Overcoming the "Ick Factor"

Increasing Participation in Food Scrap Recycling in King County, WA

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Report to the
King County Solid Waste Division

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EXECUTIVE SUMMARY

The ick factor, a real or perceived fear of recycling food scraps, is cited as a barrier to participation for food scrap recycling by consumers. The objective of this study is twofold:

1. To determine what the specific concerns are that people have about food scrap recycling – what really makes up the ick factor?
2. To analyze which methods, policies and/or programs of encouraging food scrap recycling might help people overcome the ick factor.

A survey was conducted in three communities throughout King County in Washington State (Bellevue, Maple Valley, and Shoreline) that asked to what extent people agree, disagree, or have no opinion on specific concerns often heard in discussions about food scrap recycling. Depending on their previous experience with food scrap recycling, survey respondents were broken down into two categories: Nonparticipants, those who had no experience with food scrap recycling, and Participants, those who had recycled food scraps in their home.

Survey results showed that a higher percentage of Nonparticipants think food scrap recycling is icky, despite lack of experience, and that a higher percentage of Participants did not think food scrap recycling is icky. These results suggest that the ick factor dispels when people actually start to recycle food scraps, and that much of the ick factor is based on perception rather than reality.

In addition, all respondents, regardless of prior experience with food scrap recycling, had a high positive response to the following statements:

1. I would recycle food scraps if it lowered my garbage bill.
2. I would recycle food scraps if they were picked up weekly instead of every other week.
3. I would recycle food scraps if the city provided products cheaply or at cost to make food scrap recycling easier and less messy.

Based on these results, I recommend the following methods of increasing participation in food scrap recycling:

1. Make more information available
2. Make the link between recycling food scraps and lower garbage bills explicit
3. Consider weekly pickup of food scraps
4. Provide products cheaply or at cost to make food scrap recycling easier

INTRODUCTION

As landfill space becomes increasingly expensive and other methods of disposal of solid waste remain untenable,[1] diversion of more and more materials from the solid waste stream is becoming a much more attractive alternative. "Reduce, Reuse, Recycle" has become a familiar refrain in the United States as municipalities try to reduce the cost of solid waste disposal, and environmental groups try to change behaviors.

Different in intent from recycling and salvage drives conducted during both World Wars when materials used in the war effort were in great demand and in short supply (see Figure 1), recycling was re-introduced by the environmental movement of the 1970s. Starting with neighborhood drives to collect newspaper and aluminum cans, these efforts have expanded to include curbside collection of a wide range of materials in many parts of the United States and around the world. The most recent addition to recycling efforts has been the curbside collection of food waste, also known as food scraps, which is turned into compost.

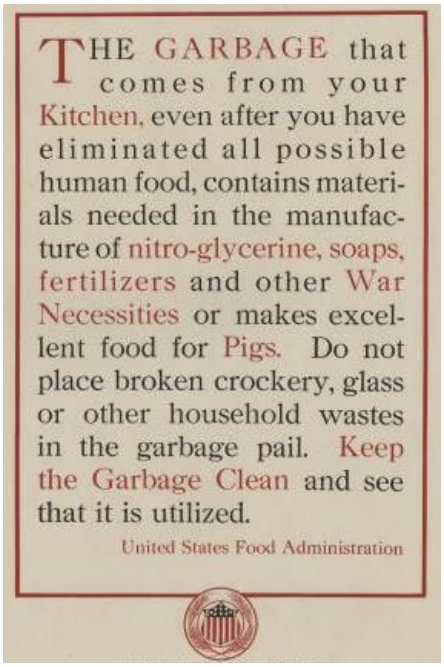

Figure 1. Food scrap recycling poster from WWI , ca. 1917-1919. Source: Ohio Historical Society. http://ohsweb.ohiohistory.org

Food scrap recycling is a relatively new trend in the United States, even in the "Ecotopia" of the Pacific Northwest. Several European countries, short on landfill space and big on reducing solid waste, have been composting food scraps for several years.

The 37 cities and the unincorporated areas of King County, Washington, with a population of over 1.8 million,[2] produce almost one million tons of solid waste every year.[3] Waste characterization studies done in King County have found that up to 35% of all garbage is recyclable food scraps and food soiled paper, as seen in Appendix A. Several Cities in King County began offering residential food scrap collection in 2002, and by mid 2008, over 85% of single family garbage customers in King County had the service available to them (see Appendix B for areas offering curbside collection of food scraps). With the collection infrastructure nearly complete, participation by residents remains a challenge. It is estimated that participation ranges between about 5 – 20% among residents in King County, depending on the jurisdiction and how participation is measured.[4] As recycling becomes more and more important, municipalities are looking for ways to increase participation rates and reduce barriers – perceived or otherwise – to food scrap recycling.

A major barrier to participation in food scrap recycling is the "ick factor," a real or perceived fear of recycling food scraps. This paper teases out specific elements of the ick factor, and examines policies and programs that will help people overcome it and become participants in King County's food waste recycling program.

STATEMENT OF PURPOSE

The purpose of this paper is straightforward: what are the specific concerns that people have about food scrap recycling – what really makes up the ick factor? Is it a real distaste based on actual experience or just perceived ick based on assumptions? Which method(s) of encouraging food scrap recycling might help people overcome the ick factor? Finally, what policies and/or programs could King County and its partner cities implement to increase participation in food scrap recycling and help to reduce the amount of food scraps currently landfill-bound?

BACKGROUND

This section provides the context in which the food scrap recycling programs in King County are operating.

Solid Waste Disposal, Population Growth of King County

About two thirds of the commercial and residential waste generated in the cities and unincorporated areas of King County is collected by private hauling companies under contract to the cities, then transferred to one of the 10 transfer stations that serve all of King County.[5]

Figure 3. Source: King County Solid Waste, http://www.metrokc.gov/dnrp/measures/documents/pdf/0705ksG3swdCIPS.pdf

For another map of King County see Appendix C.

The final third is self-hauled directly by residents and businesses (also known as the "Mosquito Fleet") to the transfer stations. All garbage is then transported by county transfer trucks to the

Cedar Hills Regional Landfill, a 920 acre facility in Maple Valley, about twenty miles southeast of Seattle. All recycled materials are processed separately by privately owned recycling facilities.

The landfill is owned and operated by the King County Solid Waste Division (SWD), and is the only landfill operating in King County. It is currently projected to reach capacity and close in 2016. King County is currently evaluating options for extending the life of the landfill beyond 2016, and considering different waste disposal alternatives when closure becomes imminent.

Most of King County residents live in incorporated areas of the county, and customers of King County SWD produce about one million tons of solid waste each year.[6] SWD's service area currently has a population of about 1.28 million, or about 70 percent of the county's population, and is expected to grow significantly in the next thirty years. The population of King County is projected to grow from 1,737,074 in 2000 to 2,181,386 in 2030.[7] That's a population increase of over 25%, for an additional 444,352 residents in 30 years.

As landfill space becomes increasingly expensive and population grows, diversion of more and more materials from the solid waste stream has become a much more attractive alternative. "Reduce, Reuse, Recycle" has become a familiar refrain in the United States as municipalities try to reduce the cost of solid waste disposal, and environmental groups try to change public behaviors.

A quick note on terminology; with food recycling in its infancy, the most common term in the public realm is "food waste." There is, however, an ongoing effort by some in the solid waste, composting and recycling fields to change the term to "food scraps" to reflect the resources available in what is currently landfilled.

Zero Waste Communities

To this end, King County is a "Zero Waste" community, and has set a goal of zero waste by the year 2030.[11] In concrete terms, this means that of the one million tons of "stuff" sent to the landfill every year, the 750,000 tons that are reusable, resalable, or recyclable – 75 % – must be diverted from the landfill by 2030. And of that one million tons landfilled every year, 35% is made up of food scraps and food-soiled paper (like pizza boxes) that can be composted and used locally.[12]

"Zero Waste" takes recycling to another, more fundamental level. Recycling involves the re-use of a product already produced, and diverts it to be recycled rather than landfilled. Zero Waste involves change at all levels, from the production of goods to the consumer, and is a fundamental shift in thinking about the need for producing stuff. It also puts the onus on reducing waste on the producer level, rather than just the end consumer, and calls for "holding producers responsible for their products and packaging 'from cradle to cradle.'"[13]

METHODOLOGY

Three main sources of information were used for this report:

1. **Literature search** to determine the extent to which this particular issue has been formally addressed.
2. **Interviews** with several people involved with food scrap recycling about their experiences with the "ick factor" and best practices for addressing this problem.
3. **Survey** of residents in three communities within King County to tease out specifics around the ick factor and resistance to food scrap recycling attributed to the ick factor, and to evaluate the progression of persuasions to increase participation in food scrap recycling.

Literature Search

While the ick factor was mentioned in many reports as a reason cited for nonparticipation in food scrap recycling programs, I found no articles or studies that specifically addressed the problem. In addition, many of the studies done by municipalities were done "in-house" or contracted, and were rarely found in easily accessed forums. I was finally able to find in-house documents after conducting phone interviews, but most reports from other municipalities tested outreach and educational messages or addressed the larger issue of increasing participation, so were of limited value.

The magazine BioCycle was a valuable source for information that otherwise would be relegated to internal municipal files. Published by JG Press since 1960, it focuses exclusively on composting, organics recycling and renewable energy. The website for BioCycle can be found at www.jgpress.com.

Interviews

I conducted interviews with experts in the field in order to assess the current state of knowledge and research around the ick factor, and to determine which methods and programs municipalities are using to overcome it and increase participation in food scrap recycling. To that end, I spoke with Wendy Skony, City of Bellevue; John MacGillivray, City of Kirkland; Sarah Phillips, City of Lake Forest Park; Gerty Coville, King County Solid Waste Division; David McDonald, Seattle Public Utilities; Robin Plutchok, StopWaste.org of Alameda County, CA; Kevin Drew and Alexa Kielty, San Francisco Department of the Environment; and Nora Goldstein, BioCycle magazine.

Survey

Why a Survey?

I had initially considered conducting focus groups, but decided against it for budgetary reasons. Focus groups are a form of qualitative research in which a group of people (or more than one group) are asked their opinions regarding, in this case, the ick factor of food scrap recycling. These are conducted in a group setting and participants are free to interact with other group members. This is quite different from a survey, in which people give their opinions individually. Focus groups sometimes allow much more nuanced results than surveys usually do.

A survey would serve much the same purpose, to find out what specific concerns people have about food scrap recycling, and if these concerns are based on experience or just perceptions, and could be conducted for far less expense than a focus group.

Qualitative vs. Quantitative Survey

In defining the boundaries of this project we (Josh Marx at King County Solid Waste Division and I) realized early on that in order to obtain statistically valid results, i.e. results that could be extrapolated to the entire county, I would have to survey far more people than the scope of this project allowed.

We decided instead to concentrate on several representative groups. This meant choosing a qualitative survey rather than a quantitative survey whose results would have statistical validity. We wanted to know: what are the specific reasons that people give for not recycling food scraps? Are these opinions based on prior personal experience with food scrap recycling? Or are these assumptions based on what people think recycling food scraps is like without ever having tried it? The survey attempted to examine the various reasons that people say that food scrap recycling is "icky" and whether or not this description is based in fact or fiction.

The primary purpose of this report and of this survey is to learn more about residents' attitudes about food scrap recycling, and to determine to what extent that they are – or are not – based in reality. If the ick factor is based in fiction rather than fact, the hope is that once people have personal experience with food scrap recycling, the ick factor will fade away like so many unfounded assumptions have throughout time.

I focused on two main areas in the survey:

- What are the specific complaints about food scrap recycling – do people agree with them? Disagree?
- What methods, policies or programs increase could encourage people to participate in food scrap recycling?

See Appendix D for the survey.

Communities Surveyed

Three communities with food scrap recycling services around King County were chosen for surveys based on the demographic makeup of the area: urban, suburban, and rural.

Bellevue/urban is located on the east side of Seattle, and is a relatively new city. It is dominated by the tech industry, and its population is relatively affluent, white, and educated. The skyline is dominated by building cranes, and strawberry fields of twenty years ago are rapidly disappearing under the new office buildings and condominiums.

Shoreline/suburban is 15 miles north of downtown Seattle, and sits on the northern border of King County. Shoreline has slowly transformed into a bedroom community for Seattle, as it is

close to both major highways running north-south (I-5 and Highway 99), is a relatively easy commute into Seattle, and housing prices are lower than in Seattle.

Maple Valley/rural is about 25 miles southeast of Seattle, and is still quite very rural, with 2,617 people per square mile[14] (compared to 6,901 in Seattle[15]). New high density housing units are beginning to make inroads into farms and wooded areas, although the area still feels overwhelmingly pastoral.

Limitations of the Survey

As said above in "***Qualitative vs. Quantitative Survey,"*** because survey respondents were not randomly chosen, the results cannot be generalized to the county as a whole with statistical confidence. However, the respondents are representative of certain target groups in King County.

Because we were interested in incentives to change behavior around food scrap recycling rather than regulating behavior, we did not include any questions addressing the issue of mandatory food scrap recycling or a ban on food scraps in garbage.

