

Evaluating Educational Outreach Strategies for Organic Waste Management Policies at Food
Establishments in Snohomish County, Washington

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ABSTRACT

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Purpose of the Study: Washington State generates 4.7 million tons of organic waste annually, with over two million tons sent to landfills, contributing to greenhouse gas emissions and climate change. In response, Washington has implemented Business Organic Management Areas (BOMA), which require businesses with access to sufficient infrastructure to divert organic waste away from landfills. Local health jurisdictions are responsible for enforcing BOMA. The residential version of this program, Organics Recycling Collection Areas (ORCA), will be implemented in 2027. The success of these policies depends on effective education and engagement strategies, particularly for food establishments. In partnership with the Snohomish County Environmental Health District, this project explored the potential for education and outreach to impact food establishments' knowledge, attitudes, and practices (KAP) related to organic waste management in Snohomish County, Washington, and examined how geographic factors may also influence these outcomes.

Design and Methods: This intervention study used a KAP survey that was distributed to food establishments through five treatment groups: mail with and without education, email with and without education, and in-person education through the Snohomish County Pollution Prevention Assistance (PPA) program. 2,581 food establishments were contacted. Outcomes were compared using Wilcoxon rank-sum, Kruskal-Wallis, and Welch two-sample t-tests, and multivariate linear regression models assessed the independent effect of education while controlling for composting status and rural/urban classification. Geographic factors were examined using Rural Urban Commuting Area codes and ZIP code-level educational attainment data.

Results: Knowledge scores were low across all groups, indicating that many food establishments do not know about BOMA or the Organics Management Laws. Education was significantly associated with only one attitude outcome, the perceived importance of keeping food waste out of the landfill ($\beta = +0.80$, $p = 0.006$). Overall, the results suggest that educational outreach was more effective at shifting attitudes than building knowledge. In-person outreach through the PPA program was able to reach audiences that were less likely to already be composting compared to mail and email respondents, suggesting it may be more effective at engaging food establishments not already familiar with organics waste management. The most commonly cited barriers to separating organic waste were lack of staff time or capacity (32.7%), being unsure about requirements (26.9%), and cost of composting services (23.1%).

Implications: Findings from this study will inform local health jurisdictions on how to better support food establishments in complying with BOMA, preparing for ORCA, and advancing statewide organic waste reduction goals. In-person education may be more effective than mail or email for reaching food establishments not already engaged with organic waste management.

Coordinated outreach across local jurisdictions and the state will be critical to support food establishments in meeting state and federal food waste reduction goals.

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GLOSSARY OF TERMS AND DEFINITIONS

Anaerobic Digestion – Process of microorganisms breaking down organic materials in the absence of oxygen producing biogas and digestate.¹

Business Organics Management Areas (BOMA) – Designated areas where businesses are required to divert organic waste from landfills through donating or composting.²

Compost – Managed biological process through aerobic decomposition of organic materials by microorganisms.³

Comprehensive Plan – Long-range plan that guides growth and development of a local jurisdiction while reflecting the visions and priorities of the community. Many local jurisdictions are required to develop comprehensive plans under the Growth Management Act (RCW 36.70A.020).⁴

Food Establishment – Operation that stores, prepares, packages or serves food for human consumption (i.e. restaurant, grocery store).

Food Service Establishment – Establishment that prepares and serves food for immediate consumption.

Food Rescue – Practice of collecting edible food from sources that would otherwise be wasted and redistributing them (i.e. grocery store redistributing unsold food to a food bank).⁵

Food Waste – Edible food that is discarded or not consumed.⁵

Municipal Solid Waste (MSW) – Everyday items that are thrown away which can include packaging, food scraps, and anything else ending up thrown away.⁶

Retail Food Establishment – Sell food in bulk, packages, or prepared forms for off-site consumption.

Solid Waste Management Plan (SWMP) – Required elements of comprehensive plans that guide how local jurisdictions collect, process, reduce, recycle and dispose of solid waste including infrastructure needs and gaps and waste reduction strategies.⁷

Surplus Food – Edible food that can be donated to feed people, also called excess food.⁵

Organics Management Laws (OML) - Washington State laws outlining state organic waste reduction goals and mandating phased food and organic waste collection for businesses.⁸

Organics Recycling Collection Areas (ORCA) – Designated areas where organic waste collection services are required for single-family homes and certain businesses in 2027.²

Organic Waste – Biodegradable materials from plant or animal matter that can be broken down (i.e. food scraps, yard trimmings, paper, etc.).⁹

INTRODUCTION

Background and Significance

Food waste is a persistent and costly issue, but it has the potential to be a critical leverage point to reduce greenhouse gas emissions as the climate crisis continues. Currently, 31% of the U.S. food supply is uneaten or unsold and 27% ends up completely wasted, most commonly in landfills.¹⁰ When food ends up in landfills, it decomposes anaerobically and produces methane which is a potent greenhouse gas.¹¹ Methane traps immense amounts of heat in the atmosphere and has contributed to more than 25% of the global warming we have experienced so far.¹¹ The U.S. Environmental Protection Agency (EPA) estimates that surplus food is responsible for 58% of methane emissions from municipal solid waste (MSW) landfills released into the atmosphere. While methane emissions from MSW landfills are decreasing overall, methane emissions from surplus food in landfills are increasing.⁶

Preventing food from entering landfills not only mitigates environmental impacts from landfills, but also saves resources throughout the food system.¹² When food is wasted and ends up in landfills, the resources including energy, water, land, and labor from growing, storing, processing, distributing, and preparing that food are also wasted. Additionally, wasted food imposes significant costs and operational burdens on municipal and regional waste systems.¹³ When surplus food is diverted from landfills, it can be used for other purposes such as animal feed, composted into soil to return the surplus food's nutrients into the earth, or redistributed to people. Redirecting surplus food away from landfills can yield significant environmental, economic, and social benefits.¹⁰ The EPA developed the wasted food scale to rank surplus food uses. Preventing wasted food through more intentional purchasing and use is the most preferred option, but when that is not possible, redistributing food or upcycling for human consumption is the most preferred.³

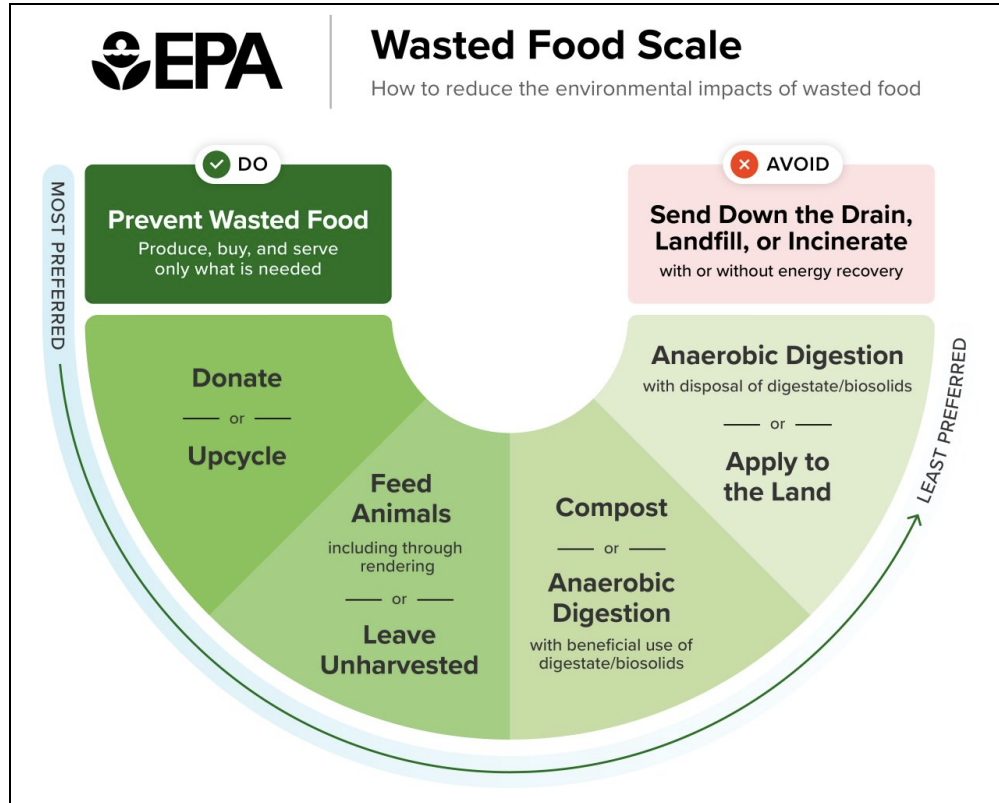


Figure 1. EPA Wasted Food Scale³

One option for donation or upcycling is through “food rescue” which is the practice of collecting edible food that would otherwise be thrown away and redistributing it to people, including those who may be experiencing food insecurity.⁵ Food rescue is a growing movement that benefits the environment by preventing food from ending up in landfills and benefits communities through addressing food insecurity by expanding access to food.¹⁴ It can be conducted throughout the food system, including at food processing facilities, farms, or retail food establishments such as grocery stores or food service establishments such as restaurants. Despite the numerous benefits of food rescue, there can also be barriers and challenges around preserving quality and ensuring food safety. In 1996, the Bill Emerson Good Samaritan Act was passed by Congress to ensure food donors are protected from liability when they donate “in good faith” and the food is “apparently wholesome food or apparently fit grocery products” going to a nonprofit organization for distribution to those in need.¹⁵ However, food safety education is necessary to ensure proper handling of food throughout the collection and donation process to minimize risk. Food establishments can also receive tax deductions on their food donations.¹⁶

When donating food is not an option, the next preferred use is to feed animals with the surplus food which can reduce the need to produce traditional animal feed, reducing the environmental costs that come from production. Alternatively, crops can be left unharvested and can be gleaned by food rescue organizations in the fields, sowed back into the soil to reintroduce nutrients, or grazed by animals. After that, composting and anaerobic digestion are the most preferred methods. Composting is a managed process where microorganisms aerobically (with oxygen) digest organic materials. The resulting product is a nutrient-rich material that can help improve soil health. Alternatively, there is anaerobic (without oxygen) digestion which is when microorganisms digest materials anaerobically. This process generates biogas which can be used as a renewable energy source and the solid remains, digestates or biosolids, can be used as fertilizer. While there are many methods to divert food from landfills, food donation remains the most preferred method to ensure the least environmental impact while simultaneously nourishing people.^{3,5}

Food establishments are among the largest contributors to food waste, making them a critical sector for reduction efforts and presenting opportunities for food rescue. In the U.S., consumer-facing food establishments are responsible for 23% of surplus food, totaling 17.2 million tons and an estimated \$175.7 billion in value.¹⁰ Furthermore, about 60% of food wasted in the retail and food service sectors in the U.S. ends up in landfills. As the U.S. and individual states develop food waste management infrastructure and policies to address food waste and divert food waste from landfills, it is critical to understand how education can be leveraged to support food establishments' understanding and adoption of organic waste diversion practices.

In 2015, the United States Department of Agriculture (USDA) and the United States Environmental Protection Agency (EPA) joined together to set a goal to reduce national food waste by 50% by 2030.¹⁷ This goal aligns with international targets set by the United Nations Sustainable Development Goal 12.3 to “half global per capita food waste.”¹⁸ However, the implementation of policies and programs to support these goals have largely fallen on state and local governments.

Food and organic waste bans have been one response to reducing food waste. These policies generally prohibit sending food and/or organic waste to landfills. Food and organic waste bans have been implemented internationally and across the U.S. In 2016, France passed a national law

banning supermarkets from landfilling surplus food and requiring them to donate food they can no longer sell.¹⁹ Between 2014 and 2025, twelve states in the U.S. implemented organic waste bans.²⁰

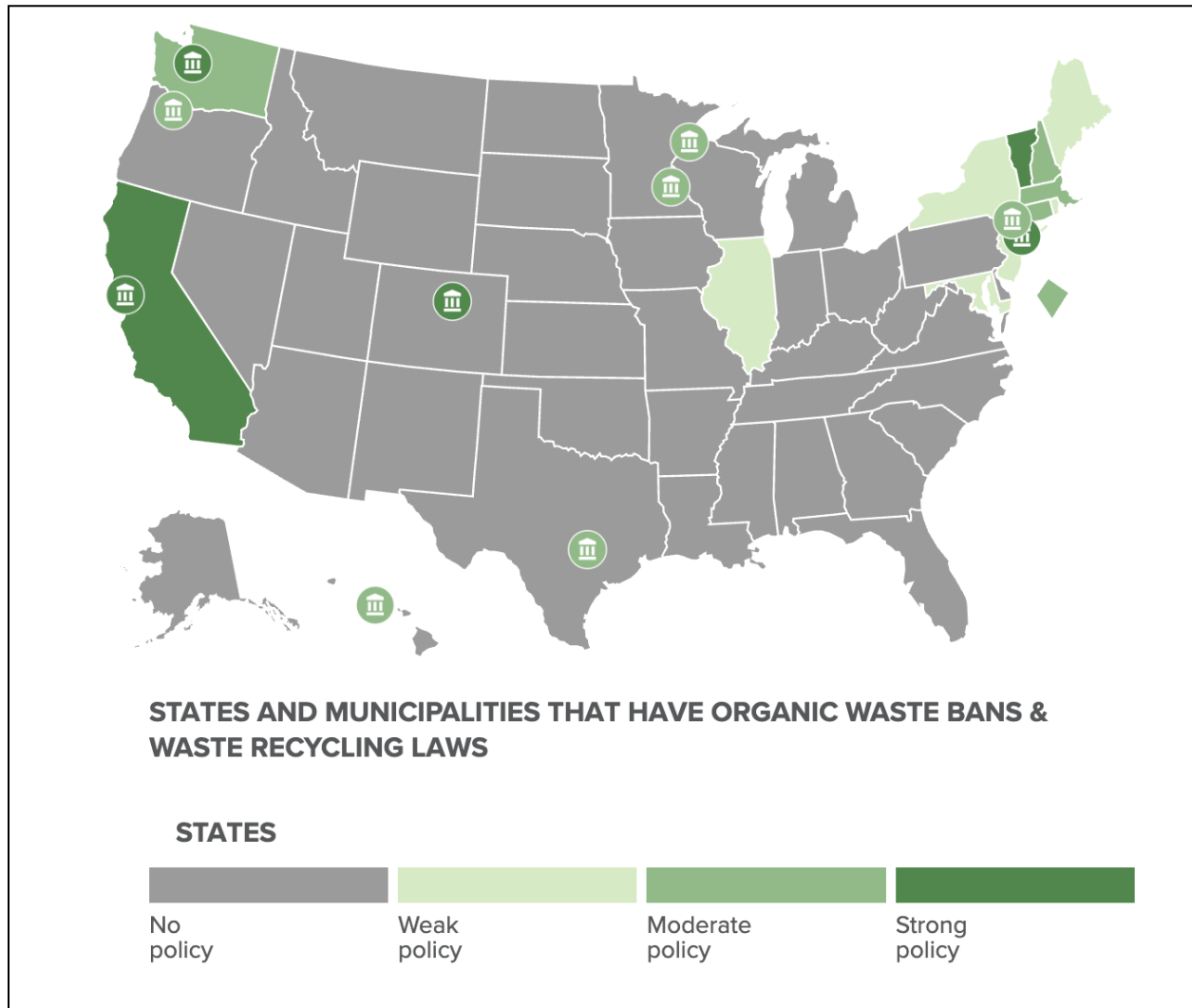


Figure 2. Organic Waste Bans and Recycling Laws in the U.S.²⁰

At the local level, cities across the US have also enacted their own waste ordinances. Seattle's citywide ban on food and yard waste in garbage (SMC 21.36.082-21.36.083) is an example of a municipal organics waste ban. Seattle has prohibited the disposal of compostable materials in garbage since 2015.^{21,22}

