

Talking Trash

A frequency analysis of organics recycling terms

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Acknowledgements

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I Executive Summary

There is a critical need to aggressively reduce short-lived climate pollutants such as methane from landfills which aggregate heat warming impacts in the near term. As a result, many communities across the United States have started organics recycling programs to mitigate these emissions. Notably, California passed SB 1383 (Lara, 2016) which mandates organics diversion from landfills beginning in 2022 to divert 75% of organics from landfills by 2025. This means that, successfully diverting organic is heavily dependent on public behavior change. This means that organics recycling programs, and the resulting greenhouse gas (GHG) reduction targets, hinge on program administration. Specifically, municipalities must effectively communicate to the public what to do with organic waste and how to use their programs once collection infrastructure is implemented. However, organics recycling education campaigns are distinctly complicated because the solid waste and recycling industry has its own unique set of organics recycling terms used mostly by industry professionals that are often unfamiliar or confusing to the public. This confusion may result in lack of program adoption, and unsuccessful methane emission reductions.

The following paper analyzes the frequency of organics recycling terms that jurisdictions use in their organics recycling programs to determine what terms are the most common. In order to do this, this paper first explains the problem with landfilled organics, opportunities for diversion, and the current state of organics recycling policy and program implementation. Next this paper reviews social psychological best practices to illicit community behavior change, waste and recycling program best practices, and current research on organics recycling terms. This paper then discusses the survey methodology and frequency analysis findings. The paper closes

with research limitations and recommendations for organics recycling program communication and administration.

II Introduction

The following section discusses why landfilled organic waste is a problem, opportunities for organic waste diversion and climate mitigation, the current state of organic waste policy, and organics recycling program implementation.

The problem: organics in landfills

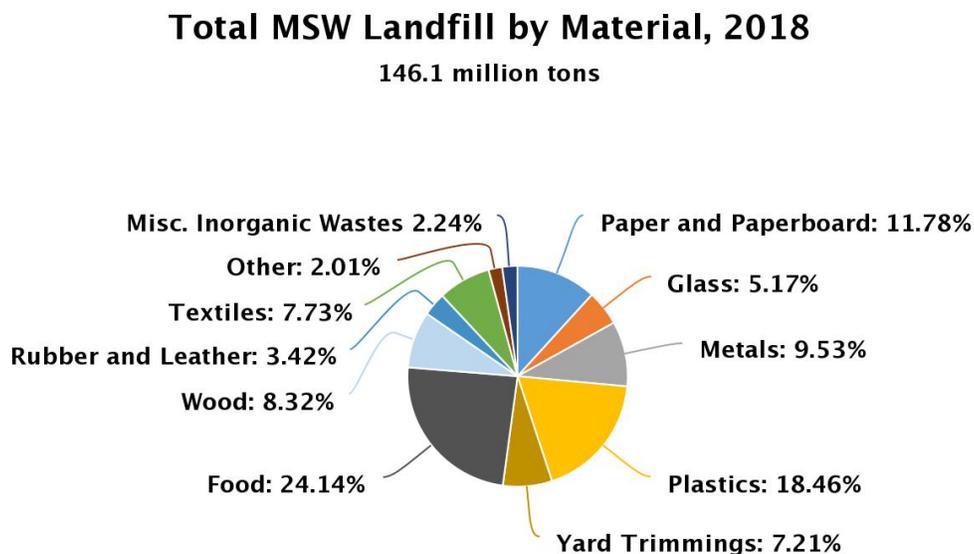
The modern method of organic waste management in the United States and California buries significant amounts of organics (food, landscape waste, and paper products) in landfills. Landfills seal this material away from oxygen which creates an anaerobic process that releases methane into the environment. Methane is considered a “super pollutant” in that it is a powerful, heat trapping gas 28 to 36 times more potent than carbon dioxide (Downstream Management of Organic Waste in the United States Strategies for Methane Mitigation, 2022). It is also a “short lived ” climate pollutant which means that it does not stay in the atmosphere very long, but due to its heat trapping effectiveness, it has lasting impacts that drive climate change (Analysis of the Progress Toward the SB 1383 Waste Reduction Goals, 2020) Landfills are a significant source of methane emissions in the United States and California. Across the country, landfills are the third-largest source of human-caused methane emissions. (Downstream Management of Organic Waste in the United States Strategies for Methane Mitigation, 2022). In California, landfill methane emissions contribute up to twenty percent of all methane emissions in this state (Analysis of the Progress Toward the SB 1383 Waste Reduction Goals, 2020

This means that diverting organic waste, especially in near term, is an important climate mitigation action given both the quantity of methane emissions and their outsized impacts.

Project Drawdown, a 501(c)(3) nonprofit organization founded in 2014 to communicate the most substantive solutions to stop climate change, recognizes both reducing food waste and composting as solutions to avoid the most devastating climate change impacts (Wilkinson, 2020). Notably, if California successfully implements SB 1383 (Lara, 2016), the statewide organic waste diversion mandate, California can annually reduce four million metric tons of CO₂ before 2030 (Analysis of the Progress Toward the SB 1383 Waste Reduction Goals, 2020)

However, diverting organic waste away from landfills and towards composting operations is no small task, as organic waste is a significant component of the waste stream. In 2018, food made up the largest component of material buried in landfills at about 24 percent in the United States (National Overview: Facts and Figures on Materials, Wastes, and Recycling, n.d.). Yard trimmings make up the next largest material category, estimated at 35.4 million tons, or 12.1 percent of total generation. Figure 1 shows the national waste characterization from 2018.

Figure 1 Total MSW Landfilled by Material, 2018

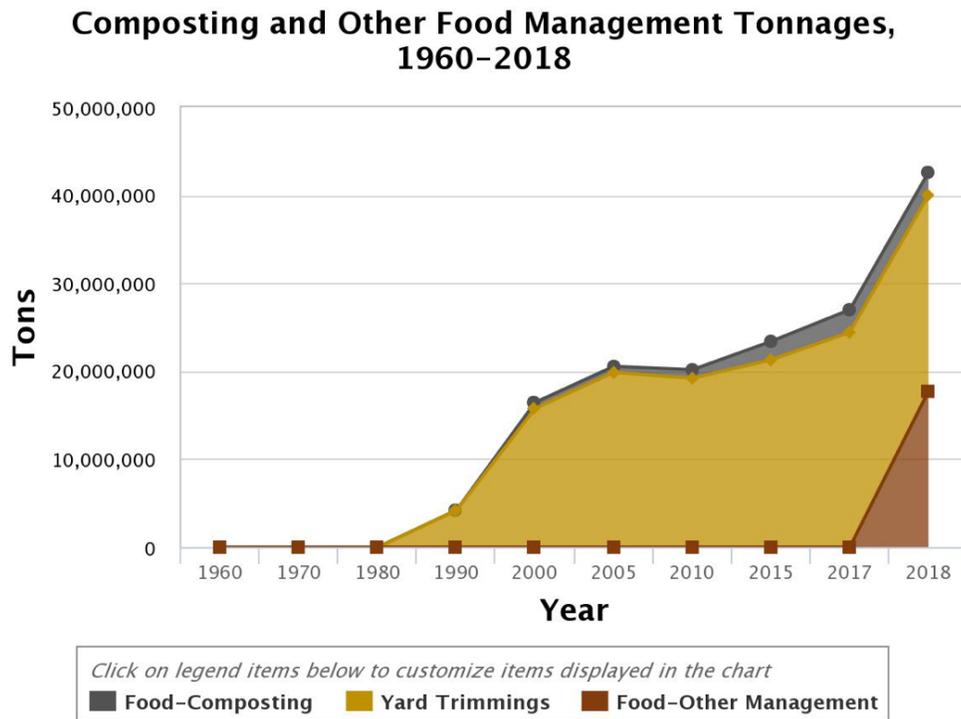


California mirrors the national trends: organic waste makes up the largest component of California's waste stream, comprising 37 percent of all material buried in landfills with discarded food makes up the largest component of organic waste in California landfills at 18 percent (2014 Disposal-Facility-Based Characterization of Solid Waste in California, 2015). To handle this material, there needs to be a massive shift in waste management practices from collection programs to infrastructure to process this material, and public participation.