Administration of the Survey

The survey was conducted in QFC grocery stores in the three communities described above. I chose to survey at QFC stores in part because King County had recently partnered with QFC stores in the county around food scrap recycling, and because I perceive QFC as a mid-demographic store. It's not as upscale as Whole Foods and Metropolitan Market, and not as utilitarian as Fred Meyer or Safeway. In addition, QFC had been quite generous in allowing volunteers to set up education about food scrap recycling inside the stores and I was hoping for the same generosity. (And got it.) I carried out the survey in grocery stores with the assumption that groceries are the common denominator for most households in King County. For the purposes of this study I assumed that everyone, save for those who shop exclusively on-line for groceries or have staff to perform this chore for them, goes to a grocery store for household supplies.

Figure 4. Survey takers in Maple Valley, WA.

I set up a card table with 11 x 17 versions of the flyer taped on all exposed sides of the table (see Appendix E for the flyer), food scrap recycling brochures and branded spatulas from King County that were given to every tenth survey participant.

I had initially planned to pre-screen residents

while recruiting for people to take the survey, and give the survey only to those who do not currently recycle their food scraps. I very quickly found that it was far more effective to recruit for participation in the survey and sort out the responses later into participants and non-participants than to pre-screen survey takers. To accommodate this shift in recruiting, the survey was changed slightly after the first round of the survey to include the question:

22. Do you currently recycle food scraps at your home (circle one)? Yes No

In addition, I first surveyed in Bellevue, which has changed significantly in the last few years. The density of the urban center has increased and many of the people I surveyed at the Bellevue site indicated that they lived in condominiums rather than single family homes. As there are few resources currently available for food scrap recycling for residents of multifamily homes, I added the following question in order to screen for these residents:

17A. Do you live in a multifamily home (condo, apartment, etc.) _or a single family home?_

In the event that the survey did not address specific concerns about food scrap recycling I also added an open-ended question at the end of the survey:

23. What can we do to improve food scrap recycling service in King County?

These changes were incorporated in time for the second survey site in Shoreline.

I tried out several messages for recruiting participants. The most effective phrase (and even drew a couple of initial "no" people back to the table, saying "I should because I do have an opinion about this…) was "We're working to improve the food scrap recycling program in King County and would love to get your opinion…" and then went from there with "and there's a drawing for a fabulous prize…" and "only takes a couple of minutes…"

Shoppers were recruited for the survey with the help of a drawing for a compost bucket and Biobags, compostable bags approved for use in food scrap recycling by the Cedar Grove composting facility and sold by QFC. Names and contact information were collected on paper kept completely separate from the survey to maintain anonymity, and the drawing was held on June 1, 2008.

I handed out the survey on clipboards and had up to three people at a time taking the survey. I noticed that it was far easier to recruit survey participants when there someone else was already taking the survey – somehow the presence of others added either an air of legitimacy or that the table was worth checking out. Whatever the reason, I found it far easier to recruit survey takers when I already had a couple of people standing by the table taking the survey.

I kept both my approach to recruitment and the signage for the table as generic as possible in order to avoid skewing people's responses. Recycling in the Seattle Metro area is definitely perceived as a "good," and I wanted survey-takers to respond with their <u>real</u> opinions, not just

those that either 1) make them look like "good environmentalists" or 2) give us the answer they think that King County wants.

Analyzing the Survey

Results from these surveys were analyzed using Excel 2007.

To make it easy to determine the administration site of the survey, the surveys from Bellevue were numbered 1 through 50, Shoreline 51 through 100, and Maple Valley 101 through 150. This also made it simpler to group the results in Excel and be able to run statistical analyses.

Questions 1 through 6, Getting Specific about the Ick Factor

The following six questions were used to determine attitudes towards food scrap recycling:

1. A food scrap container in the kitchen is too hard to keep clean.
2. A food scrap container in the kitchen smells bad.
3. Having a food scrap container in the kitchen might attract pests.
4. Having a curbside food scrap container in the yard might attract pests.
5. There's no room in my kitchen for a container for food scraps.
6. I prefer to put food scraps down the garbage disposal.

A five point Likard scale was used for questions 1 through 6:

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
1	**2**	**3**	**4**	**5**

As the number of people surveyed for this study is relatively small, I grouped responses 1 and 2 ("Strongly Agree" and "Agree") and 4 and 5 ("Disagree" and "Strongly Disagree") together for the purpose of analysis for these first six questions.

Sorting for Food Scrap Recyclers vs. Non Recyclers

Question 20 of the survey was designed to sort out people who had experience with food scrap recycling ("Participants") from those who did not have experience with food scrap recycling ("Nonparticipants"):

20. Have you participated in food scrap recycling at your home (circle one)? Yes No

The number of survey respondents ("n") is as follows:

City	Nonparticipants	Participants	TOTAL SURVEY RESPONDENTS
Bellevue	10	13	23
Maple Valley	13	21	34
Shoreline	15	31	46
TOTAL	**38**	**65**	**103**

SURVEY FINDINGS

Specific Concerns about Food Scrap Recycling, Questions 1-6

General Observations

Agreement for questions 1 through 6 (scores of 1 and 2) indicate a high ick factor, especially in questions 1 through 4. A higher percentage of Nonparticipants think food scrap recycling is icky compared to Participants, despite their lack of experience with food scrap recycling.

For a table summarizing the percentage of responses for each question and differences between Nonparticipants and Participants, please see Appendix F.

The differences in opinions about the details of food scrap recycling are particularly evident when comparing Nonparticipants vs. Participants, as can be seen in the Figure 5 and Figure 6 below. Nonparticipants had, for every question asked about the "ickiness" of food scrap recycling, substantially higher levels of agreement than Participants, despite their lack of personal experience with food scrap recycling: Figure 5 shows that for every question in 1-6, a much higher percentage of Nonparticipants thought that food scrap recycling is icky compared to Participants, shown in Figure 6.

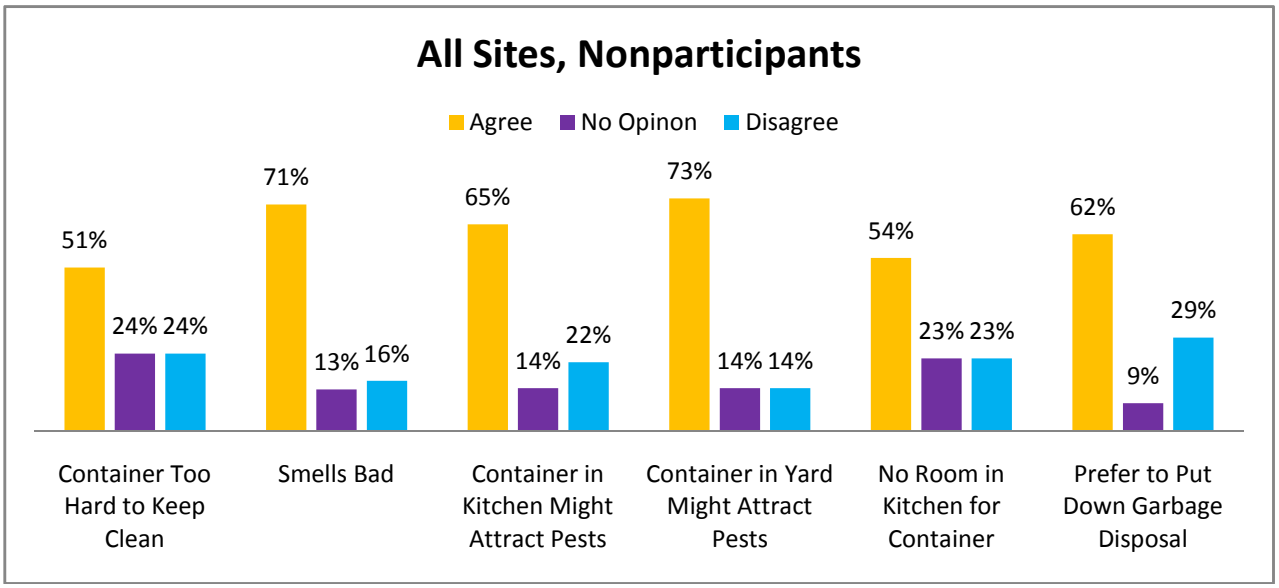

Figure 5. All sites, responses from Nonparticipants for questions 1 through 6.

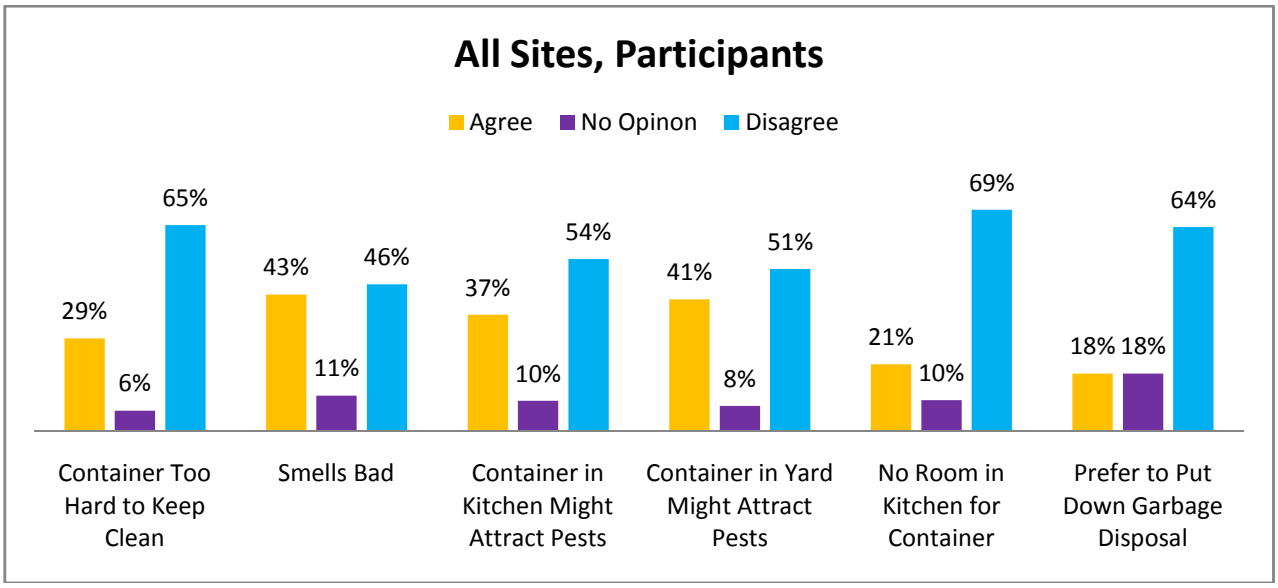

Figure 6. All sites, responses from Participants for questions 1 through 6.

Agreement Rates for Nonparticipants vs. Participants

This higher level of overall "ickiness" can be seen more clearly when the agreement rates for questions 1 through 6 are compared side by side in Figure 7 below. Many more Nonparticipants than Participants thought that the kitchen container was too hard to keep clean, that it smells bad, that both the kitchen container and the yard container would attract pests, that there's no room in the kitchen for a container for food scraps, and that they would prefer to just put food wastes down the garbage disposal.

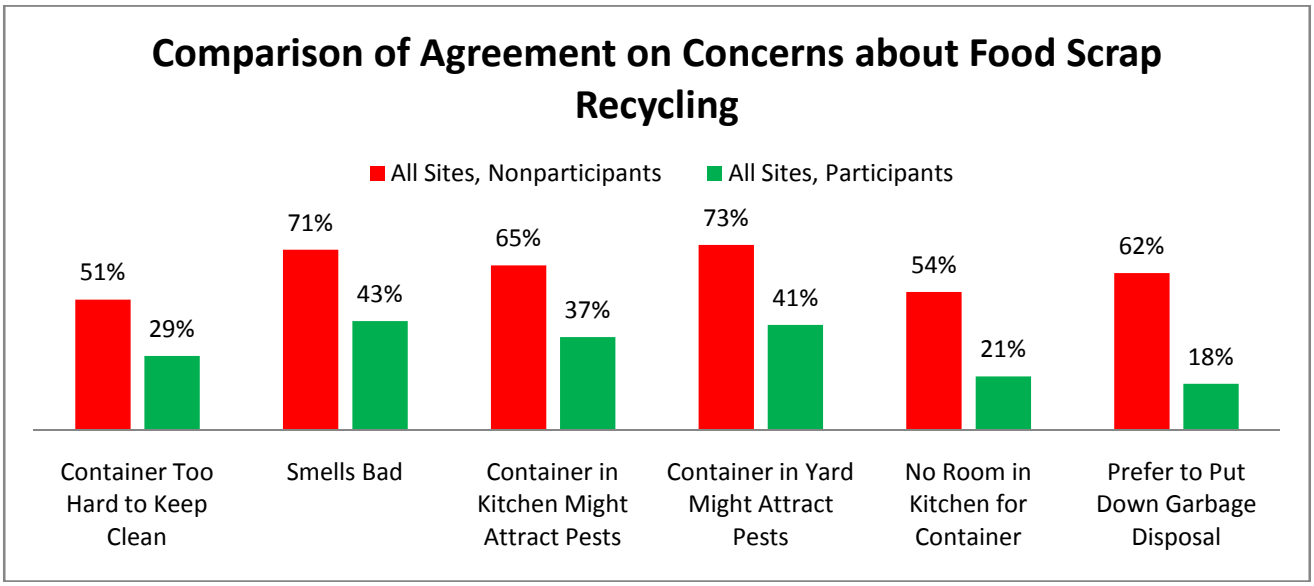

Figure 7. Comparison of rates of agreement between Nonparticipants and Participants. Note: the numbers will not add up to 100%, as "Disagree" and "No Opinion" are omitted from this graph.