California, Massachusetts, Rhode Island, Vermont and Connecticut were the first five states to implement commercial bans or diversion mandates. Among the early adopter states, food waste bans have had varied success and outcomes. One study has found that Massachusetts is the only state to have significant reductions in organic waste as a result of these types of organic waste management policies.²³

Massachusetts implemented its Commercial Food Material Disposal Ban in 2014 and has reduced its food waste in landfills by 13.1% since then. It's also created significant economic opportunities including more than 1,670 jobs and more than \$390 million from industry-related activities.²⁴ Anglout et al. have speculated that much of the success stems from Massachusetts' investment in compost infrastructure which has made diversion accessible and affordable for generators, the ban's simple parameters without exceptions, and the cost of noncompliance.^{23,25} In addition to these factors, Massachusetts also adopted an "education-first" enforcement approach recognizing the importance of educating the commercial food sector to ensure success. Before issuing any penalties from non-compliance, the Massachusetts Department of Environmental Protection provides outreach and technical assistance to support business.²⁶

Although Anglout et al. found Vermont's ban has been less effective for reducing landfilled food waste, a recent waste characterization study in Vermont found that there has been a significant reduction in food waste (approximately 15%) at MSW landfills since the implementation of its food waste ban.²⁷ This may reflect differences in measurement approaches which represents another challenge in evaluating the success for food waste bans. Another study evaluating Vermont's policy found that one of the primary barriers to successful adherence was confusion about the policy among food establishments, suggesting that more effective education for food establishments would increase the impact of the policy.²⁸ These findings suggest that providing effective education to food establishments could improve policy outcomes. This is supported by studies about consumer behavior. Previous studies have shown that consumer education about food waste is a highly cost-effective avenue for reducing food waste.²⁹ However, less is known about how much education can influence the commercial sectors compliance with food waste reduction policies. Education and outreach have been shown to be key predictors of policy compliance and success.^{23,28}

Organic Waste in Washington

Washington State generates nearly one million tons of food waste each year. Approximately 35% of that is edible food that ends up in the landfill.³⁰ The State Legislature has set ambitious goals to further reduce food waste and the associated environmental, economic and social costs through the Organics Management Laws (OML). The first OML was passed in 2022 (HB 1799) and an updated OML was passed in 2024 (HB 2301).⁸ The Use Food Well Washington Plan, released in 2022, outlines recommendations to meet the state's goals, including a commitment to reduce food waste by 50% by 2030 relative to 2015 baseline levels, in alignment with federal goals set by the U.S. Environmental Protection Agency.^{30,31} The 2024 OML set goals to rescue 20% of edible food that would have been previously disposed of by 2025 and divert 75% of organic material from landfills that would have been previously disposed of by 2030.³²

Recently, Washington State has joined other states in requiring businesses in designated areas with adequate infrastructure to divert their organic waste from landfills. Business Organic Management Areas (BOMA) are part of a phased approach that identifies areas with curbside composting services available and facilities with the capacity to compost more organic waste to redirect it from landfills.² Businesses that generate waste beyond a defined threshold in these areas are required and responsible for diverting organic waste from landfills.³³ Businesses are responsible for determining whether BOMA applies to them. The enforcement of BOMA falls on local health jurisdictions. To enforce the BOMA requirements, “the [local health] jurisdiction must issue two written notices prior to issuing penalties, and they must not charge businesses a fee associated with the administration and enforcement of these requirements.”³³ Ecology has not provided funding to local health jurisdictions to provide technical assistance to businesses or enforce these regulations.

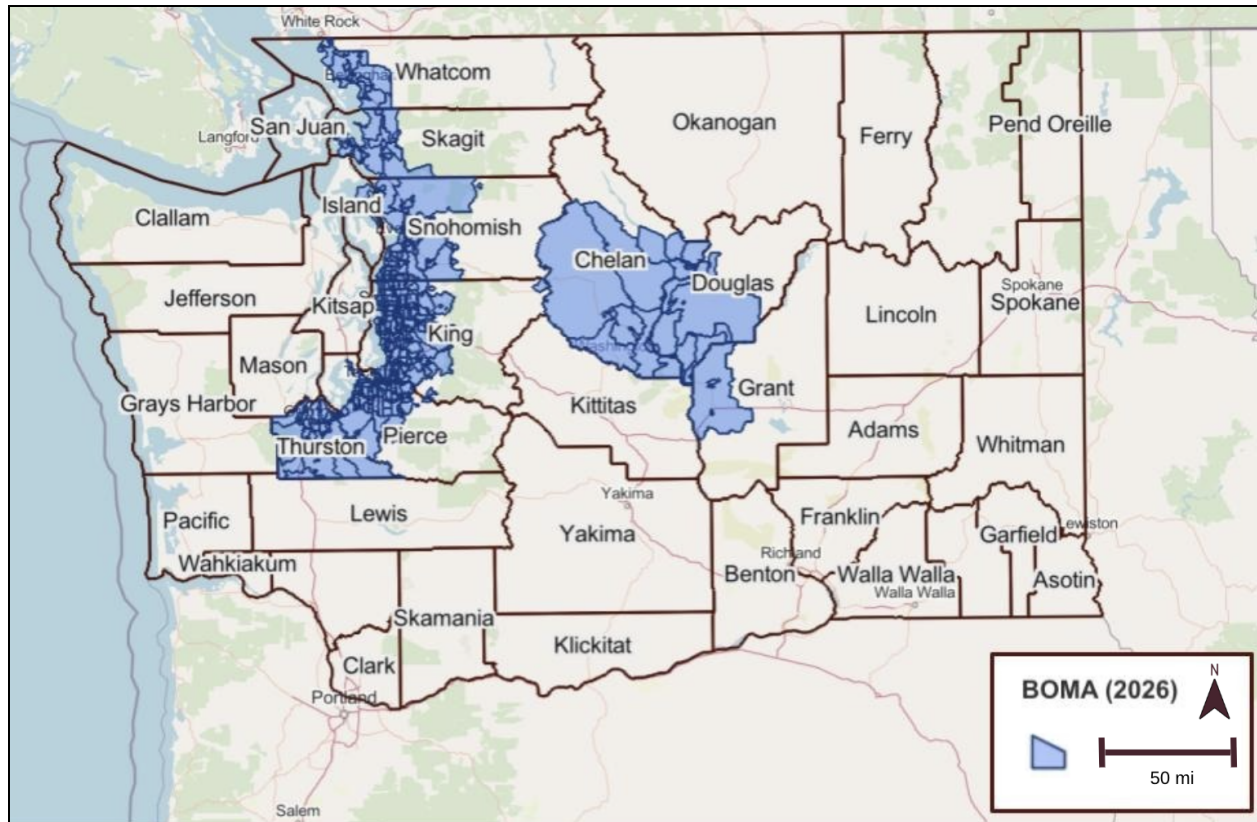


Figure 3. Business Organics Management Areas (BOMA) Map³³

The BOMA program's requirements began on January 1, 2024. The requirement threshold to comply has decreased each year (see Figure 4). In 2026, the threshold changed to 96 gallons per week which is the size of a standard residential trash can.

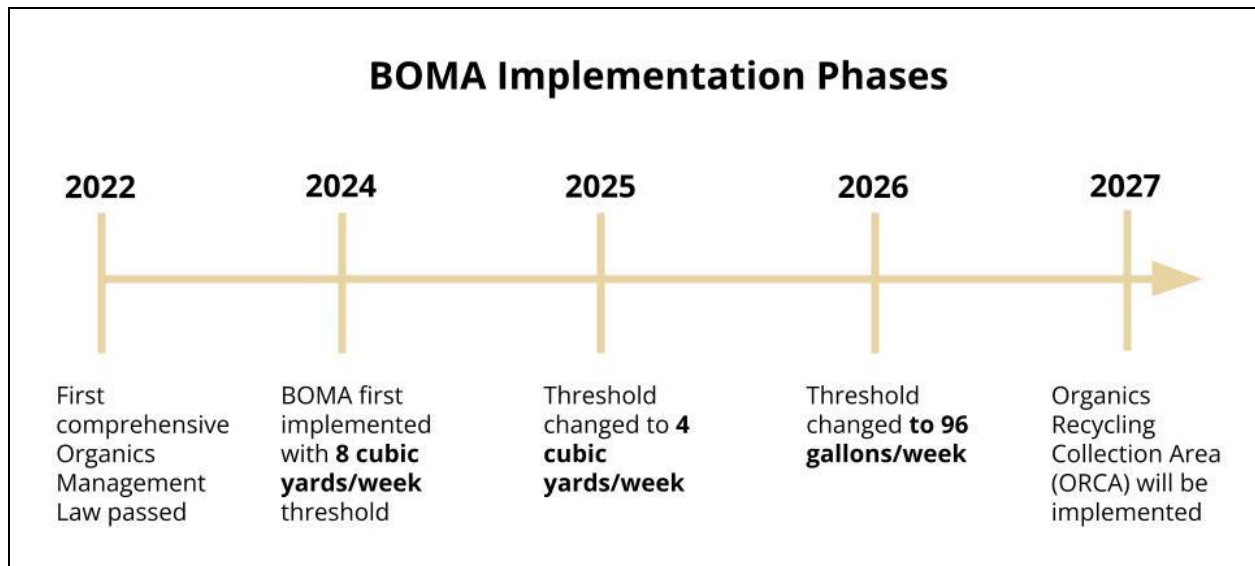


Figure 4. Annual Thresholds to Comply with BOMA

In 2025, the Department of Ecology contracted PRR to conduct seventeen interviews with businesses and business associations about BOMA. This project helped identify barriers, best practices and messaging for engaging with food service establishments on BOMA. This project found that there is a lack of understanding and awareness of statewide organics management requirements. Even among food establishments that were familiar that these requirements existed, there was still confusion about how to comply with requirements in practice. Very few food establishments were familiar with food donation legal protections or how to manage food safety during donation. The project recommended further investing in education and public campaigns to increase awareness and public engagement.³⁴ As BOMA continues to expand in Washington and composting infrastructure continues to develop, there is a critical need to understand how food establishments engage with, perceive, and respond to food waste regulations and BOMA, especially considering the mixed success from similar policies in other states.²

In 2027, Organics Recycling Collection Areas (ORCA), a complementary policy to BOMA focusing on residential areas, will be rolled out. By April 1, 2030, all single-family residences and businesses in ORCA regions will be required to have organics and food waste collection, unless they qualify for an exception.⁸ This further highlights the importance of understanding BOMA's implementation given the upcoming expansion of organic management requirements

into the residential sector. ORCA will require local jurisdictions with adequate organic waste processing facilities to provide year-round organic collection services to single-family residences and businesses that generate more than 45 gallons of organic waste per week.³⁵ This will only affect local jurisdictions that have at least 25,000 residents and dispose of 5,000 or more tons of solid waste.

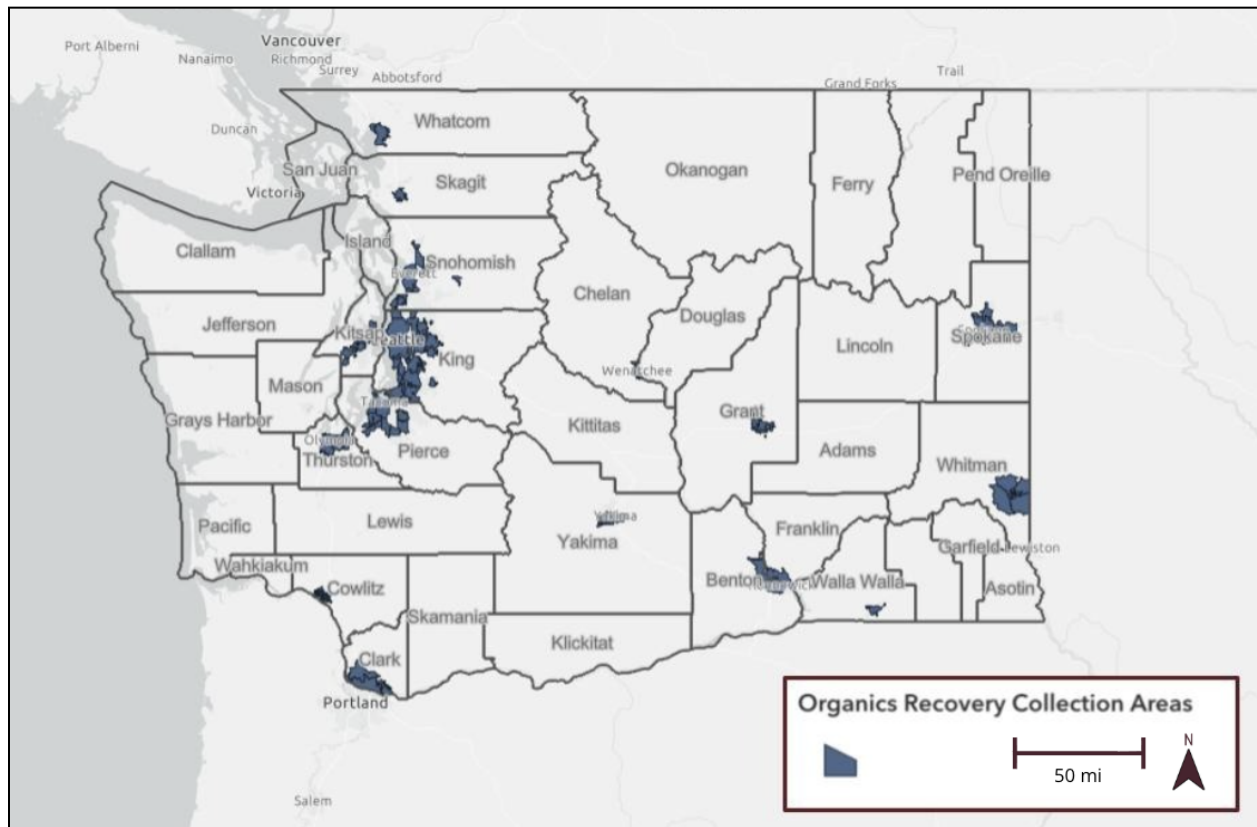


Figure 5. Organics Recovery Collection Areas (ORCA) Map

ORCA and BOMA boundaries will be distinct, but may overlap in some jurisdictions, with the lower of the two thresholds applying. For example, Everett and Marysville in Snohomish County will be included in both programs, so ORCA will be the guiding principle.^{2,35} ORCA regulations will further impact Washington communities in the near future. Implementing food waste reduction policies is an essential first step towards reducing food waste, but policy evaluation, support and education are critical for ensuring that policies are impactful in practice.

In addition to BOMA, solid waste management is a required element of comprehensive plans under the Washington State Growth Management Act (RCW 70A.205.045). Local jurisdictions

must develop comprehensive Solid Waste Management Plans (SWMP) including their inventory of solid waste facilities and their limitations, long-range needs for those facilities, a waste reduction and recycling element, and a Contamination and Reduction and Outreach Plan (CROP) in counties that have more than 25,000 residents. SWMPs are required to be updated every five years.⁷ This required element of the comprehensive plan ensures that local jurisdictions have enough capacity, plan for growth and future waste infrastructure, and integrate waste reduction strategies into their long-range planning work. As BOMA and ORCA continue to expand, this element of the comprehensive plan will need to take these policies into consideration when planning for growth and infrastructure needs.

