

Household Hazardous Waste Survey: Results Report

Survey Conducted January, 2008

By
Portland State University Survey Research Lab

08-LQ-086



State of Oregon
Department of
Environmental
Quality



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**Report for the
Oregon Department of Environmental Quality**

June 17, 2008

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EXECUTIVE SUMMARY

The following report is a summary of the Oregon Department of Environmental Quality (DEQ) telephone survey of Oregonians' behaviors and perceptions about environmental and health risks associated with hazardous household products. DEQ commissioned this survey to help in the design and evaluation of public information and outreach efforts, and for broader program development and evaluation purposes. The survey was conducted by the Portland State University Survey Research Lab (SRL) in January 2008. A total of 615 Oregonians completed a random statewide survey that included questions about use and perception of dangerousness of hazardous products, lawn care and use of pesticides, use of household cleaners, use of fishing weights, and demographics. An additional 188 respondents who had fished within the last year completed a fishing oversample survey, which only included fishing weight and demographic questions. As a result, a total of 803 Oregonians participated in this DEQ survey.

Highlighted Findings

The telephone survey explored a number of research questions. The full report provides comprehensive analysis of survey results. Highlighted findings of interest to DEQ include the following:

General Questions

- ♦ Respondents believed that not all products are equally hazardous. For example, 72% of Oregonians rated drain opener as “very dangerous” compared to only 13% who rated compact fluorescent light bulbs (CFLs) as “very dangerous”.
- ♦ The majority of respondents who purchased latex paint (70%), oil-based paint (64%) or pharmaceuticals (67%) reported having leftovers they wanted to get rid of. In contrast, fewer purchasing households reported having leftover lawn chemicals (21%) or chlorine used in pools or hot tubs (10%).
- ♦ The majority (64%) of households with leftover oil-based paint reported delivering it to a household hazardous waste (HHW) event or facility, while only 10% reported putting it in their garbage. Half of households (50%) with leftover latex-based paint reported taking it to a HHW event or facility, while 16% reported putting dried latex paint in the garbage.
- ♦ Leftover pharmaceuticals were most commonly either flushed (43%) or put in the garbage (42%). Similarly, CFLs were most frequently thrown in the garbage (49%).
- ♦ The majority of respondents were willing to return their old CFLs to the store (89%) or willing (either always or sometimes) to return their unwanted pharmaceuticals to the pharmacy (90%) or by mail (85%), if such services were offered.
- ♦ Respondents living in areas with HHW services were generally more likely to recycle or safely dispose of their hazardous household waste.

- ◆ Nearly all respondents were in agreement that manufacturers should be required to provide a complete list of ingredients in their products (95%) and that manufacturers should be required to share in the responsibility for safely recycling or disposing of their products (89%).
- ◆ Almost half (47%) of all respondents accepted an offer of information on safer alternatives and proper handling of hazardous household waste.

Lawn Care

- ◆ Only 31% of respondents trusted that lawn chemicals they find in the store are safe for people and the environment.
- ◆ Nearly half of respondents reported using a spot spray chemical weed killer (47%) or a combination weed and feed product (44%) on their lawn in the last year.
- ◆ Respondents who reported leaving grass clippings on the lawn after mowing or watering less frequently in the summer were also less likely to use lawn pesticides.
- ◆ Among respondents who reported using only conventional chemical products on their lawn, 69% agreed that they don't use natural methods of lawn care because they don't know enough about them.

Strong Household Cleaners

- ◆ Nearly all respondents (94%) had experienced clogged drains and 70% had taken steps to prevent clogs in the first place. Commercial drain cleaners were the most common method used to unclog drains, with fast-acting chemical products being the most commonly used type of drain cleaner.
- ◆ Half of all respondents (52%) used a self-cleaning system to clean their oven, with only 17% having used a conventional chemical oven cleaner.
- ◆ A minority of respondents (20%) reported experiencing harmful health effects because of exposure to cleaning products at home.

Lead Fishing Weights

- ◆ Only 24% of respondents reported having fished within the last year.
- ◆ A majority (82%) of the respondents who fish reported using lead weights, while another 9% didn't know if their weights contained lead or not.
- ◆ Among users of lead weights, 16% report making their own weights, with the largest proportion of those (37%) making lead weights in their garage.

Methodology

The full report gives a complete account of the approaches to survey programming, interviewer training, data collection oversight and sampling. The response rates for this survey were respectable. The random statewide survey had a 38% response rate for resolved numbers. The fishing oversample survey rate was slightly lower at a 26% response rate. For both surveys, the refusal rates were low at 13% for the statewide survey and 6% for the fishing survey.

The sampling errors calculated for the two surveys were within the goal of $\pm 5\%$: 3.95% for the random statewide survey, 4.19% for the fishing survey.

DEQ was interested in comparing responses between different areas of the state, as well as areas with different levels of household hazardous waste (HHW) services. Due to the fact that the level of service provided corresponds with the county within which respondents reside, the geographic breakdown for this survey included the following four region and HHW service level groupings:

- Metro Facilities: Metro counties with a permanent HHW facility.
- Non-Metro Facilities: Non-metro counties with a permanent HHW facility
- Local Events: Non-metro counties with regular HHW events, but no permanent facility
- No Local Service: Non-metro counties with neither regular HHW events nor permanent facility.

The random statewide survey and the fishing sample were both analyzed through the creation of a crosstab analysis report. Specific variables were paired for comparison purposes based on research questions developed by DEQ staff. The random statewide survey data in this report have been statistically weighted to represent the gender and geographic (counties that fall into the four categories of service level and geography) breakdowns existing in the state of Oregon. The fishing sample data are unweighted to directly characterize the respondents who had fished within the last year.

General Questions

The first section of the statewide survey included a set of general questions about common household products. The questions addressed perceived danger of those products, and whether the respondents had purchased the products, had leftovers they wanted to get rid of, and the manner in which the products were disposed of. Questions also addressed respondents' use of HHW collection services and reasons for not using them. Finally, respondents provided their perception of product safety and thoughts about the responsibilities of manufacturers.

Perceived Danger of Common Household Products

All statewide survey respondents were asked how dangerous they considered five common household products to be. The products were oven cleaner, drain opener, compact fluorescent light bulbs (abbreviated CFLs for the remainder of this report), lawn chemicals, and oil-based wall paint. The degree of danger was rated on a 4-point scale and all respondents were asked to provide a rating even if they don't use a product.

- ♦ Drain opener was perceived as the most dangerous product (72% rated very dangerous).
- ♦ CFLs were perceived as least dangerous (13% rated very dangerous). CFLs also had the highest proportion of “not at all dangerous” (15%).

Purchase and Disposal of Common Household Products

All statewide survey respondents were asked a series of purchase and disposal questions about each of six different household products: latex paint, oil-based paint, CFLs, lawn chemicals, pharmaceuticals and pool or hot tub chlorine.

- ♦ Lawn chemicals and chlorine were most likely to be used up (i.e., leftovers weren’t accumulated).
- ♦ Respondents tended to have paint and pharmaceutical leftovers that they wanted to dispose of in some manner.
- ♦ Latex and oil-based paints, as well as lawn chemicals, were most commonly taken to a hazardous waste collection facility or event, or they were stored for later use.
- ♦ When CFLs and chlorine were disposed of, they were most often thrown in the garbage. In addition, pharmaceuticals were most likely to be flushed or thrown in the garbage.

When looking at the influence of the perceived danger of a household product and the respondents’ tendency to **purchase** that product, relationships were found only for lawn chemicals and oil-based paint. For other products, higher levels of perceived danger did not influence respondents’ tendency to purchase the products. In general, the level of perceived danger of a given product did not influence respondents’ **management of unwanted quantities** of it.

