates is a relatively new development. The labels were introduced in the United States in the 1970s, and their history begins in Canada in 1974 (8, 14). In North America, the practice has been in place for less than 100 years, with little development along the way. Both Canada and the United States saw attempts to formalize the use of date labels on food but did not have success in creating concrete guidelines for “best before” dates with producers and retailers. As a result, consumers often mistakenly interpret “best before” dates as indicators that the food is not safe to consume after the labeled date, which leads to food waste (12).

Globally, consumers often confuse the intention of “best before” dates and rely heavily on these dates while shopping. This has been documented across several countries, including the United States, Poland, Belgium, Italy, and the United Kingdom. Across all studies, fewer than 50% of the participants and respondents were able to correctly identify what the “best before” or “use by” labels indicated. It was also found that “best before” dates heavily influenced whether consumers would throw away food (27).

It is known that much of the food waste occurs at the consumer level. Targeting this area specifically offers the

opportunity to reduce climate burdens, move toward a more sustainable food system, and help reach the Sustainable Development Goals. The literature suggests that food labels, rather than providing safeguards, cause confusion for consumers. Consumers mistakenly think that “best before” dates indicate safety, but they are intended to indicate quality and freshness (2, 7, 11, 16, 23). This confusion contributes heavily to food waste. A change in policy surrounding food labels is an opportunity to address food waste.

DISCUSSION

In the United States, the FSIS recommends that those food manufacturers and retailers that use dates on products should use a “best if used by” date because research shows that this language conveys to consumers that the product will be the best quality if used by the indicated date (11). Best practices from WRAP in the United Kingdom recommend that using a “best before” date on prepackaged, uncut, fresh produce is useful to aid consumers in eating rather than wasting the product; but for all other cases, no date is recommended (26). From the literature, there is a consensus that “best before” dates are not the most effective way to convey to consumers the quality or freshness of the food because consumers mistakenly believe that the food is no longer safe to consume after that date. From a policy perspective, there is an opportunity to address this issue and use it as a mechanism to reduce food waste.

Across many jurisdictions, the practice of labeling items with “best before” dates is voluntary for retailers and producers; this provides an opportunity to address food waste. Whereas date labeling for many items is voluntary, one approach to reducing food waste would be to put in place policies that would prevent retailers from date labeling foods that are not required to have date labels. It is well documented that much of the world’s food waste occurs in the home at the consumer level and that consumers demonstrate limited ability to correctly interpret what is meant by “best before” dates.

In Canada in particular, 63% of food that was thrown away was consumable. This creates unnecessary strain on the waste management system and unnecessary contributions to GHG emissions. If “best before” dates were no longer influencing consumers to think food past the labeled date was not safe to eat, there would possibly be a significant impact on food waste. Household food waste caused by overreliance on “best before” dates needs to be addressed in Canada. There are several options for reducing food waste through improved management of “best before” dates: harmonizing the “best before” date labeling system across the country to ensure consistency and reduce consumer confusion; encouraging the use of more descriptive language on food labels, such as “consume by” or “use by,” which better convey the intended meaning of the date; and developing educational campaigns to raise consumer awareness about the true meaning of “best before” dates and how they can be used to reduce food waste.

Also, the implementation of “best before” date labeling requirements for certain categories of food products that are commonly wasted, such as perishable goods, and the promotion of the reduction of food waste in the supply chain, including through more efficient distribution and storage practices, would also likely reduce food waste over time.

A comprehensive, multistakeholder approach to reducing household food waste is needed in Canada, and addressing the issue of “best before” dates is an important part of this effort.

The current use of “best before” dates should be replaced with the implementation of a wider range of markers on packaged foods; these could include “sell by,” “prepared on,” “freeze by,” or “manufactured on” dates, as outlined by the FSIS in the United States (10). This would approach food labels from a food safety standpoint versus a focus on freshness and quality of food. Using dates that would indicate the safety of consumption for necessary products would avoid confusion. This approach would also provide consumers more ways to save food; for instance, the use of “freeze by” would indicate to consumers that the product could be consumed or saved for a later date and would still be safe to consume.

In addition to reducing food waste, improved labeling on food also offers the opportunity to address such issues as climate change and food security. Food waste contributes significantly to climate issues: GHGs are produced during the transportation of food to landfills and during the process of decomposition in landfills. Many countries have created dedicated plans to target climate change. Canada’s 2030 Emissions Reduction Plan aims to reduce emissions by 40% below 2005 levels and to reach net-zero emissions by 2050.

Without a consensus on how food is labeled, consumers will continue to be confused about when food is safe to consume and when it should be disposed of. Inconsistencies have led consumers to mistakenly interpret date labels, which leads to excessive food waste. Greater awareness of other ways to identify when food is expired or consumable, as opposed to reliance on “best before” dates, could have a dramatic impact on the amount of household food waste. “Best before” dates are mandatory on only certain categories of food; based on the literature available, the waste caused by their use outweighs the protection they offer consumers. This is especially true in cases in which “best before” dates indicate only quality and freshness of food, not whether the food is safe to consume. As the United Kingdom has done, other jurisdictions, retailers, and producers should also examine the benefit of “best before” labels compared to the waste they produce and should consider the positive impacts that could result from no longer using “best before” dates. “Best before” dates have been used for fewer than 100 years in Canada and the United States; the system, relatively new, has never been fundamentally changed. As the world works to become more sustainable, every avenue, including “best before” labels as a contributor to food waste, should be explored.

FUTURE RESEARCH PATHS

Future research on the implications of “best before” dates on household food waste in Canada should focus on several key areas to improve our understanding of the issue and inform effective policy solutions. One area is consumer behavior and decision-making; more research is needed to understand consumer perceptions and behaviors around “best before” dates and how these impact food waste in the household. This could include surveys, interviews, and observational studies. Another area is the impact of labeling; different types of food labeling, including “best before” dates, “use by” dates, and others, on consumer behavior and household food waste should be examined. More research is needed on food safety and food waste issues; investigation of the relationship between consumer beliefs about food safety and household food waste could also focus on how these beliefs are shaped by “best before” dates. Future studies should encompass industry practices around “best before”

dates, including the role of manufacturers, retailers, and distributors in shaping consumer behavior and reducing food waste. International comparisons would also be helpful, to examine the impact of “best before” dates and food waste in Canada and in other countries, including the use of different labeling systems and food waste reduction strategies. Finally, there should be long-term evaluations of how labels impact food waste, especially long-term evaluation of the impact of policy interventions aimed at reducing household food waste through better management of “best before” dates, including the effectiveness of educational campaigns and labeling requirements.

By conducting this type of research, we can gain a deeper understanding of the factors that contribute to household food waste in Canada and identify effective strategies for reducing waste through improved management of “best before” dates.

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IAFP’s Business Meeting will be held Tuesday, July 18, at IAFP 2023. As required by the Association’s Constitution and Bylaws, **we are notifying IAFP Members that amendments to the Constitution and Bylaws will be presented for a vote at this year’s Business Meeting.** Visit the IAFP website to view the proposed changes. Look under the “About” dropdown, click on “Governance” and scroll down. For questions, contact Lisa Hovey, IAFP Executive Director.