Organic waste diversion trends and opportunities

There already has been some success diverting landscape material away from landfills since the 1990's largely due to state legislation discouraging yard trimmings disposal in landfills. This has resulted in the nationwide composting rate of landscape material increasing more than five-fold since 1990 (National Overview: Facts and Figures on Materials, Wastes, and Recycling, n.d.). However, the amount of food waste annually buried in landfills has increased 70 percent from 1990 to 2017, showing that there is substantially less food waste diversion occurring than yard waste. In 2017, only about 6.3 percent of the food waste generated was composted compared to about 69 percent of yard waste (Downstream Management of Organic Waste in the United States Strategies for Methane Mitigation, 2022). Diverting food waste is the next big area of opportunity to prevent methane emissions in landfills. Figure 2 shows the increase of yard waste composting in the United States beginning in the 1980's, while food composting is still yet to make significant traction.

Figure 2 Composting and Other Food Management Tonnages 1960-2018



There are still many barriers including lack of infrastructure for collecting, processing and treating organic waste so programs are not widespread throughout the United States (Downstream Management of Organic Waste in the United States Strategies for Methane Mitigation, 2022). Despite these barriers, curbside residential and commercial organic waste recycling programs are growing in popularity. Since 2005, access to residential curbside collection of food scraps has increased, growing from just over 500,000 households in 2005 to 2.74 million households in 2014, and reached 5.1 million households in 2017 (Downstream Management of Organic Waste in the United States Strategies for Methane Mitigation, 2022).

In response to the need to quickly reduce methane emissions and success of local organics recycling programs, state and local policies and programs to recycle organic waste including food are gaining momentum. For example:

- As of 2019, 28 states have banned yard waste from disposal in landfills; many of these bans have been in effect since the late 1980s or early 1990s (Downstream Management of Organic Waste in the United States Strategies for Methane Mitigation, 2022).
- Five states (California, Connecticut, Massachusetts, Rhode Island and Vermont) have established food waste disposal bans (Downstream Management of Organic Waste in the United States Strategies for Methane Mitigation, 2022).
- California passed SB 1383 (Lara, 2016) Short lived climate pollutant reduction act requires 75% reduction of organic waste from landfills by 2025.
- Larger cities including New York City, San Francisco, Seattle and Austin (Texas), have passed ordinances prohibiting disposal of food wastes (Downstream Management of Organic Waste in the United States Strategies for Methane Mitigation, 2022).
- In 2014, there were over 180 communities in the United States that have access to residential food scrap collection (Platt & Goldstein, 2020).
- Since 2014, communities offering compost programs have increased by 65 percent (Bradford et al., 2019).

Organic waste diversion program administration and implementation

The success of organic waste recycling programs depends on several factors, namely collection infrastructure, community involvement, and education and outreach (Downstream Management of Organic Waste in the United States Strategies for Methane Mitigation, 2022). Notably, diverting organic waste away from landfills and towards compost operations *is heavily dependent on public behavior change*. This means that organic waste diversion program implementation, and the resulting GHG reduction targets is tied to program administration—

specifically municipalities effectively communicating to the public what to do with organic waste.

Education and outreach campaigns are needed to communicate changes to solid waste programs and educate the public on how to properly separate and store their organics for collection. Cities can expect that a portion of their residents will adopt food scrap separation practices using structural supportive program changes, such as curbside cart delivery. However, this rate of increase will plateau after the initial gains in participation. The findings show that cities can both gain and maintain food scrap program participation when programs target the social context of food scrap separation (Geislar, 2017). For example, a 2013 City of San Francisco waste characterization yielded that more than half of its curbside organic waste collection carts are underutilized (Geislar, 2017). To maximize diversion and program participation, jurisdictions need to seriously consider how they communicate to their community about organics recycling programs.

However, organics recycling education and communication campaigns are distinctly complicated because the solid waste and recycling industry has its own unique set of terms used mostly by industry professionals that are often unfamiliar or confusing to the public. For example, when the City of Folsom began accepting food scraps in the existing curbside yard debris collection program in July 2022 a local news outlet ran a story with the hook “On July 1, the city of Folsom is launching its Organics Recycling Program to comply with the new state law requiring *organic food waste* to be composted.” In practice, all food scraps can be put in Folsom’s curbside bin, not just *organically* grown food. A 2019 article from *Bio Cycle* magazine, “The Organics Recycling Messaging Dilemma,” acknowledges that confusion from varying collection methods and terminology may result in lack of participation. Therefore,

determining what terms to use in their public education and outreach material is an important decision for program administrators and research is needed to organize these choices.

It is important to note that there are a variety of ways organic waste can be collected and this variation may influence what organic waste recycling terms are used. For example, some communities may require residents to put their food scraps into their existing yard waste containers, commingling these materials for service. Other communities may ask their residents to keep their food scraps in with their standard municipal solid waste (MSW), and the food waste will be sorted out at the facility. Food scraps can also be isolated and by themselves and picked up or dropped off. Furthermore, collection methods vary based on the service sector. For example, municipal solid waste from commercial businesses is often collected in dumpsters, large metal or plastic containers, that are serviced by specific vehicles designed to grab and tip the contents of the containers into collection vehicles. Likewise, municipal solid waste from residential homes is often collected in curbside carts serviced by a vehicle with a different collection mechanism to grab and tip carts. Or in some communities, residents can self-haul material to a collection point. Given the variation in collection methods, it can be expected that there will be terms associated with specific processes.

Recycling and organics recycling programs also need to address contamination. “Contamination” is material included in the recycling collection, but not accepted in the curbside recycling program, and material that is on the acceptable materials list, but has unacceptable amounts of residue, (Mouw, 2020). Not only is it necessary for residents and businesses to participate in the organics recycling program, but they need to participate *correctly*. Food scraps introduced into organics recycling programs open the door for increased contamination, particularly from plastic food packaging (United States Environmental Protection Agency,

2021). Biocycle magazine identified “the big three” plastic, glass, and produce stickers as the most problematic contaminants because they break into smaller pieces during the composting process, becoming nearly invisible and almost impossible to remove (Harrington, 2020).

These physical contaminants both reduce the marketability of compost and potentially risk human and environmental health when this compost is land applied. Microplastics can alter soil health, run off into other terrestrial and aquatic environments, and even degrade into nano plastics which plants can absorb (United States Environmental Protection Agency, 2021).

Limited research also suggests that plastic contamination introduces per-and polyfluoroalkyl substances (PFAS), long lasting chemicals linked to harmful health effects, into compost (United States Environmental Protection Agency, 2021). The EPA identifies both plastic contamination and persistent chemicals as emerging issues in food waste management and is a priority research area (United States Environmental Protection Agency, 2021). That said, the risks of compost contamination highlight the importance of clearly communicating to the public how to adopt these new programs correctly.

III Literature Review

To divert organic waste from landfills and reduce methane emissions, program administrators need to know how to effectively engage their community so that they adopt the new organics recycling program. This type of program administration falls into the social psychology field of sustainable behavior change. Researchers have identified programs which community based social marketing (CBSM) techniques to be particularly effective at eliciting widespread behavior change. In addition to CBSM techniques, waste and recycling program administrators have also identified waste and recycling program best practices which include message harmonization. There has also been one national survey on this topic. The following

literature review introduces CBSM, effective CBSM techniques in the waste and recycling program administration context, best waste and recycling program administration practices, and previous the research on this topic.

Sustainable behavior change and CBSM

Social psychological research on sustainable behavior change dates back nearly 40 years. Within this research, several key findings have emerged. First, outreach campaigns that rely solely on providing information often have little or no effect on behavior (Mohr & Smith, 1999) (Schultz, 2014). Mohr and Smith note in their book *Fostering Sustainable Behavior: An introduction to Community-Based Social Marketing* that mass media efforts to encourage a new sustainable behavior (e.g., walking or biking to work) are based on traditional marketing techniques in which the sustainable activity is viewed as a "product" to be sold. Mohr and Smith identify that advertising alters preferences. However, altering preferences does not create a new behavior, but instead alters an existing one. Encouraging individuals to engage in an entirely new activity, such as walking or biking to work, or sorting organic waste for recycling, is much more complex (Mohr & Smith, 1999)

Social psychological researchers have also identified strategies such as prompts, commitments, feedback, social norms, incentives, and convenience that have all been shown to effectively promote behavior change (Mohr & Smith, 1999) (Schultz, 2014). Together, these methods are referred to as "community based social marketing" (CBSM). Program administrators can use the CBSM framework to implement new programs that rely on the public to adopt a new sustainable behavior. The CBSM framework outlines identifying barriers and benefits to behavior adoption, and then selecting from a series of interventions such as using

prompts, commitments, feedback, social norms, incentives, and convenience to mitigate barriers and boost benefits.