Organic Waste in Snohomish County

In 2025, Snohomish County's Solid Waste Division conducted a waste characterization study to understand the composition of MSW at their facilities.³⁶ The previous waste composition study was conducted in 2008. The 2025 study estimates that Snohomish County produces 64,900 tons of food waste. The study also found that organics made up 12.5% of the waste going to landfills and food specifically made up 11.2% of the overall material composition. The amount of organic waste in the total composition of MSW decreased from 16.9% to 12.5% between 2008 and 2025. However, among non-residential buildings, the amount of organics going to the landfill increased in that time period from 15.4% to 18.0%. Among non-residential buildings, including food establishments, food made up a larger proportion of overall waste at 15.5%. Further, edible prepared or cooked food was 5.2% of the organic waste and third in overall ranking of waste composition at 5.2%. Edible produce was also in the top 10 categories accounting for 2.8% of overall waste from non-residential buildings. The study also included a material diversion assessment and found that 16.8% of the county's overall waste has the potential to be diverted from landfills through composting overall. This is even higher among non-residential buildings with an estimated 22.4% of waste having the potential to be composted.³⁶

Overall Findings of Snohomish County's Waste Composition and Non-Residential Diversion Analysis³⁶

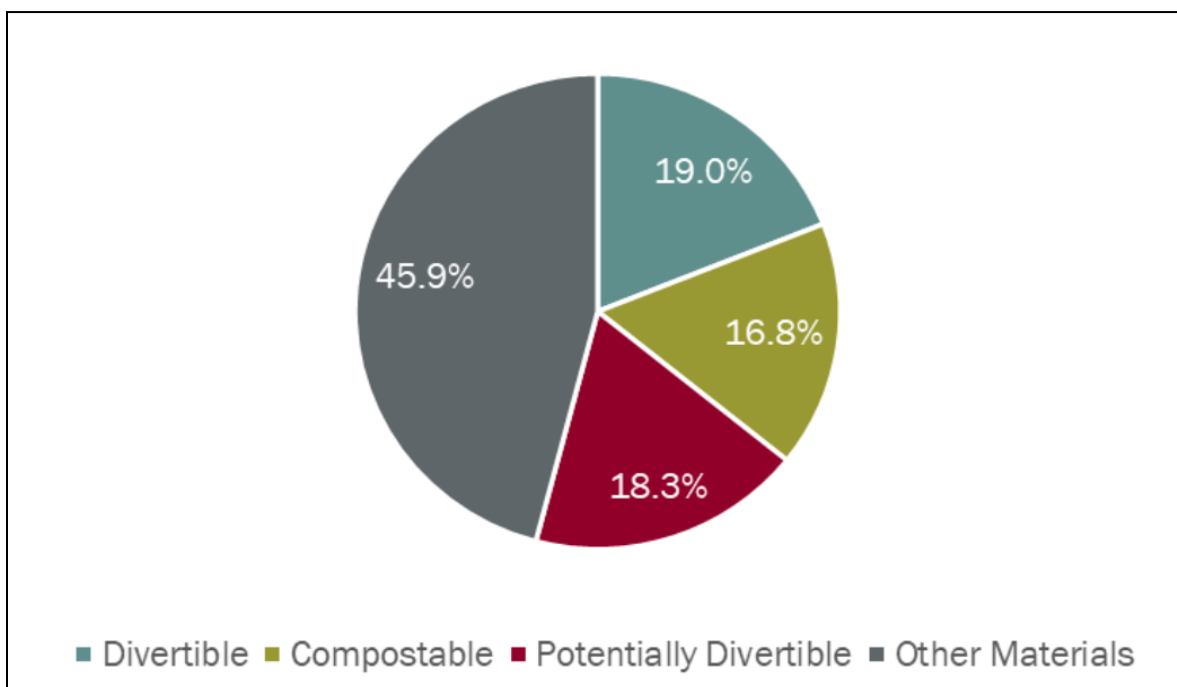


Figure 6.a General Diversion Assessment

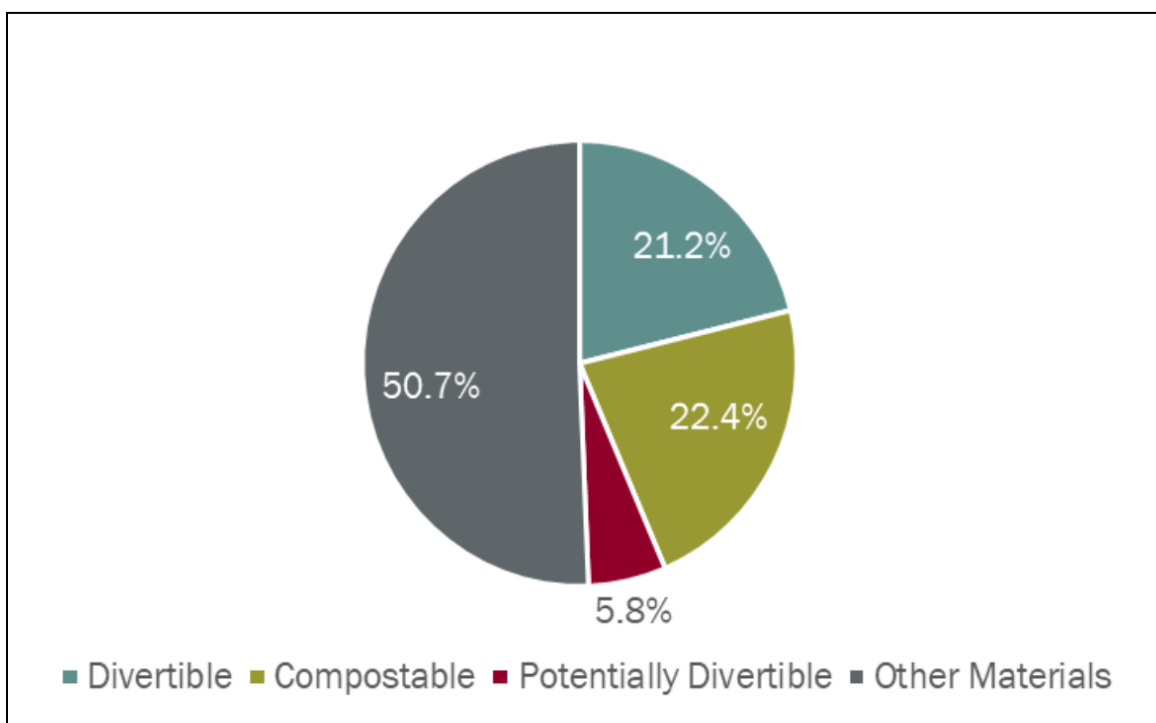


Figure 6.b General Non-Residential Diversion Assessment

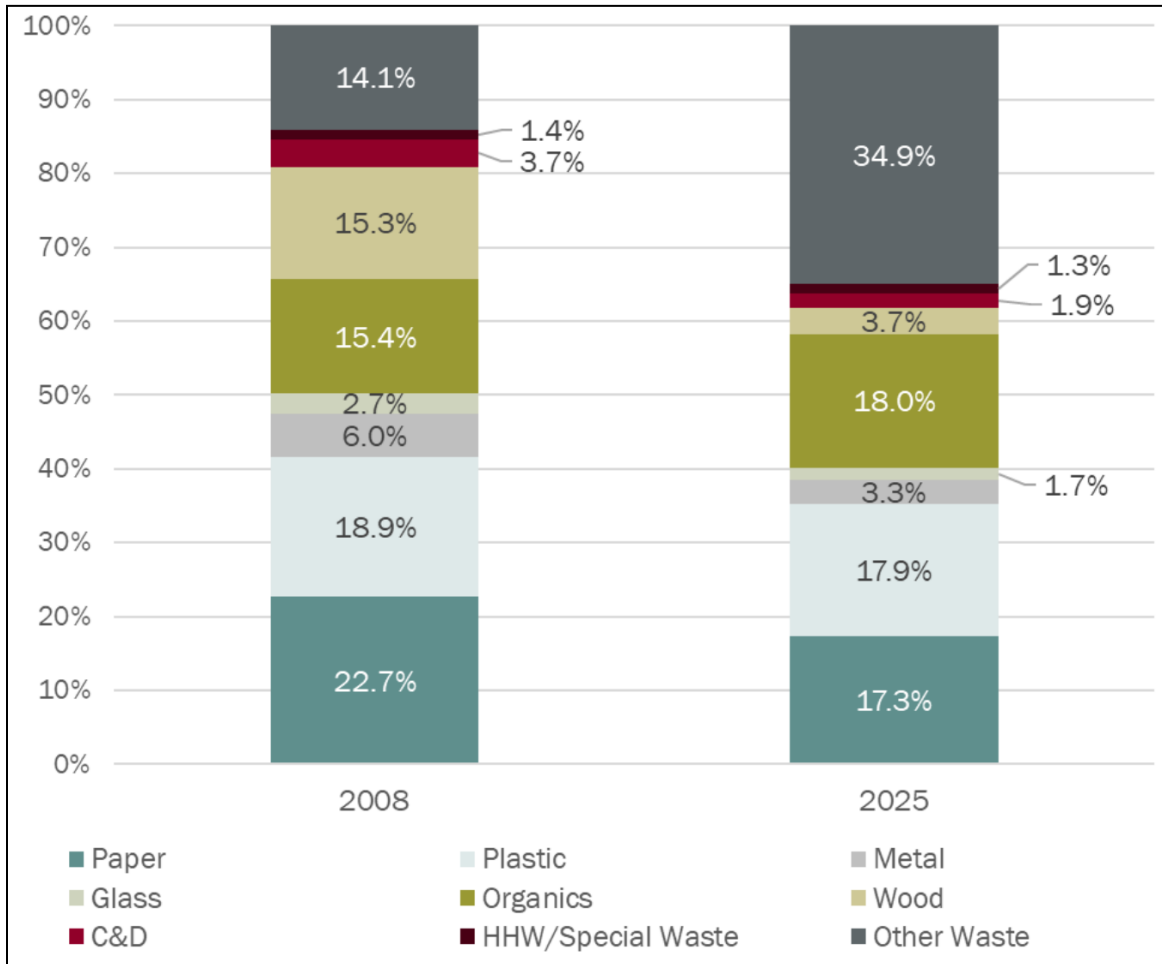


Figure 7. Snohomish County Waste Compositions from Non-Residential Buildings (2008 vs 2025)³⁶

Snohomish County’s Solid Waste Management Plan (SWMP) was most recently revised in 2023 and covers 2021-2026. This plan included organics-related recommendations including participating in regional efforts to provide consistent messaging around organics-related initiatives (O-1) and clearly defining organics program priorities (O-2).³⁶ The current plan is approaching the end of its timeframe and an update will be required soon. The findings from the waste characterization, along with insights on how food establishments engage with organic waste policies, will be important information in shaping the new SWMP.

METHODS

Study Overview

This intervention study utilized a Knowledge, Attitudes, and Practices (KAP) survey to assess how different forms of policy outreach and education may affect food establishments' understanding of and willingness to adhere to organic waste management policies. Additionally, a geospatial analysis of survey responses was also conducted to explore how spatial factors may influence policy understanding and adherence.

This study compared the effectiveness of sending educational materials through the mail, emailing digital materials, and in-person outreach and education by environmental health specialists to educate food establishments about organics waste management practices and BOMA policies. It assessed how these approaches influence knowledge of organic waste management best practices, attitudes towards these practices, and current practices. The study also examined levels of awareness, perceptions of BOMA, and potential barriers to adherence among different food establishments in Snohomish County. Geographic analyses included exploring how urban vs rural areas and area-level educational attainment may influence food establishments' organics management perceptions and practices.

Specific Aims

Aim 1: Conduct a Knowledge, Attitudes and Practices (KAP) survey response to assess how organics waste management education and outreach can influence food establishments' knowledge, attitudes, and practices. Our working hypothesis was that the intervention groups will have higher knowledge and attitude scores than the non-intervention group and that the in-person education intervention group will have the highest scores.

Aim 2: Analyze geographic factors to explore how spatial factors may influence knowledge, attitudes and practices related to organics waste management. In addition to analyzing the quantitative and qualitative survey responses, this project explored how geography-specific factors may influence survey responses. The survey collected respondents' ZIP Codes to compare

how being in a rural or urban designation and community-level educational attainment may influence food establishments' organic management knowledge, attitudes and practices.

Study Setting

This study was conducted in Snohomish County, Washington. Snohomish County is located in western Washington along the Puget Sound, bordered by King County to the south and Skagit County to the north. It is the third most populous county in Washington, with 867,100 residents.³⁷ Snohomish County includes a mix of land designations: 65% forest land, 18% rural, 9% urban, and 5% agricultural.³⁸ The county includes 2,090 square miles and it is the 13th largest county by land area in Washington. Everett is the largest city in the county with a population of 114,800, while small towns, such as Index, have populations as low as 160.³⁷ Snohomish County also has among the highest concentration of compost facilities and production in the state, with seven facilities.³⁹

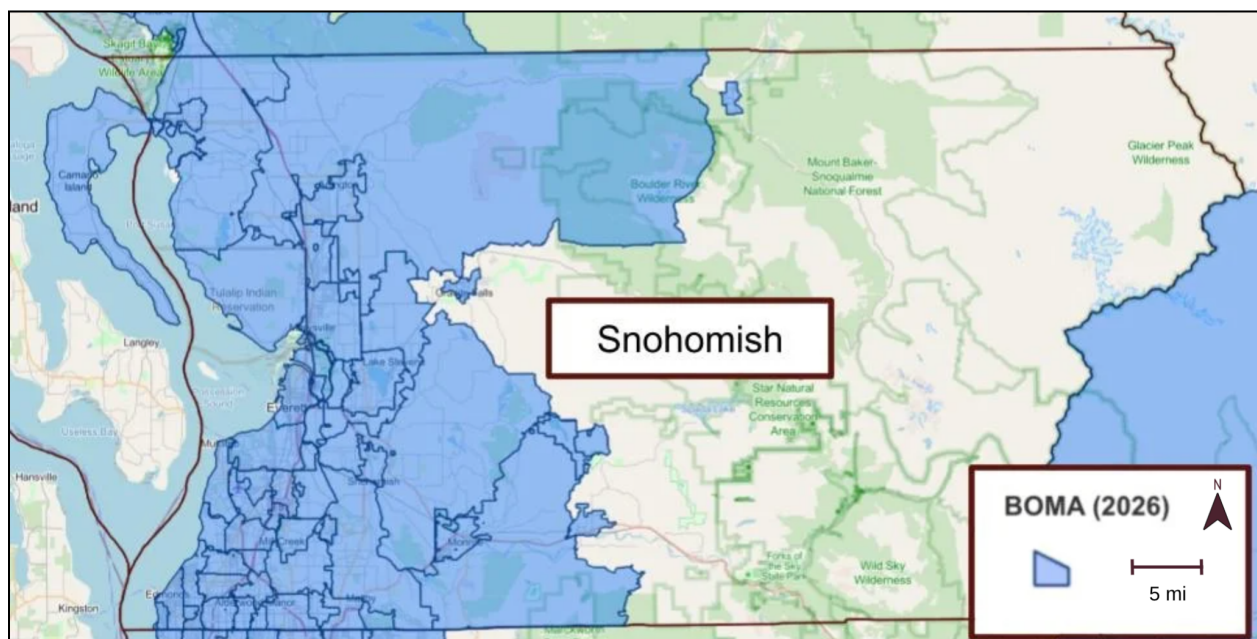


Figure 8. BOMA Regions in Snohomish County³³

Although this study focuses on a single county, Snohomish County is broadly representative of Washington State due to its diverse population densities, land-use types, and access to organic waste management facilities. As of 2026, approximately half of Snohomish County is

geographically included in BOMA-designated region, allowing for the inclusion of food establishments that are in BOMA and non-BOMA regions.² The Snohomish County Health Department's Environmental Health and Food Safety program partnered on this project by delivering in-person education and surveys to food establishments through its Pollution Prevention Assistance (PPA) program's environmental health specialists.⁴⁰ Before deciding on the PPA program as the avenue for in-person education, food inspectors were considered as the in-person education providers. However, partners at Snohomish County suggested the PPA program environmental health specialists as the more appropriate messengers for delivering this education given their non-regulatory function and education-focused role.

