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## Impact of Vermont's Food Waste Ban on Residents and Food Businesses

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# Impact of Vermont's Food Waste Ban on Residents and Food Businesses

## Introduction

In the United States, an estimated 30–40% of food produced each year is wasted, with most of this waste coming from households, food retailers, and food service businesses.<sup>1</sup> In addition to representing wasted human and natural resources across the food system, food waste is among the largest sources of waste in municipal landfills in the United States and Vermont, where it generates methane, a powerful greenhouse gas.<sup>2,3</sup> In fact, the decomposition of food and other organic materials in landfills is the third largest source of methane emissions in the United States (17%), after petroleum production and livestock production.<sup>4</sup>

To reduce the burden on Vermont's only municipal landfill, the Vermont Legislature unanimously passed Act 148, a universal recycling and composting law, in 2012.<sup>5</sup> Among other features, the law included a phased-in food waste ban that went into full effect on July 1, 2020. This ban requires everyone in Vermont – from residents to businesses and institutions – to keep their food waste out of the trash.

To study the impact of the food waste ban, we conducted two statewide online surveys in 2021 and 2022: a general population survey (i.e., resident survey) and a food business survey. The resident survey was embedded within the 2022 Vermonter Poll – an annual statewide public opinion survey – and was completed by 783 Vermont residents. The sample represents the adult population of Vermont with respect to gender distribution and household size, but over-represents older adults and those with greater incomes and education. The food business survey was distributed through the email lists of non-profit, business, and state agencies; public posts on Front Porch Forum; posters in public places; and newspaper

advertisements. The food business survey was completed by 95 food service and food retail professionals. This policy report summarizes the findings of both surveys relevant to the food waste ban.

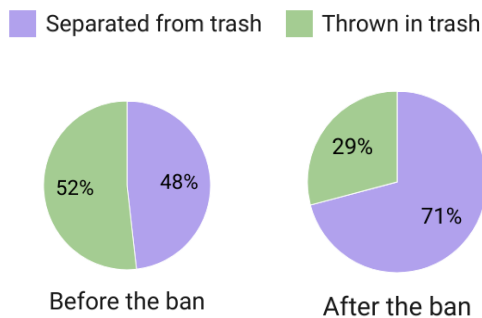
## Key Findings

1. Following implementation of Vermont's food waste ban, residents reported increasing the amount of food waste that they separate from their trash by 48% (from 48% to 71%). The leading disposal method for food waste is composting (46% of all food waste disposal).
2. However, over a year after full implementation of the ban, about one quarter of respondents to the resident survey (26%) report feeling confused about its requirements. Of those who engaged in composting, one out of five (20%) find it to be hard or very hard.
3. Support for and knowledge of the food waste ban is high among Vermont's food retail and food service professionals, and few continue to dump food waste in the trash.
4. However, over one-third of food retailers (37%), about half of food service operators (53%) and two-fifths of those who run both types of businesses (40%) felt that compliance had been difficult.
5. The impacts of the ban differ for different types of food businesses, with food service businesses reporting more negative impacts on operating costs and revenue than food retailers.

## Survey of Vermont Residents

### Separation of Food Waste from the Trash Before and After the Ban

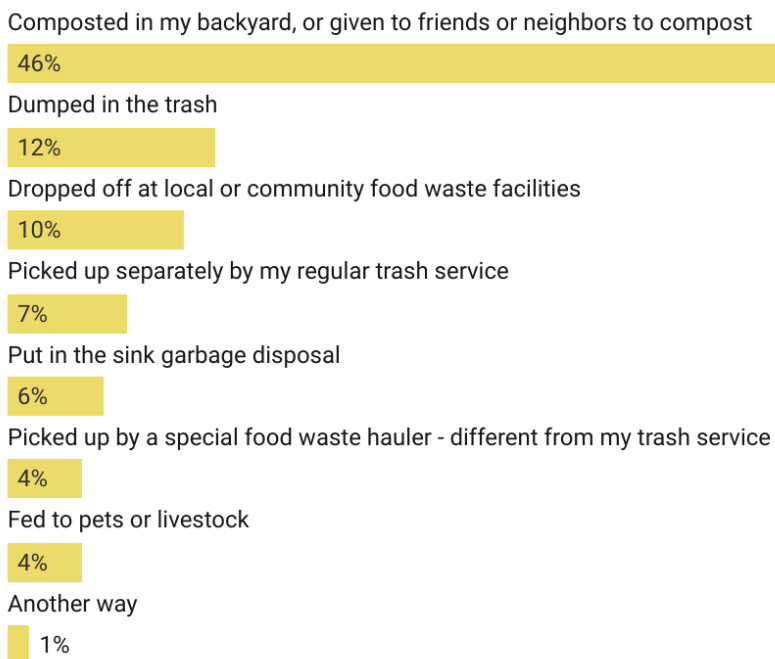
Vermont residents reported increasing the proportion of food that they separate from their trash from 48% before the ban to 71% after the ban (Figure 1).