Disagreement Rates for Nonparticipants vs. Participants

The different rates of disagreement for questions 1 through 6 are even more striking when the disagreement rates are compared side by side in Figure 8 below. Participants disagreed strongly when compared to Nonparticipants about the ickiness of food scrap recycling: Participants disagreed that the kitchen container was too hard to keep clean, that it smells bad, that both the kitchen container and the yard container would attract pests, that there's no room in the kitchen for a container for food scraps, and that they would prefer to put food wastes down the garbage disposal.

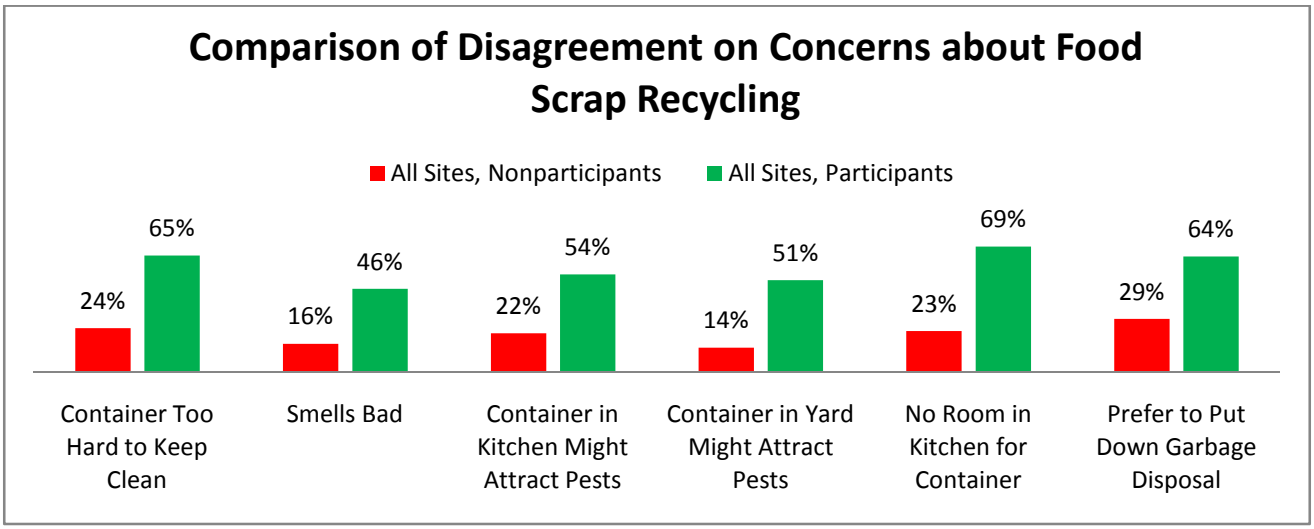

Figure 8. Comparison of rates of disagreement between Nonparticipants and Participants. Note: the numbers will not add up to 100%, as "No Opinion" is omitted from this graph.

No Opinion

While the different "No Opinion" rates between Nonparticipants and Participants are not as striking, they do confirm that a lack of familiarity with food scrap recycling has a marked impact on opinions regarding complaints commonly heard about various elements of the ick factor. These responses are summarized in Figure 9 below.

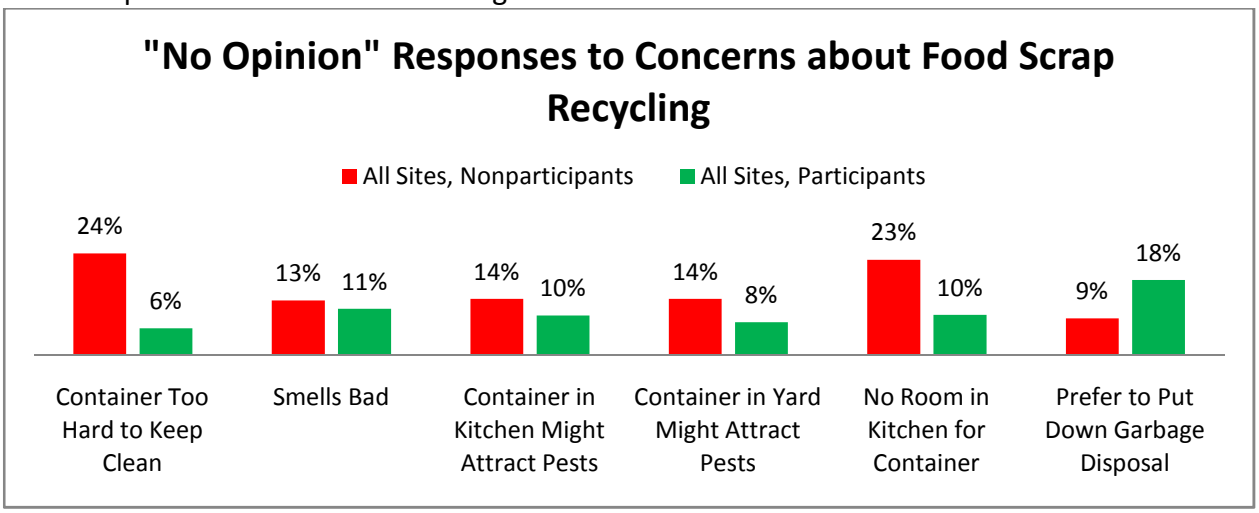

Figure 9. "No Opinion" Responses to Complaints about Food Scrap Recycling. Note: the numbers will not add up to 100%, as "Agree" and "Disagree" are omitted from this graph.

1. A food scrap container in the kitchen is too hard to keep clean

Over half of Nonparticipants, 51% (see Figure 10), agreed that a food scrap container is too hard to keep clean, compared to less than 30% of Participants (see Figure 11), a substantial difference. The rate of disagreement with this question is more pronounced, with only 24% of Nonparticipants disagreeing, and 65% of Participants, a 41% difference. In addition, 42% of Participants "Strongly Disagree" with this statement, vs. none of the Nonparticipants. "No Opinion" has a substantial difference as well, with 24% of Nonparticipants vs. 6% of Participants, a difference of 18%.

These differences in opinions point out that concern about keeping the food scrap container clean is dispelled in a strong majority of those who have had experience recycling food scraps at home.

"A food scrap container in the kitchen is too hard to keep clean"

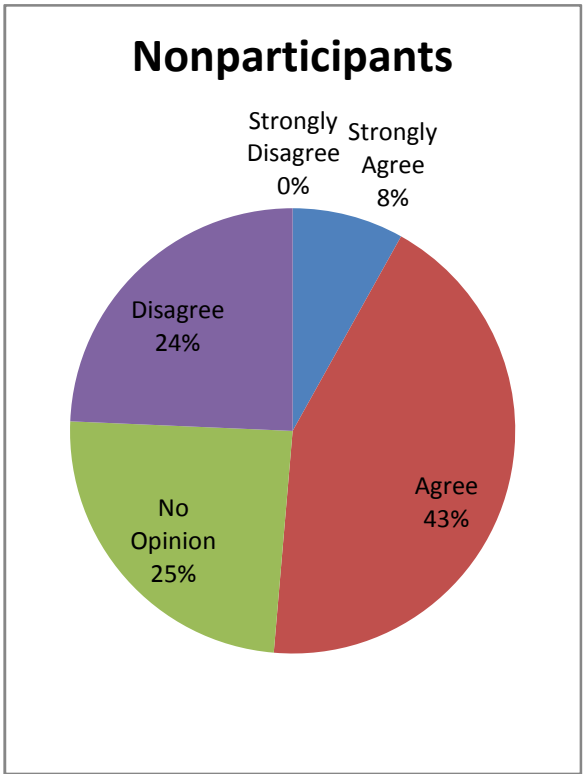

Figure 10. Breakdown of Nonparticipants' responses to question 1, "A food scrap container in the kichen is too hard to keep clean."

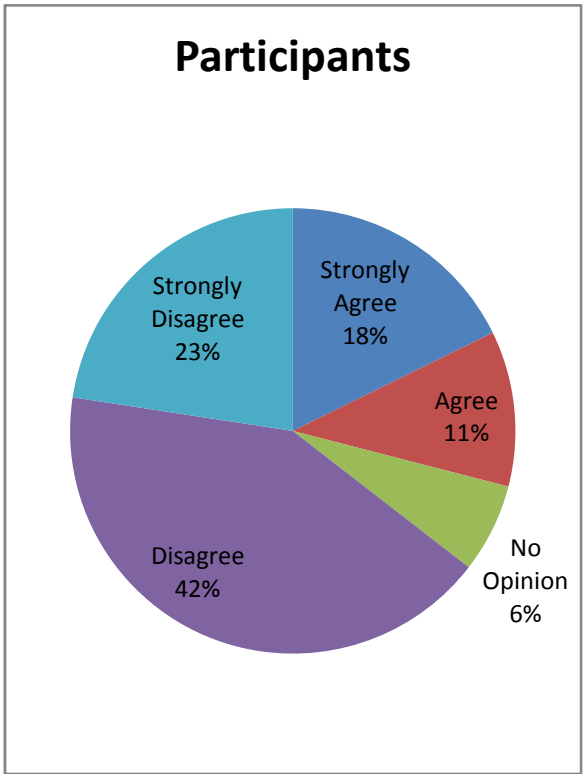

Figure 11. Breakdown of Participants' responses to question 1, "A food scrap container in the kichen is too hard to keep clean."

2. A food scrap container in the kitchen smells bad

A common response to the topic of food scrap recycling is often "I should recycle this stuff, I know, but I don't want to smell up my kitchen."[16] The responses to this survey question brought few surprises: over 70% of Nonparticipants (Figure 12) and over 40% of Participants (Figure 13) thought that a food scrap container in their kitchen would smell bad. Looking at the data more closely, however, shows that a much higher percentage of Participants disagree (46%) than do Nonparticipants – almost half of the people with experience recycling their food scraps do not think it smells bad. This again suggests that experience with food scrap recycling dispels much of this particular belief about the ick factor of food scrap recycling.

"A food scrap container in the kitchen smells bad"

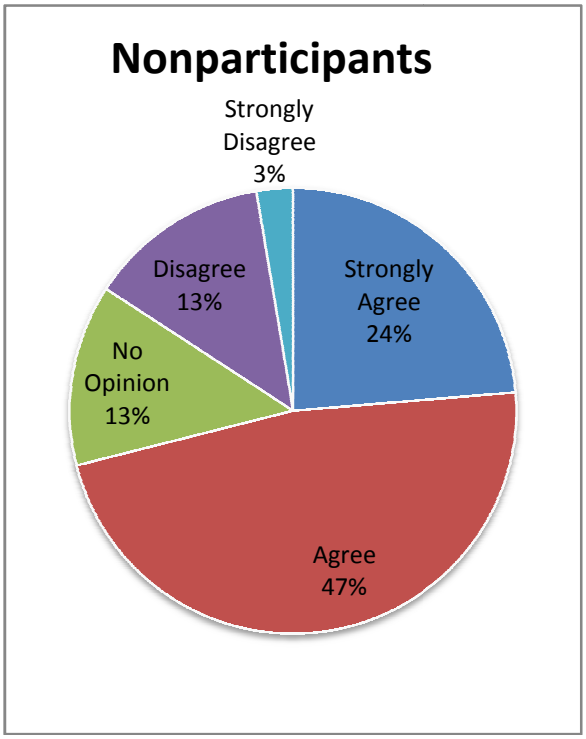

Figure 12. Breakdown of Nonparticipants' responses to question 2, "A food scrap container in the kitchen smells bad."

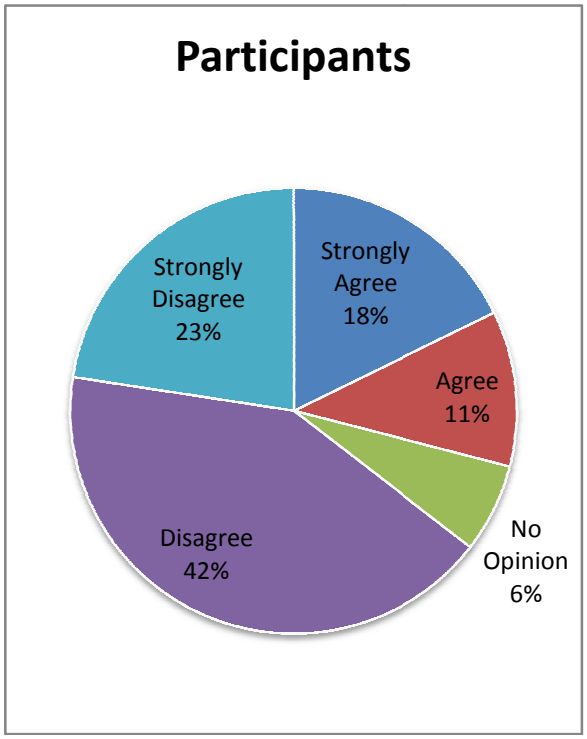

Figure 13. Breakdown of Participants' responses to question 1, "A food scrap container in the kitchen smells bad."