Effectiveness of convenience and social norms in recycling programs

Research on waste and recycling programs has identified the effectiveness of both CBSM techniques convenience and social norms used together to encourage the community adoption of recycling programs. Convenience in this context is the community wide distribution of curbside collection carts which make it easier for residents to recycle organic waste, while social norms model the desired behavior of placing organics in the curbside cart for pickup. Without curbside carts, only highly motivated residents would recycle organic waste either through backyard composting or drops off. Curbside carts for organics collection, also called “supportive infrastructure” reduce a barrier for organics recycling by making the behavior more accessible. Normative messages have been shown to result in a 17% increase in the amount of material recycled following a 4-week treatment, but the effect was particularly strong for residents who were low in initial participation rates (Schultz, 199).

Furthermore, a 2017 study in Costa Mesa tested if supportive infrastructure alone or both supportive infrastructure and norm communication improves separation behavior in curbside organics collection programs. Findings support that residents will begin to separate food scraps if provided supportive infrastructure such as an organics collection cart. Data also indicate that those receiving norm communication were significantly more likely to continue participating in the program. This suggests that norm communication reduces the likelihood that residents will give up separating food waste in the organic collection program (Geislar, 2017).

Recycling program administration best practices

Waste and recycling program administrators call for consistent and harmonized recycling messages to improve recycling outcomes. The Communications Consortium with the Responsible Recycling Task Force comprised representatives from King County, the City of Seattle, cities of King County, solid waste haulers, and stakeholders established the “Responsible Recycling Framework.” Within this framework the Task Force calls for “consistent messaging across the region” (Responsible Recycling Task Force, 2023). As a result of the Task Force’s findings, the Communications Consortium developed “Recycle Right” and “Compost Right Campaigns,” regional messages that identify how to correctly participate in programs (Responsible recycling task force, 2020) The success of these efforts brought in members from the Washington State Department of Ecology to extent this effort to a statewide audience (Draft 2022 Solid Waste Plan Update: Moving Upstream to Zero Waste, 2022).

Furthermore, the City of Seattle’s draft 2022 Solid Waste Plan Update emphasizes consistency across the solid waste system and views consistency as a powerful strategy to prevent contamination. Consistency includes color scheme, and type of frequency of outreach materials such as mailers (Draft 2022 Solid Waste Plan Update: Moving Upstream to Zero Waste, 2022). The Solid Waste Plan Update also reiterates and supports Seattle city staff’s participation in the Responsible Recycling Task Force to harmonize recycling messaging across the region and expects that unifying education and outreach messages across the region should reduce confusion and simplify recycling education.

Previous research

The Recycling Association of Minnesota has conducted the only research on organics recycling terms and distributed the first national survey in 2016. They wanted to know how other collection programs across the country communicate about organics recycling to inform their

regional style guide. The Recycling Association of Minnesota survey asked: “How do you title your program?” and “What color signifies organics?” (Walsh, 2019). The survey received 128 responses, but only 62 usable responses with notable regional gaps from the Northwest and Southeast and over representation from the Midwest and Central regions (Walsh, 2019). Overall, the Recycling Association of Minnesota’s initial survey provides a helpful first approach at categorizing organics recycling outreach information in this field but is limited by a small number of respondents from similar geographic areas. Additionally, the survey focused only on the bin colors from the residential recycling and does not specify the service sector (residential or commercial) for program titles.

Research gap

In order for waste and recycling program administrators to craft a powerful norm or harmonized organics recycling message, a common terminology or language must be agreed upon, first. My research expands on the 2016 Recycling Association of Minnesota’s survey to collect more data on what organics recycling terms are already in use. This information will give waste and recycling program administrators a better idea of what terms are in use. This information will allow program administrators to strategically develop norm messages and harmonized outreach material that will shape behavior and reduce methane emissions.

IV Methodology

The following section discusses the research I conducted during spring semester 2023 to answer this paper’s research question: what terms do jurisdictions use in their organics recycling public communications?

Research approach

This study uses a descriptive research approach to determine what terms program administrators use to describe organic recycling programs. Descriptive research answers the “what” question and uses categorization to create a conceptual framework (Shields & Rangarajan, 2013). A descriptive research approach is best suited to answer this research question because the data are currently disorganized, and the organics recycling field is lacking further advanced study on the topic. A robust categorization of organics recycling terms and collection methods will create helpful baseline information for organics and waste recycling program administrators.

These categories will make useful distinctions to navigate complicated the organics recycling outreach environment and create a foundation for more advanced study (Shields & Rangarajan, 2013). Ultimately, waste and recycling program administrators want to know what programmatic elements, including outreach terms, result in the most organic material diverted from landfills. Research indicates that convenience and norm messaging work well for communities. However, given the variety of terminology for organic waste and the lack of research in this field, administrators first need to know simply what terms jurisdictions currently use, so that they can start to build a common language and norm messages.

Institutional Review Board (IRB) - No review needed

Before distributing the survey, I contacted California State University Sacramento’s Institutional Review Board contact to determine if this project needed an IRB review. Since this research evaluates programs and not human subjects, an IRB review was not needed.

Survey details

The survey contained 8 sections. Section 1 asked for jurisdiction identification information. Section 2 was a screener section and asked respondents if their jurisdiction

administers a residential organics recycling program. If yes, respondents moved to Section 3 which asked for residential organics recycling program details, including what materials are accepted, how they are processed, and what terms are used in public facing education and outreach materials. If no, respondents moved to Section 5 which was a commercial organics recycling screening question. In between Section 3 and 5, Section 4 asked if residential educational materials are distributed in multiple languages, and if so what languages. If respondents also administer a commercial organics recycling program, they move to Section 6 where they are prompted to fill out the same programmatic details as the residential section. Section 7 similarly asked if commercial educational materials are distributed in multiple languages. Section 8 ended the survey with an open-ended comment area for respondents to include any other additional information.

Table 1 below a list of organics recycling terms that jurisdictions were prompted to select. They could choose as many terms as applicable to their programs. Generally, these terms could be divided into 4 main categories based on material type. In total, there were 22 different organics recycling terms.

- Organics – these are general terms that include all vegetative material that can be composted including food, yard debris, and food-soiled paper
- Food – these are terms associated with compostable food
- Yard – these are terms associated with vegetative material often generated from resident’s yards. This includes lawn and leaf clippings, grass clippings, tree branches, etc.
- Paper – these are terms used to describe compostable paper products

Table 1 List of Organics Recycling Terms

List of Organics Recycling Terms			
General organics	Food	Yard	Food-soiled paper
Organics	Food	Yard waste	Paper
Organic waste	Food waste	Green waste	Food-soiled paper
Organics recycling	Food scraps	Yard trimmings	Food-soiled paper goods
Organics for composting	Food recycling	Yard debris	Soiled paper
Compost	All food	*Food and Yard waste	
Composting	Wasted food *Food and Yard waste		

*included in both categories

Survey distribution

My research collected data through an online survey made and distributed on Google Forms for waste and recycling program administrators to select what organics recycling terms they use in their community. To distribute this survey, I leveraged strong networks of waste and recycling industry professionals. First, I worked through the Solid Waste Recycling Association of North America (SWANA), which is an organization of more than 10,000 public and private sector members with 47 chapters within the United States, Canada, and the Caribbean (SWANA, 2023). Additionally, there are 22 states that have jurisdictional supported residential curbside

pickup or drop off programs to collect food scraps (Goldstein, 2021). I directly emailed every SWANA chapter president for states that have organics recycling programs to distribute to their chapter members. This survey was also posted on the SWANA open forum discussion board.

Several states with more active recycling industries have their own professional organizations, namely Oregon, Washington, and Colorado that I also directly contacted to ask if they would distribute my survey to their members. The Washington State Association of Recyclers (WSRA) and the Association of Oregon Recyclers (AOR) distributed my survey through their member newsletters, and Recycle Colorado posted the survey on their website.

Additionally, I leveraged my professional relationships locally in Northern California and in the Pacific Northwest to distribute my survey. I emailed former colleagues in the Pacific Northwest in King County to fill out my survey. In Northern California, I spoke to my colleagues in the Solid Waste Working Group (SSWG) and SWANA Gold Country Chapter to fill out my survey. I also reached out to the City of San Francisco and the City of New York through their generic “contact us” instructions, as the City of San Francisco has had a long-standing organics recycling program and New York’s curbside program is starting this spring.