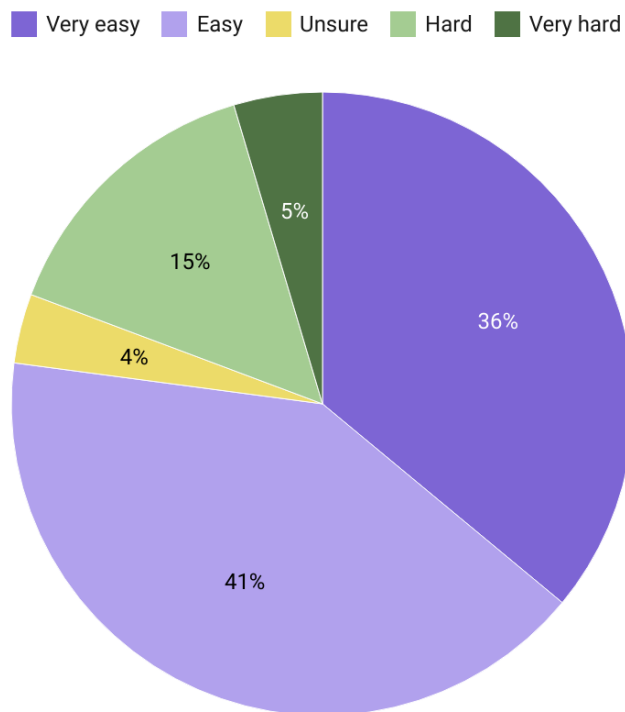
**Figure 1. Proportion of food waste separated from residential trash before and after implementation of the food waste ban (%)**

The survey asked respondents to estimate what percentage of their food waste was disposed of using each of a range of methods since July 2020 (Figure 2). The three leading disposal methods were composting on one's own property or giving to a friend or neighbor to compost (46%), dumping food waste in the trash (12%), and dropping waste off at community food waste facilities (10%). Respondents additionally described "other" methods including tossing food waste into the woods and feeding it to wildlife.

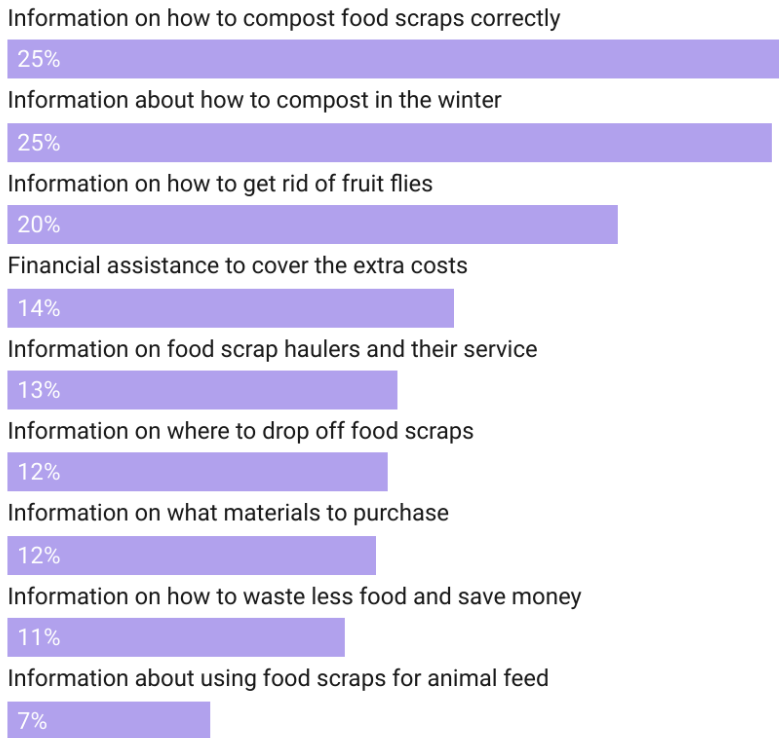
Approximately 85% of Vermont's residents reported composting. Among these individuals, one in five (20%) believed that composting is hard or very hard (Figure 3). Survey respondents were asked what information or assistance would make it easier for their household to comply with the food waste ban (Figure 4). The most requested forms of assistance were information on how to compost food waste correctly (25%), information on how to compost during the winter (25%), and information on how to get rid of fruit flies (20%).