3. Having a food scrap container in the kitchen might attract pests

Findings from the previous two questions echo in the responses to this question. 65% of Nonparticipants and 37% of Participants thought that a food scrap container in the kitchen might attract pests," almost a 30 point difference. The rate of disagreement was more clearly defined, with 54% of Participants in disagreement vs. only 22% of Nonparticipants; based on their experience recycling food scraps, more than half of Participants do not think that the container in their kitchen might attract pests. The rates of "Strongly Disagree" to this question are only 8 points apart, however, a relatively small difference when compared to some of the responses to the other questions in this.

Again, personal experience with food scrap recycling appears to dispel concerns about this particular aspect of food scrap recycling.

"Having a food scrap container in the kitchen might attract pests"

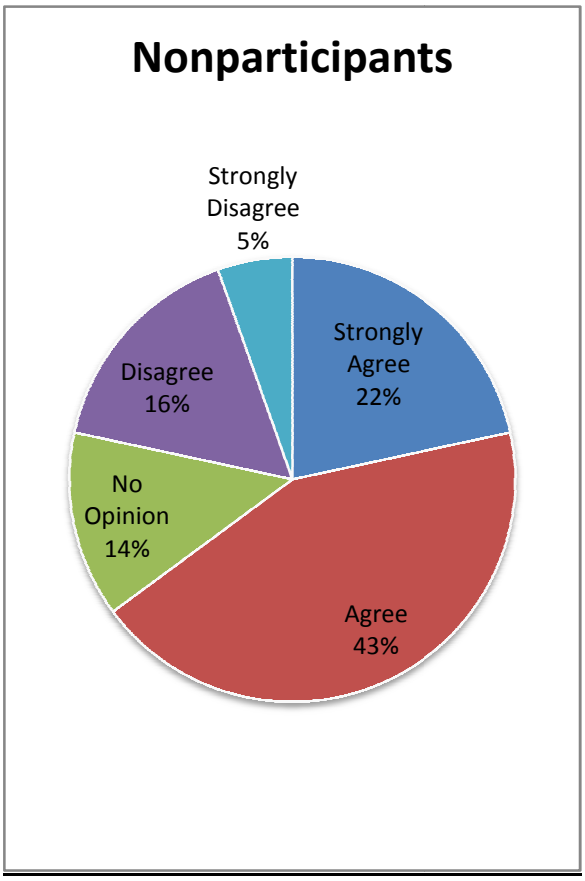

Figure 14. Breakdown of Nonparticipants' responses to question 3, "Having a food scrap container in the kitchen might attract pests."

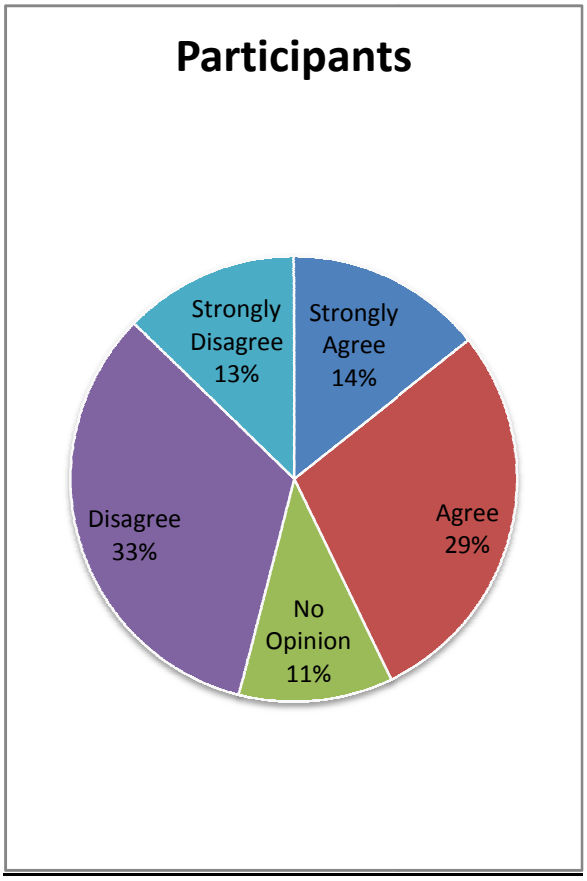

Figure 15. Breakdown of Nonparticipants' responses to question 3, "Having a food scrap container in the kitchen might attract pests."

4. Having a curbside food scrap container in the yard might attract pests

There was a very strong difference in opinion about this concern, with 73% of Nonparticipants and 41% of Participants saying that a curbside food scrap container in the yard might attract pests, a 32 point difference.

Breaking down these responses show that the rate of strong disagreement is very different – 21% of Participants strongly think that pests in the yard are not a problem compared to only 3% of Nonparticipants, as seen in Figure 16**Error! Reference source not found.** and Figure 17 below.

"Having a curbside food scrap container in the yard might attract pests"

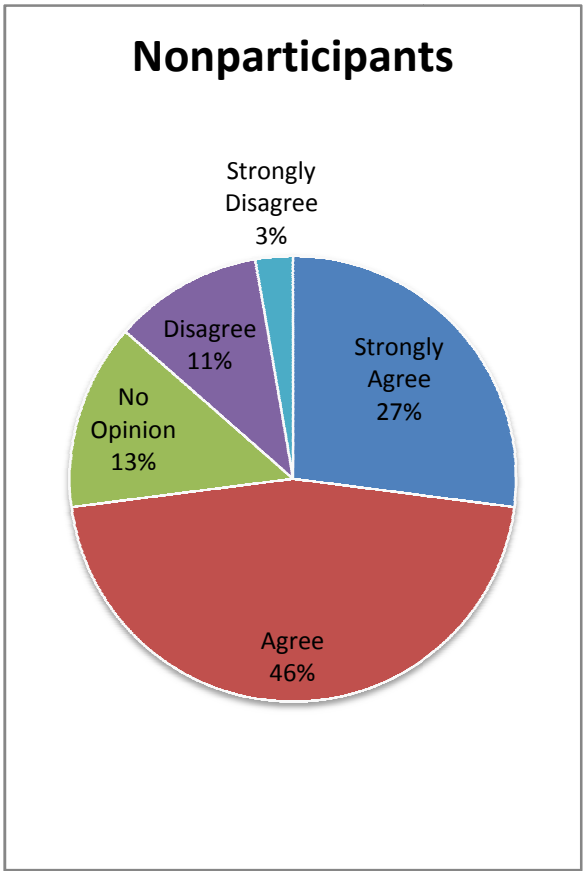

Figure 16. Breakdown of Nonparticipants' responses to question 4, "Having a curbside food scrap container in the yard might attract pests."

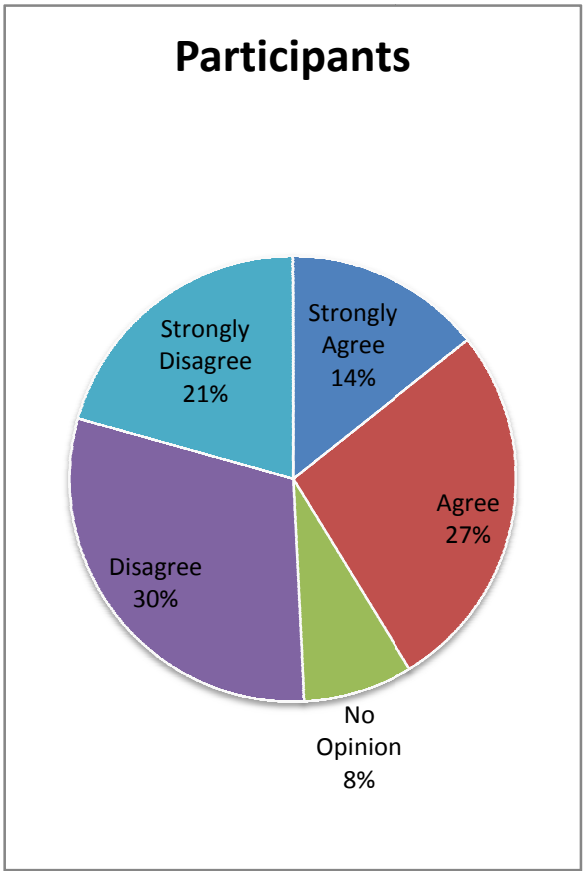

Figure 17. Breakdown of Participants' responses to question 4, "Having a curbside food scrap container in the yard might attract pests."

In the Puget Sound area "pests" in the yard can mean the usual suburban wildlife inhabitants like possums, raccoons and rats. In rural areas, however, this can be extended to include coyotes and bears, which are not deterred from yard waste bins as easily as smaller suburban wildlife. To see if there is a difference in opinion about this statement in rural vs. urban I ran

data for the suburban survey area, Shoreline, against a distinctly rural area, Maple Valley. Results can be seen in Figure 18 and Figure 19.[17] Because of the relatively small number of people in the sample size, I grouped Participants and Nonparticipants in order to analyze the data for rural vs. urban.

While most categories of response were quite similar, there is a strong difference of opinion concerning pests in the yard in the "Strongly Disagree" response – 27% of Shoreline respondents strongly disagreed with the statement "Having a curbside food scrap container in the yard might attract pests," while only 3% of Maple Valley respondents shared this response. This may indicate different experiences with wildlife around housing areas, with rural residents experiencing more interaction with wildlife than their suburban counterparts and more problems with animals raiding compost piles, garbage bins, and yard waste containers containing food scraps.

"Having a curbside food scrap container in the yard might attract pests"

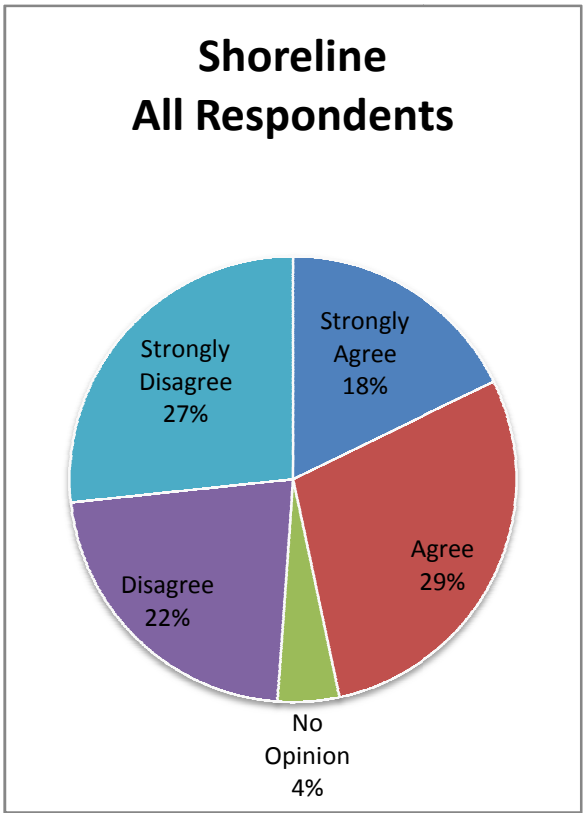

Figure 18. Response of suburban survey takers to the question "Having a curbside food scrap container in the yard might attract pests."

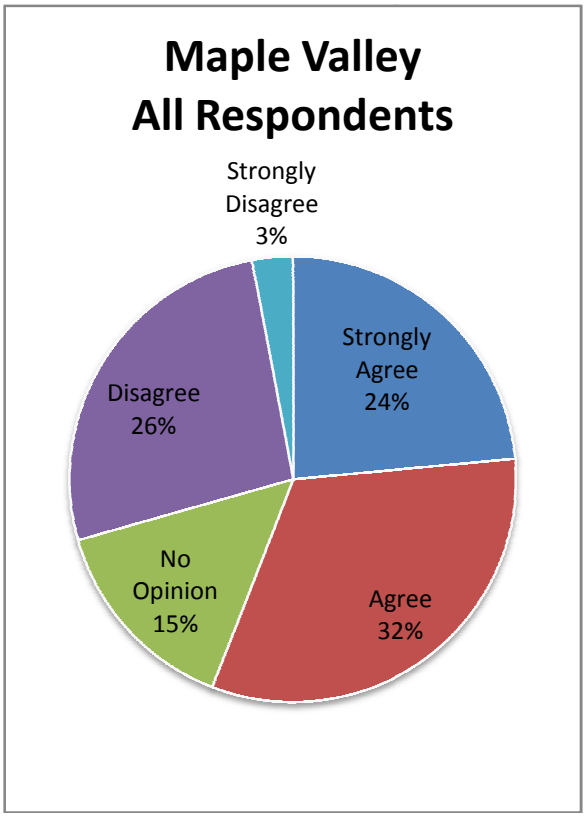

Figure 19. Response of rural survey takers to the question "Having a curbside food scrap container in the yard might attract pests.