For both CFLs and pharmaceuticals, respondents were asked additional questions about their willingness to return their unwanted leftovers. Willingness was very high for both products. The majority of respondents reported being willing to return their old CFLs to the store (89%) and to be willing (either always or sometimes) to return their unwanted pharmaceuticals to the pharmacy (90%) or by mail (85%), if such services were offered. People with different existing disposal approaches did not differ with regard to willingness to either return CFLs to the store or return pharmaceuticals to the pharmacy or by mail.

Use of Household Hazardous Services

Looking at methods of disposal with respect to HHW service levels, having services available to respondents generally increased the likelihood of recycling and proper disposal. The lower rates of recycling and disposal in areas with no local service suggest that these areas could benefit from more services and support.

When asked why they had never used HHW collection services, the largest proportion of respondents (31%) reported having no leftovers or unwanted products that needed disposal. The other two main reasons were not knowing if they had any service (16%) and thinking that using those services were not necessary or worth the effort (11%).

Perception of Product Safety and Role of Manufacturers

All respondents were asked a series of questions rating their level of agreement with four statements related to product safety and the responsibilities of manufacturers. Although the product safety ratings varied across respondents, only approximately one-third believed that household cleaners are safe (39%) and that lawn chemicals are safe (31%).

There was greater agreement about manufacturer responsibility. Nearly all respondents (95%) agreed that manufacturers should be required to provide a complete list of ingredients in their products and a large proportion of respondents (89%) agreed that manufacturers should be required to share in the responsibility for safely recycling or disposing of their products.

Lawn Care

Respondents who participated in, or knew about, the care of their lawn and purchasing of lawn supplies were asked several questions regarding their use of lawn care products and lawn care practices, as well as questions to measure their attitudes about lawns and lawn care.

Turf Management Practices

Respondents were asked a series of questions related to how they take care of their lawns, to identify those who are using low-intensity turf management practices. Low-intensity turf management includes watering the lawn once a week or less, or not at all, during the summer, leaving grass clippings on the lawn after mowing, and setting the height of the lawn mower blades to three inches or more.

- Less than half of the respondents watered their lawn once a week or less (46%), left grass clippings on the lawn (41%), or believed mower blades should be set at three inches or higher (34%).
- Over half reported watering their lawns twice a week or more (53%; 11% reported watering 5-7 times a week) and removing their grass clippings after mowing (57%).

Looking at how those behaviors combine, about half (56%) of the respondents who left grass clippings on their lawn after mowing also watered once a week or less, or never, in the summer, while fewer respondents (40%) who removed grass clippings water once a week or less, or never. There was no significant relationship between reported mower blade height and other turf management practices. One trend that did emerge from the data was that households with lower annual income tended to have less-frequent lawn-watering practices.

Use of Lawn Pesticides

Respondents were asked about their application of combination weed and feed product, weed killer, moss controller and insect controller on their entire lawn and spot spray chemical weed killer on certain spots of their lawn in the last 12 months. More respondents had used the spot spray chemical weed killer (47%) and a combination weed and feed product (44%) than weed killer (29%), moss controller (23%) or insect controller (17%).

- Respondents from the No Local Service area were more likely to have used weed killer on their entire lawn than those from other areas.

- ♦ Respondents with higher incomes, those who own their homes, and those without pets were more likely to have used certain lawn products than other groups.
- ♦ Respondents who used chemicals were more likely to rate them as safe, more effective or easier than alternative natural methods.
- ♦ Respondents who reported low-intensity turf management for watering or dealing with grass clippings were less likely to have used lawn pesticides than those who were following higher intensity turf management.

Chemical and Organic Lawn Pesticides

Respondents were asked if the pesticides they had applied to their entire lawn were either conventional chemical products or organic products. Over half of the respondents (52%) were using conventional chemical products on their lawn, one-quarter used a combination of both chemical and organic products (24%), and very few used only organic products (7%). Interestingly, 17% of the respondents reported not knowing what type of products they had used. There were no significant demographic trends among those respondents using chemical lawn products instead of organic.

- ♦ Oregonians using organic products were more likely to disagree that chemical products are safe, easier, or more effective than natural methods.
- ♦ Respondents who reported using chemical products were more likely to agree that chemicals were easier than natural methods, but the majority of respondents who rated lawn chemicals as very or moderately dangerous were still using them.

Application of Lawn Pesticides

In order to determine how carefully lawn pesticides were being used, respondents were asked how many times a year they spread a lawn care product over their entire lawn (lower frequency is better), how they know how much to apply (reading and following the directions on the label is better), and whether they checked the weather prior to applying a product to their lawn (checking the weather is better).

- ♦ The largest proportion of respondents reported using a lawn care product on their entire lawn either once (30%) or twice a year (36%).
- ♦ The majority of respondents (81%) also read the label and follow the instructions to determine how much of the product to apply.
- ♦ Most respondents (83%) reported that they check the weather forecast prior to applying chemicals to their lawns.
- ♦ The data suggests that participation in low-intensity turf management appears to not relate to the amount of care taken in the application of lawn pesticides.

Attitudes Toward Lawns and Lawn Care

Respondents were asked to rate their level of agreement with five statements related to lawns and lawn care. The findings suggest Oregonians have diverse attitudes about lawns and lawn care.

- Respondents were evenly split between agreeing and disagreeing that having a green, weed-free lawn all year is important to them, as well as believing chemical methods are more effective than natural methods of lawn care.
- Over half (57%) agreed that using lawn chemicals is easier than using natural methods.
- Two-thirds (69%) of those who use just chemical lawn care products reported not using natural methods on their lawn due to not knowing enough about them.
- Nearly two-thirds (60%) felt their neighbors would not disapprove if their lawn was brown or had weeds.

Looking at gender differences, men were more likely to value a green, weed-free lawn all year round, and were also more likely to agree that chemicals are more effective and easier than natural methods of lawn care.

Interestingly, Oregonians who valued a green, weed-free lawn or felt their neighbors would disapprove if their lawn was brown were less likely to be following low-intensity turf management guidelines. More specifically, those respondents were more likely to water their lawns more than once a week in the summer and remove their grass clippings after mowing, and were more likely to use chemical lawn pesticides than those who disagreed. In terms of product use, those who agreed that having a green, mostly weed-free lawn all year round was important to them were more likely to have used lawn pesticides. They were also less likely to be using organic lawn pesticides.

Household Cleaners

Respondents who either participate in or know about the cleaning and maintenance of the household completed this section of the statewide survey. They were asked questions regarding how they unclog drains, clean their bathrooms, and clean their ovens, as well as the types of products they use.

Dealing with Clogged Drains

The vast majority of respondents (94%) had experienced clogged drains. The largest proportion of respondents reported having used a commercial drain cleaner (35%), with plungers (29%) and plumbing snakes (21%) being the next most common approaches to unclogging drains.

Respondents who thought that household cleaners are safe were more likely to use commercial drain cleaners. No differences were found across the different HHW services areas. When asked about the specific type of commercial drain cleaner, fast-acting chemical products (74%) were by far the most commonly used, followed by a much smaller proportion of respondents who reported using slower-acting enzyme-based products (14%).

Preventing Clogged Drains

In addition to having to deal with clogged drains, the majority of respondents (70%) took steps to prevent drains from becoming clogged. The most common method used was to avoid putting items such as hair and food down the drain (56%). Additional, non-chemical methods were to use a sink strainer (21%) and to avoid pouring grease down the drain (21%).

Cleaning Ovens

The majority of respondents (86%) reported cleaning their ovens, with over half (52%) using self-cleaning oven systems. The rates of using chemical oven cleaners (17%) and non-toxic oven cleaners (14%) were very close. Demographically, homeowners were more likely to use oven self-cleaning systems, while renters were more likely to use chemical and non-toxic oven cleaners. Not surprisingly, respondents living in apartments were more likely to not clean their ovens than were respondents living in single family homes. Varying differences existed across household income levels, with respondents in higher income ranges being more likely to use self-cleaning oven systems and less likely to be using non-toxic oven cleaners.