V Findings

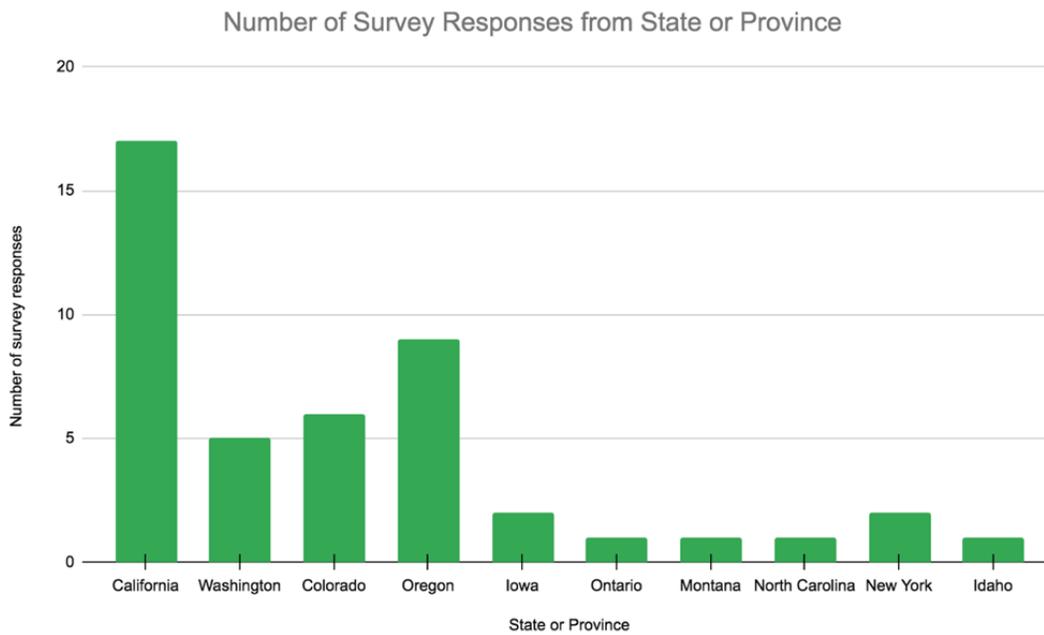
The following section discusses findings of the survey. This research primarily analyzes responses from jurisdictions that have curbside organics recycling programs that collect commingled yard debris and food scraps.

General responses

Overall, the survey received 50 submissions total, with 44 usable submissions. Submissions were deleted if they were duplicate, did not identify a jurisdiction, answered on behalf of multiple jurisdictions, or did not completely fill out the survey. Jurisdictions from nine

states (California, Oregon, Washington, Colorado, Montana, Iowa, Idaho, New York, North Carolina) and one Canadian province (Ontario) responded. Additionally, one university responded, and I included their submissions, as their organics recycling program and related education and outreach functions like a small city. I did not receive jurisdictional responses from every state that has a jurisdiction with an organics recycling program, and received most responses from California, Oregon, Washington, and Colorado.

Figure 3 Number of Survey Responses from State or Province



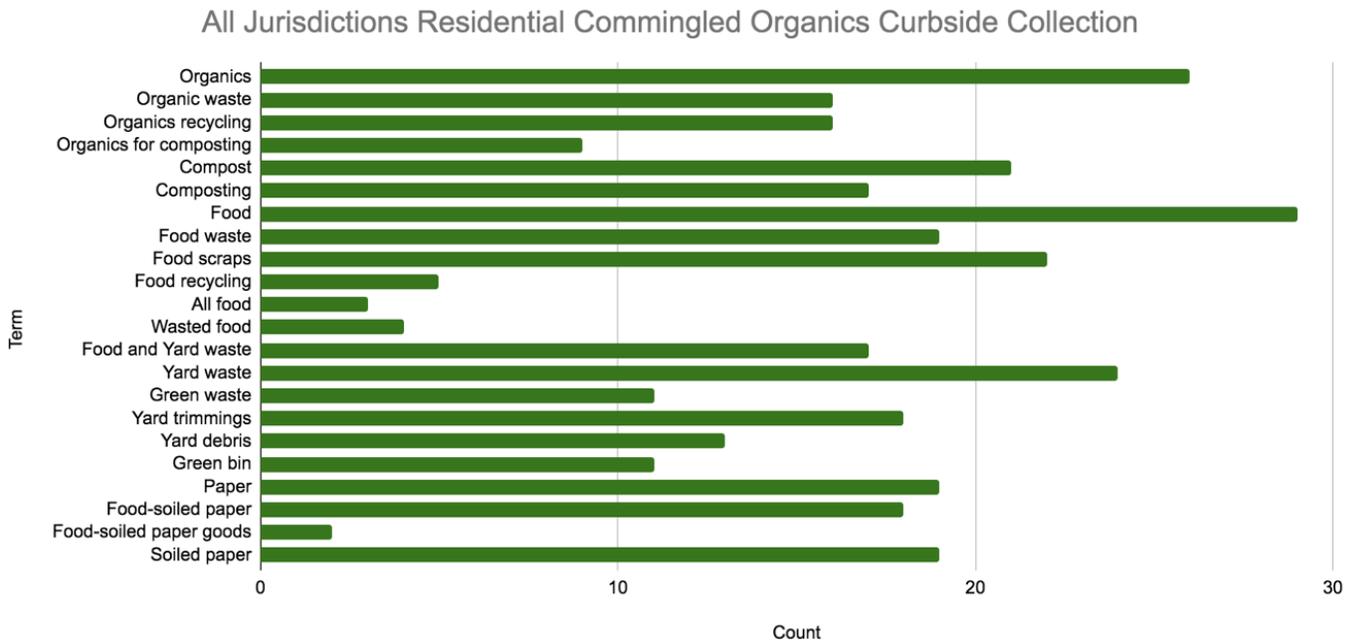
Residential organics recycling communications terms – frequency analysis

Overall, 41 of the 44 responding jurisdictions administer residential organics recycling programs. 31 of these jurisdictions administer curbside organics recycling programs that collect commingled yard debris, food scraps, and food soiled paper. I analyzed this group of 31 responses because the volume of responses and similarities in collection method, accepted materials, and collection sector which made this group comparable. Among these 31

jurisdictions, on average they selected 11 of the 22 possible terms for their programs.

Additionally, no jurisdiction submitted any additional terms that they use. Figure 4 below shows the total count of all terms used in residential commingled organics curbside collection programs, or the “frequency” in which these terms appear.

Figure 4 All Jurisdictions Residential Commingled Organics Curbside Collection



Among the residential program responses analyzed, there does not appear to be one term used more frequently than others. For example, in the General Organics category, while the term ‘organics’ appears the most, the subsequent terms ‘organic waste,’ ‘organics recycling,’ ‘compost,’ and ‘composting’ are also substantially used. Similar patterns appear in the Food category. The terms ‘food,’ ‘food waste,’ and ‘food scraps’ appear to be used at similar rates. In the Yard category, the term ‘yard waste’ is used the most, but all other terms are used at high rates, as well. Finally, in the Paper category, the terms ‘paper,’ ‘food-soiled paper,’ and ‘soiled

paper’ are used a near equal rates. Overall, this indicates that jurisdictions may use many of these terms interchangeably, which could lead to confusion and lack of program adoption.

Residential regional trends

To determine if there were any regional trends in residential comingled organics collection programs, I also analyzed the results by state. Results are included for four states, California, Colorado, Oregon, and Washington which make up 79% of the respondents in the residential results. Generally similar patterns appear across all states as the all-jurisdiction results, in that there are not dominant terms that emerge. However, there are slight regional differences. For example, in California the term ‘organics’ appears the most often, while in Colorado, Oregon, and Washington ‘organics’ does not appear any more frequently than some of the other general organics terms including the term ‘compost.’ Overall, there are not many strong regional trends, and jurisdictions across states use many or all of these terms. Figures 5, 6, 7, and 8 below show the regional results from California, Colorado, Oregon, and Washington.