**Figure 2. Vermont resident strategies for disposing of food waste since implementation of the food waste ban (%)**



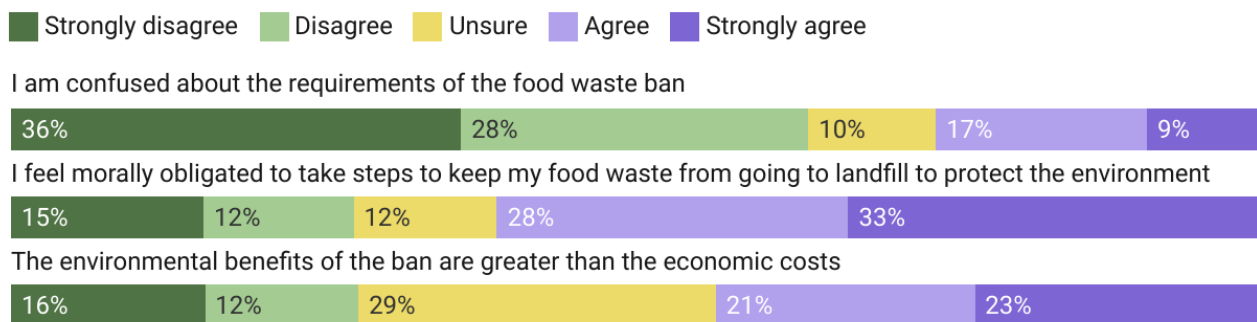
**Figure 3. Resident survey respondents' overall experiences composting food waste since implementation of the ban (%)**



**Figure 4. Information and assistance that would make it easier for residents to comply with the ban (%)**

## Opinions about the Food Waste Ban

About one quarter of survey respondents (26%) were confused about the requirements of the food waste ban (Figure 5). However, more than half (61%) reported feeling morally obligated to take steps to keep their food waste out of landfills and slightly less than half (44%) believed that the benefits of the food waste ban are greater than the economic costs.



**Figure 5. Resident survey respondents' opinions about the food waste ban (%)**

# Survey of Food Retail and Service Professionals

The food business survey was completed by professionals representing a variety of food establishments, including restaurants, fast food, catering, institutions, food trucks, grocery stores, cooperatives, convenience stores, mass merchandizers, and farmers' markets. About half (53%) owned or managed a business. The remainder (47%) were employees. We divided respondents into three categories based on where they work: food retail (n=36), food service (n=42), and both food retail and food service (n=17).

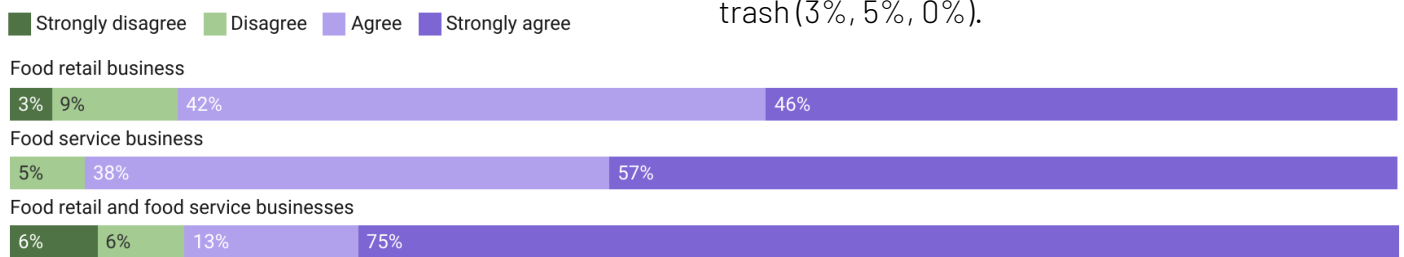
## Support for the Food Waste Ban

Most food business professionals expressed support for the food waste ban (Figure 6). Among those in food retail and those who work in both food retail and food service, 88% agreed or strongly agreed with the statement, "I