Cleaning Bathrooms

The most common method to clean bathrooms was to use a multi-purpose household cleaner (52%), followed by using bleach (25%) and a non-toxic cleaner (17%). Gender differences showed that men were more likely than women to use a multipurpose cleaner and women more likely than men to use bleach and non-toxic cleaners. Respondents who strongly disagreed that household cleaners are safe were more likely to use a non-toxic cleaner and less likely to use a multi-purpose household cleaner.

Factors Impacting Decisions to Purchase Chemical Cleaning Products

Respondents were asked to rate how important certain factors were when deciding to buy household cleaning products. The factors were: cost of the product, effectiveness of the product, potential risks to you and your family, and brand of the product. Overall, effectiveness of the product and potential risks were the most influential factors people considered when deciding which cleaning products to buy. Interestingly, brand of the product was least influential, with 50% of the respondents reporting that it is “not at all important” when making the decision to purchase a product.

Harmed by Chemical Products

Only 20% of the respondents reported having had something harmful happen because of chemical cleaning products. The 20% of respondents who had been harmed were asked to describe what had happened. Trouble breathing or burned/irritated throat or lungs (50%) was the most commonly reported harm from chemical cleaning products, followed by burned or irritated skin (31%). All other types of harm were reported by less than 15% of respondents. Two statistically significant demographic differences emerged from the data. Women were more likely to report having experienced harm than men and renters were more likely to report having experienced harm than homeowners.

In general, those who had experienced some kind of harm were more likely to use non-toxic household cleaners and to rate the danger of certain household cleaners higher than those who had not experienced harm. Overall, respondents who strongly disagreed that household cleaners are safe were more likely to have experienced harm because of chemical cleaning products.

Lead Fishing Weights

As described above, some of the respondents completed the fishing section of the random statewide survey (unweighted n=146) and some completed the fishing oversample survey (unweighted n=177), for a total sample size of 323.

Oregonians Who Fish

To accurately represent the characteristics of Oregonians who fish, it is necessary to look only at the respondents who completed the fishing section of the random, statewide survey. One-quarter (24%) of the respondents reported having fished within the last year. In general, people who had fished were more likely to be male, live outside the Metro area, be younger, and have a higher income.

Use of Lead Fishing Weights

One purpose of this survey was to determine the proportion of people who use lead fishing weights. It was found that of the 323 respondents who fished within the last year, the majority (82%) reported having used lead fishing weights. Notably, 9% of the people who had fished did not know whether or not they used weights made of lead. In addition, the majority of respondents (70%) rated lead fishing weights as having little to no risk to people who use them.

Attaching Fishing Weights

One of the issues related to the use of lead fishing weights is the manner in which those weights are attached to the line. Of the 264 respondents who reported using lead fishing weights, the majority (58%) identified using pliers to attach their lead weights to the fishing line. 19% of the respondents reported using their teeth to attach lead weights. Over one-third (40%) of respondents using lead weights indicated they used other methods to attach weights to their lines, which included attaching them by hand, with another object, or with another tool besides pliers.

Homemade Lead Weights

Respondents who use lead fishing weights were asked two additional questions to gain more detailed information about their interaction with the lead material of the weights. A minority (16%) (n=43) of the users reported making their own lead fishing weights. The majority of those individuals reported making the lead weights in their garage (37%), followed by their porch or yard (26%). An additional 19% of respondents reported “other” locations, including at the fishing hole or in a shed.

Non-Lead Weights

Approximately one-third of respondents (34%) reported having purchased non-lead fishing weights. Over half (58%) reported having never purchased non-lead fishing weights. When those latter respondents were asked if they had ever considered purchasing non-lead fishing weights, 73% reported not having considered that purchase. Not knowing about alternatives to lead weights was the most common reason for not purchasing non-lead fishing weights (52%), followed by “no reason” (13%) and being happy with what they are using (13%).

DEQ Information Requests

At the end of the survey, all respondents were asked if they wanted the Department of Environmental Quality to send them information about how to avoid and handle hazardous household waste. Almost half (47%) responded that did want to receive information from DEQ. Respondents in the Metro Facilities HHW service area (54%) were significantly more likely to request contact than those in the Non-Metro Facilities area (35%).

Although respondents who had requested information from DEQ were more likely to rate certain chemical products as more dangerous and less likely to use certain lawn pesticides, overall, it is not possible to conclude that those requesting information are more aware or more careful users of hazardous household chemicals. Although there is no distinctive group requesting information, the fact that almost half of the respondents requested information from DEQ suggests that many Oregonians are receptive to information on alternatives and proper handling of hazardous household waste. In addition, the data does not show that those who requested the information are consistently more knowledgeable or careful in their current practices than those who did not request the information.

This report is a summary of a telephone survey of Oregonians' behaviors and perceptions about environmental and health risks associated with hazardous household products. The survey questions were developed by the Portland State University Survey Research Lab (SRL) in collaboration with the Department of Environmental Quality (DEQ). The SRL conducted the survey between January 17th and January 30th, 2008, resulting in a total sample of 803 Oregonians.

I. METHODOLOGY

Survey calling on the statewide random sample began on January 17th and concluded January 26th, 2008, for a total data collection period of two weeks. A total of 615 respondents completed the full, statewide survey. That survey included questions regarding use and perceived danger of hazardous products, lawn care and use of pesticides, use of household cleaners, use of fishing weights, and demographics.

Once the full, statewide random sample was completed, the SRL began an oversample of Oregonians who had fished within the last year. This began on January 28th and concluded January 30th. A total of 188 respondents completed the fishing oversample survey, which only included fishing weight and demographic questions. The data presented in this report related to the fishing survey include data from those respondents, as well as from those who had completed the fishing section of full statewide survey (n=135), for a total sample of 323 respondents who had fished within the last year.

A. Survey Programming, Interviewer Training and Data Collection Oversight

Before conducting the survey, the SRL developed and finalized all questions with DEQ. The finalized survey instrument was then programmed in the Voxco Virtual Call Center (VCC)¹ software and live pilot testing was conducted to ensure the appropriate wording of questions, the correct functioning of all skip patterns, and the accurate recording of data. Additionally, the pilot testing preliminary data set was reviewed for accuracy of choice options and data reliability.

The SRL uses Computer Assisted Telephone Interviewing (CATI), is equipped with 10 CATI call stations, and is part of the extensive PSU Local Area Network (LAN) with high-speed access to the Internet. The SRL stations are fully computerized using Voxco software, as well as a range of software for word processing, database management, spreadsheet preparation, graphics presentations, and statistical analysis. The SRL data and software are stored on secure servers set aside for the sole purpose of conducting the SRL's confidential surveys and securely storing the gathered data.

A total of 16 interviewers were trained on conducting the survey. The project training included DEQ staff, the SRL Project Manager, the SRL Research Assistant, the SRL Interview Coordinators, and all interviewers. DEQ staff gave an overview of the background and purpose of the survey to provide the interviewers with the context within which the survey was being

¹ <http://www.voxco.com>

conducted. This was followed by a round-table review of the entire survey in order to review the survey items, discuss idiosyncratic issues related to the population being surveyed and clarify the investigator's data needs. Interviewers also had the opportunity to ask the client specific questions about the meaning of the items. Finally, interviewers participated in on-line practice of the survey before going live.

Before calling began, phone numbers for the statewide random sample were ordered from ASDE Survey Sampler². To ensure that they were representative, the sample was proportional to the county populations across the state of Oregon. The sample was split between 70% randomly selected directory listed numbers and 30% randomly generated numbers. This approach replicates the proportion of listed to unlisted numbers that currently exists within Oregon; with a slightly larger proportion of listed numbers to maximize the response rate (randomly generated numbers include more invalid numbers than do listed numbers). Once the sample was secured, numbers were randomly selected for calling by the CATI software. For the fishing oversample survey, we ordered phone numbers from a different sample provider, Marketing Systems Group (MSG)³, due to their ability to identify households in a more targeted manner. MSG was able to provide us with phone numbers for Oregon residents aged 18 or over who expressed an interest in fishing within the past 12 months. Due to the targeted nature of this sample, the numbers were all directory listed. However, as with the full survey, they were also randomly selected across the state of Oregon.