Figure 5 California Residential Commingled Organics Curbside Collection

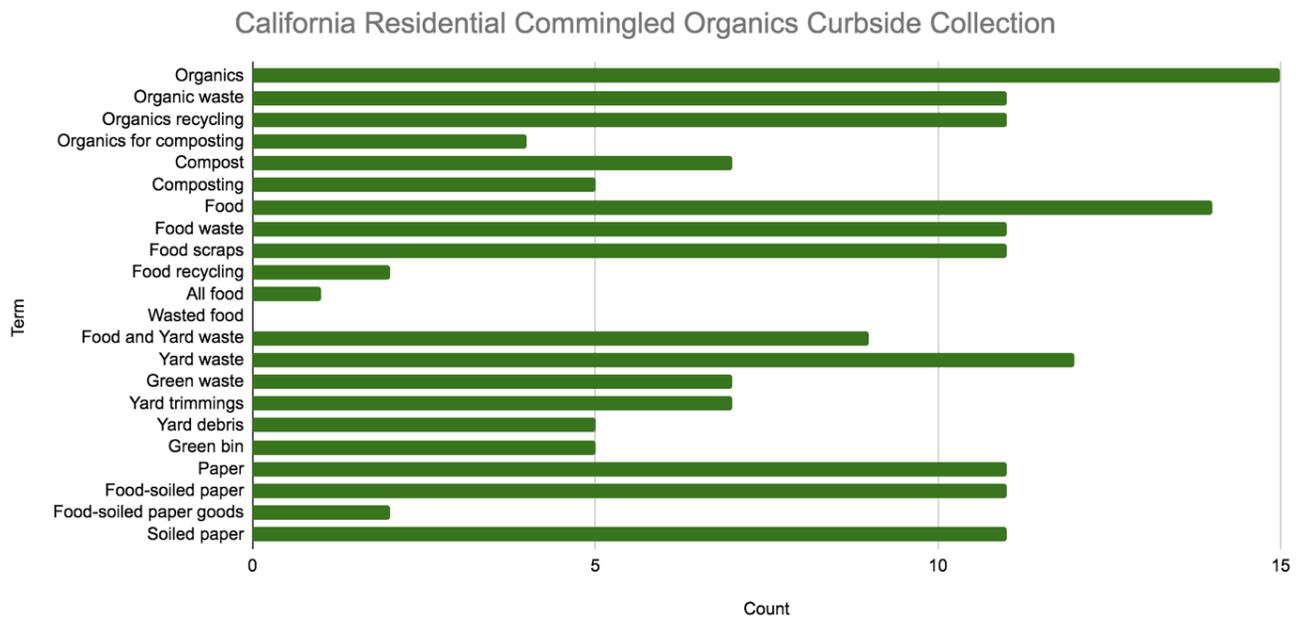


Figure 6 Colorado Residential Commingled Organics Curbside Collection

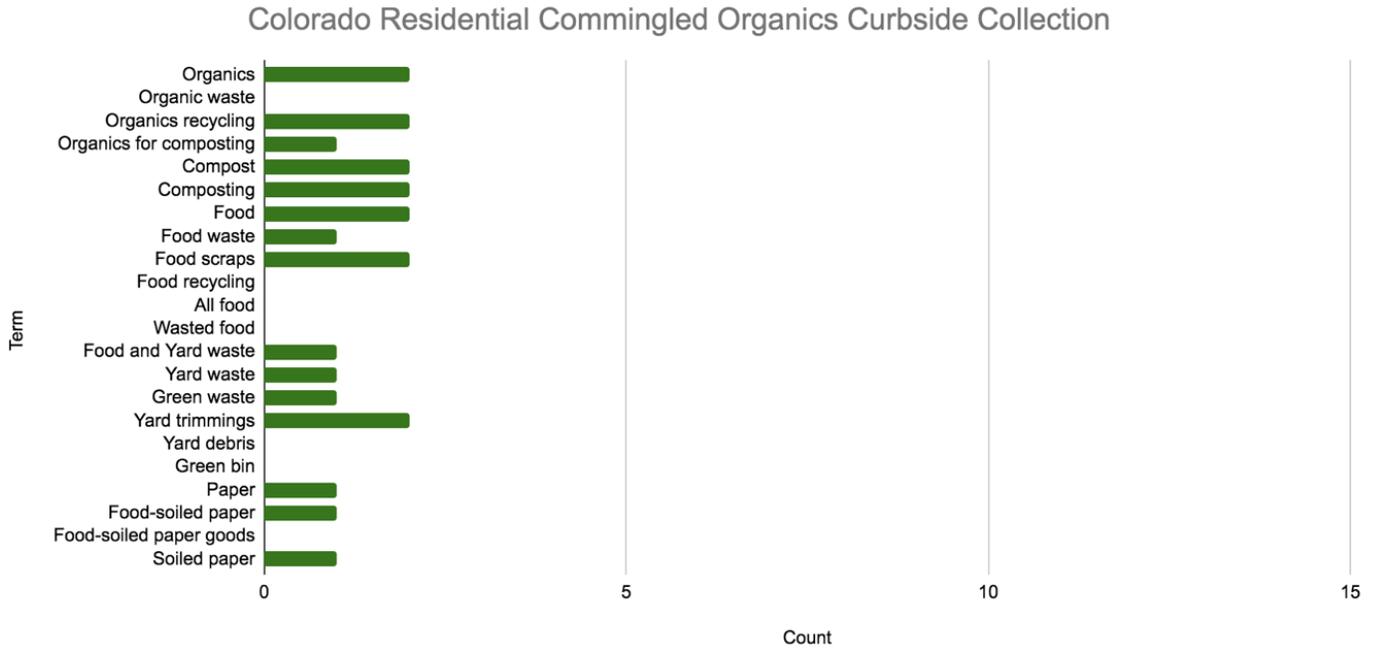


Figure 7 Oregon Residential Commingled Organics Curbside Collection

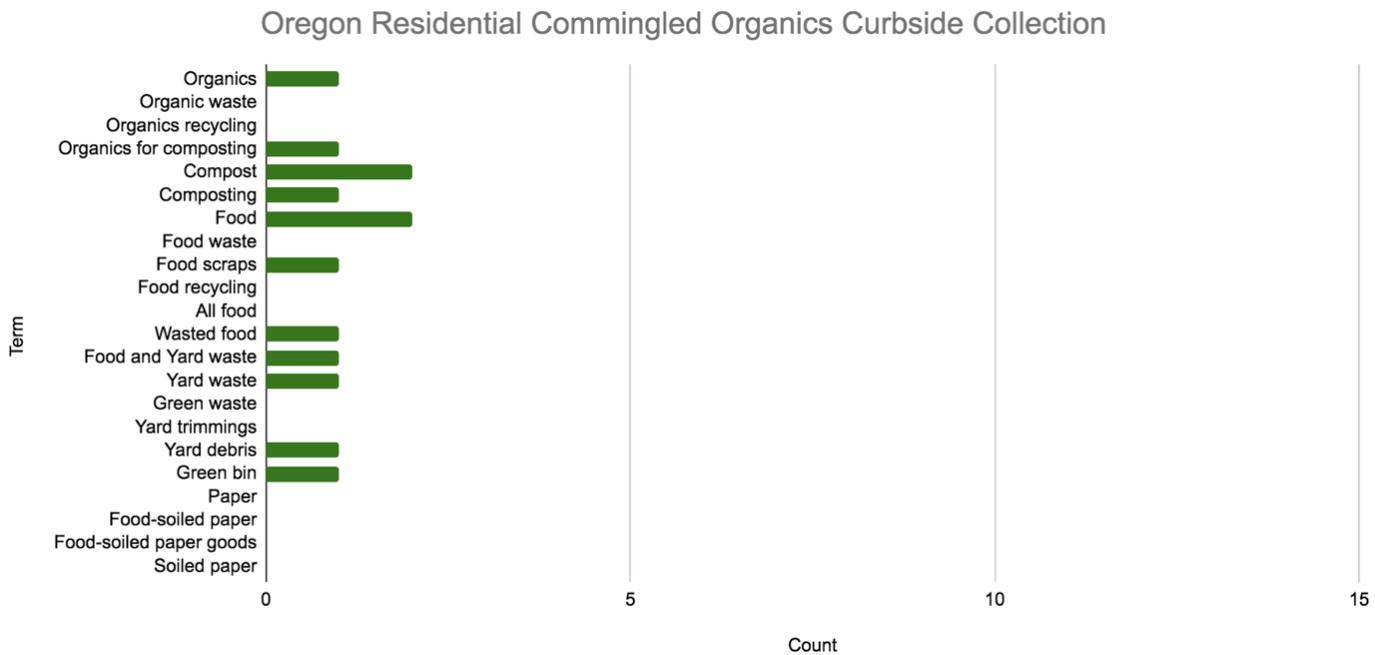
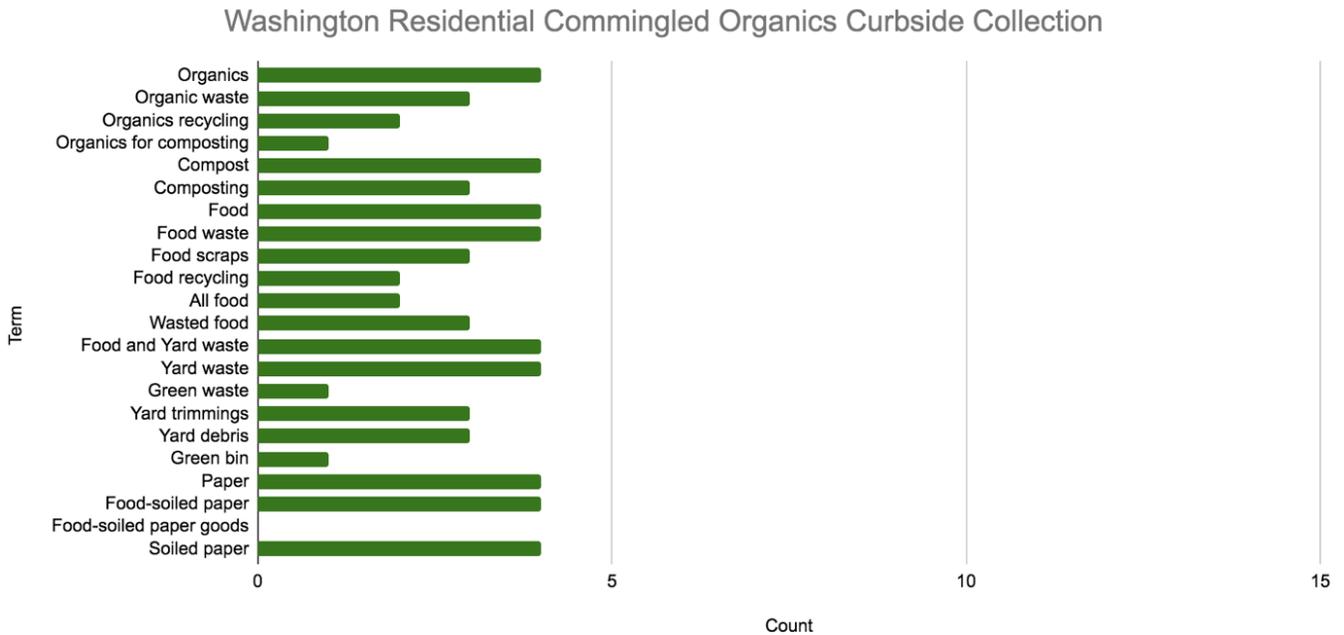