5. There's no room in my kitchen for a container for food scraps

This question elicited the highest differences in responses second only to question 6 concerning the use of garbage disposals, as seen in Figure 20 and Figure 21 below. Nonparticipants did not think that there's room in their kitchen for a container for food scraps over the half of the time compared to only 21% of Participants. The rate of disagreement with this statement is even higher – only 23% of Nonparticipants think that there's room for a container in their kitchen, compared to a definitive nearly 70% of Participants – a 46 point difference. Nonparticipants have a higher rate of "No Opinion," at 23% vs. only 10% for Participants.

Again, this strongly suggests that experience with recycling food scraps has had a very strong influence on the attitudes of this survey population, and that people adapt and adjust to issues that may come up when they recycle their food scraps, and that finding room in their kitchen is not a difficulty for those who have experience recycling food scraps.

"There's no room in my kitchen for a container for food scraps"

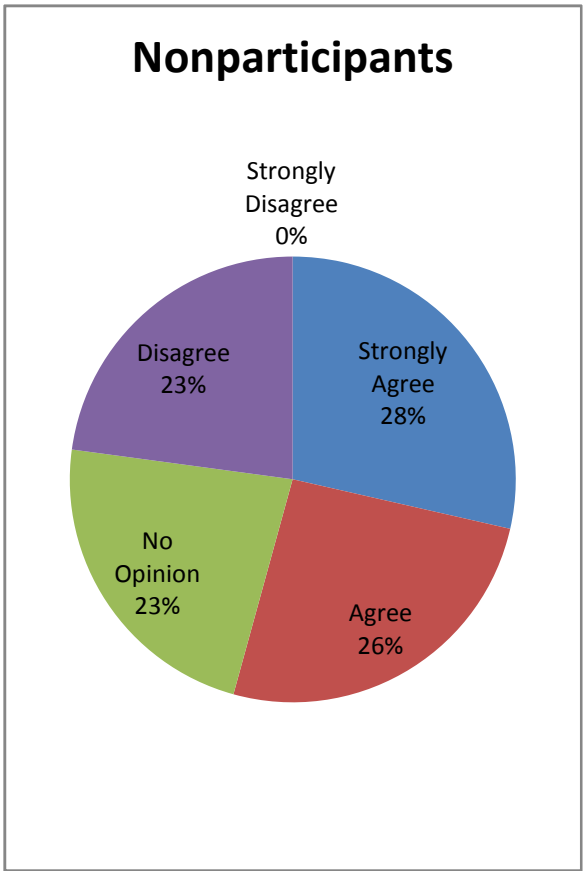

Figure 20. Breakdown of Nonparticipants' responses to question 5, "There's no room in my kitchen for a container for food scraps."

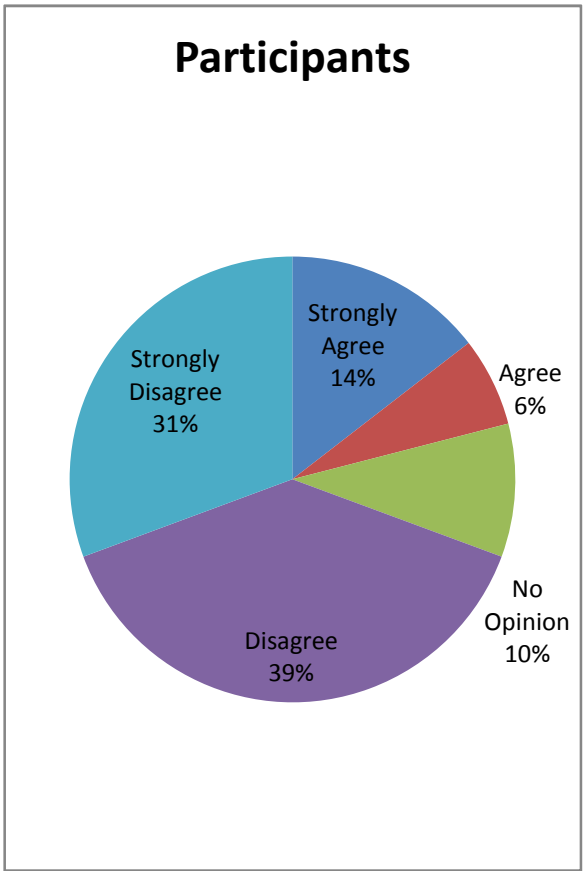

Figure 21. Breakdown of Participants' responses to question 5, "There's no room in my kitchen for a container for food scraps."

6. I prefer to put food scraps down the garbage disposal

Less than 10% Nonparticipants did not have an opinion about putting food scraps down the garbage disposal compared to almost 20% of Participants (Figure 9 on page 15). This may reflect the higher percentage of Nonparticipants who use their garbage disposal for disposing of food scraps than Participants. This theory is backed up by looking at the rate of agreement of Nonparticipants to this question, as seen in Figure 22: 62% of Nonparticipants prefer to put their food scraps down the garbage disposal,"[18] compared to less than 20% of Participants *(*see Figure 23*).*[19]

The range of answers to this question from Nonparticipants are also seen in Figure 22, with only 29% of Nonparticipants who did not prefer to put food scraps down the garbage disposal compared to 64% of Participants.

Teasing out the details of the responses also shows a very strong difference in the percentage of respondents in each group who said they "Strongly Disagree" with this statement. Participants strongly disagreed with the use of garbage disposals at 44%, while Nonparticipants strongly disagreed at only 9% - a thirty-five percent difference.

"I prefer to put food scraps down the garbage disposal"

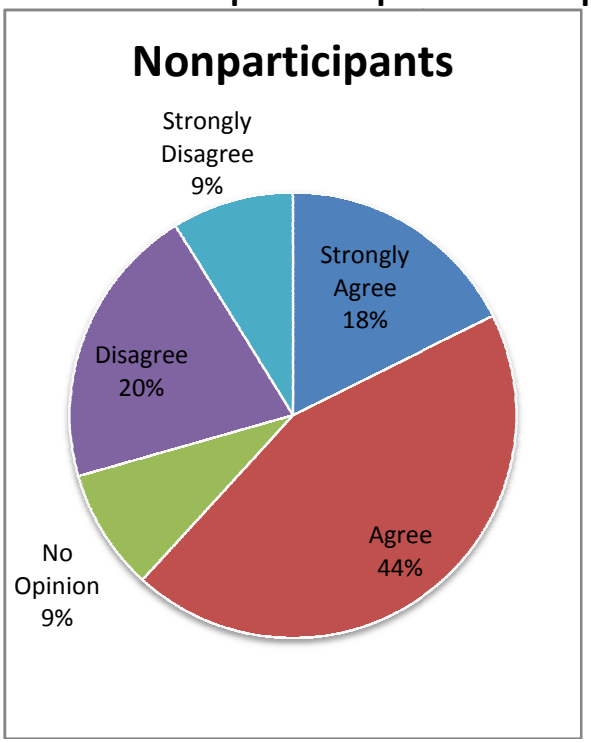

Figure 22. Breakdown of Nonparticipants' responses to question 6, "I prefer to put food scraps down the garbage disposal."

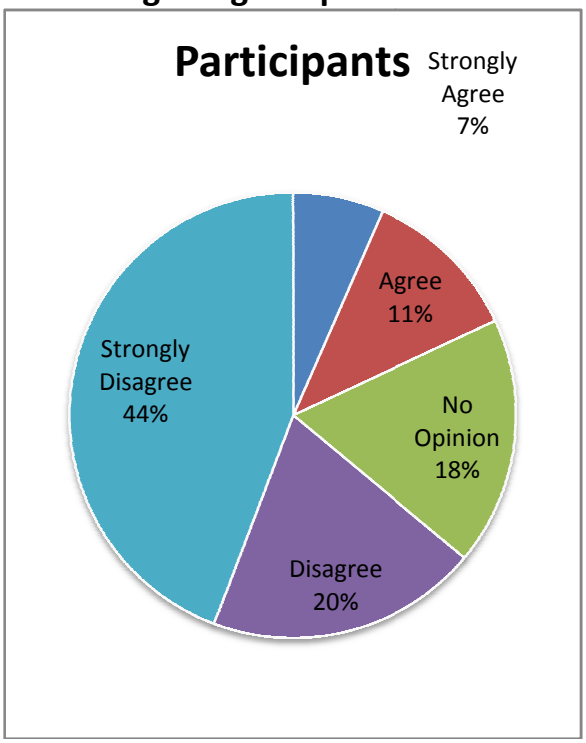

Figure 23. Breakdown of Participants' responses to question 6, "I prefer to put food scraps down the garbage disposal."

Analysis of Options to Increase Participation Rates, Questions 7-12

General Observations

High "Yes" response rates to questions 7 through 12 indicate that respondents would be more likely to participate in food scrap recycling if the option described were offered or implemented. For a table summarizing the percentage of responses for each question and differences between Nonparticipants and Participants, please see Appendix G.

For all respondents, the options that received the highest responses were 1) lowering their garbage bill, 2) weekly pickup of food scraps, and 3) cheap or at cost products that would make food scrap recycling easier and less messy. These answers were quite definitive – 82% of all respondents said that they would recycle food scraps if it lowered their garbage bill," 71% said that they would recycle food scraps if they were picked up weekly, and 85% said that they would recycle food scraps if the city provided products cheaply or at cost to make food scrap recycling easier and less messy.

The range of responses to questions 7 through 12 are in Figure 24 below.

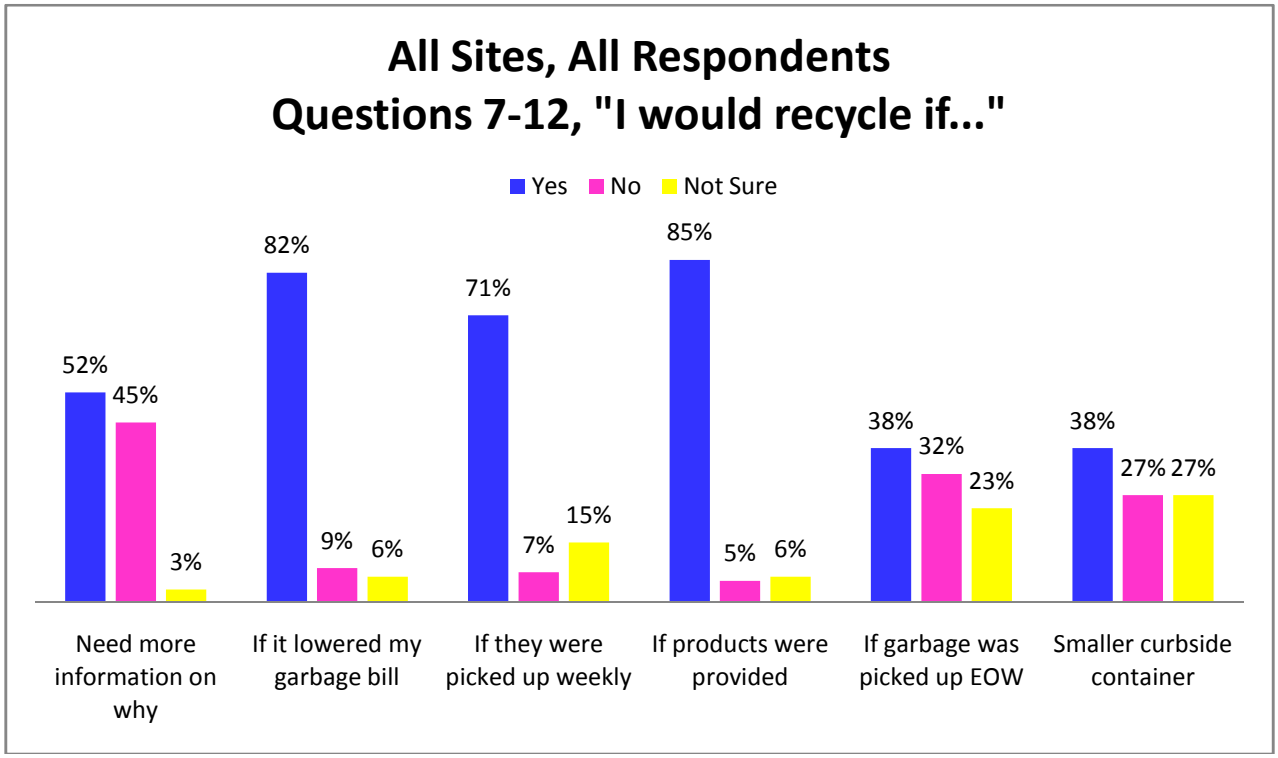

Figure 24. Responses to questions 7 through 12.