Calls were made during afternoon and evening hours, Monday through Sunday. Interview Coordinators provided on-site monitoring and supervision during all calling hours to ensure the highest quality data collection, as well as accurate data entry. For quality assurance purposes, the interview coordinators frequently monitored interviewers, with the level of monitoring varying depending upon the individual needs of each interviewer. The interview monitoring was live and involved the coordinator patching into the telephone conversation to listen to the interviewer conducting the survey, as well as viewing interviewer's input of the data being collected. The CATI software allowed the Coordinators to pull up the live interview on their computer screen to view the real-time typing away from the interviewer's view for reduced distraction. Additional quality assurance checks were conducted repeatedly at the beginning of calling and continually through survey calling. These included the Project Manager reviewing the collected data and the Interview Coordinators continuously monitoring the data collection process. Any issues that came up during the survey were quickly resolved with the DEQ staff.

During the two-week data collection period, the Project Manager submitted periodic status reports to the project team at DEQ that itemized the status of all the telephone numbers in the sample. The numbers were divided into two groups, active and resolved, and these two groups were further subdivided into call disposition codes. Resolved numbers are those that have been finalized and do not need to be called back. This includes numbers for which a survey was completed, and all numbers that should not be called back because a completed survey is not possible. Included in this category are households that do not qualify for the survey, respondents who could not complete the survey due to language or cognitive deficit, and respondents who

² <http://www.surveysampler.com/>

³ <http://www.m-s-g.com>

requested that their number be removed from the list. Active numbers are those for which a completed survey could still be possible. The refusals in this category are considered “soft” in that the respondent refused in a less definitive manner. Also in the active category are numbers for which a callback had been scheduled, but not completed by the time the calling ended due to achieving the necessary completes in each quota. All of the final counts for the resolved and active disposition codes for both the full survey and the fishing oversample survey are presented in Table 1.

Table 1: Resolved and Active Disposition Codes

Resolved Number Disposition Codes	Full Survey		Fishing Survey	
	Count	Percent	Count	Percent
Completed Interviews	615	38.2%	188	26.2%
Fax Machine	135	8.4%	2	0.3%
Non-working, disconnected number	605	37.6%	115	16.0%
Non-residential	142	8.8%	6	0.8%
Language/Disability barrier	32	2.0%	3	0.4%
No on in Household 18 years or older	0	0.0%	8	1.1%
R does not live in OR or did not know County or City	1	0.1%	0	0.0%
R refused to provide County or refused to provide City	2	0.1%	0	0.0%
No one in Household fished in last year	32	2.0%	383	53.3%
R does not use fishing weights	0	0.0%	6	0.8%
Suspend without callback	17	1.1%	4	0.6%
Refusal - never callback	60	3.7%	3	0.4%
Total Resolved Numbers =	1,609	100.0%	718	100.0%
Active Number Disposition Codes	Full Survey		Fishing Survey	
	Count	Percent	Count	Percent
Answering machine	876	23.2%	621	48.4%
Busy	42	1.1%	46	3.6%
No answer	245	6.5%	81	6.3%
Specific English callback	48	1.3%	7	0.5%
Suspend with English callback	5	0.1%	0	0.0%
Generic English callback	499	13.2%	124	9.7%
Refusal	94	2.5%	7	0.5%
Immediate Hang Up - timed callback	305	8.1%	90	7.0%
Not yet Called	1,665	44.1%	306	23.9%
Total Active Numbers =	3,779	100.0%	1,282	100.0%
TOTAL SAMPLE	5,388	100.0%	2,000	100.0%

The average length of completed surveys was 13.9 minutes for the full survey and 5.2 minutes for the abbreviated fishing oversample survey.

B. Sampling Plan and Sample Management

To ensure that the sample would be representative of the statewide population required some estimates and assumptions. The estimated sample size is based on: (1) the level of accuracy a researcher desires to have in the results (i.e., an estimate of the *sampling error*); (2) the *confidence* a researcher would like to have that the data gathered from the sample is representative of the entire population; and (3) *how varied* the population is thought to be related to a characteristic of interest, gathered by a two-answer question in the survey (e.g., yes/no item) (Kraemer & Thiemann, 1987⁴; Dillman, 2000⁵; Fowler, 1993⁶). The commonly accepted value for *sampling error* is plus or minus 5 percent (denoted $\pm 5\%$). A typical *confidence interval* used in survey research is 95%. The *maximum variation* in a yes/no item is 50/50; whereas less variation would be 80/20 or 90/10. The following sections describe how these assumptions were applied to both the random statewide survey and the fishing oversample survey.

Random Statewide Survey

For the random statewide survey, maximum variation (i.e., 50/50) was used to calculate the sample size. A total sample size of at least 384 was needed to be 95% confident that the overall results are those we would expect to find within the entire Oregon population. Rounding up slightly, a goal of 390 surveys was set and divided into Metro versus Non-Metro regional surveys, as requested by DEQ. An estimated 42% of Oregon's population⁷ lives in the Portland tri-county Metro area (Multnomah, Washington, and Clackamas counties); therefore, a goal of 164 surveys was set for this region. An estimated 58% of Oregon's population lives in the non-Metro area of the state; therefore, a goal of 226 surveys was set for the Non-Metro region.

DEQ also wanted to ensure that the sample would be representative of the various levels of household hazardous waste collection services. A total of 11 counties (Clackamas, Columbia, Gilliam, Hood River, Lane, Marion, Multnomah, Polk, Sherman, Wasco, and Washington Counties) have or are served by permanent collection facilities. Seven counties (Benton, Deschutes, Jackson, Lincoln, Linn, Tillamook, and Yamhill Counties) have yearly events, but do not have permanent collection facilities. The 18 remaining counties do not have permanent facilities or yearly events. To determine the breakdown of the 390 surveys that would fall into each of these household hazardous waste (HHW) service groupings, we determined the proportion of the population that lives in each of the sets of counties. An estimated 64.5% of Oregon's population lives in counties with permanent services, resulting in a goal of 252 surveys. An estimated 18.5% of Oregon's population lives in counties with events only, resulting in a goal of 72 surveys. An additional 17% of Oregon's population lives in counties without services, for a goal of 66 surveys.

The small size of the latter two samples was concerning; therefore, a power analysis was conducted to ensure that there would be enough surveys to draw statistically meaningful conclusions across levels of the variables of interest. In order for the statistical test to be valid

⁴ Kraemer, H.S. & Thiemann, S. (1987). How many subjects? Newbury Park, CA: Sage.

⁵ Dillman, D.A. (2000). Mail and internet surveys: The tailored design method. NY: Wiley.

⁶ Fowler, F.J., Jr. (1993). Survey research methods (2nd ed.). Newbury Park, CA: Sage.

⁷ For all census data, the 2000 Census was used to ensure comparability; Source: U.S. Census Bureau, Census 2000 Redistricting Data (Public Law 94-171) Summary File, Matrices PL1 and PL2

the sample sizes must be large enough to detect group differences. A reasonable level of probability (significance level) of 5% (i.e. $p < .05$) was selected. Given that preliminary evidence about household hazardous waste use/disposal for counties with different levels of HHW collection service was not available, a conventionally acceptable medium effect size of .30 was used (Cohen, 1988⁸). Additionally, the desired level of power was set at .80 (Cohen, 1988). Based on this information, a sample size of 176 surveys per group was found to be adequate for comparing the yearly event and the no services group. Combining those 352 surveys (176 in each of the two HHW service groups) with the 252 for the counties with permanent facilities, resulted in a goal of 604 total completed surveys.