Figure 8 Washington Residential Commingled Organics Curbside Collection



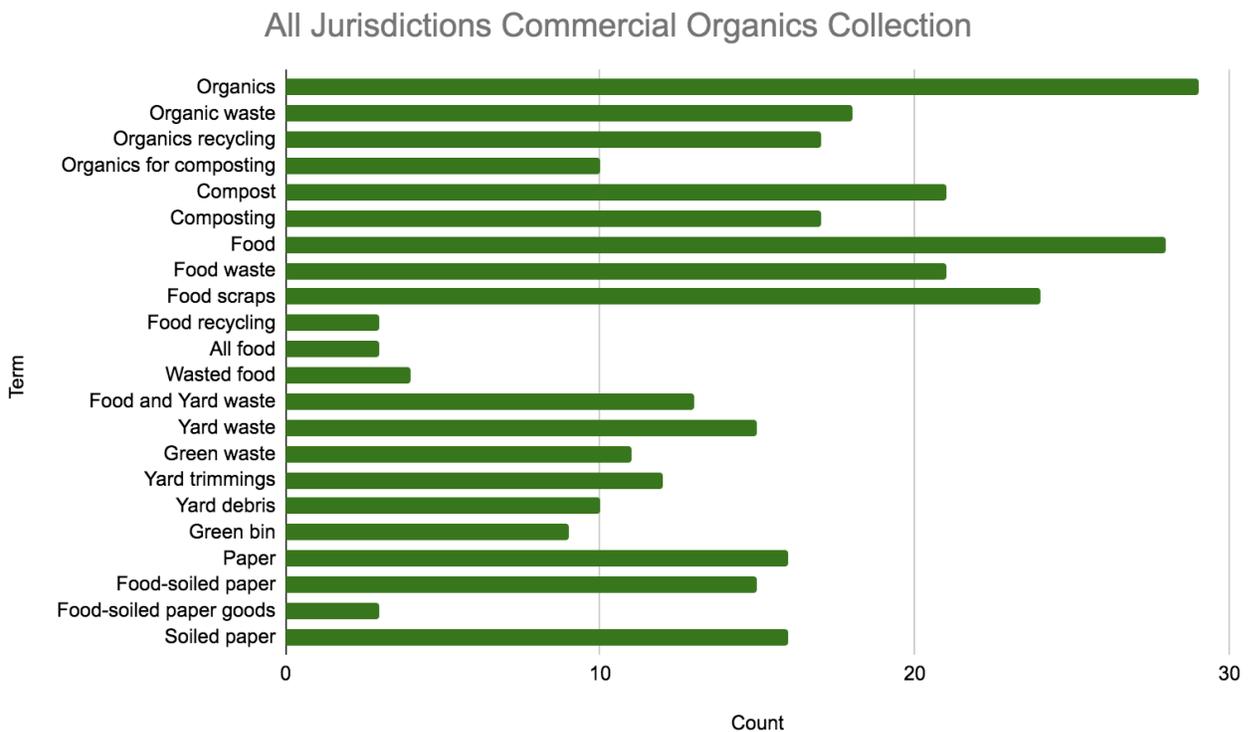
Commercial organics communications – frequency analysis

Overall, 36 of the responding jurisdictions administer commercial organics recycling programs. 30 of these programs operate commercial dumpster service, which is the equivalent to residential curbside collection but for the commercial sector. Most of these programs accept commingled food, yard waste, and food-soiled paper. However, some accept only food. All are included in this analysis because food is the primary organic material generated from many businesses, is the target organic material to divert landfills, and the collection method is the same. The remaining six jurisdictions administer commercial drop off programs for yard waste only and are not included in this analysis.

There are similar results among the commercial programs as the residential programs, in that there does not seem to be one term that is used most frequently in program communications. The term ‘organics’ is used the most in the General Organics category for commercial programs.

However, other terms are also significantly used. Similarly, the term ‘food’ is the most common, but is not used much more often than terms ‘food waste’ and ‘food scraps.’ The terms in the both the Yard category are used with near equal frequency. ‘Food-soiled paper’ and ‘soiled paper’ are also used almost equally.

Figure 9 All Jurisdictions Commercial Organics Collection



Commercial regional trends

The commercial program terms were also analyzed for regional trends. Similar to the residential state analysis, the organics recycling terms are used interchangeably across states, reflecting the aggregated results. It appears the California has some terms that appear the most often such as ‘organics’ and ‘food.’ However, it is striking that in Colorado, Oregon, and Washington, it appears that the responding jurisdictions selected multiple terms for each category.