Responses of Nonparticipants vs. Participants

There was relatively little difference in the response rates between Nonparticipants and Participants with the notable exception of the option that proposes garbage pickup every other week instead of weekly, with 17% of Nonparticipants saying that this option would persuade them to recycle, compared to 39% of Participants, a 22% difference.

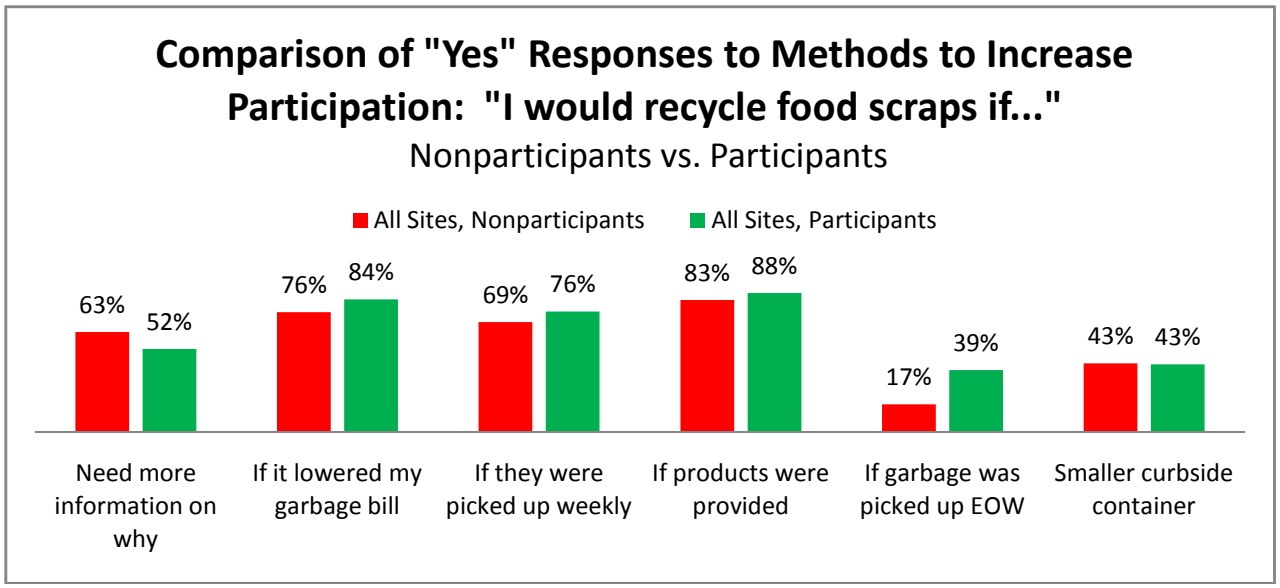

Figure 25. Nonparticipants vs. Participants, "Yes" responses to questions 7 through 12. Note: the numbers will not add up to 100%, as "No" and "Not Sure" are omitted from this graph.

Again, the "No" response rates were relatively similar, with the exception of the option of every other week garbage pickup instead of weekly, saying that these methods would not move them to recycle food scraps.

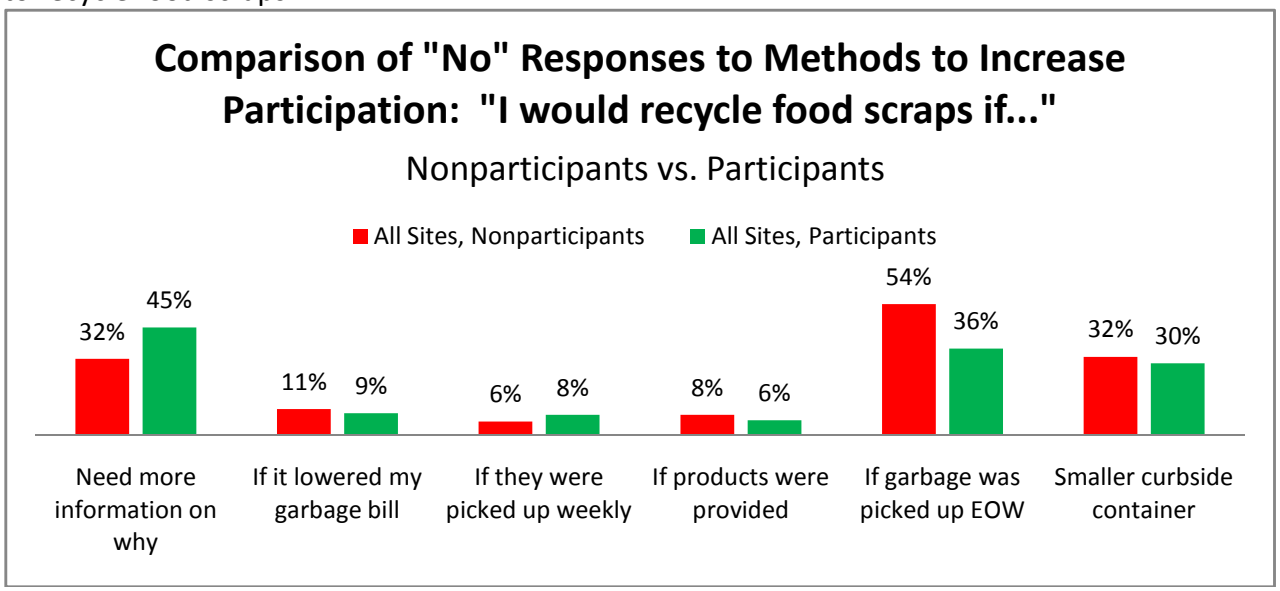

Figure 26. Nonparticipants vs. Participants, "No" responses to questions 7 through 12. Note: the numbers will not add up to 100%, as "Yes" and "Not Sure" are omitted from this graph.

This pattern of responses is repeated in “Not Sure,” though almost a quarter of both types of respondents gave this response to the statements concerning weekly pickup of food scraps, every other week pickup of garbage, and the option of having a curbside food scrap container only.

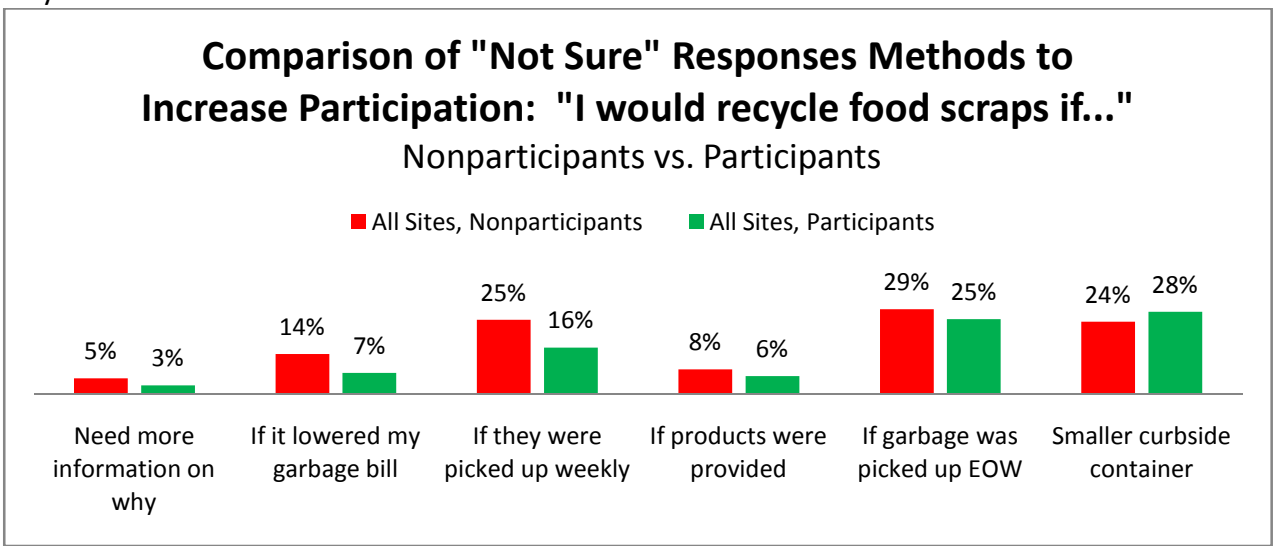

Figure 27. Nonparticipants vs. Participants, “Not Sure” responses to questions 7 through 12. Note: the numbers will not add up to 100%, as “Yes” and “No” are omitted from this graph.

Analysis of Information Requested, Nonparticipants vs. Participants

More Information Needed

For question 7, “I need more information on why I should recycle food scraps like… “ 63% of Nonparticipants said that they would like more information compared to 52% of Participants, a difference of eleven points. Experience with food scrap recycling appears to have influenced the initial request for more information as Participants may already be familiar with all the information mentioned in this question.

Among those who responded “Yes” to this question, however, there was only a two point difference in Nonparticipants vs. Participants in their responses to “Ideas on how to make it a less messy procedure,” indicating that people always want a cleaner way to recycle food scraps and that there is always room for improvement in this area. The breakdown of the type of information requested by the respondents who answered “Yes” can be seen below in Figure 28.

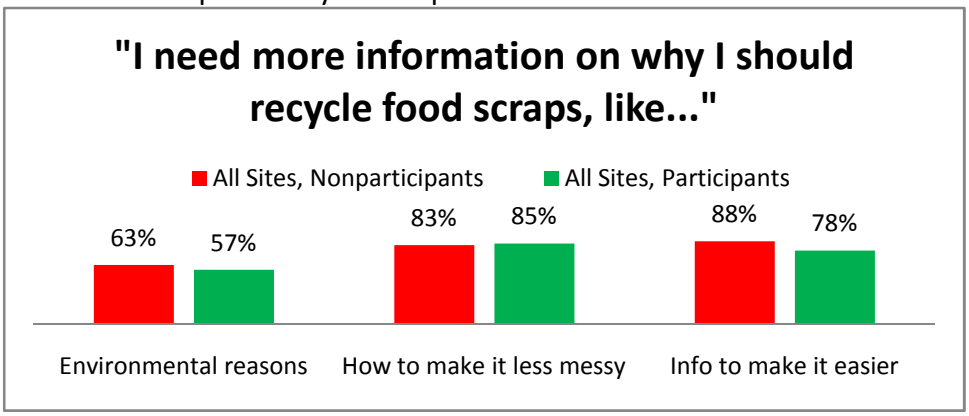

Figure 28. Types of information requested by those who responded "Yes" to question 7.

Products Requested

For question 10, ""I would recycle food scraps if the city provided products cheaply or at cost to make food scrap recycling easier and less messy, like…" there was very little difference between Nonparticipants and Participants who responded positively to this statement. Both options, kitchen containers for food scraps and compostable plastic bags, received a very strong positive response, as can be seen in Figure 29 below.

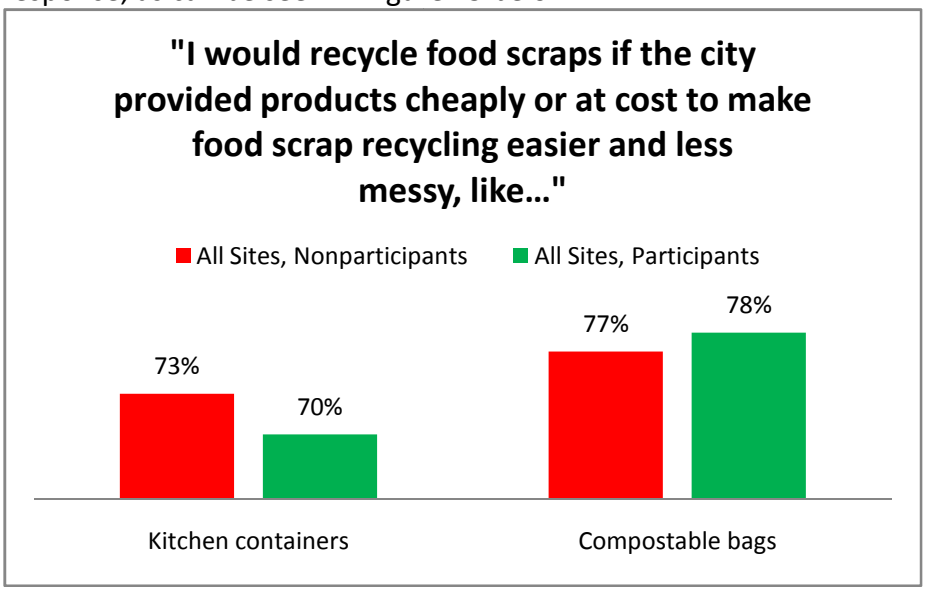

Figure 29. Types of information requested by those who responded "Yes" to question 10.

Current Recycling Habits of Participants

An analysis of Participants, those who answered "Yes" to "Have you participated in food scrap recycling at your home"[20] shows that 81% currently recycle food scraps in their home, seen in Figure 30.