Within the survey, respondents completed three primary content subsections: lawn pesticides, household cleaners, and fishing weights. To determine the appropriate sample size for these sections required the same estimates and assumptions that were originally used to calculate the entire survey sample size. Maximum variation (50/50 split) was used to estimate that a total sample size of at least 384 was needed in each section of the survey to be 95% confident that the overall results are those we would expect to find within the entire Oregon population.

Table 2 summarizes the goals and the actual number of completed surveys for the two regions, three HHW service levels and three survey sections. In all areas but one, the goals were achieved. Given the proportions of surveys completed across the regions, HHW service levels, and two survey sections (lawn care and cleaners), the 615 completed statewide surveys can be considered sufficient. [A discussion of the lower than desired number of completed surveys for fishing weights section will be presented in the next part of this methodology section.]

Table 2: Full Survey Goals and Actual Frequencies

Region	Goal	Actual
Metro	164	166
Non-Metro	226	449
Total	390	615
Hazardous Household Waste Service Level		
Hazardous Household Waste Service Level	Goal	Actual
Permanent HH Waste Collection Facilities	252	258
HH Waste Collection Events	176	179
No HH Waste Facilities or Events	176	178
Total	604	615
Survey Sections		
Survey Sections	Goal	Actual
Lawn Care	384	394
Cleaners	384	583
Fishing Weights	384	135

⁸ Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Due to the fact that all of the Metro counties have permanent HHW collection facilities and for simplicity throughout the remainder of this report, the region and HHW service level groupings were combined into the following four categories:

1. Metro Facilities: Metro counties served by permanent HHW facilities. These counties are also served by supplemental one-day “satellite” collection events.
2. Non-Metro Facilities: Non-metro counties with a permanent HHW facility. Most of these counties also are served by supplemental one-day “satellite” collection events.
3. Local Events: Non-metro counties with regular (at least annual) HHW events, but no permanent facility
4. No Local Service: Non-metro counties with neither regular HHW events nor permanent facility. At best, residents of these counties are served by infrequent DEQ-funded collection events or in some circumstances are directed to travel to another (sometimes distant) county to use a permanent facility at DEQ’s expense.

It was of interest that the random statewide survey achieve adequate statewide coverage in comparison to the 2000 Census. Overall, the survey included respondents from 33 of Oregon’s 36 counties. Gilliam, Harney and Sherman counties were not represented; however, these three counties are small and each county comprises less than 1% of Oregon’s population. Table 3 summarizes the distribution of completed surveys across the Oregon Counties and compares those to the 2000 Census figures.

Table 3: Statewide Random Sample, by County

County	Statewide Random Sample		2000 Census
	Count	Percent	Percent
Metro Facilities			
Clackamas	38	6.2	9.9
Multnomah	72	11.7	19.3
Washington	55	8.9	13.0
Non-Metro Facilities			
Columbia	8	1.3	1.3
Gilliam	0	0.0	0.1
Hood River	2	0.3	0.6
Lane	42	6.8	9.4
Marion	28	4.6	8.3
Polk	6	1.0	1.8
Sherman	0	0.0	0.1
Wasco	5	0.8	0.7
Local Events			
Benton	21	3.4	2.3
Deschutes	35	5.7	3.4
Jackson	48	7.8	5.3
Lincoln	15	2.4	1.3

County	Statewide Random Sample		2000 Census
	Count	Percent	Percent
Linn	33	5.4	3.0
Tillamook	10	1.6	0.7
Yamhill	18	2.9	2.5
No Local Service			
Baker	7	1.1	0.5
Clatsop	10	1.6	1.0
Coos	17	2.8	1.8
Crook	7	1.1	0.6
Curry	10	1.6	0.6
Douglas	31	5.0	2.9
Grant	4	0.7	0.2
Harney	0	0.0	0.2
Jefferson	8	1.3	0.6
Josephine	16	2.6	2.2
Klamath	25	4.1	1.9
Lake	7	1.1	0.2
Malheur	11	1.8	0.9
Morrow	2	0.3	0.3
Umatilla	13	2.1	2.1
Union	6	1.0	0.7
Wallowa	2	0.3	0.2
Wheeler	3	0.5	.04
TOTALS	615	100.00	100.00

Fishing Oversample Survey

Upon completion of the statewide full survey, only 135 fishing surveys had been completed. According to the Oregon Department of Fish and Wildlife⁹, 19% ($n = 479,345$) of Oregon adults aged 18 to 69 held fishing licenses in 2006. Based on this figure and sample error calculations using a variation of 70/30 (use of this more conservative figure was based on the initial percentage of 70.6% of respondents reporting that they used lead fishing weights), it was estimated that at least 322 surveys would be needed.

To target Oregonians who fish, the introduction to the survey was edited to specify “this survey is being conducted on the habits of people who fish.” A household member who was 18 years of age or older and had fished in the last year was then asked to complete the survey. A total of 188 additional fishing surveys were completed. When combined with the 135 respondents who completed the fishing weights section during the random statewide survey, a total of 323 respondents completed the fishing survey.

⁹ <http://www.dfw.state.or.us/>

C. Response Rate and Sampling Error

The response rate for each sample was calculated two different ways. The response rate was first calculated using all eligible numbers in the denominator. That included all of the numbers within the resolved and active disposition codes listed in Table 1 *except* numbers classified as fax machine, non-working, non-residential, no one in the household 18 years or older or respondent under 18, or not yet called. Numbers classified as pay phone or group home would also have been excluded from that response rate calculation, but for this survey no numbers were coded in either of those two categories. For the fishing oversample survey, this calculation also excluded the numbers classified as no one in the household had fished in the last year. The second approach to calculating the response rate was based on only resolved numbers. This indicates the proportion of all resolved numbers that are actually completed surveys. In addition to these response rates, the refusal rate was also calculated. The refusal rate included any numbers classified as respondent refused to provide their county or city, suspended without callback, general refusal, or hanging up. These counts were considered relative to the total number of used sample such that the denominator did not include any numbers that had not been called at least once.

As seen in Table 4, the random statewide full survey had higher response rates when compared to the fishing oversample survey. This was expected given the narrower eligibility requirements of the fishing survey respondents (i.e., only people who had fished within the last year). Interestingly, the fishing survey also had less than half the refusal rate.

Table 4: Response and Refusal Rates by Survey Type

	Random Statewide Full Survey	Fishing Oversample Survey
Response Rate-Eligible Numbers	21.65%	15.93%
Response Rate-Resolved Numbers	38.22%	26.18%
Refusal Rate	13.00%	6.00%

When estimating the sample size needed for a survey, one of the criteria included is the sampling error (also known as margin of error), which is the level of accuracy we would like to have in the results. Once the survey is completed, the *actual* sampling error can be calculated. For this calculation we used a confidence interval of 95%, maximum variation (50/50) and the sample sizes achieved. Based on those figures and population estimates, sampling error was calculated for the random statewide survey, the fishing oversample survey alone and combined with the fishing section of the full survey, the lawn care section of the full survey, the household cleaners section of the full survey, and the region/HHW service level groupings of counties.

Using the approach described above, the full survey and fishing survey (oversample and section from the full survey) calculated sampling errors were lower (i.e., better) than the goal of $\pm 5\%$ (Table 5). The fishing oversample survey when considered alone was the only primary sample with a sampling error above that goal. All four of the geographic samples were above the goal of $\pm 5\%$; however, three of them were only slightly higher than the goal. All of these are presented in Table 5.