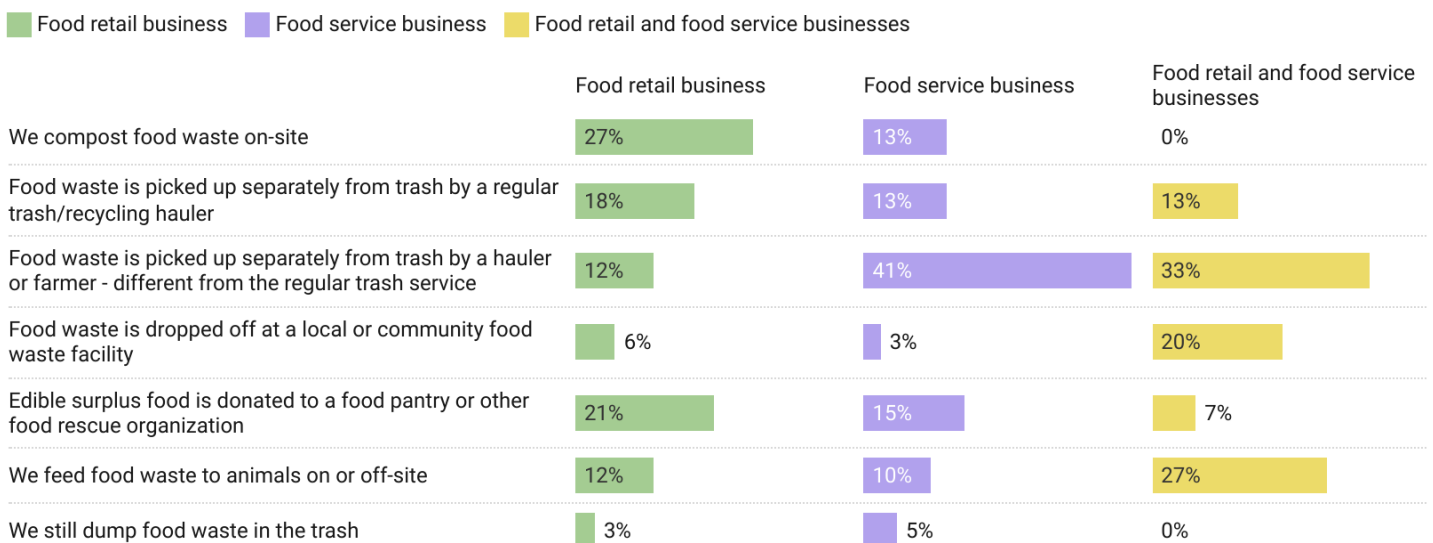
support the food scrap ban". Support was even higher (95%) among food service professionals.

## Strategies for Disposing of Food Waste

The survey asked food business professionals to report all the ways in which their businesses dispose of food waste (Figure 7). Among food retailers, the most reported strategy was composting on-site (27%) followed by donating to a food rescue organization (21%). Among food services, the most common strategy was having food waste picked up by a food waste service or farmer (41%) followed by donating to a food rescue organization (15%). Among respondents who work in both industries, the top strategy was having food waste picked up by a food waste service or farmer (33%) followed by feeding food waste to animals (27%). Notably, very few respondents from retail, service, or businesses that were both, reported continuing to dump food waste in the trash (3%, 5%, 0%).



**Figure 6. Level of agreement with the statement “I support the food scrap ban” among Vermont’s food retail and food service professionals (%)**