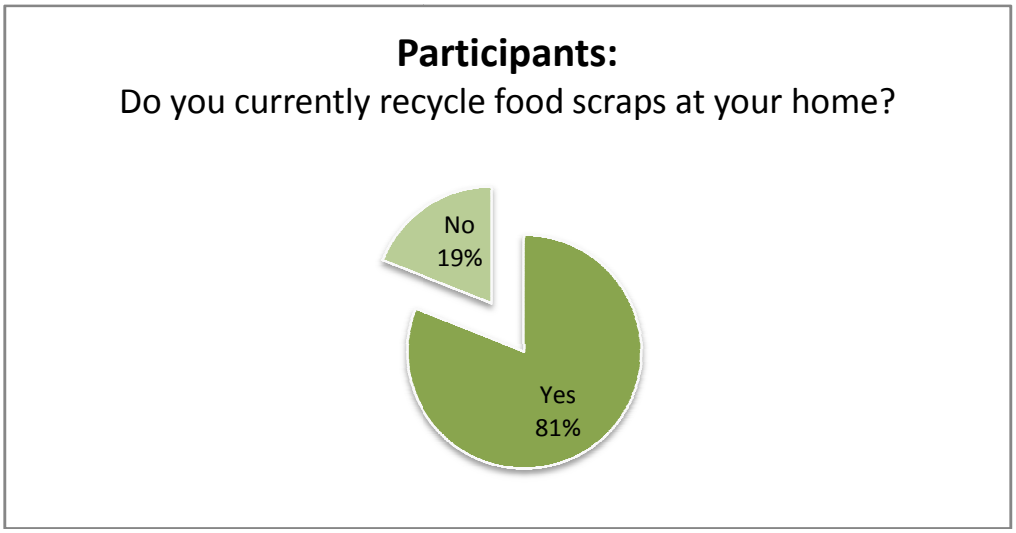

Figure 30. Current recycling rates for Participants, those who answered "Yes" to "Have you participated in food scrap recycling at your home."

In addition, of those currently recycling food scraps at home, all but 14% recycle “Some” to “All” of their food scraps, as seen in Figure 31 below.

Figure 31. The amount of food scraps that Participants recycle, their response to question 21. "How much of your food scraps do you recycle?"

RECOMMENDATIONS

The survey findings suggest very strongly that once people have experience with food scrap recycling many aspects of the ick factor become less of an issue, and are even disputed as icky by Participants. To this end, I recommend that King County and the cities take strong steps to increase participation in food scrap recycling, even temporarily, that will familiarize Nonparticipants with food scrap recycling. This will help Nonparticipants get over what is a perceived, not real, fear of recycling food scraps, and hopefully transform them into lifelong food scrap recyclers.

Make more information available

While this is an ongoing effort in the solid waste industry and public agencies, the need for more information was expressed by over half of all respondents. Continue outreach and education efforts like the ones seen in the poster from Alameda County in Appendix H, and make information easy to understand and accessible to all. While the need for environmental reasons to recycle food scraps got a strong positive response, around 60% for Nonparticipants and Participants, information on how to make it less messy and ways to make it easier to understand how to recycle food scraps got an even stronger response from both groups. The recycling community needs to make food scrap recycling as easy as possible for people; requests for information on these last two areas had a positive response from 78% all the way up to 88%.

Make the link between recycling food scraps and lower garbage bills very explicit

82% of all respondents responded positively when asked if they would recycle if it lowered their garbage bill. A useful tool towards this end may be a bill enclosure that breaks down garbage bills for a household with an extrapolated breakdown of the amount of food scraps contained, using the 2007/2008 Waste Characterization study as data for extrapolation. Give a side by side comparison of a current bill vs. a projected bill if food scrap recycling were implemented, and the money that could be saved every month – and every year – if a household recycled their food scraps. This could also be done with an online version of a food scrap/garbage calculator, much as can be found with, for example, the "EcoConsumer Waste Calculator" currently on the King County website.[21]

Consider weekly pickup of food scraps

Weekly pickup of food scraps could reduce the ick factor by reducing smells in the curbside container, especially during the summer months. 71% of all respondents responded positively to this option, and this may help to increase participation in food scrap recycling. The value of increasing participation with this option, however, must be balanced with the extra cost of weekly vs. every other week pickup.

Provide products cheaply or at cost to make food scrap recycling easier

This area received the highest approval ratings for all methods mentioned in the survey, among Nonparticipants and Participants alike. Anecdotally, the Biobags I distributed to respondents after they finished their survey were a big hit, and seem to spark quite a bit of interest and nods of interest. While King County cannot take on the role of being the main source of compostable bags for food scraps, there is a role for once or twice yearly promotions, like the "Northwest Natural Yard Days" that just finished in mid May, or the recent promotion of Biobags in conjunction with QFC grocery stores around King County.

In addition, offer a range of kitchen containers for free or a nominal charge for collecting food scraps that are 1) easily cleaned, 2) have a tight fitting lid that will help to cut down on odors, and 3) are reasonably attractive for countertop use in all kitchens. While King County does offer a discount on containers online, the page is a bit buried in the www.kingcounty.gov website, and I found it by chance via a link on Waste Management's website. Put a link for containers next to the link for compostable bags on the front page of the www.recyclefood.org website, and anywhere else the public may look for information on garbage and recycling.

CONCLUSION

Taken overall, survey results suggest the ick factor dispels when people actually start to recycle food scraps. A variety of incentives exist to engage current non participants in food scrap recycling. They include, but are not limited to, outreach and education, particularly on how to make it easier to recycle food scraps, financial incentives like lowering garbage bills in response to recycling food scraps, weekly pickup of food scraps, and low cost products to make it easier to recycle food scraps.

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Rhodes Yepsen, Nora Goldstein. "Source Separated Residential Composting in the U.S., Part II." *BioCycle*, December 2007.

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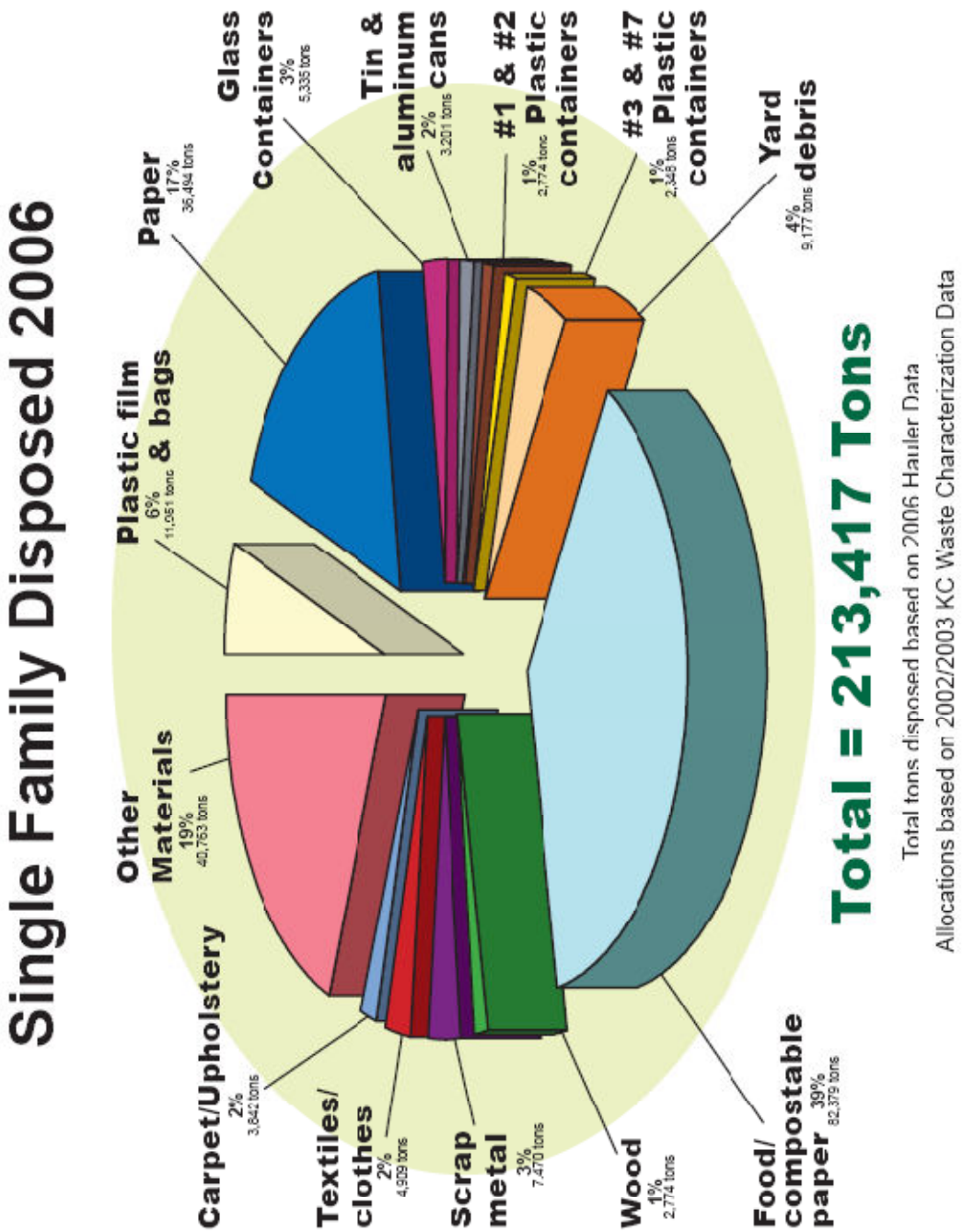
APPENDIX A

2006 waste characterization for single family homes in King County, based on the 2002/2003 Comprehensive Waste Stream Characterization Report, April 2004. A 2007 report will be published in a few months according to Josh Marx, Program Manager at King County Solid Waste.

Source: King County Solid Waste Division, "2002/03 Comprehensive Waste Stream Characterization Report, April 2004, http://www.metrokc.gov/dnrp/swd/about/documents/2003wastecharacter-survey.PDF/



APPENDIX B

As of May 27, curbside collection of food scraps is available to residents who live in the following areas within King County:

Source: King County Solid Waste Division. http://www.metrokc.gov/dnrp/swd/garbage-recycling/food-collection.asp#cities. Accessed 5-27-2008

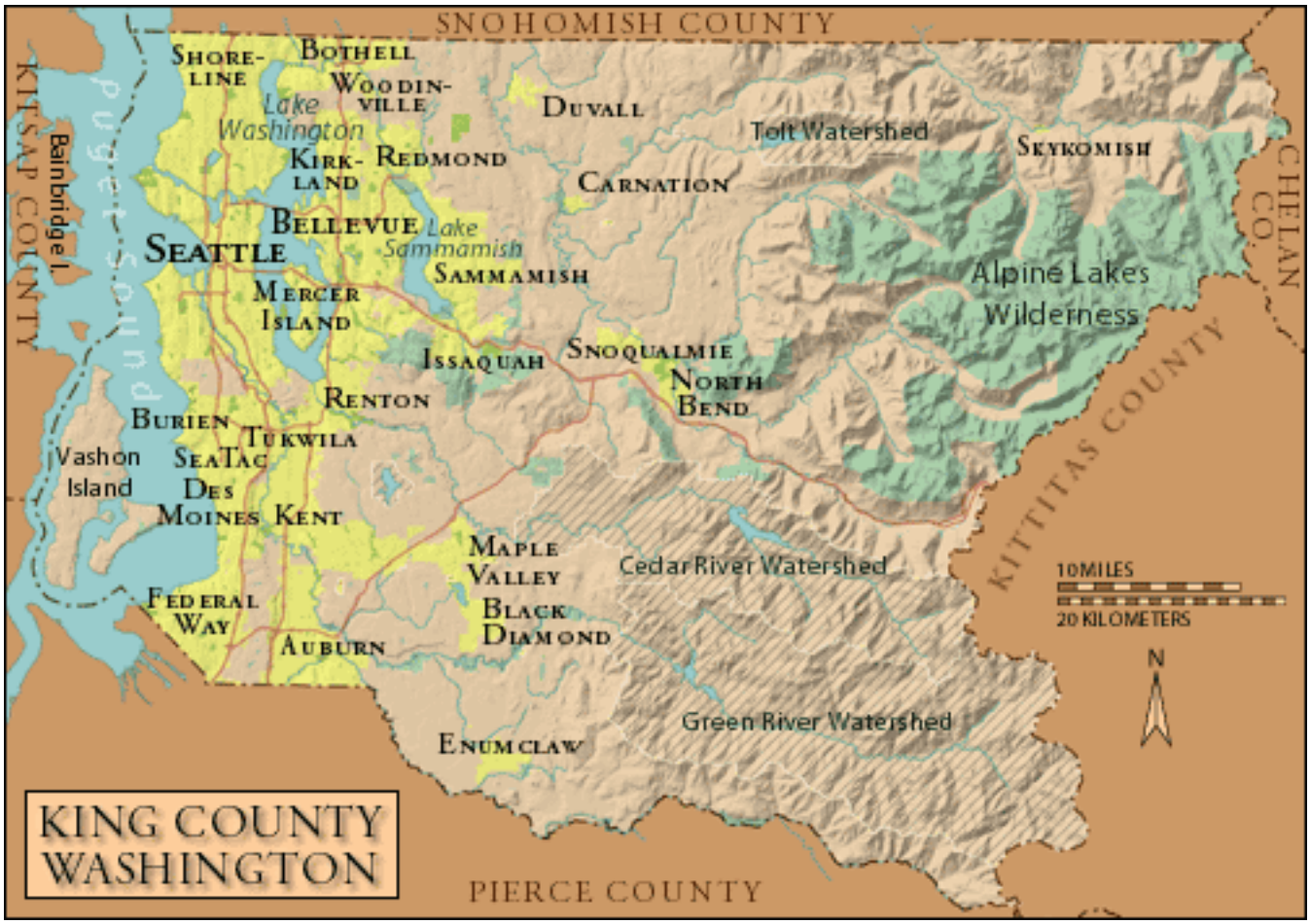
Algona
Auburn
Beaux Arts Village
Bellevue
Black Diamond
Bothell
Burien
Carnation
Clyde Hill
Covington
Enumclaw
Federal Way
Hunts Point
Issaquah
Kenmore
Kirkland
Lake Forest Park
Maple Valley
Medina
Mercer Island
Newcastle
North Bend
Pacific
Redmond
Sammamish
Seattle
Shoreline
Snoqualmie
Woodinville
Unincorporated King County (Waste Management)
Unincorporated King County (Allied Waste)
Yarrow Point

APPENDIX C

Map of King County, WA, as of December 1999

Located on Puget Sound in Washington State, and covering 2,134 square miles, King County is nearly twice as large as the average county in the United States. With more than 1.8 million people, it also ranks as the 13th most populous county in the nation.