Table 5: Sampling Errors

PRIMARY SAMPLES	Population	Sample Size	Sampling Error
Random Statewide Full Survey	3,421,399 ¹⁰	615	3.95%
Fishing Oversample Survey	479,345 ¹¹	188	7.15%
Fishing Survey (<i>oversample and section from the full survey</i>)	479,345	323	4.19%
GEOGRAPHIC SAMPLES	Population	Sample Size	Sampling Error
Metro Facilities	1,444,219	166	7.61%
Non-Metro Facilities	761,784	92	10.22%
Local Events	631,591	179	7.32%
No Local Service	583,805	178	7.34%
SURVEY SECTION SAMPLES	Population	Sample Size	Sampling Error
Lawn Care Section	2,199,960 ¹²	394	4.94%
Household Cleaners Section	3,421,399	583	4.06%

D. Weighting and Analysis

The random statewide survey and the fishing sample were both analyzed through the creation of a crosstab analysis report. Specific variables were paired for comparison purposes based on research questions developed by DEQ staff. All frequencies were compared using a Z-test for percentages. This significance test requires the comparison of only two groups at a time. The formula takes into account both the proportion of respondents giving the responses and sample size of the original group from which the respondents came. This test assumed a 95% confidence interval.

In order to be more representative of the Oregon population, DEQ staff requested that the data gathered from the random statewide survey be statistically weighted. The two key variables

¹⁰ U.S. Census Bureau, Census 2000 Redistricting Data (Public Law 94-171) Summary File, Matrices PL1 and PL2

¹¹ Oregon residents who fish, according to the Oregon Department of Fish and Wildlife <http://www.dfw.state.or.us/>

¹² Owner-occupied residences.

chosen for that weighting were gender and geography (counties that fall into the four categories of service level and geography). The weighting function used is designed to enable weighting by more than one variable when the desired proportions (criteria) are known only for the categories of each variable. However, the desired proportions for each combination of variable categories are unknown. Therefore, a continuous variable is computed that is then used for weighting. Each weight represents the desired proportion of the population (i.e., the actual distribution of that variable in the existing Oregon population). The sum of all weights for one criterion (i.e., variable) must equal 1.0. The following variable weights were used to extrapolate the weight of each respondent for this DEQ Survey:

- ♦ Service and Geography Level
 - No Local Service = .17063
 - Non-Metro: Local Event = .18460
 - Non-Metro Facilities = .22265
 - Metro Facilities = .42212
- ♦ Gender
 - Male = .496
 - Female = .504

E. Respondent Demographic Characteristics

The demographic characteristics of the 615 respondents who participated in the full, random statewide survey and the 323 respondents who either completed the fishing section of the full survey or participated in the fishing oversample survey are presented in Table 6. As noted above, the statewide data for the full survey have been statistically weighted to represent the gender and geographic breakdowns existing in the state of Oregon. The actual, unweighted percentages and counts of respondents by demographic characteristic for the full survey are presented in Appendix A. The fishing survey sample has not been weighted because people who fish are likely to be different than the “average Oregonian,” in terms of both location and gender. Leaving the data unweighted provides a better characterization of the typical characteristics of Oregonians who have fished in the last year.

Table 6: Demographic Characteristics of Respondents

Demographic	Full Survey Sample (n=615) <i>(weighted)</i>		Fishing Survey Sample (n=323) <i>(unweighted)</i>	
	Percent	Count	Percent	Count
Service Level & Geography				
Metro Facilities	42%	258	18%	59
Non-Metro Facilities	22%	137	20%	64
Local Events	18%	114	25%	82
No Local Service (neither permanent facility nor event)	17%	105	37%	118
Gender				
Female	50%	310	35%	114
Male	50%	305	65%	209

Demographic	Full Survey Sample (n=615) <i>(weighted)</i>		Fishing Survey Sample (n=323) <i>(unweighted)</i>	
	Percent	Count	Percent	Count
Age				
18-24 years	2%	11	1%	4
25-44 years	20%	122	22%	70
45-64 years	45%	279	49%	159
65-80 years	26%	161	23%	74
81-95 years	6%	37	5%	15
Refused	1%	6	0%	0
Race/Ethnicity				
White	92%	563	95%	306
Spanish, Hispanic or Latino	2%	14	1%	3
American Indian or Alaskan Native	1%	7	2%	7
Asian or Pacific Islander	1%	6	1%	2
Black or African-American	1%	6	0%	0
Other	<1%	1	0%	0
Don't Know	<1%	3	<1%	1
Refused	3%	17	1%	4
2007 Annual Household Income				
Less than \$15,000	7%	43	5%	16
\$15,000 to less than \$25,000	8%	49	10%	33
\$25,000 to less than \$35,000	11%	68	14%	46
\$35,000 to less than \$50,000	16%	97	15%	47
\$50,000 to less than \$75,000	16%	97	19%	62
\$75,000 to less than \$100,000	12%	71	16%	52
\$100,000 or more	18%	113	13%	41
Don't Know	3%	18	1%	3
Refused	10%	159	7%	23
Children Under the Age of 8 Years in Household (hereafter labeled "young children")				
No	83%	511	85%	273
Yes	17%	103	15%	50
Refused	<1%	1	0%	0
Pets That Walk on the Lawn				
Yes	58%	359	74%	100
No	41%	255	26%	35
Refused	<1%	1	0%	0
Home Ownership				
Own	85%	525	86%	279
Rent	14%	83	11%	35
Other	1%	6	2%	8
Refused	<1%	1	0%	0
Type of Housing				
Single Family Home	89%	547	95%	308
Larger Apartment or Condo Complex	8%	48	2%	8
2-, 3-, or 4-Plex	3%	18	2%	6
Refused	<1%	2	<1%	1

The sample of respondents who participated in the random statewide survey did not fully represent the racial/ethnic, age and income distributions found within the Oregon population. The sample included larger proportions of whites (92% of the sample was white vs. 89% in the population), older adults (32% of the sample was 65 years or older vs. 13% in the population), homeowners (85% of the sample vs. 64% of the population), and homes with lower annual household incomes (46% of the sample was \$50,000 or more vs. 49% of the population). In addition, the survey was only conducted in English; however, only 88% of Oregon households have only English only spoken in the home. These slight variations from the general Oregon population should be taken into consideration when reviewing the findings found within this report.

The following sections of this report include a thorough review of the data gathered from the DEQ Household Hazardous Waste Survey. Throughout the presentation of the full survey results, excluding the fishing survey, only *weighted* data are being reported so that the results can be generalized to Oregonians statewide. All statistical significance noted is at the 95% confidence level, except in a few cases where the statistical difference between groups is noted as *somewhat* more likely, or *somewhat* less likely, in which case the confidence level is at 90%. Significance is only highlighted for those comparisons with more than five respondents in all of the groups being compared in order to focus on meaningful differences. Another way that meaningful differences were focused on was to not highlight significant differences when group proportions were either both very high (e.g., percentages in the 90s) or very low (e.g., percentages below 10). Finally, the notation of “n” is used to denote sample size, and percentages in parentheses throughout the text refer to the group immediately preceding them.