The PPA program operates across Washington with localized initiatives in which local jurisdictions receive funding from the Department of Ecology to provide one-on-one technical assistance to small quantity generators, including small businesses and organizations. Environmental health specialists help businesses prevent contamination of waterways, manage waste properly and navigate complicated regulatory issues.⁴¹ The PPA program operates across 28 counties with 65 environmental health specialists and takes an education-focused, non-enforcement approach to find solutions that are environmentally and economically sensible. Although the program focuses on stormwater and hazardous waste, many of the in-person visits include food establishments such as restaurants, cafes, grocery stores, gas stations with convenience stores, and schools.⁴²

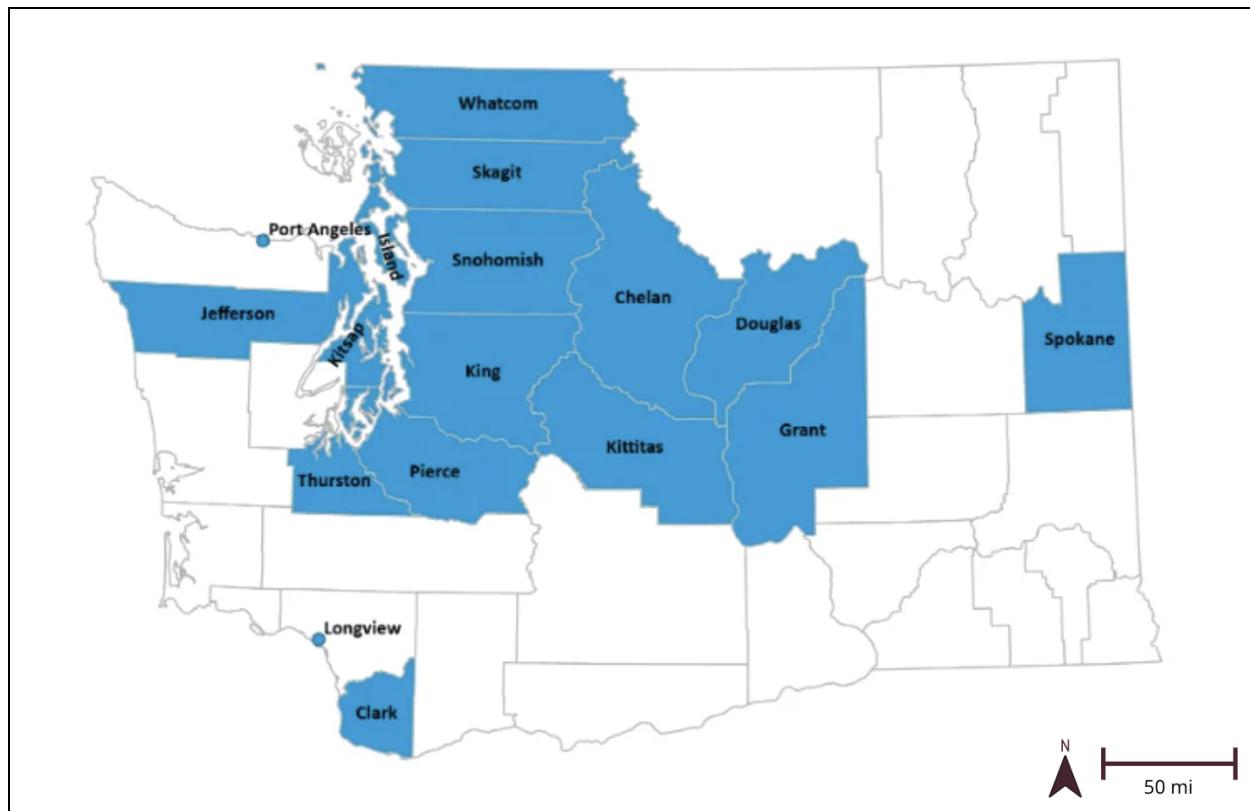


Figure 9. Washington State Pollution Prevention Assistance (PPA) Program Map⁴²

Study Design

Treatment Groups & Materials

This study used five treatment groups based on delivery method and whether educational materials were included. Two groups received written materials delivered digitally via email, and two groups received written materials through the mail. Within each delivery method, one group received an educational one-pager along with the survey link, and one group received only the survey link without educational materials. The fifth group received in-person education from Snohomish County PPA program environmental health specialists who visited food establishments directly and provided the one-pager educational material. For analysis, respondents who received educational materials through any delivery method (email with education, mail with education, or in-person) were classified as the education group (Ed), and

respondents who received only the survey without educational materials (email without education, mail without education) were classified as the no education group (No Ed).

The educational materials used in this study were adapted from resources developed by the Department of Ecology's Center for Sustainable Food Management and tailored to be specific to Snohomish County. Materials were shared with the Snohomish County Environmental Health Division team for feedback to ensure consistency with ongoing messaging around organics and waste management. The final one-pager infographic is included in Appendix 1. All materials were reviewed by the University of Washington Human Subjects Review Board (Study #STUDY00024689) and the study was determined to qualify for exempt status.

Recruitment and Outreach

Food establishments in Snohomish County were identified through the Snohomish County Health Department's food establishment permit database. The PPA's environmental health specialists were already planning to visit food establishments in three ZIP Codes so these were excluded from the other treatment groups. The department provided a list of approximately 3,000 food establishments, which was cleaned by removing duplicate businesses and mobile food units such as food trucks. The final cleaned list was divided into four groups using stratified sampling by ZIP Code to ensure balanced BOMA status and rural and urban designation using the US Census RUCA codes across groups. Each ZIP Code was assigned to one of the four groups.

Table 1. Intervention Groups

Group	Delivery Method	Education Included	ZIP Codes	Food Establishments Included
1	Mail	No	98021, 98204, 98087, 98223, 98272, 98256, 98274, 98077, 98264, 98205	580
2	Mail	Yes	98072, 98208, 98037, 98241, 98258, 98293, 98273, 98043, 98275	621
3	Email	No	98203, 98036, 98252, 98270, 98251, 98371, 98296, 98077	535
4	Email	Yes	98020, 98026, 98201, 98271, 98290, 98294, 98528, 98204, 98139	635
5	In-Person	Yes	98012, 98082, 98292	218

In-person visits were conducted between November 2025 and February 2026 by PPA program specialists. Emails were sent on December 9, 2025, but it was during emergency-level flooding in the county so the materials sent through the mail were delayed and sent on January 20, 2026.⁴³ A reminder email was sent through the Snohomish County Health Department newsletter to all food establishments on February 3, 2026. The survey closed in March 2026. In total, 2,581 food establishments were contacted across all five groups.

Survey Design

This study utilized a KAP survey to assess and compare understandings of and behaviors related to organics management across treatment groups. KAP surveys are commonly used in public health due to their ease of implementation, analysis, and interpretation. They assess what is already known (knowledge), what is believed (attitudes), and what is done (practices).^{44,45} The survey consisted of a structured questionnaire designed to be self-administered and to take no more than 15 minutes to complete. The Snohomish County Environmental Health Division provided feedback on the survey. Finally, the survey was tested for relevance, length, and appropriate messaging with an owner of a food establishment in Olympia, Washington.

The survey was created in Qualtrics and all questions were optional except for the ZIP Code question (Q1), which was required to identify the respondent's treatment group. Participants were offered the option to enter a raffle for one of five \$50 Amazon gift cards as an incentive for participation.

The survey included four main sections and one final open-ended question:

- **Establishment Characteristics:** The first section collected basic establishment characteristics including ZIP Code (Q1), establishment type (Q2), respondent role (Q3), franchise status (Q4), and number of employees or volunteers (Q5).
- **Knowledge:** The second section assessed knowledge using four questions (Q6-Q9) measuring awareness of the Washington Organics Management Act and BOMA requirements, awareness of legal liability protections for food donation, awareness of local food donation organizations, and awareness of tax incentives for food donation. Each knowledge question offered three response options scored 0-2, with 2 indicating full familiarity, 1 indicating partial awareness, and 0 indicating no familiarity.
- **Attitudes:** The third section assessed attitudes including asking respondents to rate the importance of keeping food waste out of the landfill (Q10) on a 4-point scale (1 = not at all important, 4 = very important), asked how difficult it would be to separate food waste (Q11) on a 5-point scale (1 = very difficult, 5 = very easy), and five sub-questions asking

respondents to rate their agreement with statements about food donation (Q13) on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

- **Practices:** The fourth section assessed practices through questions about food waste generation (Q14), current food waste separation (Q15), composting (Q16-Q18), food donation (Q19-Q22), and barriers to food waste separation (Q12).
- **Final Question:** The survey concluded with an open-ended question asking respondents if there was anything else they would like to share (Q23).

Data Analysis

Survey Data Preparation

Survey data were exported from Qualtrics as an Excel file and cleaned by removing incomplete responses and duplicates. Likert-scale and yes/no responses were converted to numerical values, with higher values assigned to more favorable or aware responses to allow for comparison across respondents and groups. Each response was coded to indicate the delivery method (in-person, email, or mail) and whether the respondent received educational materials based on their self-reported ZIP Code. A unique identification number was assigned to each response. The cleaned data file was imported into R (version 2026.01.2+418) for statistical analysis.

Variable Definition

Outcome Variables

Knowledge was assessed using four questions (Q6-Q9) measuring awareness of the Washington Organics Management Act and BOMA, awareness of legal liability for food donation in Washington, awareness of local organizations or programs that accept food donations, and awareness of tax incentives for donating food. Each knowledge question was scored on an ordinal scale of 0-2, where 0 indicated no familiarity, 1 indicated partial awareness, and 2 indicated full familiarity. A composite knowledge score was calculated by averaging responses across all four questions, resulting in a continuous variable ranging from 0 to 2.

Attitudes were assessed using three questions. Q10 asked how important it is to keep food waste out of the landfill on an ordinal scale of 1-4, where higher scores indicate greater importance. Q11 asked how difficult it would be to separate food waste on an ordinal scale of 1-5, where higher scores indicate greater perceived ease. Q13 included five sub-questions (Q13_a to Q13_e) measuring agreement with statements about food donation on a 5-point Likert scale, where higher scores indicate greater agreement. A composite attitude score was calculated by averaging responses across Q13_a through Q13_e, resulting in a continuous variable ranging from 1 to 5.

Practices were assessed through questions about current food waste separation (Q15), composting (Q16-Q18), and food donation (Q19-Q22). These were coded as binary variables (yes/no) or categorical variables indicating the method used.

Independent Variables

Survey-Level Variables: The primary independent variable was education status, coded as a binary variable indicating whether the respondent received educational materials (Ed) or did not receive educational materials (No Ed) based on their self-reported ZIP code and assigned treatment group. Education delivery method was also recorded as a categorical variable with three levels: in-person, email, or mail.

Geospatial Variables: ZIP codes were classified as urban or rural using Rural Urban Commuting Area (RUCA) codes obtained from the USDA Economic Research Service. Snohomish County contains only RUCA codes of 1 and 2. For the purpose of comparing more urban and rural communities in this study, ZIP codes with a RUCA code of 1 were classified as urban (coded as 0), and ZIP codes with a RUCA code of 2 were classified as rural (coded as 1).

ZIP code-level educational attainment data were obtained from the 2017-2021 American Community Survey 5-year estimates using the tidycensus package in R. Educational attainment was measured as a continuous variable representing the percentage of residents aged 25 and older whose highest educational attainment is a high school diploma.

Covariates

Composting status was included as a covariate based on responses to Q16. Respondents who indicated they currently compost were coded as 1, and those who indicated they do not compost were coded as 0. Respondents who selected "Other" or did not answer were coded as 0. This variable was included in the multivariate regression models to isolate the independent effect of education while controlling for the possibility that respondents already engaged in composting might have higher baseline knowledge and more favorable attitudes toward food waste management.

Rural/urban classification was included as a covariate based on ZIP code RUCA designations. ZIP codes with a RUCA code of 1 were classified as urban (coded as 0), and ZIP codes with a RUCA code of 2 were classified as rural (coded as 1). This variable was included in the multivariate regression models to control for geographic differences that might influence knowledge and attitudes about food waste management.

Statistical Analysis

All analyses were conducted in R. Statistical significance was defined as $p < 0.05$ for all analyses.

Bivariate Analysis

To address Aim 1 and assess whether educational interventions improved knowledge and attitudes about food waste management, bivariate comparisons were conducted to examine the relationship between education status (Ed vs No Ed) and knowledge outcomes (Q6-Q9 and composite knowledge score) as well as attitude outcomes (Q10, Q11, Q13_a-Q13_e, and composite attitude score). The Wilcoxon rank-sum test was used to compare knowledge and attitude scores between the Ed and No Ed groups on ordinal and Likert-scale data as these data did not meet assumptions of normality. The Kruskal-Wallis test was used to compare knowledge and attitude scores across the three education groups (Ed, No Ed, and In-Person). The Welch two-sample t-test was used to compare composite knowledge and composite attitude scores between the Ed and No Ed groups, as these continuous composite scores more closely approximated a normal distribution. Similar bivariate comparisons were conducted to examine

the relationship between composting status (composting vs non-composting) and knowledge and attitude outcomes, as well as the relationship between organic waste generation level (high vs low) and knowledge and attitude outcomes.

To address Aim 2 and assess whether geographic factors influenced food waste management knowledge and attitudes, Pearson correlation coefficients were calculated to assess the strength and direction of the linear relationship between ZIP code-level educational attainment (percentage of residents with high school diploma as terminal degree and percentage with bachelor's degree or higher) and composite knowledge and attitude scores. Welch two-sample t-tests were used to compare composite knowledge and composite attitude scores between urban and rural respondents.

Multivariable Analysis

To assess whether the educational intervention had an independent effect on knowledge and attitudes after accounting for respondents' current composting practices and geographic location, multivariate linear regression models were employed. This approach allowed for the estimation of the independent effect of education on knowledge and attitude outcomes while adjusting for potential confounders, including businesses that were already composting (composting status) and rural/urban classification.

Four regression models were fitted for each outcome:

1. Unadjusted model with education as the only predictor
2. Model that adjusted for composting status
3. Model that adjusted for rural/urban classification
4. Fully adjusted model controlling for both composting status and rural/urban classification simultaneously

Comparing the education effect across these four models revealed whether the relationship between education and each outcome was robust to the inclusion of other variables or whether it was largely explained by them.

RESULTS

Survey Response and Sample Characteristics

A total of 68 responses were recorded in Qualtrics out of 2,371 food establishments contacted, representing an overall response rate of 2.9%. The response rate for in-person outreach was the highest at 9.2%. After cleaning initial responses, there were 52 surveys that could be included in the analysis in total. 20 responses were collected through in-person outreach, 16 through email, and 16 through letters. Of the 52 respondents, 34 received educational materials (Ed group) and 18 did not (No Ed group). The Ed group included all 20 in-person respondents, 11 email respondents, and 3 mail respondents. The No Ed group included 13 mail respondents and 5 email respondents.