Figure 10 California Commercial Organics Collection

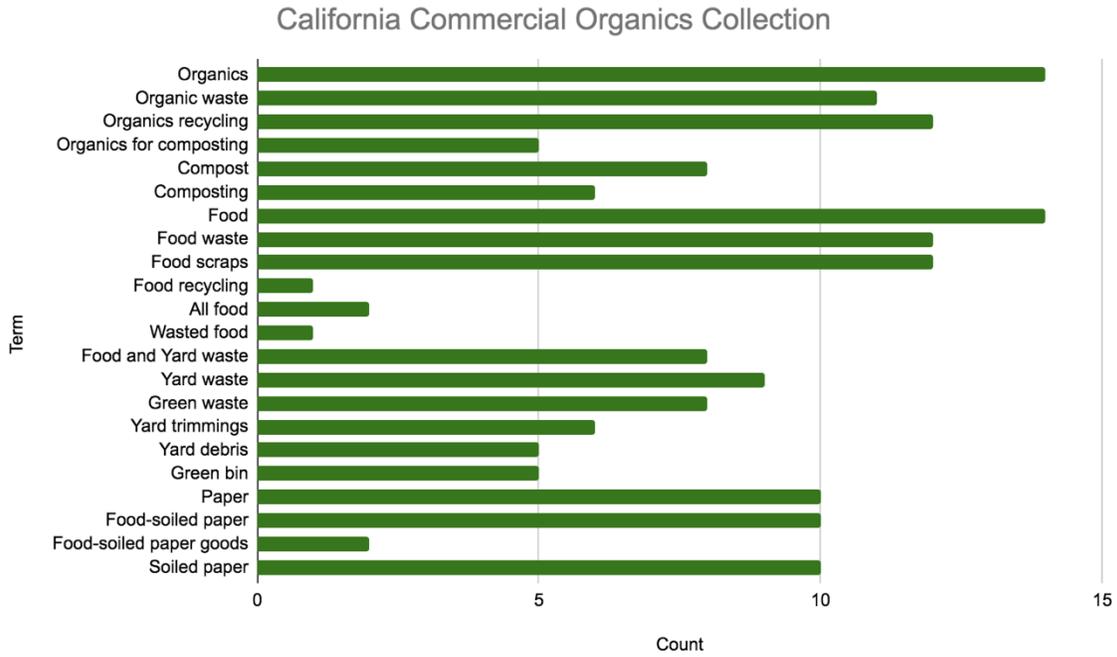


Figure 11 Colorado Commercial Organics Collection

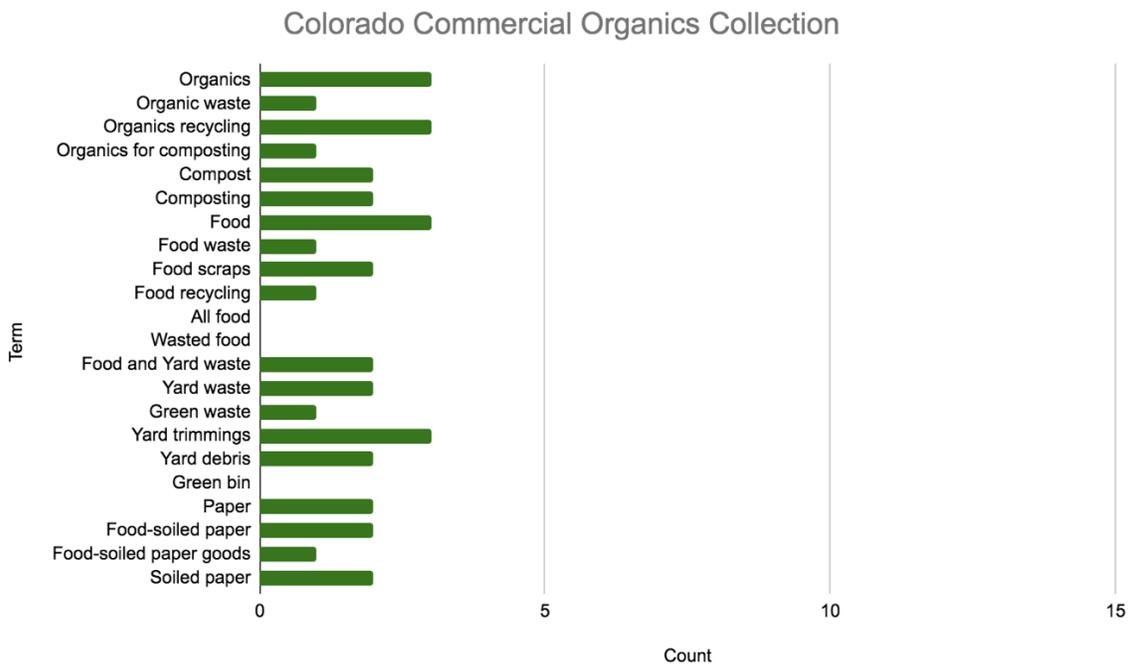


Figure 12 Oregon Commercial Organics Collection

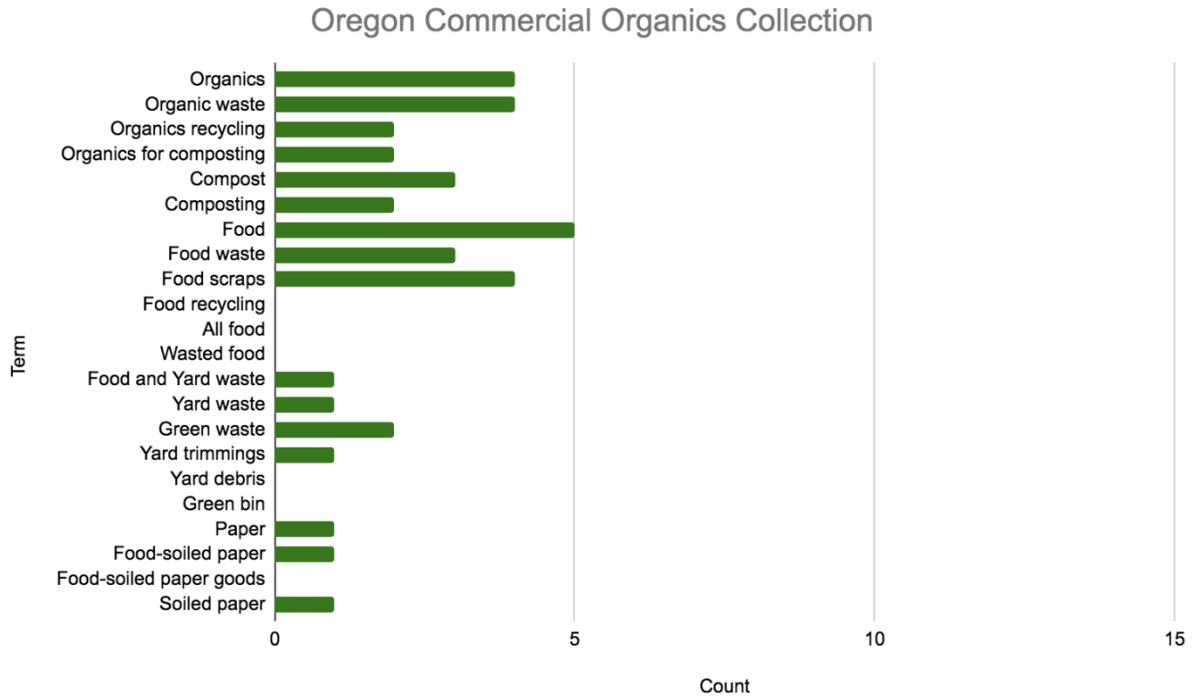
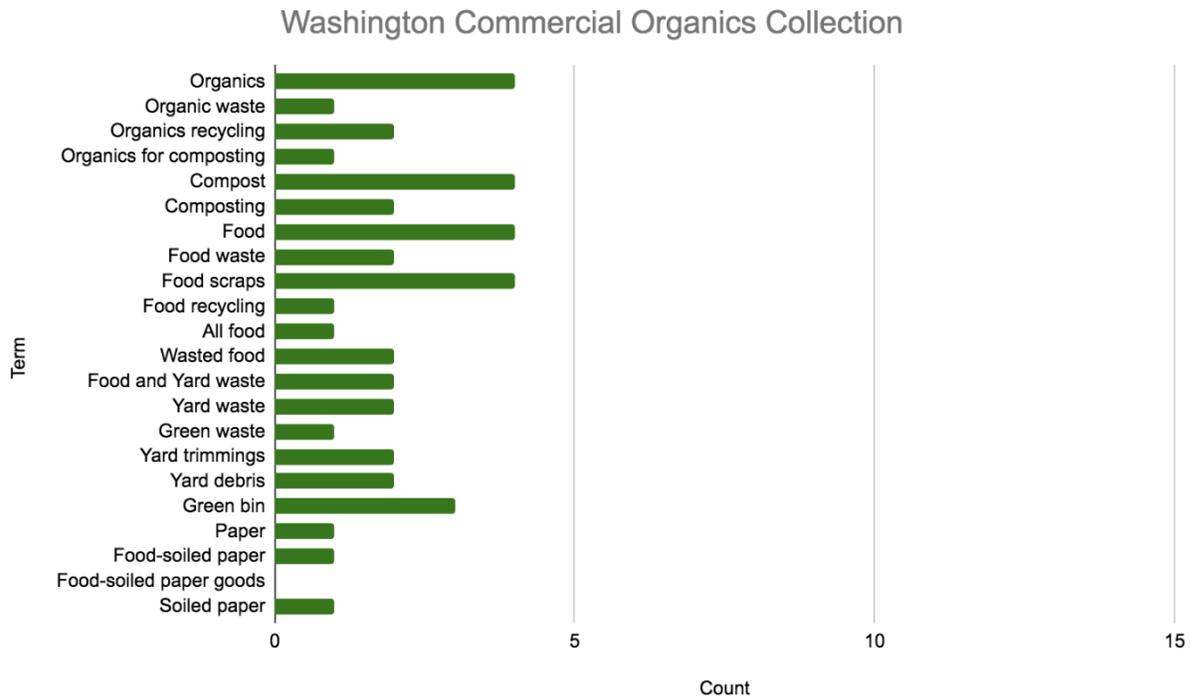


Figure 13 Washington Commercial Organics Collection



Diction distinctions

As noted earlier, jurisdictions on average selected 11 of 22 terms available. This indicates that terms may be used interchangeably. For example, the terms ‘organics’ and ‘compost’ appear to be used frequently and potentially they could be used to represent the same item – organic material placed in the curbside bin for pickup. Technically, this is inaccurate. Organics recycling programs collect ‘organics’ *to become* ‘compost.’ Compost is the end result, not what is placed in the bin. It can potentially be confusing if they if residents are instructed to put organics in their ‘compost bin’ or put ‘compost’ in their curbside bin. That said, the survey did not ask jurisdictions to clarify how the term compost is used in their program. Compost is an appropriate term to use when referring to compost.