**Figure 7. Ways in which food businesses in Vermont dispose of food waste (%)**

## Opinions about the Food Waste Ban

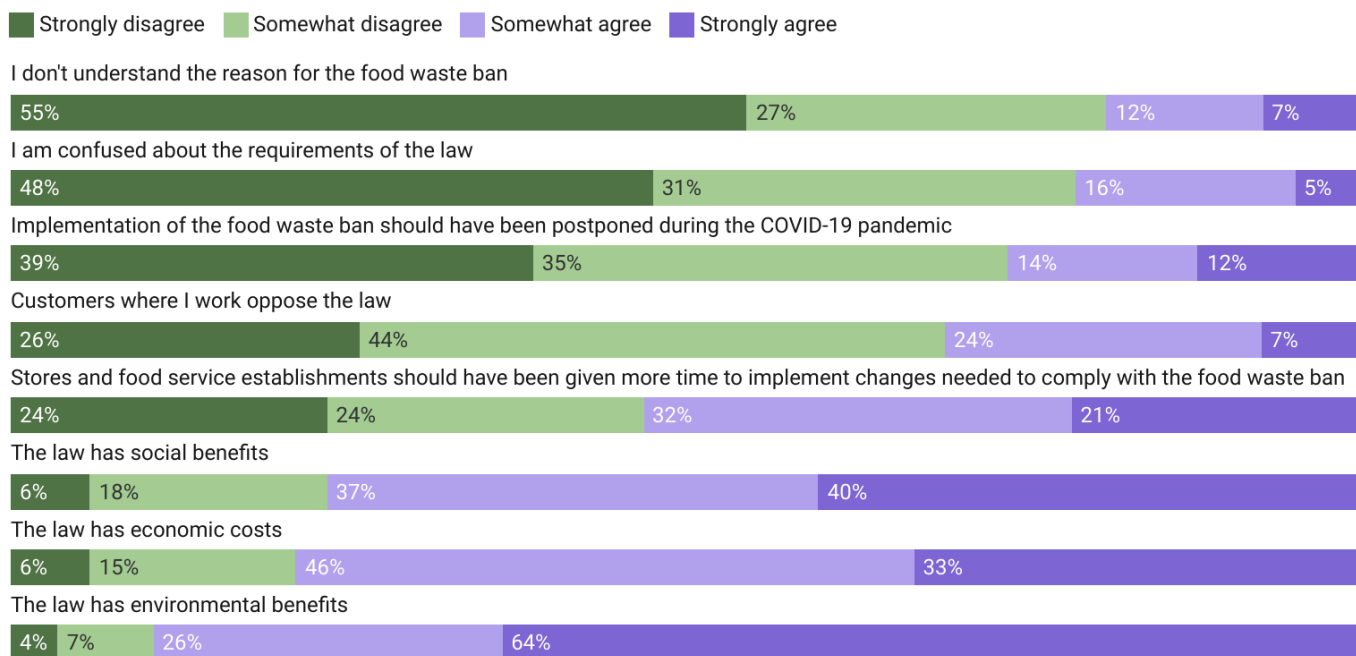
Few respondents reported feeling confused by the requirements of the law (21%) and most (82%) understood the reason for the ban (Figure 8). Nearly all respondents (90%) agreed that the food waste ban has benefits for the environment and 77% believed that the ban has societal benefits. At the same time, most food business professionals (79%) reported that the ban has economic costs. Almost one-third (31%) felt that customers to their businesses opposed the food scrap ban.

While over half of respondents (53%) believed that stores and food service establishments should have been given more time to implement changes needed to comply with the food waste ban, far fewer (26%) believed that the food waste ban should have been postponed during the COVID-19 pandemic.

## Impacts of the Food Waste Ban on Business Operations and Costs

Questions about the impact of the food waste ban on business operations were posed to the 50 business owners and managers that completed the survey. The

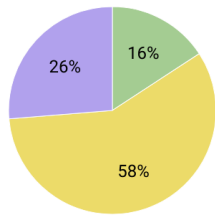
impacts of the ban appear to vary by business type (Figure 9). For example, nearly half of food service owners and managers (47%) reported negative impacts on operating costs and almost one quarter reported negative impacts on revenue (24%), but these proportions were notably lower among food retail owners and managers (16% and 16%) and those who run both types of businesses (30% and 10%). Across all business types, customer satisfaction with the ban was mostly positive or neutral. Impacts on employees' satisfaction was more mixed with about one fifth of food retail owners and managers (21%) and close to one quarter of food service owners and managers (24%) reporting negative impacts compared to about a third of each type of professional reporting positive impacts (32% and 35%). Experiences with cleanliness as an impact of the ban also varied. Among those who run food retail businesses, 26% reported positive impacts on cleanliness while 16% reported negative impacts. Among food service owners and managers, equal proportions (41% each) reported positive and negative impacts on cleanliness. Finally, among those who run both types of businesses, 70% felt that cleanliness had improved. The remainder did not believe that the ban had any impact on cleanliness.