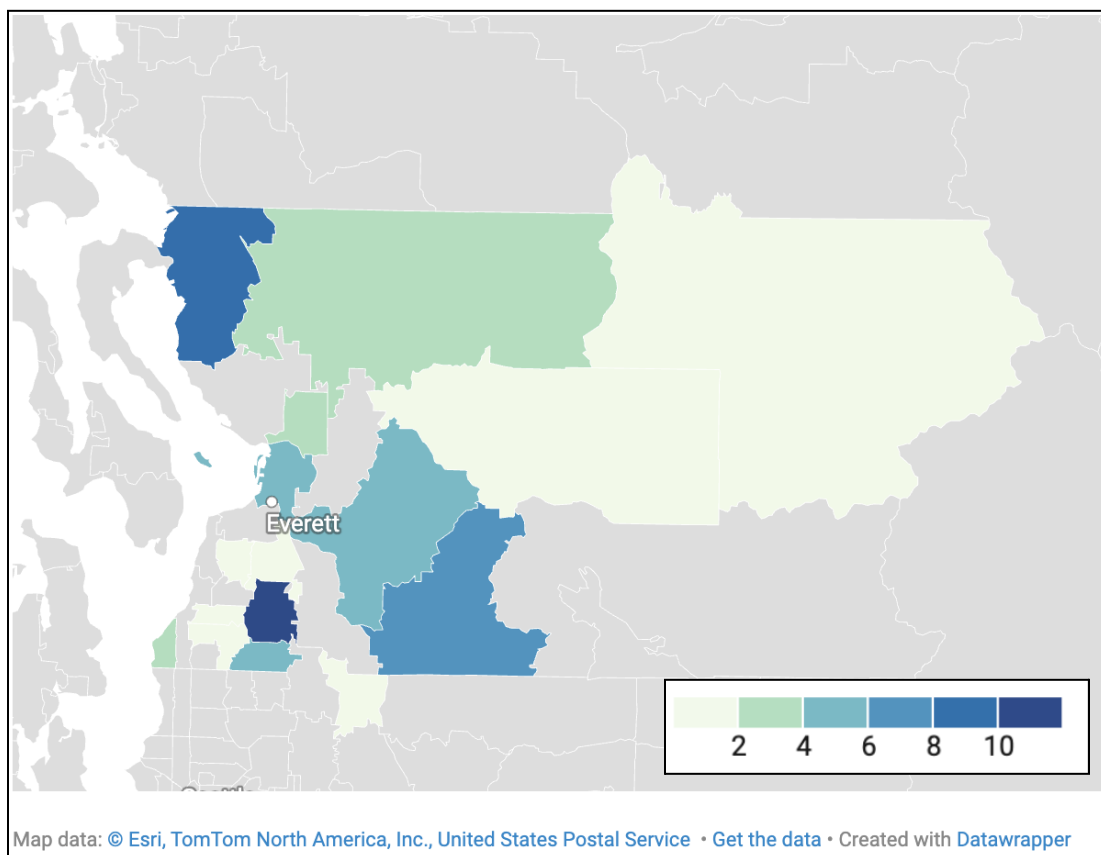


Figure 10. Map of Responses by ZIP Code

Most of the food establishments were not part of a franchise (86%). Most establishments were small, with 52% reporting 1-10 employees or volunteers, 37% reporting 11-25, 8% reporting 26-50, and 4% reporting 50 or more. Most of the survey respondents reported being a manager or owner (92.3%) and a few were filled out by employees alone (5.8%).

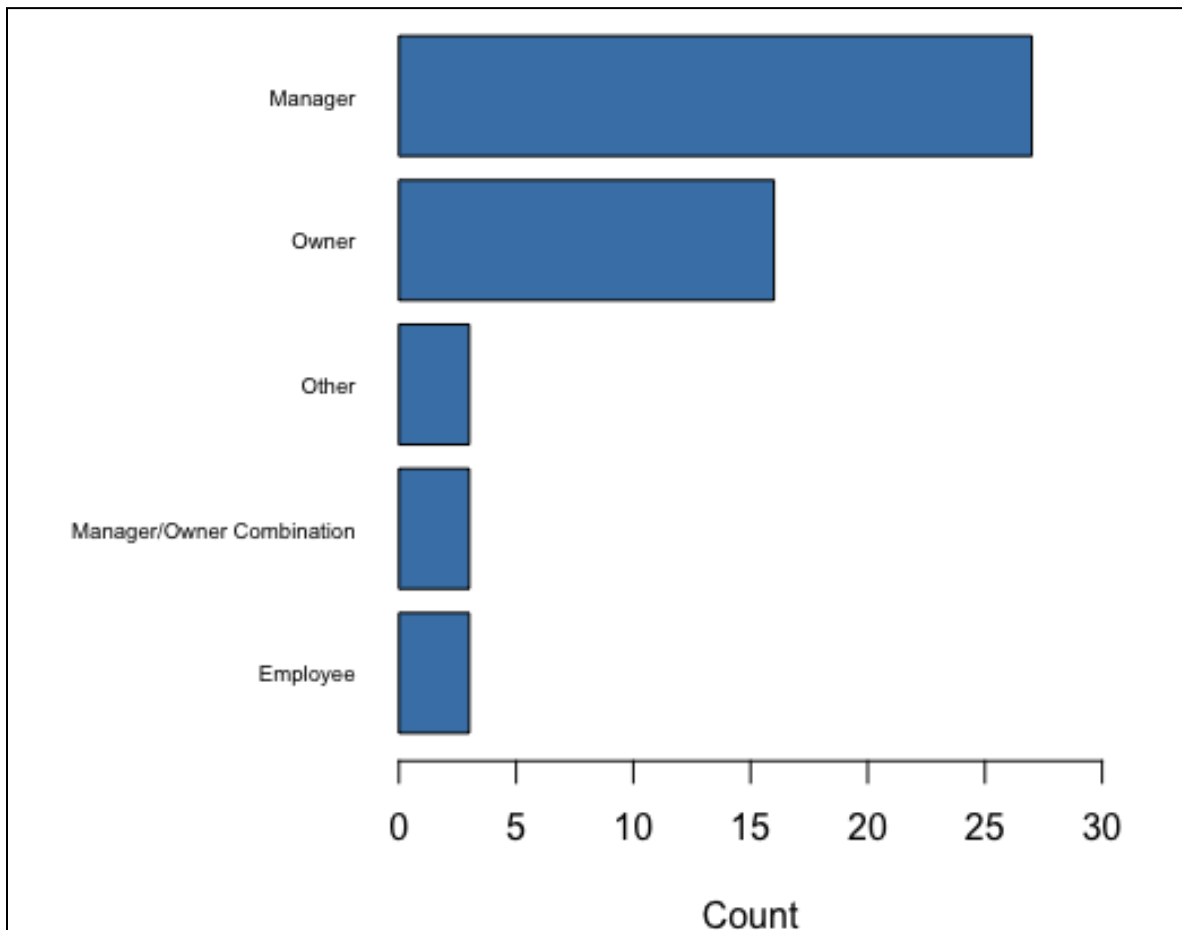


Figure 11. Respondent Roles at Food Establishments

More than half of the responses came from restaurants, but there were responses from more than seven types of food establishments.

Table 2. Food Establishments Represented in the Sample

Food Establishment Type	Responses
Restaurant	27 (52%)
Other (Bakery, brewery, coffee shops and stands, farmers market, hotel)	9 (17%)
School	5 (10%)
Restaurant and catering company	3 (6%)
Catering company	1 (2%)
Food processor or manufacturer	1 (2%)
Hunger relief organization	1 (2%)
Restaurant and other	1 (2%)

Knowledge Questions

Knowledge was assessed using four questions (Q6-Q9) measuring awareness of the Washington Organics Management Act and Business Organics Management Areas (Q6), awareness of legal liability for food donation in Washington (Q7), awareness of local organizations or programs that accept food donations (Q8), and awareness of tax incentives for donating food (Q9). Responses were scored on a scale of 0-2, where higher scores indicated greater awareness. A composite knowledge score was calculated by averaging responses across all four questions.

Education Group Comparisons

Knowledge scores were compared between respondents who received education (Ed), respondents who did not receive education (No Ed), and in-person respondents using the Kruskal-Wallis test. No statistically significant differences were found across any individual knowledge question. A Wilcoxon rank-sum test comparing only the Ed and No Ed groups did not have statistically significant differences. A Welch two-sample t-test comparing composite knowledge scores between the Ed group (mean = 0.78) and No Ed group (mean = 0.99) found no statistically significant difference ($t = -1.36$, $df = 33.1$, $p = 0.183$).

*Table 3. Comparison of Means Between Intervention Groups and P-Values Derived from
Kruskall-Wallis Test and Wilcoxon Rank-Sum Tests*

Question	Ed (mean)	No Ed (mean)	Mean In-Person (mean)	Overall	P-Value (All Groups)	P-Value (Ed vs No Ed)
Q6: Awareness of Organics Management Act	0.74	1.12	0.60	0.86	0.084	0.086
Q7: Awareness of legal liability for food donation	0.76	1.00	0.70	0.84	0.257	0.262
Q8: Awareness of local food donation organizations	1.15	1.12	0.95	1.14	0.975	0.983
Q9: Awareness of tax incentives for food donation	0.47	0.71	0.65	0.55	0.196	0.200
Composite	0.78	0.99	0.72	0.85	0.274	0.183

Rural vs Urban

Table 4. Rural vs Urban Knowledge Scores

Question	Urban	Rural	P-Value (All Groups)
Q6: Awareness of Organics Management Act	0.74	1.12	0.084
Q7: Awareness of legal liability for food donation	0.76	1.00	0.257
Q8: Awareness of local food donation organizations	1.15	1.12	0.975
Q9: Awareness of tax incentives for food donation	0.47	0.71	0.196
Composite	0.78	0.99	0.274

Composting Status

Respondents who currently compost scored higher on all knowledge questions compared to those who do not compost. Wilcoxon rank-sum tests revealed significant differences for awareness of local food donation organizations (Q8; $p = 0.011$) and awareness of tax incentives for food donation (Q9; $p = 0.021$) between those who compost and those who do not.

Table 5. Comparison Knowledge Scores Based on Composting Status

Question	Compost	No Compost	P-Value
Q6: Awareness of Organics Management Act	1.00	0.77	0.349
Q7: Awareness of legal liability for food donation	1.00	0.70	0.181
Q8: Awareness of local food donation organizations	1.50	0.87	0.011
Q9: Awareness of tax incentives for food donation	0.94	0.37	0.021

Organic Waste Generation Level

Low waste generators scored slightly higher than high waste generators across all knowledge questions, though none of these differences were statistically significant.

Table 6. Comparison of Knowledge Scores Based on Organic Waste Generation Level

Question	Low Waste Generator	High Waste Generator	P-Value
Q6: Awareness of Organics Management Act	1.05	0.69	0.214
Q7: Awareness of legal liability for food donation	0.80	0.77	0.904
Q8: Awareness of local food donation organizations	1.25	1.08	0.581
Q9: Awareness of tax incentives for food donation	0.70	0.46	0.348

Composite	0.95	0.75	0.275
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Attitude Questions

Attitudes were assessed using several questions. Q10 asked how important it is to keep food waste out of the landfill on a scale of 1-4, where higher scores indicate greater importance. Q11 asked how difficult it would be to separate food waste on a scale of 1-5, where higher scores indicate greater ease. Q13 included five sub-questions measuring agreement with statements about food donation and food waste on a scale of 1-5, where higher scores indicate greater agreement. A composite attitude score was calculated by averaging responses across Q13_a through Q13_e.

The five Q13 sub-questions were as follows. Q13_a: food donation is too risky because of food safety concerns. Q13_b: food donation is too time consuming for staff. Q13_c: food donation benefits the community. Q13_d: food donation has benefits for the food establishment. Q13_e: I know who to contact if I have questions about food donation.

Q10 - Importance of Keeping Organic Waste Out of the Landfill

This question was scored on a scale of 1 (least important) to 4 (most important). The Ed group rated this significantly higher (mean = 3.03) than the No Ed group (mean = 3.29), with the In-Person group falling in between (mean = 2.60). This difference was statistically significant (Wilcoxon [Ed vs No Ed]: $p = 0.025$; Kruskal-Wallis: $p=0.024$).

Table 7. Comparison of Q10 Attitude Scores

Group	Mean
Ed	3.03
No Ed	2.44
In-Person	2.60

Q11 – Difficulty of Separating Organic Waste

This question was scored on a scale of 1 (very difficult) to 5 (very easy). The Ed group (mean = 3.73) and In-Person group (mean = 3.85) rated separating food waste as slightly easier than the No Ed group (mean = 3.38), though these differences were not statistically significant (Wilcoxon [Ed vs No Ed]: $p = 0.299$; Kruskal-Wallis: $p = 0.294$).

Respondents who currently compost rated separating food waste as significantly less difficult (mean = 4.19) compared to those who do not compost (mean = 3.63; Welch two-sample t-test: $t = 2.08$, $df = 39.7$, $p = 0.044$).

Table 8. Comparison of Q11 Attitude Scores

Group	Mean
Education	
Ed	3.73
No Ed	3.38
In-Person	3.85
Composting Status	
Compost	3.73
No Compost	3.38

Q12 – Barriers to Separating Organic Waste

Respondents were asked what problems their food establishment might have if they were required to separate organic waste. Fifteen respondents (28.8%) reported there would be no problems. Among those who did identify there would be barriers, lack of staff time or capacity was the most commonly cited concern ($n=17$, 32.7%), followed by being unsure about requirements ($n=14$, 26.9%), cost of composting services ($n=12$, 23.1%), space limitations

(n=11, 21.2%), no composting services in their area (n=5, 9.6%), and other reasons (n=4, 7.7%). Cost has been identified as a barrier in other communities, particularly in rural communities in Vermont where one study found that rural respondents were less willing to pay for curbside composting services.⁴⁶

Among those that cited other reasons, two mentioned concerns about their landlord offering or paying for composting services. For food establishments that rent and receive services through their landlords, it may be difficult to get buy-in from landlords even if food establishments want to comply. One respondent elaborated on this barrier in the open response section explaining “we have repeatedly requested that our landlords provide yard waste/compost service in addition to garbage and recycling and they continually refuse” (Respondent 23).

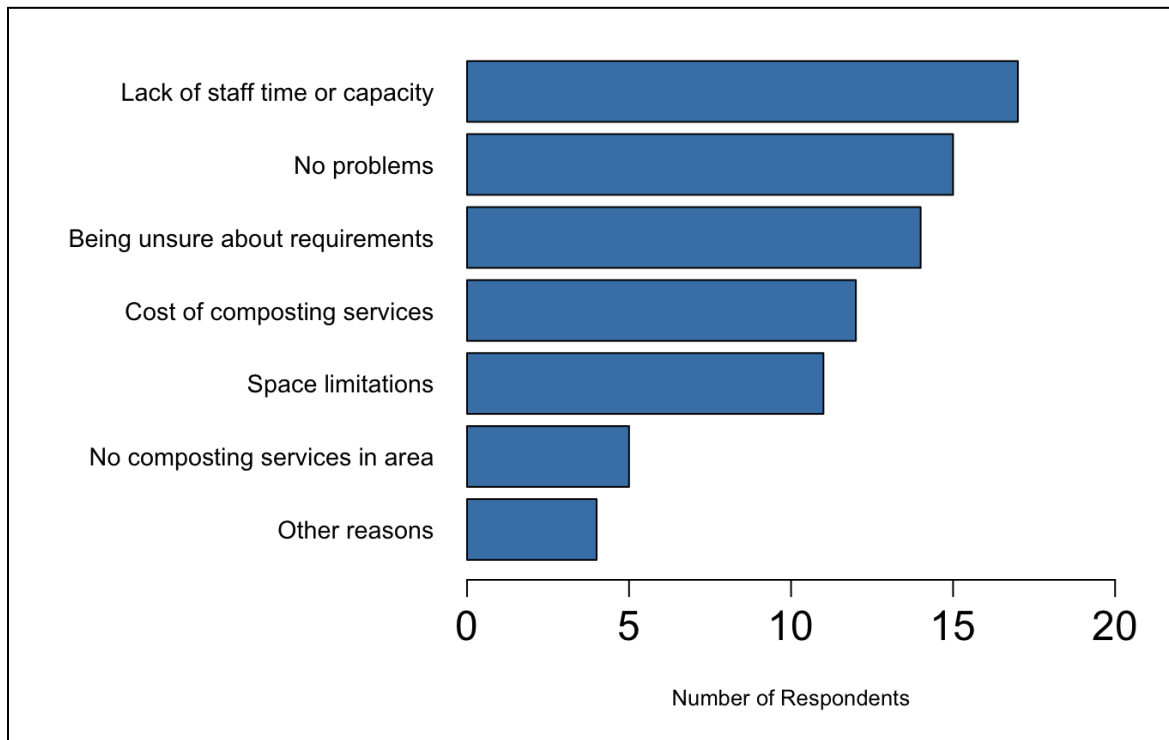


Figure 12. Barriers to Separating Organic Waste

Q13 – Attitude Questions

No statistically significant differences were found for any individual Q13 question between Ed, No Ed, and In-Person groups among the attitude questions about food donation.