Source: King County Government, http://kingcounty.gov/About.aspx, Accessed 3-14-08.



APPENDIX D

King County Solid Waste Division Survey #_____
Food Scrap Recycling Attitudes and Opinions

Interview Date | **Site**

We're interested in talking about food scrap recycling with people around King County, and would like to learn more about attitudes and opinions that influence participation in food scrap recycling.

Your city/town of residence_____

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
1	2	3	4	5

We've heard the following statements, from residents like you, about food scrap recycling. For each statement, please tell us, on a 1-5 scale, if you agree, disagree, or don't have an opinion.

1.	A food scrap container in the kitchen is too hard to keep clean. ___	4.	Having a curbside food scrap container in the yard might attract pests. ___
2.	A food scrap container in the kitchen smells bad. ___	5.	There's no room in my kitchen for a container for food scraps. ___
3.	Having a food scrap container in the kitchen might attract pests. ___	6.	I prefer to put food scraps down the garbage disposal. ___

For each statement below, please circle yes (Y), no (N), or not sure (NS)

7.	I need more information on why I should recycle food scraps like… ***(if yes, check all that apply below)*** **Y N NS**	10.	I would recycle food scraps if the city provided products cheaply or at cost to make food scrap recycling easier and less messy, like… ***(if yes, check all that apply below)*** **Y N NS**
	____Environmental reasons to recycle food waste		____Kitchen food scrap containers
	____Ideas on how to make it a less messy procedure		____Compostable plastic bags
	____Information that would make it easier to understand how to recycle food scraps	11.	I would recycle food scraps if my garbage was picked up every other week instead of weekly. **Y N NS**
8.	I would recycle food scraps if it lowered my garbage bill. **Y N NS**	12.	I don't need yard waste service, but I would recycle food scraps if a smaller curbside container were provided. **Y N NS**
9.	I would recycle food scraps if they were picked up weekly instead of every other week. **Y N NS**		

OVER, PLEASE →

Questions about yourself for statistical purposes:
THIS INFORMATION WILL NOT BE USED FOR ANYTHING OTHER THAN THIS STUDY!!

13. Age	**14. Gender**

15. Please circle the best description of your ethnic group:

White, Caucasian or European-American	Asian or Pacific Islander
Black or African-American	Native American
Latino, Hispanic, or Mexican	Mixed Race
	Other (Please specify)

16. Do you currently own or rent your home?	**17. How many people currently live in your home?**

17A. Do you live in a multifamily home (condo, apartment, etc.) _____or a single family home? _____ (Check one)

18. Please circle the best description of your level of education:

Have not completed high school	College graduate
High school graduate	Post-graduate work/Master's/PhD or professional degrees
Have taken college or vocational courses, but have not graduated college	Other (Please specify)

19. Please circle the best description of your approximate total household income for the year 2007.

$25,000 or less	More than $75,000 up to $100,000
More than $25,000 up to $50,000	More than $100,000 up to $150,000
More than $50,000 up to $75,000	$150,000 or more

20. Have you participated in food scrap recycling at your home (circle one)? Yes No

21. How much of your food scraps do you recycle (circle one)? None Some Most All

22. Do you currently recycle food scraps at your home (circle one)? Yes No

23. What can we do to improve food scrap recycling service in King County

King County

Solid Waste Division

Shoreline Residents –

Help us improve food scrap recycling services in King County – tell what you think!

You could win a fabulous prize for participating in a 3-4 minute survey.

Drawing will be held on June 1, 2008. Need not be present to win!

Every tenth survey participant will receive a rubber spatula!

APPENDIX F

Differences between Nonparticipants vs. Participants in the rate of agreement, disagreement, and no opinion for questions 1 through 6, specific complaints about the ick factor.

Rate of Agreement, in percentage	1. A food scrap container in the kitchen is too hard to keep clean	2. A food scrap container in the kitchen smells bad	3. Having a food scrap container in the kitchen might attract pests	4. Having a curbside food scrap container in the yard might attract pests	5. There's no room in my kitchen for a container for food scraps	6. I prefer to put food scraps down the garbage disposal
Nonparticipants	51%	71%	65%	73%	54%	62%
Participants	29%	43%	37%	41%	21%	18%
Difference	**22**	**28**	**28**	**32**	**33**	**44**
Rate of Disagreement, in percentage						
Nonparticipants	24%	16%	22%	14%	23%	29%
Participants	65%	46%	54%	51%	69%	64%
Difference	**41**	**30**	**32**	**37**	**46**	**35**
Rate of No Opinion, in percentage						
Nonparticipants	24%	13%	14%	14%	23%	9%
Participants	6%	11%	10%	8%	10%	18%
Difference	**18**	**2**	**4**	**6**	**13**	**9**

APPENDIX G

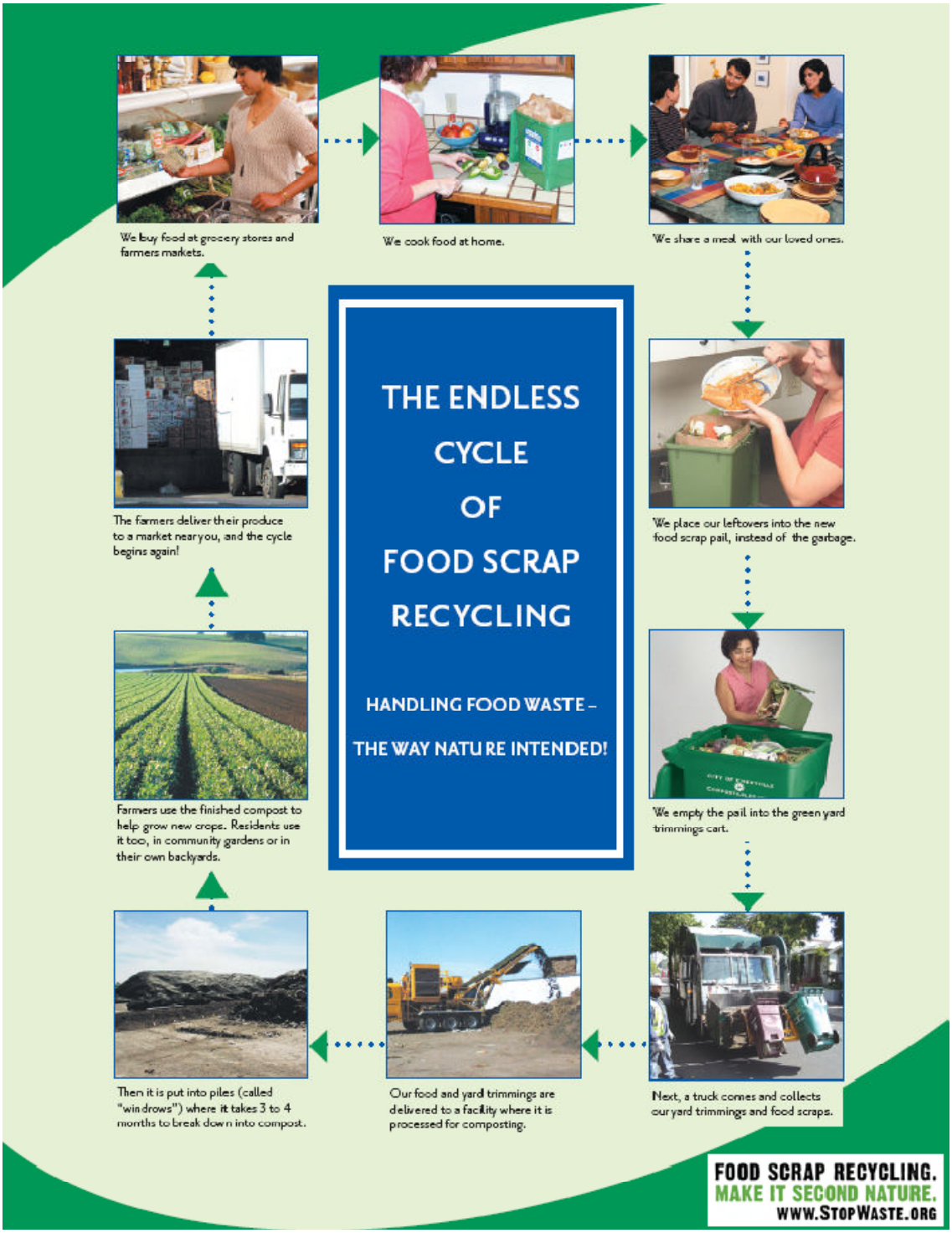
Differences Nonparticipants vs. Participants in the rate of yes, no, and not sure for questions 7 through 12, methods to overcome the ick factor.

Rate of "Yes" Responses, in percentage	7. I need more information on why I should recycle food scraps	8. I would recycle food scraps if it lowered my garbage bill	9. I would recycle food scraps if they were picked up weekly instead of every other week	10. I would recycle food scraps if the city provided products cheaply or at cost to make food scrap recycling easier and less messy	11. I would recycle food scraps if my garbage was picked up every other week instead of weekly	12. I don't need yard waste service, but I would recycle food scraps if a smaller curbside container were provided
Nonparticipants	63%	76%	69%	83%	17%	43%
Participants	52%	84%	76%	88%	39%	43%
Difference	**11**	**8**	**7**	**5**	**22**	**0**
Rate of "No" Responses, in percentage						
Nonparticipants	32%	11%	6%	8%	54%	32%
Participants	45%	9%	8%	6%	36%	30%
Difference	**13**	**2**	**2**	**2**	**18**	**2**
Rate of "Not Sure" Responses, in percentage						
Nonparticipants	5%	14%	25%	8%	29%	24%
Participants	3%	7%	16%	6%	25%	28%
Difference	**2**	**7**	**9**	**2**	**4**	**4**

APPENDIX H

The Food Scrap Cycle as illustrated by the food scrap recycling program of Alameda County, CA

Source: www.StopWaste.org



ENDNOTES

[1] For example, ocean dumping or incineration.
[2] (Rhodes Yepsen 2007)
[3] Although the largest city in King County, Seattle is excluded from King County data as it operates its own solid waste and recycling department, Seattle Public Utilities, http://seattle.gov/util/services. Seattle is not, therefore, included in any of the statistics cited for King County in this report. In addition, the majority of Milton is located in Pierce County, and is served by Pierce County Public Works & Utilities. Page 2, accessed 4-9-2008.
[4] Josh Marx, Project Manager at King County Solid Waste, referencing various King County Studies.
[5] Again, with the exception of Seattle and Milton.
[6] (King County Solid Waste Division n.d.)
[7] (Washington State Department of Transportation n.d.)
[11] (King County Solid Waste Division, Zero Waste n.d.)
[12] (Cascadia Consulting Group, Inc. 2004)
[13] (GrassRoots Recycling Network n.d.)
[14] (U.S. Census Bureau n.d.)
[15] (U.S. Census Bureau n.d.)
[16] Author's personal experience, all too often repeated.
[17] Anecdotally, several people I surveyed in Maple Valley mentioned that they don't even have garbage pickup: they feed all food scraps to their animals (including, in one case a couple who fed everything - even their vegetable scraps - to their dogs) or to their compost piles, and would stockpile garbage for a run to the dump every few months.
[18] 18% "Strongly Agree" + 44% "Agree" = 62%
[19] 7% "Strongly Agree" + 11% "Agree" = 18%
[20] Question 20 in the survey
[21] (King County Solid Waste Division Ecoconsumer n.d.)