Additionally, there is a key difference between the terms ‘food scraps’ and ‘food waste.’ Food scraps are unavoidable, undeniable, and a term that is fairly neutral in tone. People create food scraps when they discard inedible parts of fruits and vegetables while preparing meals. However, food waste is something that is avoidable and has a negative connotation. Residents who push back on organics recycling program adoption may claim that they “don’t waste food.” Mark Bowers, a retired solid waste programs division manager in western states says it best; “Without getting too deep into the psychology, my one solid conclusion was that we should never say the word “waste” in relation to food scraps diversion because some residents find it accusatory. I banned the “W” word from our written and verbal communications, both among staff and between the City and residents. We collect and recycle “food scraps.” We do not use the term, “food waste.” I continue to advocate for doing this everywhere.” Despite food scraps and food waste not being synonymous, survey results indicate that these terms are used at similar rates.

Additional languages

This survey also asked if jurisdiction administer their programs in languages other than English. 30 jurisdictions have organics recycling education material in multiple for their residential programs, with Spanish being the most commonly translated language. 26 jurisdictions offer commercial materials in multiple language, and Spanish is also the most commonly translated language. Notably, the City of Elk Grove, a suburb of Sacramento California offers organics recycling material in 20+ languages.

VI Limitations

The following section discusses limitations of my study.

Limited data

In 2019, it was estimated that there were 510 communities with organics recycling programs (Goldstein, 2021). With 44 usable responses, this survey captures a fraction of programmatic information that is available. Additionally, the survey responses are heavily weighted from California, Oregon, Washington, and Colorado, with most responses from California. This is primarily due to my professional networks being based in California, Oregon, and Washington, and Colorado being a very natural extension of my current colleagues. More information from a wider variety geographical spread of jurisdictions is needed. Furthermore, with California's mandatory organics diversion law SB 1383 (Lara, 2016) that went into effect in 2022, theoretically every jurisdiction in California should have started their organics recycling program. This means that there is a lot more data available than what is currently available.

Curbside collection program analysis only

Additionally, this research captures information from curbside organic waste collection programs only. It is important to recognize that there are many communities that do not have access to curbside waste collection. Curbside waste collection is more common in urban and

suburban communities, while rural communities more often use drop-off locations or self-haul their waste directly to facilities. While this research includes responses from communities who use drop-locations for their organic material, there were not enough responses to do any meaningful analysis. Additionally, rural communities use more home composting methods, animals, or burning of organic waste to process this type of material. Rural community composting and management of organic waste warrants its own tailored research.

English terminology only

This study only categorizes outreach terminology, and not the other tenants of education and outreach such as using pictures and colors. When designing future studies to identify effective organics recycling outreach, researchers cannot discount these other programmatic elements which can also help communicate messages. Understanding the impacts of color, pictures, and multiple languages also warrants additional research, as it is possible that a successful curbside organics recycling program may not use common programmatic terms but instead use of pictures, colors, and additional languages. Additionally, I am curious if other languages have the same organics recycling jargon problem as English does.

VII Recommendations

The following section discusses recommendations for waste and recycling program administrators that are administering organics recycling programs.

Develop an organics recycling language for your program

There are a wide variety of terms to use for organics recycling communications, and many are used interchangeably. To effectively communicate to your community about organics recycling programs, start by narrowing the terms used in communications materials and be consistent. I recommend choosing one main term for each category of material and use the term

‘organics’ as a catch all term that encompasses both food and lawn materials. The residential survey results show that the terms ‘organics,’ ‘food,’ and ‘yard waste’ are used the most often. The City of Seattle and the Responsible Recycling Task Force highlight consistency as an important strategy to reduce program confusion.

Additionally, avoid the term ‘waste’ whenever possible, especially the term ‘food waste’ as it carries a negative connotation. Alternatives to the term ‘food waste’ are ‘food scraps’ or just ‘food.’ However, if jurisdictions really need to speak to wasted food, they can try ‘inedible food,” or “uneaten food.” While the term ‘yard waste’ is more neutral in tone and commonly used, there are many other terms that can be used without the word waste such as “yard trimmings.” Most importantly, avoiding the term ‘waste’ speaks to the ethos of recycling programs, which recognizes discarded materials not as waste, but as resources. Avoiding this term is a subtle but important language shift.

Last, in your program’s organics recycling language, it is important to be technically correct to avoid confusion. A common pitfall is using the term ‘compost’ to refer to the organics placed in the curbside bin for collection. Compost is the result of the composting process, not the discarded material that comes out of kitchens and yards. Additionally, the curbside collection container is not a ‘compost bin,’ as the bin itself does not do any composting. It is important for communities to start to understand the organics cycle and transformation of food and yard material into compost, a valuable soil amendment. Building this understanding starts with program administrators using these terms accurately.

Use CBSM techniques

Once a common organics recycling language is set, use this language to build normative messages. CBSM social psychological research shows that normative messages are a powerful

technique to increase program adoption and decrease participation drop-offs. An example of a normative message is “Folsom puts organics in their place.” Additionally, consider other barriers to organics recycling such as collection infrastructure. Program adoption increases when a normative message is paired with supportive infrastructure, such as curbside carts. However, if a curbside collection program isn’t available, normative messages could still be channeled with any collection infrastructure is in place such as food scrap drop offs.

Consider other communication tenants

Consider other components of communication such as color, labels, and image heavy communication materials. This survey did not inquire about cart color or colors used to represent organics. However, the Recycling Association of Minnesota survey collected this information and identified that green is the most common color used (Walsh, 2019). Additionally, California’s mandatory organics diversion law SB 1383 (Lara, 2016) established mandatory waste container colors; green for organics, blue for traditional recyclables, and gray for waste that is not organic or recyclable (Collection systems, standardized container colors, and labeling, 2023).

Also, consider using multiple languages in outreach materials. If using images, considering using cultural relevant images or transcreation of materials. Expanding languages and imagery makes programs more inclusive and accessible.

Consider a regional approach

Once you have identified what terms your jurisdiction will use, norm messages, colors, and images, consider expanding this consistency across the region. Urban and suburban areas will likely have many jurisdictions sharing borders which means that residents may interact with multiple solid waste systems. To decrease confusion, it makes sense to harmonize organics

recycling messages, and potential even create a regional organics recycling style guide. This is an effective approach already in place in King County Washington with the Responsible Recycling Task Force. Additionally, creating a regional style guide was the impetus for the Association of Minnesota Recyclers original organics recycling survey on this topic.

Expand research

Given the small amount of research in this area, research should be expanded. My survey only captured a handful of jurisdictions primarily from four states and the Recycling Association of Minnesota also received responses from limited geographically areas. Since organics diversion is now mandatory in California, it could be valuable to have a California only survey. Additionally, it could be interesting to expand this research to include universities and sports facilities. Universities and sports complexes function like small jurisdictions in the context of waste generation, collection, and recycling. They could also be great areas to pilot research studies.

VII Conclusion

Overall, there is a need to reduce organic material from landfills to decrease methane emissions, a potent green house. Many communities in the United States are already collecting yard debris for composting and are beginning to expand their organics recycling programs to include food. However, program administrators need to know how to best optimize their programs to divert the maximum amount of organic materials from landfills as possible.

Organics recycling program administration has a unique set of terms. This paper studied the frequency that these terms appear in jurisdictions' educational programs. Overall, the data indicate that many of these terms are used interchangeably, even though they are not always synonyms. This could ultimately lead to confusion and lack of program adoption. I recommend

organics recycling program administrators selectively choose terms, use them consistently, use them to develop norm messages, and if possible, use this harmonized language regionally. Ultimately, careful and thoughtful organics recycling program administration can lead to successful community wide program adoption and a reduction of methane emissions from landfills.

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