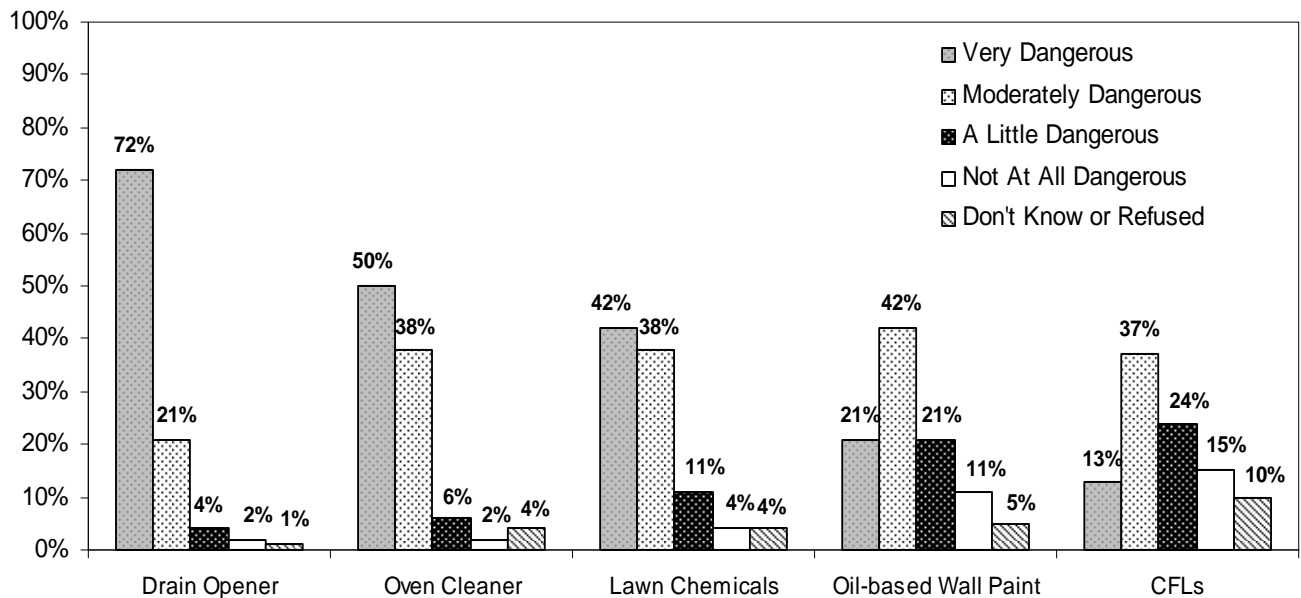
II. GENERAL QUESTIONS

The first section of the full survey included a set of general questions about common household products. The questions addressed perceived dangerousness of those products and whether the respondents had purchased the products, had leftovers they wanted to get rid of, and the manner in which the products were disposed of. More specifically, respondents were asked about their willingness to dispose of compact fluorescent light bulbs by returning them to the store and their willingness to return unwanted pharmaceuticals to a pharmacy or by mail. Questions also addressed respondents' use of HHW collection services and reasons for not using them. Finally, respondents provided their perception of product safety and thoughts about the responsibilities of manufacturers.

A. Perceived Danger of Common Household Products

All statewide survey respondents were asked how dangerous they considered five common household products to be. The products were oven cleaner, drain opener, compact fluorescent light bulbs (abbreviated CFLs for the remainder of this report), lawn chemicals, and oil-based wall paint. The degree of danger was rated on a 4-point scale and all respondents were asked to provide a rating even if they don't use a product. The distributions of ratings for each household product are presented in Figure 1. The products are listed in order of perceived danger, with drain opener being perceived as the most dangerous and CFLs perceived as least dangerous. The first four products had the majority of ratings in "very" and "moderately" dangerous, while CFLs had the majority of ratings in "moderately" and "a little" dangerous. CFLs also had the highest proportion of "not at all dangerous" (15%) and respondents who did not know (9%) or refused to answer the question (1%).

Figure 1: Dangerousness Ratings of Household Products (n=615)



Characteristics of People Who Perceive Higher Danger of Household Products

In general, respondents who were more likely to rate drain opener, oven cleaner, lawn chemicals, and oil-based wall paint as more dangerous included women, 25- to 64-year-olds, people with young children in the home, and people with pets. Specific significant and meaningful demographic differences found across the different types of products are presented in Table 7, which shows that there was slight variation on the demographic differences across some of the household products. [Percentages for each demographic group across all of the comparisons can be found in Section II of Appendix A.]

Table 7: Significant Demographic Differences in Ratings of Product Danger (n=615)

Demographic Rating a Product as <i>Very Dangerous</i>	Drain Opener	Oven Cleaner	Lawn Chemicals	Oil-based Wall Paint	CFLs
Women <i>more than</i> Men	✓	✓	✓	✓	
25 to 64-year olds <i>more than</i> 65 to 95-year-olds	✓	✓			
25 to 64-year olds <i>more than</i> 65 to 80-year-olds				✓	✓
25 to 44-year olds <i>more than</i> 45 to 95-year-olds			✓		
People with young children <i>more than</i> without young children	✓	✓	✓	✓	✓
People with pets <i>more than</i> people without pets	✓	✓	✓		
\$15,000-\$24,999 income <i>more than</i> \$35,000-\$49,999		✓			
\$25,000-\$34,999 income <i>more than</i> \$100,000 or more				✓	
\$75,000-\$99,999 income <i>more than</i> \$100,000 or more			✓		✓
\$50,000-\$74,999 income <i>more than</i> below \$15,000 <i>[reversed direction]</i>	✓				
Demographic Rating a Product as <i>Moderately Dangerous</i>	Drain Opener	Oven Cleaner	Lawn Chemicals	Oil-based Wall Paint	CFLs
People with pets <i>more than</i> people without pets				✓	
Men <i>more than</i> Women <i>[reversed direction]</i>					✓

The majority of significant differences were found for the very dangerous rating; however, two of the differences were only seen when looking at the moderately dangerous rating. In addition, the direction of the relationship was reversed for two of the differences. Respondents were fairly consistent in their level of ratings across different products, such that those who rated one product as “very dangerous” were more likely to rate other products as “very dangerous”. There were no significant differences geographically, by different service levels, type of housing, or home ownership.

B. Purchase and Disposal of Common Household Products

All statewide survey respondents were asked a series of questions about each of six different household products. Everyone was first asked, “Have you ever purchased *[product]*?” Respondents who had ever purchased a particular product were asked, “Did you ever have any leftover you wanted to get rid of?” Table 8 presents those weighted statewide data. Lawn chemicals and chlorine were most likely to be used up (i.e., leftovers aren’t accumulated); whereas, respondents tended to have paint and pharmaceutical leftovers that they wanted to dispose of in some manner. The question regarding disposal of leftovers was not asked for CFLs because unused bulbs would still be functional and would not need to be disposed of.

Table 8: Proportion of Oregonians Who Purchased Household Products (n=615)

Product <i>(listed in descending order of PURCHASING frequency)</i>	Purchased the Product		Purchasers Who Wanted to Get Rid of Leftovers ²	
	Percent	Number	Percent	Number
Pharmaceuticals	n/a ¹	615	67%	409
Latex or Water-based Wall Paint	93%	570	70%	400
CFLs ³	75%	461	n/a ⁴	n/a ⁴
Lawn Chemicals	70%	428	21%	88
Oil-based Wall Paint	51%	313	64%	201
Pool or Hot Tub Chlorine	26%	158	10%	15

¹Respondents were not asked if they had ever purchased pharmaceuticals; therefore, it can be assumed that 100% of the sample was asked about disposal.

²The percentages in this column represent the proportion of only those respondents who purchased the product, not the total sample.

³The percentage and count for CFLs includes both purchasers and a small proportion of respondents who had been given the product.

⁴Respondents were not asked if they wanted to get rid of leftovers. It was assumed that unused bulbs would still be usable and, therefore, not needing disposal.

The respondents who reported having leftover products were asked how they got rid of them. Purchasers of CFLs were also asked about disposal methods for bulbs that had burned out. For each of the products, respondents could list as many methods of disposal as they had used. Interviewers coded the unprompted responses into categories, which varied slightly by product. For example, for oil-based wall paint, the categories available to interviewers for coding included “flushed it down the sink or toilet” and “put it in a storm drain”, which were not available codes for CFLs. Table 9 includes the top three approaches for each of the six household products. [Very few respondents (less than 10%) used other approaches (e.g., recycled, dumped on the ground, took back to the store, put in a storm drain); therefore, they were not listed in the table.] Both percentages and counts of respondents are included in the table because, in some cases, it is important to take both into account when interpreting the data. For example, the total number of respondents who were asked this question for lawn chemicals (n=88) and pool or hot tub chlorine (n=15) is much smaller than for the other products.

These data show that latex and oil-based paints, as well as lawn chemicals, are most commonly taken to a hazardous waste collection facility or event, or they are stored for later use. However, when CFLs and chlorine are disposed of, they most often go into the garbage (i.e., the landfill). In addition, pharmaceuticals are most likely to be flushed or thrown in the garbage.