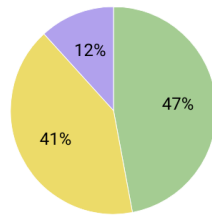
**Figure 8. Food retail and food service professionals' opinions about the food waste ban (%)**

■ Negative 
 ■ No impact 
 ■ Positive

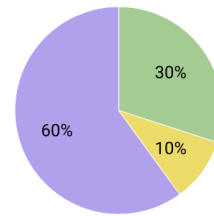
## Operating costs



Food retail business

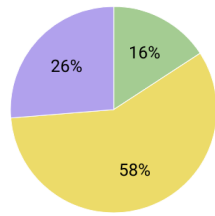


Food service business

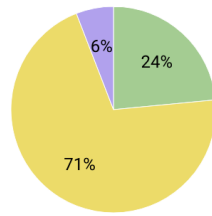


Food retail and food service businesses

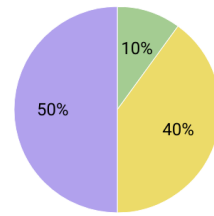
## Revenue



Food retail business

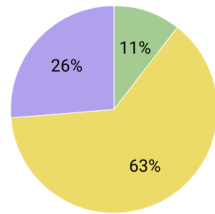


Food service business

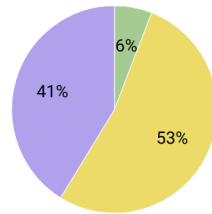


Food retail and food service businesses

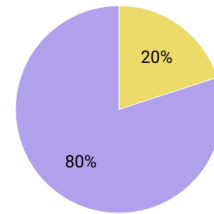
## Customer satisfaction



Food retail business

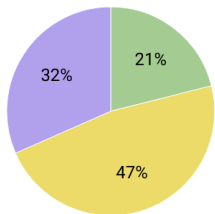


Food service business

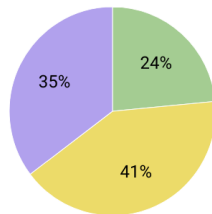


Food retail and food service businesses

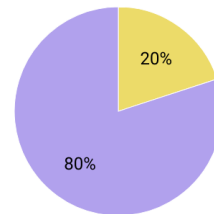
## Employee satisfaction



Food retail business

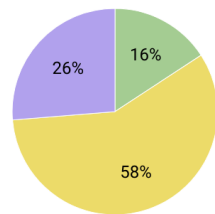


Food service business

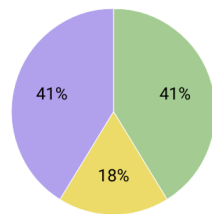


Food retail and food service businesses

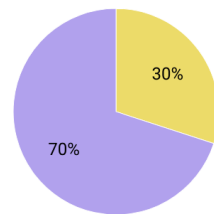
## Cleanliness



Food retail business



Food service business

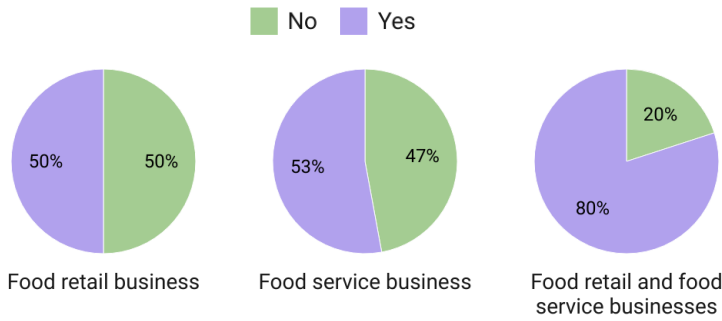


Food retail and food service businesses

**Figure 9. Food retail and food service professionals' opinions about the food waste ban (%)**



Owners and managers were asked about whether the food waste ban introduced additional costs to their businesses (Figure 10). Among those who ran either a food service or food retail business, responses were split nearly 50/50. Four-fifths of those who ran both types of businesses reported additional costs. The major costs listed by respondents included the cost of compost pickup and compostable bags.