Table 9. Comparison of Q13 Attitude Scores

	Ed (mean)	No Ed (mean)	In-Person (mean)	P-Value
Q13_a: Food donation is too risky	2.78	3.00	2.60	0.455
Q13_b: Food donation is too time consuming	3.16	3.00	3.20	0.812
Q13_c: Food donation benefits the community	4.81	4.62	4.80	0.216
Q13_d: Food donation benefits the establishment	3.81	3.56	3.80	0.393
Q13_e: Know who to contact about food donation	3.22	3.06	3.00	0.728

Q13 Composite Attitude Scores

Respondents who compost had significantly higher composite attitude scores (mean = 4.04) compared to those who do not compost (mean = 3.27; Welch two-sample t-test: $t = 3.89$, $df = 25.5$, $p < 0.001$). No significant differences were found between Ed and No Ed groups

(Wilcoxon: $p = 0.651$), urban and rural groups (Welch t-test: $p = 0.282$), or high and low waste generators ($p = 0.289$).

Table 10. Comparison of Composite Attitude Scores

Comparison	Group	Mean Composite Score	P-Value
Education	Ed (received education)	3.56	0.651 (Wilcoxon)
	No Ed (did not receive education)	3.45	
	In-Person	3.48	
Composting	Compost	4.04	< 0.001
	No Compost	3.27	
Urban/Rural	Urban	3.42	0.282
	Rural	3.63	
Waste Generation	Low	3.44	0.289
	High	3.73	

Practices

Organic Waste Generation

Most respondents reported generating 96 gallons or less organic waste per week (40.8%) or being unsure about how much organic waste they generate (32.7%). 18.4% reported generating at least 4 cubic yards of organic waste per week and 8.2% reported generating at least 8 cubic yards of organic waste per week.

Organic Waste Management Practices by Food Establishment Type

Restaurants were less likely than other types of food establishments to separate their organic waste, compost, or donate food. Knowledge composite scores were also significantly lower among restaurants (mean = 0.66) compared to other establishment types (mean = 1.06; Welch two-sample t-test: $t = -3.00$, $df = 48.7$, $p = 0.004$).

Table 11. Organic Management Practices in Restaurants vs Other Food Establishment Types

	Restaurant	Other Food Establishment Types	All
Separates Organic Waste	25.9%	45.5%	34.7%
Composts Organic Waste	25.9%	40.9%	32.7%
Donates Food	7.4%	32%	20.8%

Compost Methods

Among those who compost, the most common method was subscribing to a curbside service ($n=10$, 62.5%), followed by self-hauling to a compost facility ($n=2$, 12.5%) and sending waste to a local farm ($n=2$, 12.5%). One respondent reported using an on-site compost bin (6.25%) and one reported using the Auburn Warehouse (6.25%). Waste Management was the most commonly cited curbside provider, followed by Cedar Grove, Ruban and Co, and Sound Disposal.

Food Donation Partners

Among those who donate food, reported partners included Community Resource Center, local food banks, EvCC Food Pantry, Granite Falls Community Coalition and Food Bank, and Monroe Food Bank.

Final Open Ended Question

Several respondents provided additional context about their food waste practices in open-ended responses (Q23). A recurring theme was the challenge of composting when landlords control waste services. One respondent described their challenge getting compost provided by their landlord:

"We strive to produce zero waste in our food production, so our waste generally stems from unfinished customer plates or spoilage. We have repeatedly requested that our landlords provide yard waste/compost service in addition to garbage and recycling and they continually refuse. Personally, I would love to see them be obligated to provide this service for the multiple restaurants in our building" (Respondent 23).

Several respondents described efforts to minimize waste at the source and donate food directly from their food establishment. One noted: "We don't produce a lot of food waste. We have coffee grounds and veggie ends and occasional customer not finishing their food but we deliberately offer smaller portions so there isn't food going into our trash, we have learned to manage our supplies so we seldom have to toss out of date items and we give a lot of the end of soup and outdated sandwiches to our homeless friends who come in" (Respondent 33). Another described a similar approach:

"Our primary source of food waste comes from spoilage as we operate with very low waste (we do our best to utilize all parts of every food), so donations are rarely feasible though we do have a strong relationship with the Edmonds Food Bank" (Respondent 24).

One respondent described discounting leftovers and repurposing leftover food: "We are able to sell our leftover pastries at 50% the next day to eliminate waste. We also repurpose leftover pastries in other baked goods to reduce waste" (Respondent 44). Another respondent described that they are able to use their waste as animal food saying, "We bring home most of our food waste to feed our farm animals" (Respondent 39).

Some respondents noted that most of their surplus food is non-edible. They noted:

"Our food wastage is not much. We do not make a lot of food that we have to throw. Plus when customers leave some food uneaten, they throw it in the trash cans, which we

cannot separate as sometimes its few chips, or uneaten salsa, queso or something like that which is wet, and is sticking to disposables" (Respondent 36).

A school district respondent overseeing 14 schools and 10,000 students noted their experience that composting "works best when there is a recycling team of students at the school that monitor every bag and tray going in the garbage" (Respondent 51).

Multivariate Regression Analysis

Multivariate regression analysis assessed whether education had an independent impact on knowledge and attitudes after accounting for respondents' composting practices. The models compared the Education group to the No Education group, making the No Education group the reference. This analysis also looked at rural or urban location as another variable. The model used education (Ed vs No Ed groups), composting practices, and urban or rural classification as predictors. After controlling for composting status and urban or rural classification, education was significantly associated with only Q10 on the importance of keeping food out of the landfill ($\beta = +0.80$, $p = 0.006$). For all of the other knowledge and attitudes questions, including the composite scores, education status was not a significant predictor when accounting for the covariates.

Composting status was found to be a more significant predictor of knowledge and attitude scores. Urban or rural classification was not a significant predictor of the outcomes when controlling for education and composting practices.

Table 12. Multivariate Regression Analysis Findings

Outcome	Education (β, p)	Composting (β, p)	Urban or Rural (β, p)
Knowledge Composite Score	-0.15, p=0.327	-0.35, p=0.024	-0.22, p=0.135
Attitudes Composite Score	+0.23, p=0.244	-0.75, p <.001	-0.17, p=0.364
Q10: Importance of keeping food waste out of the landfill	+0.80, p=0.006	-0.55, p=0.045	-0.22, p=0.398

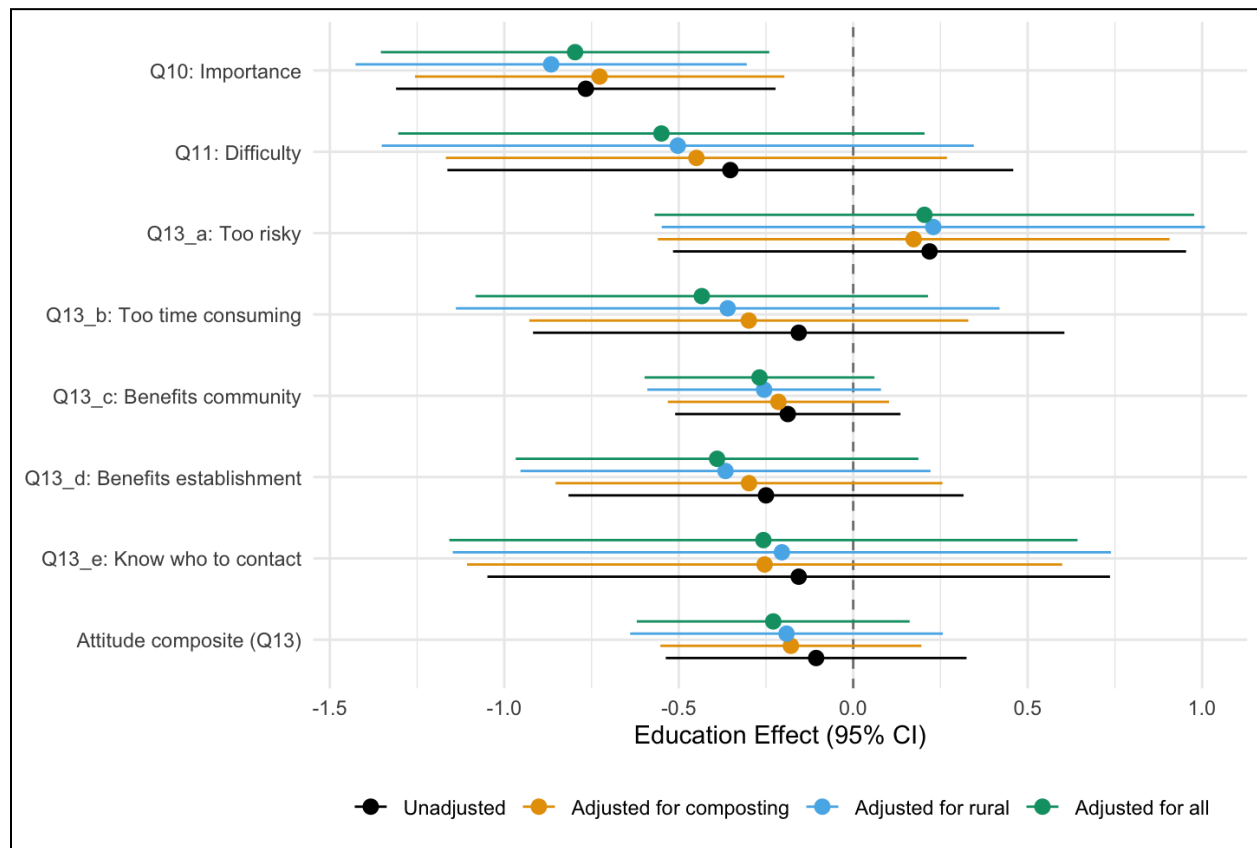


Figure 13. Multivariable Regression of Education's Effect on Attitude Questions

In the multivariate regression analysis, four models were used to explore the effect of education on each outcome. The unadjusted model (black) shows the relationship between education and the outcome without controlling for any other variables. The adjusted for composting model (orange) controls for whether respondents currently compost, while the adjusted for rural model (blue) controls for whether respondents are located in a rural or urban area. The fully adjusted model (green) controls for both composting status and rural/urban classification simultaneously. Comparing the education effect across these four models revealed whether the relationship between education and the outcome is robust to the inclusion of other variables or whether it is largely explained by them.

Across the attitude questions, education only had a statistically significant positive impact on Q10 about the perceived importance of keeping food out of the landfill ($\beta = +0.80$, $p = 0.006$). This effect remained significant for the unadjusted model and when adjusted for composting,

rurality and all factors. This suggests an independent influence of education on Q10. However, this was not true for any other attitude question where the effect of education was statistically insignificant.

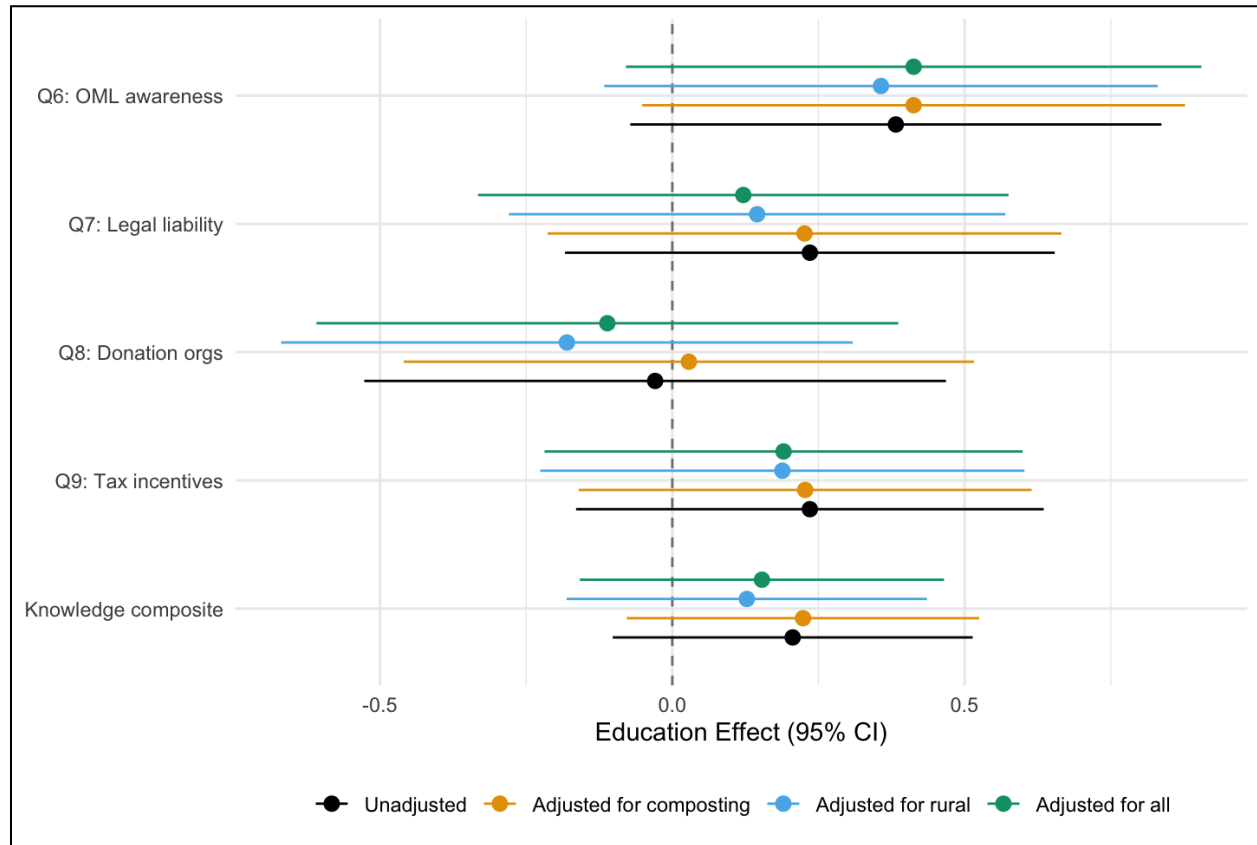


Figure 14. Multivariable Regression of Education's Effect on Knowledge Questions (N = 52)

Education did not have a statistically significant effect for any of the regression models among the knowledge questions. Even when adjusting for composting and rurality, most of the responses did not seem to be affected by education. All of the questions overlapped zero. For both knowledge and attitude questions, composting status was the most consistent predictor where food establishments that reported composting scored significantly higher on the knowledge and compost scores regardless of whether they received education.

Geographic Factors

Urban vs Rural

ZIP Codes were classified as urban or rural based on RUCA codes. Codes of 1 were assigned to urban areas and codes of 2 were assigned to rural areas, which include smaller communities such as Index, Gold Bar, and Startup. Rural respondents scored higher on the composite knowledge score (mean = 1.02) compared to urban respondents (mean = 0.69; Welch two-sample t-test: $t = -2.36$, $df = 48.8$, $p = 0.022$). No significant differences were found in composite attitude scores between urban and rural groups (Welch two-sample t-test: $t = -1.09$, $df = 44.6$, $p = 0.282$).

Educational Attainment

ZIP Code-level educational attainment data from the 2017-2021 American Community Survey 5-year estimates were merged with survey responses to examine relationships between area-level education and food waste knowledge and attitudes. There was a significant positive correlation was found between the percentage of residents with a high school diploma as their terminal degree and composite knowledge scores ($r = 0.35$, $t = 2.59$, $df = 48$, $p = 0.013$), indicating that respondents from ZIP Codes with higher proportions of residents whose highest degree is a high school diploma tended to score higher on food waste knowledge. However, there was not statistically significant correlation between the attitude scores and educational attainment.

DISCUSSION

Follow-Up Interview with Snohomish County PPA Education Specialists

Visit Experience and Food Establishments' Reactions

After the PPA specialists concluded their in-person outreach and education and the survey closed, we conducted a follow-up exit interview with the specialists to learn about their experience integrating organic waste education into their site visits. Overall, both specialists reported that the BOMA education fit well into their visits. They typically delivered the

education at the end of a visit unless the topic came up naturally earlier in the conversation. When food establishments had follow-up questions, they were mostly able to answer them. There were a few instances when the specialists stayed 20-30 minutes longer to answer questions.

The specialists reported that there were three common reactions from food establishments. Many food establishments were generally interested in the educational materials and found them helpful for identifying what they needed to do and wanted to learn more. In one case, a food establishment immediately gathered its kitchen staff and contacted the local curbside compost service identified in the educational materials to start composting services. The most common reaction was confusion, as many establishments were hearing about BOMA for the first time. Lastly, some food establishments reacted with stress when the management felt overwhelmed learning about a new requirement and figuring out how to comply.

Successes and Challenges

The specialists reported that several elements of the educational materials worked especially well. The visuals on the one-pager, which showed how much waste generation triggers BOMA requirements, resonated with food establishments, as did the focus on practical compliance steps such as how to sign up for compost service and how to donate food.

The specialists also identified several challenges in delivering the education. Language access was a significant barrier, since English was not the primary language of many of the people that owned or worked at the food establishments they visited. They recommended that future outreach and education materials be available in multiple languages, particularly Spanish and Korean in Snohomish County. PPA visits are not typically scheduled ahead of time, so time presented another challenge especially when food establishment staff were prepping food during visits or doing other time-sensitive tasks. Specialists also encountered food establishments that assumed BOMA did not apply to them because they perceived themselves as generating less food and other organic waste than they actually did.

Composting Practices & Recommendations

The specialists noted that the food establishments that were already composting tended to do so based on values or because it was part of corporate policy rather than because of BOMA. This observation may help explain why food establishments that are already composting scored so high on the knowledge and attitudes questions in the survey.

The specialists offered several recommendations for future efforts. They suggested developing compost signage for food establishments to keep posted to educate their employees. They also noted that while organics waste falls outside the technical scope of PPA, leakage from bins is a common stormwater issue which points to the value of including organics management education in PPA site-visits. In the interview, they noted that many specialists in the PPA program come from a customer service rather than regulatory background. This equips PPA specialists with the skillset to provide education with a different approach. If the PPA program is not the right fit for BOMA education going forward, they recommended considering who else might provide education from a similar customer-centered perspective.

Impact of Educational Materials on Knowledge, Attitudes, and Practices

Food Establishments Practices

More food establishments reported composting than expected (32.7%), especially given the reports from the PPA specialists that very few of the food establishments they visited were already composting. This discrepancy may reflect response bias, as food establishments already engaged in composting may have been more motivated to complete the voluntary survey, which represents a limitation of this study. However, the finding that restaurants reported lower diversion, composting, and donation rates compared to other types of food establishments is consistent with national trends. Nationally, 8% of food service establishments compost compared to 14.6% of food retail establishments, and 41.1% of food retail establishments donate food compared to less than 1% of food service establishments. Similarly, 11.1% of food retail establishments divert food waste to animal feed compared to essentially none in the food service sector.⁴⁷ While the 7.4% donation rate among restaurants in this study was somewhat higher than

national averages, it was much lower than the 32% donation rate reported by other food establishments in this study.

Table 13. Comparison of Diversion at Food Service vs Food Retail Establishments

Practice	National		Study	
	Food Service	Food Retail	Restaurants	Other
Compost	8%	14.6%	25.9%	45.5%
Donate	>1%	41.1%	7.4%	32.0%

Food Establishments Knowledge and Attitudes

Overall, knowledge scores across all groups were relatively low, indicating that many food establishments were either unfamiliar with organics management or had heard of them but did not know the details. Among the four knowledge questions, respondents were most confident about their awareness of local food donation organizations and least confident about tax incentives for food donation. This finding suggests that future educational efforts should further elaborate on the financial incentives available for food donation to close this knowledge gap.

The findings went against the original hypotheses that the Ed group would score higher than the No Ed group and in-person would score the highest. Overall, this study found that the Ed group performed better on attitude questions while the No Ed group performed better on knowledge questions, and the In-Person group did not perform significantly better as was hypothesized. These outcomes are likely influenced by response biases. Survey responses appear to have come disproportionately from businesses already interested in organic waste management, and especially among the No Ed group. There were differences in composting status among the groups where just 25% of the In-Person group reported composting compared to 37.5% of the No Education group and 30.3% of the Education group which may have confounded the knowledge and attitude responses.

The attitude questions generally scored higher than knowledge questions across all groups. For Q11 (perceived difficulty of separating food waste), although the differences were not statistically significant, the In-Person group scored highest, followed by the education group and then the no education group. The most commonly cited barrier to separating food waste was lack of staff time or capacity, suggesting that future educational materials should emphasize that separating food waste may not be as difficult or time-intensive as food establishments anticipate. The second most common response was that respondents anticipated no problems at all, and the third most common was being unsure about requirements, indicating that future educational materials may also need to go into more detail about the specific policies and how they apply to different types of food establishments. Food establishments also cited difficulties with landlords providing composting services in the open response options suggesting that direct outreach to landlords and landlord-specific educational materials may be needed.

Respondents scored very high on the belief that food donation benefits the community, but scored notably lower on the belief that food donation benefits their own establishment. This suggests that future educational materials should elaborate on how food establishments themselves could benefit including tax incentives. Respondents also scored relatively low on knowing who to contact about food donation, highlighting the need to create stronger food rescue connections and to make it clear which organizations food establishments can contact if they are interested in donating. Unsurprisingly, food establishments that already compost had substantially higher attitude scores than those that do not. Higher waste generators also had higher attitude scores, which represents an opportunity to capitalize on these perspectives by targeting outreach efforts toward larger generators who may already be more receptive to food waste management initiatives.

Q10 (the importance of keeping food out of the landfill) was the only question where the Ed group scored significantly higher than the No Ed group. Although the No Ed group scored higher on many other questions, the No Ed group did not achieve statistically significantly higher responses on any question. The closest was Q6 (awareness of the Organics Management Laws, $p = 0.084$), which is also likely the question requiring the most specific knowledge and the question on which the In-Person group scored lowest of any knowledge question.

The In-Person group often scored lower than the other educational intervention groups across questions. This likely reflects limitations of a single point-in-time study design as well as response biases in the other groups. It is possible that the In-Person group experienced the largest increase in knowledge, reaching people with much less initial familiarity with organics management compared to mail and email respondents. The lower scores does not necessarily mean in-person education is less effective, and may instead indicate that in-person outreach reached a different audience. In addition to response biases and the point-in-time nature of the survey, the confidence intervals and large range of values across questions and groups suggest that the small sample size may have been an additional limiting factor for the knowledge and attitude findings.

Geographic Factors

Another unexpected finding was a positive correlation between the percentage of residents with a high school diploma as their terminal degree at the ZIP code level and composite knowledge scores. However, there were no statistically significant associations with this same variable and attitude scores.

Rural respondents scored higher on average than urban respondents, though these results were not statistically significant. However, rural communities being more favorable towards composting is consistent with findings in Vermont.²⁸ In California, on the other hand, some studies have found that rural areas struggle with their food waste mandates.⁴⁸ Notably, the Snohomish County Waste Characterization Study shows that food is a significantly lower composition of organics waste in the more rural eastern part of the county, at just 3.1% of overall waste compared to 18.6% in the north, 18.2% in the south, and 16.9% in the west. The rural east also has much less potential for diversion through composting, suggesting that future efforts should focus on regions where there is more potential for diversion. This also suggests that more urban regions of the county may be more important targets for outreach and education.

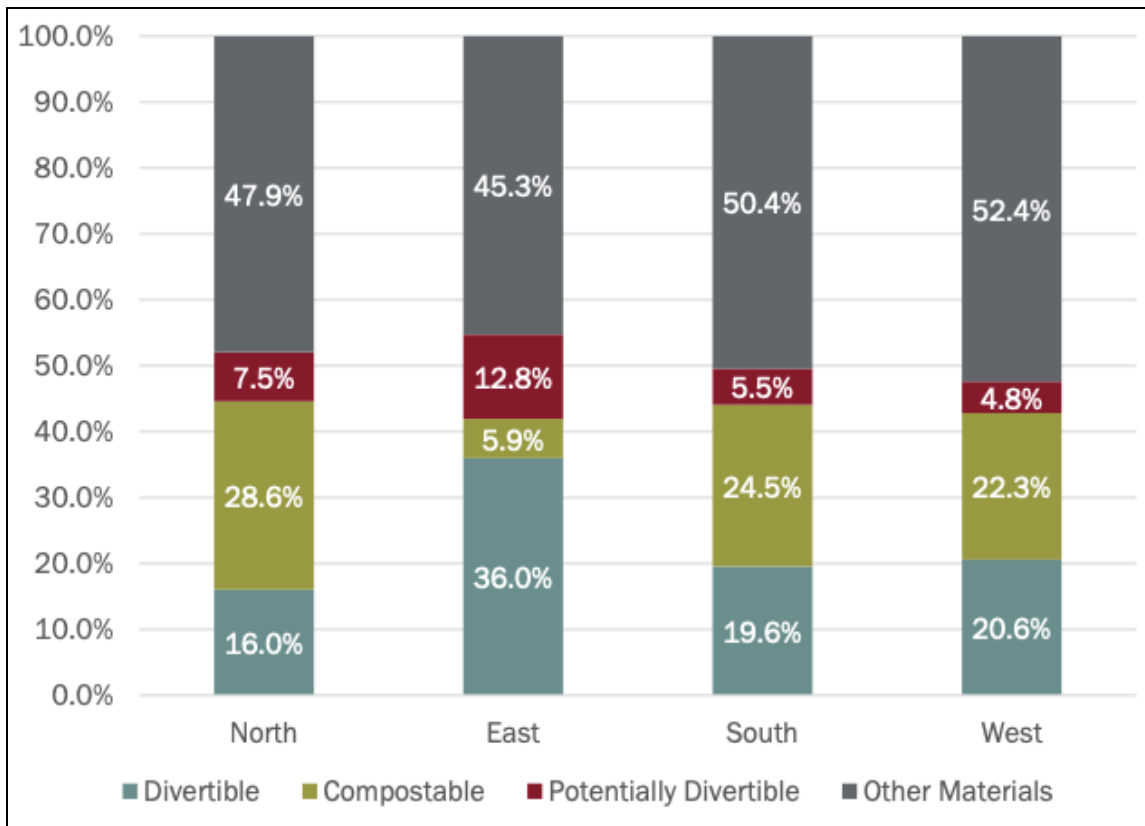


Figure 15. Snohomish County Waste Diversion Potential by Geographic Region

Multivariable Regression Analysis

The multivariate regression analysis was conducted to further explore the relationships between education and the knowledge and attitude outcomes. The regression analysis showed that composting status was the most consistent and significant predictor of both knowledge and attitude outcomes. Rurality was found to not be a significant predictor in any of the models. This finding suggests that while rural areas scored higher on knowledge and attitude questions, simply being in a rural area doesn't lead to more knowledge or more positive attitudes about food waste management.

Education was found to only have an independent effect on Q10 (importance of keeping food waste out of the landfill), but not on any other knowledge or attitude question. This further illustrates that the educational intervention was particularly impactful for shifting food establishments' perception of the importance of keeping food waste out of landfills. While not

statistically significant for most other outcomes, the regression results trended toward showing that educational materials were more effective for shifting attitudes than for building specific knowledge. These findings suggest the educational materials used in this study may be sufficient to influence general attitudes about food waste, but may not be enough to help food establishments feel fully informed or confident about specific policies, regulations, and programs.

Recommendations

In most cases, policy on its own is not enough to facilitate change; education and outreach are essential for success. This study's findings show that many food establishments did not know about BOMA, and there are persistent gaps in knowledge about organics management, even with an educational intervention. The study's findings imply that a one-pager may not be an effective way to provide education and may not reach the users who need it most. It is difficult to engage with establishments that are not already interested in this topic, and in-person outreach may be more effective than mail or email, which may only reach food establishments with prior interest.

Coordinating education and outreach more broadly is also critical. This should include coordination beyond state lines and across the larger region to share best practices, materials, and support meeting federal food and organic waste reduction goals. Research has shown that state-level policies on their own have not been enough to meet federal food waste reduction goals.⁴⁹ Better coordination is needed across states to share best practices, findings, and problem-solving from projects like this one in order to achieve the national goal to reduce food waste by 50% by 2030. This same kind of coordination is likely also needed to reach statewide goals in Washington.

Educational Materials

Based on the gaps in knowledge and attitudes identified through this study, educational materials should include several specific topics. First, materials should clearly explain the financial incentives and benefits of food donation, as this was an area where respondents had the lowest knowledge. The consultants who conducted the 2025 Waste Characterization Study in Snohomish County also recommend educational messaging about the cost-saving potential of

diverting organic waste from the landfill.³⁶ Additionally, educational materials should emphasize that separating food waste may not be as difficult or time-intensive as food establishments anticipate, since lack of staff time was the most commonly cited barrier. Lastly, given that being unsure about requirements was a commonly cited barrier, future materials should go into more detail about the specific policies and how they apply to food establishments specifically. Food establishments also cited difficulties with landlords providing composting services, suggesting that direct outreach to landlords and landlord-specific educational materials may also be needed. Finally, educational materials should be translated into multiple languages based on the needs of the local communities to ensure they are accessible to a wider range of food establishments.

Outreach Approach

In-person education can be very effective, as illustrated by takeaways from the PPA program. People who are already interested will engage with mailed or emailed materials, but those who are not interested can easily ignore them. A major takeaway from this study is that email and letters are not the most effective way of engaging people who are not already interested in food waste management, while in-person outreach is much more effective for reaching those audiences. Although email and mail are more convenient and lower-cost, they have not been shown to be effective at reaching the food establishments that may need information the most. However, in-person visits should be scheduled ahead of time to ensure that food establishments have the time and attention to engage with education about organics management. Additionally, there needs to be cohesive messaging across counties and regions to ensure consistency. With ORCA's implementation approaching, outreach and education should begin as soon as possible, especially direct engagement with local jurisdictions that will be required to provide services and enforcement.

Snohomish County

Snohomish County should focus outreach and education efforts on urban areas, where the potential for diversion is greatest, and should use the 2025 Waste Characterization Study data to guide where and how to direct these efforts. The success of the PPA program in delivering in-person education suggests that this approach should be expanded and integrated more deeply

into the County's outreach strategy. If the County decides not to use the PPA program, then the County should explore alternative, existing in-person outreach options with a customer-service oriented objective.