**Figure 10. Whether the food waste ban introduced additional costs to the business (%)**

## Challenges and Opportunities Complying with the Food Waste Ban

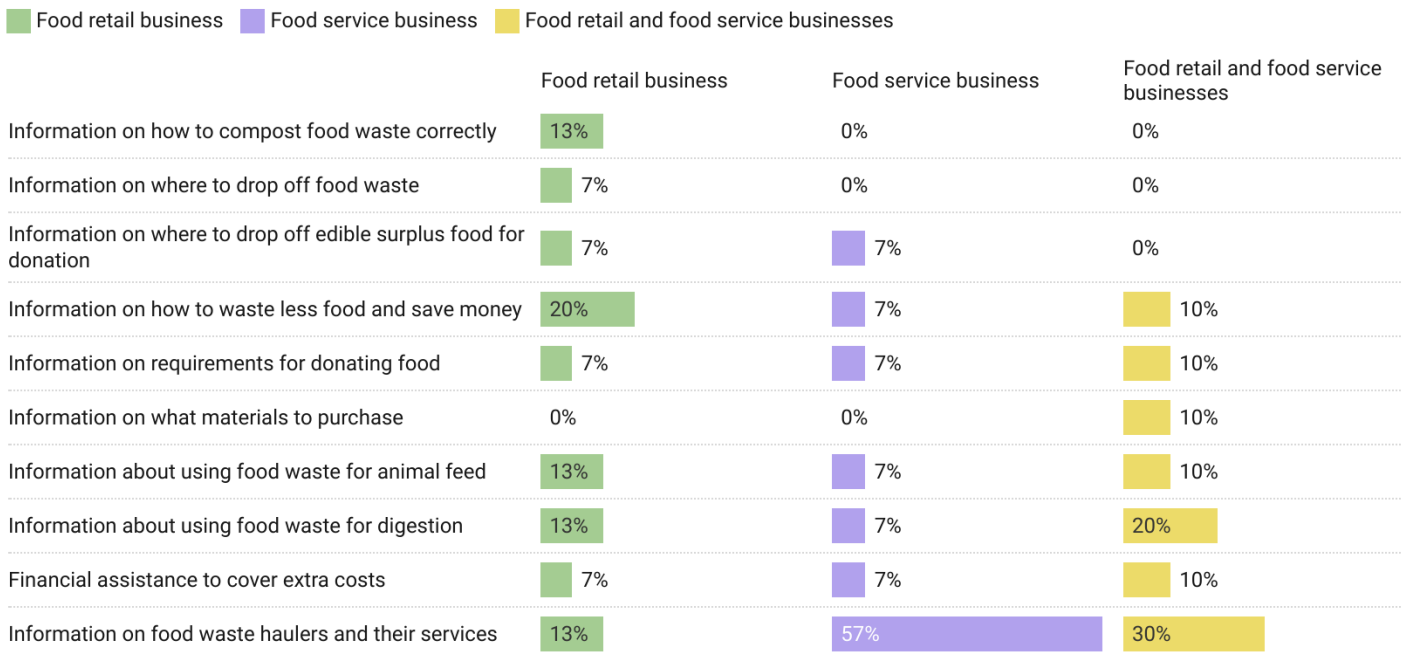
Business owners and managers reported differing levels of difficulty complying with the food scrap ban (Figure 11).

Over one-third of food retailers (37%), about half of food service operators (53%) and two-fifths of those who run both types of businesses (40%) felt that compliance had been difficult.



**Figure 11. Level of difficulty for business to comply with the food waste ban (%)**

Figure 12 presents types of information or assistance that food business professionals reported would make it easier to comply with the food waste ban. For food retail owners and managers, the top type of support requested was information on how to waste less food and save money (20%). Among food business owners and managers and those who run both types of businesses, the most common request was for information on food waste haulers and their services (requested by 57% and 30%, respectively).



**Figure 12. Type of information or assistance needed to make compliance with the food scrap ban easier (%)**



## Implications

The food waste ban incorporated in Vermont's Universal Recycling Act was designed to keep food waste out of Vermont's landfill to save landfill space and reduce greenhouse gas emissions. This research found that, among Vermont's residents, separating food waste from the trash increased by 50% following implementation of the ban. However, almost a third of residents are confused about the requirements of the law and almost half of those who now compost find it to be hard.

The findings from this analysis also suggest that the food waste ban is well-understood and largely supported by Vermont's food retail and food service professionals and has led to changes in how food waste is managed by those food businesses. While few food businesses report continuing to dump food waste in the trash, a substantial proportion of business owners and managers - especially food service operators - report that compliance has been a challenge and introduced new costs.

These findings indicate that increased public education about the law and how to compost may increase residential compliance. Further, investments in easier food diversion methods for businesses could support Vermont's food industry.

## Acknowledgements

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