The County should also continue to build relationships with and support hunger relief organizations. The consultants who conducted the 2025 Waste Characterization Study also recommended a specific focus on diverting edible food through donation programs and collaboration with local food banks.³⁶ This may be more effective to facilitate on the local level. The approach should not only focus on composting but should also continue to support food rescue by advertising the Washington State Food Rescue Map and supporting hunger relief organizations that carry out the bulk of redistribution work.

There are also implications for comprehensive planning, as solid waste management is a required element of comprehensive plans, and findings from this study can inform updates to the County's Solid Waste Management Plan. Snohomish County will be impacted by ORCA, and the County should ensure that cities within the county are prepared and able to educate single-family residences and businesses about the upcoming requirements.

Washington State

Washington State should continue to develop cohesive educational materials and templates that local jurisdictions can easily adapt for their specific contexts, especially with information about food donation and hunger relief organizations. The state should also conduct outreach to local jurisdictions to ensure they are aware that these materials exist and available for use. In addition to one-pagers about BOMA, the state should develop signs that can be displayed in restaurants and other food establishments, distributed by local jurisdictions, that clearly show what can and cannot be composted. This is particularly important to prevent contamination of the compost stream, which can have safety implications throughout the compost and food system. Lastly, Ecology, who funds the PPA program statewide, should consider adding organics waste management education and BOMA-specific education to the site-visits in counties where BOMA already applies and where ORCA will begin in 2027. There are currently PPA programs and specialists in every county where BOMA applies and most of the counties where ORCA will

begin. In addition, the state should consider providing sustained funding to local jurisdictions to support in-person education through the PPA to ensure its success.

Limitations

This study included only one, post-intervention survey due to concerns about food establishments participation and the limited timeline of one year for conducting outreach, education, data collection and analysis. If food establishments did not complete the survey then they were not included in the study. The scope of the project was also restricted by Snohomish County's PPA program's capacity to deliver in-person education, limiting the study to geographic areas where their staff was already conducting outreach and education.

Data collection was also affected by catastrophic flooding and an emergency declaration that was issued for Snohomish county on December 9, 2025, the same day the email recruitment was sent out.⁴³ As a result, planned mailings and in-person education also experienced delays. We also expect that this impacted the response rate from food establishments that were affected by the flooding. This likely contributed to the small sample size that is an additional limitation. The small sample size of 52 respondents limited the statistical power needed to detect significant differences between groups, which may explain why many comparisons did not reach statistical significance despite showing meaningful trends. The wide confidence intervals observed across the regression analyses further reflect this limitation and suggest that findings interpretation should take that into account.

As previously stated, this study was also subject to several response biases. Courtesy bias may have led some respondents to report attitudes or behaviors they believed the researchers wanted to hear, rather than their genuine practices. Additionally, voluntary response bias may have influenced the sample, as food establishments more interested in or favorable toward food waste reduction were likely more inclined to participate, potentially skewing results toward more positive attitudes and behaviors.

CONCLUSION

This project aimed to assess food establishments' knowledge, attitudes and practices related to organics management in Snohomish County and to compare these outcomes between groups who received educational materials through mail, email and in-person education and those who did not receive educational materials. The project also explored how outcomes differed between rural and urban communities and based on community-level educational attainment.

The findings showed that many food establishments in Snohomish County do not know about BOMA, the Organics Management Law that established it, or that they may be required to divert their organic and food waste. More food establishments are composting than donating, and restaurants have significantly lower rates of composting and donation. There are significant opportunities to increase knowledge about food donation as a diversion tool. Food establishments are interested in learning more and want to comply with regulations, but they need education and outreach to do so. The most commonly cited barriers to diverting food waste were lacking staff time and capacity, being unsure about requirements, and the cost of composting services. Providing in-person education through the Snohomish County PPA program was helpful in reaching an audience that was not already familiar or interested in organics management.

The findings from this project highlight a significant need for more education and outreach to food establishments about BOMA, Organics Management Laws, and what they need to do to comply. The one-pager materials adapted from Ecology and used in this study were more effective at changing attitudes than building knowledge, so additional materials and education are needed to help food establishments feel confident in their knowledge about policies and requirements. Education was especially effective at conveying the importance of keeping food waste out of the landfill, but one-pagers alone are not enough to significantly address food establishments' knowledge gaps.

These findings have serious implications for targeting and informing educational outreach, both in terms of the content and the approach, to ensure that resources on a local and state level are used efficiently and effectively. More coordination will be needed across local jurisdictions, including the sharing of best practices and educational materials, especially as ORCA is

implemented in 2027. Future efforts should seek out customer service-focused, in-person outreach opportunities that already exist and add on an organics management element. The PPA program was particularly successful in this study, and expanding an organics management element across the PPA program where they overlap with BOMA could be an effective way to specifically prepare food establishments for compliance. In order to meet statewide and national food waste reduction goals, there is a need to coordinate efforts, share findings and materials, and ensure that food establishments are aware of these policies and their importance.

AI Disclosure Statement

This thesis was completed with the aid of Anthropic's Claude Sonnet 4.6 and Opus 4.7, a language model trained on publicly available and licensed datasets. The AI tool was used to support technical tasks including assistance with R code development, debugging, and some

interpretation. All code was carefully reviewed and validated and analytical decisions, data cleaning steps, and interpretation were conducted by the author. The use of AI in this project was to streamline coding in R. The author assumes full responsibility for the accuracy and originality of this project.

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APPENDICES

Appendix 1. Educational 1-Pager

Changing Food Waste Law



Food waste management requirements are changing in Snohomish County – your food establishment may be affected!



Starting January 1, 2026, most businesses generating more than 96 gallons of organic waste per week (about the size of a curbside trashcan) will be required to keep food waste out of landfills under the **Organics Management Law**.¹ Scan the QR code to learn more.



Reducing waste can benefit your business by:

1. Saving Money: Reducing waste pays off - food businesses save an average of \$7 for every \$1 spent each year.³ Intentional waste reduction efforts can save businesses money, time, and space.

2. Reducing environmental impact: Food waste makes up a significant portion of landfills and create greenhouse gas that is worse than emissions from cars.

3. Showing customers you care: Most diners (72%) care about how food establishments handle food waste. Almost half are willing to spend more at food establishments with food donation programs.⁴



Have Questions? Please reach out!

Center for Sustainable Food Management
Phone: (360) 407-6900
Email: foodcenter@ecy.wa.gov

Snohomish County
Phone: (425) 339-5250
Email: shd-envhlthquestions@co.snohomish.wa.us

Sources:

1. Washington State Department of Ecology: Organics management for businesses. Available online at: <https://ecology.wa.gov/waste-toxics/reducing-recycling/waste/organics-and-food-waste/2022-organics-management-law/organics-management-for-businesses>

2. Waste Management: Curbside/Pickup Service. Available online at: https://store.wm.com/us/ccrz_ProductList?categoryId=a5x0h0000010yUuAAI&store=US&storeId=a6c0h0000000g2UeAAI&ccid=en_US

3. Champions 12.3: New Report Serves up Savings for Restaurants in Reducing Food Waste. Available online at: www.champions123.org/new-report-serves-savings-restaurants-reducing-food-waste

4. ReFED - Solution database: Waste Tracking (Foodservice)

How can food establishments prevent & manage food waste to follow the law?

1. Prevent waste by improving kitchen efficiency

- Intentionally purchase by planning menus & tracking spoilage.
- Store food properly to extend shelf life.
- Regularly check inventory to avoid ordering too much.
- Scan the QR code for more tips on prevention.



2. Donate extra edible food

Don't let your hard work go to waste! Look for a local hunger relief organization that can accept your food donation. Scan the QR code to learn how to donate safely.



Mill Creek Community Food Bank
(425) 754-6353 | foodbank@hopecreekcf.org

Stanwood-Camano Food Bank Services
(360) 629-2789 | scfoodbank@scfbs.org



3. Compost inedible food waste

- Place bins in key areas. Use proper signage, train staff, and collect food scraps to save money.
- What can go in the bin?
 - Food scraps & leftovers
 - Expired or spoiled food
 - Coffee grounds & filters
 - Used paper towels, napkins & compostable packaging
- In Snohomish County, curbside compost is available through Waste Management. Scan the QR code to sign-up or learn more.



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Appendix 2. KAP Survey

Snohomish County Food Establishment's Food Waste Practices Survey

Thank you for your interest in this survey! It's part of a Master of Public Health and Master of Urban Planning thesis project at the University of Washington in collaboration with the Snohomish County Environmental Health Division. Your participation will help us understand current food waste practices to better support food establishments in the future.

This survey should take approximately 10-15 minutes to complete. Your response will be confidential and individual food establishments will not be identified. Your participation is voluntary, and you may stop at any time.

At the end of the survey, you'll have the option to enter a raffle to win one of five \$50 Amazon gift cards.

Thank you for participating and helping inform ways to support food establishments in the future! If you have any questions, please reach out to Mariah Rubin at mvrubin@uw.edu.

1. Please select your food establishment's ZIP Code:

- ☐ 98012
- ☐ 98082
- ☐ 98292
- ☐ Other (please specify):

2. What type of a food establishment do you operate? *(Select all that apply.)*

- ☐ Restaurant
 - ☐ Grocery store
 - ☐ Food processor or manufacturer
 - ☐ Catering company
 - ☐ Convenience store
 - ☐ Hunger relief organization (food bank or pantry)
 - ☐ School
 - ☐ Other (please specify):
-

3. What is your role at the food establishment? *(Select all that apply.)*

- ☐ Owner
 - ☐ Manager
 - ☐ Employee
 - ☐ Volunteer
 - ☐ Other (please specify):
-

4. Is the food establishment part of a franchise?

- ☐ Yes
- ☐ No
- ☐ Unsure

5. Approximately how many employees or volunteers are at this food establishment?

- o 1 - 10
- o 11 - 25
- o 26-50
- o 50+

6. Which statement best describes your awareness of the Washington Organics Management Act and Business Organics Management Areas (BOMA)?

- o I'm familiar with the legislation and requirements for separating and diverting food waste from landfills.
- o I've heard of the Organics Management Act and/or BOMA but don't know the details.
- o I'm not familiar or unsure.

7. Which statement best describes your awareness of the legal liability for a food establishment donating food in Washington?

- o I'm familiar with the legal requirements and protections for donating
- o I've heard of legal requirements and/or protections but don't know the details.
- o I'm not familiar or unsure.

8. Which statement best describes your awareness of local organizations or programs that accept food donations?

- o I can name specific organizations or programs in my area that accept food donations.
- o I've heard of some programs, but don't know their names or details.
- o I'm not familiar with any local organizations.

9. Which statement best describes your awareness of tax incentives for donating food?

- I'm familiar with specific tax incentives and financial benefits for donating food.
- I've heard there may be benefits to donating food, but I don't know the details.
- I'm not aware of any benefits or incentives or unsure if they exist.

11. How important is it to keep food waste out of the landfill?

- Very important
- Moderately important
- Slightly important
- Not at all important

12. How difficult would it be for your food establishment to separate food waste from the rest of your trash?

- Very easy
- Somewhat easy
- Not easy nor difficult
- Somewhat difficult
- Very difficult

13. What problems might your food establishment have if you had to separate food waste from the rest of your trash? *(Select all that apply.)*

- ☐ No problems
- ☐ Lack of staff time or capacity
- ☐ Cost of composting services

- ☐ No composting services in my area
 - ☐ Unsure about requirements
 - ☐ Space limitations
 - ☐ Other (please specify):
-

14. For each statement below, choose how much you agree or disagree:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Food donation is too risky because of food safety concerns.	☐	☐	☐	☐	☐
Food donation is too time consuming for our staff.	☐	☐	☐	☐	☐
Food donation benefits my community.	☐	☐	☐	☐	☐

Food donation has
benefits for my
food
establishment.

☐

☐

☐

☐

☐

I know who to
contact if I have
questions about
food donation.

☐

☐

☐

☐

☐

15. Approximately how much food waste does your food establishment produce each week?

- ☐ 96 gallons or less (one curbside trash can)
- ☐ 4 cub yards (bed of a standard pickup truck)
- ☐ 8 cubic yards (commercial dumpster)
- ☐ More than 8 cubic yards (commercial dumpster)
- ☐ Unsure

16. Does your food establishment currently separate food waste from the rest of your trash?

- ☐ Yes
- ☐ No
- ☐ Unsure
- ☐ Other (please specify):

17. Does your food establishment compost food waste?

- ☐ Yes
- ☐ No
- ☐ Unsure

- o Other (please specify):

18. **If you compost**, where does your compost go?

- o We subscribe to curbside service (i.e. Waste Management)
- o On-site compost bin
- o Self-haul to a compost facility
- o Other (please specify):

19. **If you subscribe to a curbside service**, who is your service provider?

20. Does your food establishment currently donate food?

- o Yes
- o No
- o Unsure

21. **If you do donate food**, who do you partner with to donate your food?

22. **If you do not donate food or are unsure**, are you interested in donating food?

- ☐ Yes
- ☐ No
- ☐ Unsure

23. **If you are not interested or unsure about donating food**, why are you not interested or unsure?

- ☐ Concerns about food safety
 - ☐ Not enough staff time or capacity
 - ☐ Don't know about food donation programs or organizations
 - ☐ Just not interested
 - ☐ Other (please specify):
-

24. Is there anything else you would like us to know about your food establishment?

25. Would you like to be entered into a raffle for one of five \$50 Amazon gift cards? If so, please provide your email address so we can contact you if you win:

Thanks for completing the survey—your response has been recorded.

Want to learn more?

- Washington Organics Management Law and Business Organics Management Areas:
[Organics Management for Businesses](#)
- How to prevent food waste:
[Practical Steps for Businesses](#)
- How to donate food safely:
[Food Rescue Donation Guide](#)

- Find organizations to donate food:
[Washington Food Rescue Map](#)

Questions?

Contact Mariah Rubin at mvrubin@uw.edu.

Appendix 3. Additional Outreach Materials

Email and Letter Outreach

Your food establishment is invited by the Snohomish County Department of Environmental Health and the University of Washington to participate in a short voluntary survey about food waste management practices. Your insight will help us better understand day-to-day challenges related to organic waste and identify ways to better support food establishments.

The survey should take approximately **10–15 minutes** to complete. At the end of the survey, you'll have the option to provide your email address to enter a raffle for one of five **\$50 Amazon gift cards**. Participation in the survey is completely voluntary, and all responses will remain confidential. Individual establishments will not be identified and your contact information will only be collected if you would like to participate in the gift card raffle.

If part of the educational group then includes: Before completing the survey, please review the brief educational one-pager with information on changing organic waste requirements, best practices, and resources for food establishments.

Survey link: [insert survey link]

Survey QR code: [Insert QR code]

Thank you for considering helping us learn how to better support food establishments across Snohomish County! If you have any questions, please reach out to Mariah Rubin, the UW graduate student involved in the project, at mvrubin@uw.edu.

In-Person Outreach and Education Talking Points

- I also wanted to provide some information about a new law aimed at keeping food waste out of the garbage
- Here is some more information about this requirement [hand over 1-pager]

- Most businesses in Snohomish County that generate more than one curbside garbage can of food waste per week are now required to keep food scraps out of the landfill.
 - If you don't know how much waste you are generating, we encourage you to do a waste audit
- We recommend:
 - Preventing food waste whenever possible
 - Donating any extra edible food to local food banks or other organizations
 - Composting what can't be eaten. Waste Management offers compost pickup in Snohomish County, just like regular garbage service.
 - There are tips for how to follow these recommendations on the other side of that page
- We're doing a short survey to learn how we can better support businesses with this new food waste law. It's completely voluntary, but would you be willing to take a quick, anonymous survey? You'll also have a chance to win a gift card!