Table 9: How Oregonians Disposed of Household Products

Product <i>(listed in descending order of LEFTOVER frequency)</i>	First Most Common Disposal Method	Second Most Disposal Method	Third Most Common Disposal Method
CFLs	Garbage 49% (n=225)	Not Out Yet 31% (n=142)	Event/Facility 10% (n=47)
Latex/Water-based Wall Paint	Event/Facility 50% (n=201)	Storage 19% (n=74)	Garbage, Dry 16% (n=63)
Pharmaceuticals	Flushed 43% (n=176)	Garbage 42% (n=171)	Storage 8% (n=32)
Oil-based Wall Paint	Event/Facility 64% (n=129)	Storage 15% (n=30)	Garbage 10% (n=21)
Lawn Chemicals	Event/Facility 44% (n=38)	Storage 28% (n=25)	Garbage 16% (n=14)
Pool or Hot Tub Chlorine	Garbage 29% (n=5)	Storage 26% (n=4)	Event/Facility 25% (n=4)

NOTE: Data is from the weighted statewide sample.

Key: Garbage = Threw it in the garbage. For latex paint, it was specified as dry when thrown in the garbage.

Event/Facility = Took it to a special event or facility where hazardous wastes are collected.

Flushed = Flushed it down the sink or toilet.

Storage = I didn't get rid of it. I still have it in storage.

Not Out Yet = They haven't burned out yet.

Relatively small numbers of respondents reported managing discards using methods other than garbage, recycling, household hazardous waste, or storage. Refer to Appendix D for a list of these other responses.

Do disposal methods differ depending on HHW service level?

As presented in the introduction, the respondents can be divided into four categories of HHW service level and geography: (1) Metro Facilities, (2) Non-Metro Facilities, (3) Local Events, and (4) No Local Service. Looking at the methods of disposal with respect to type of HHW service, the list below highlights the differences that were statistically significant and meaningful. For each household product, the most common disposal method listed in the previous section is repeated for context.

CFLs:

Statewide, 49% of respondents throw CFLs in the garbage.

- Respondents from Non-Metro Facilities (33%) were significantly *less likely* to throw CFLs in the garbage than those from Metro Facilities (51%), Local Events (54%), or No Local Service (58%). According to DEQ staff, this likely represents higher levels of

awareness and service in Marion and Lane Counties, which comprise the majority of residents in the Non-Metro Facilities population.

Latex Paint:

Statewide, 50% of respondents reported taking latex paint to an event or facility

- Respondents from No Local Service (30%) were significantly *more likely* to throw **dried latex paint** in the garbage than those from Local Events (16%), Metro Facilities (13%), or Non-Metro Facilities (11%).
- Respondents from No Local Service (34%) were also significantly *less likely* to take **latex paint** to an event or facility than those from Local Events (62%), Non-Metro Facilities (51%), or Metro Facilities (50%).

Pharmaceuticals:

Statewide, nearly equal numbers of respondents throw pharmaceuticals in the garbage (42%) or flush them down the sink or toilet (43%).

- Respondents from Non-Metro Facilities (20%) were significantly *less likely* to throw **pharmaceuticals** in the garbage than those from No Local Service (43%), Local Events (46%), or Metro Facilities (48%).
- Respondents from Metro Facilities (35%) were significantly *less likely* to flush **pharmaceuticals** down the sink or toilet than those from No Local Service (49%) or Local Events (57%).

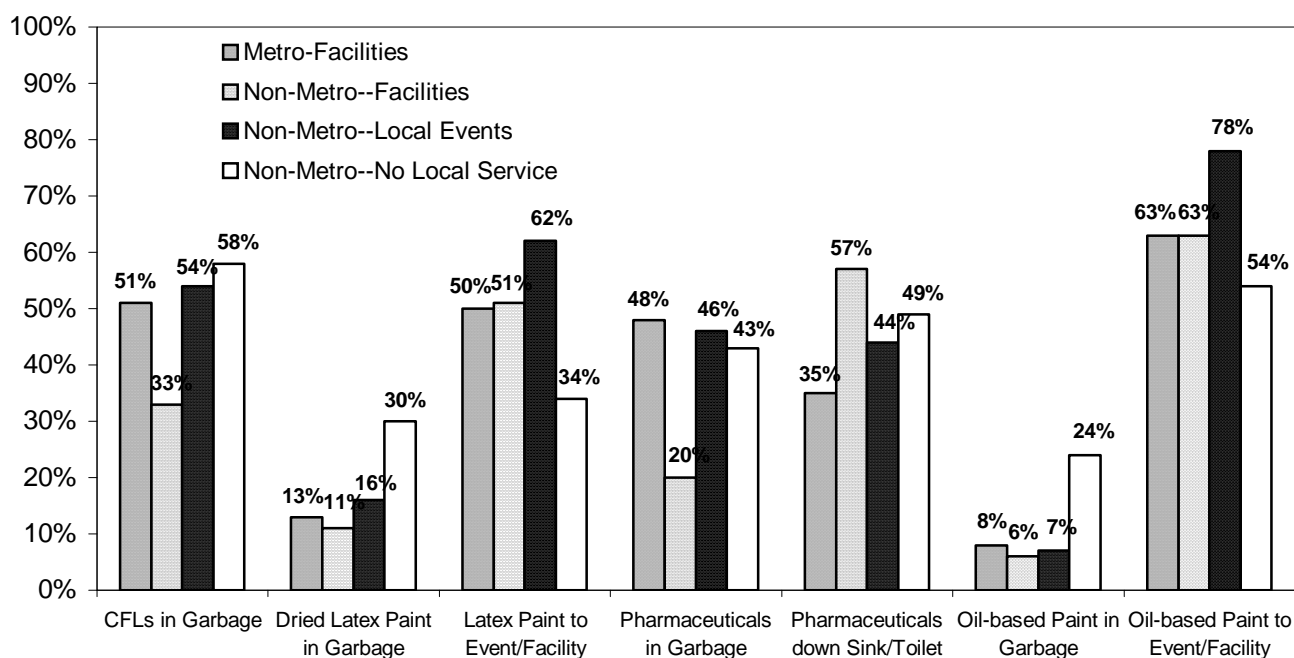
Oil-based Wall Paint:

Statewide, 64% of respondents take oil-based paint to a special event or facility, while only 10% put it in their garbage.

- Respondents from No Local Service (24%) were significantly *more likely* to throw **oil-based paint** in the garbage than those from Local Events (7%) or Metro Facilities (8%).
- Respondents from No Local Service (54%) were significantly *less likely* to take **oil-based paint** to an event or facility than those from Local Events (78%).

Figure 2 presents these same data graphically and includes the proportions of respondents for all four levels of HHW service. Only those differences listed above were statistically significant and meaningful.

Figure 2: Significant Differences in Disposal Methods across HHW Service Levels



All other comparisons were either not statistically significant or the sample sizes being compared were too small to be meaningful.

Does perception of product danger influence purchasing?

A few differences were found when looking at the influence of the perceived danger of a household product and the respondents’ tendency to purchase that product. The following differences were statistically significant, the last of which is in a different direction than expected.

- Respondents who rated **lawn chemicals** as a little dangerous (85%) and moderately dangerous (75%) were significantly *more likely* to purchase those products than those who rated them as very dangerous (64%).
- Respondents who rated **oil-based paint** as not at all dangerous (66%) were significantly *more likely* to purchase those products than those who rated them as moderately dangerous (50%) or very dangerous (42%).
- Respondents who rated **oil-based paint** as a little dangerous (55%) were significantly *more likely* to purchase those products than those who rated them as very dangerous (42%).
- Respondents who rated **CFLs** as very dangerous (85%) were significantly *more likely* to purchase those products than those who rated them as moderately dangerous (74%).

Does perception of product danger influence disposal methods?

In general, the level of perceived dangerousness of a given product did not influence respondents' management of unwanted quantities of it, with only one difference showing statistical significance. Respondents who perceived oil-based paint as **a little dangerous** (24%) were *more likely* to store it than those who perceived it as **moderately dangerous** (10%).

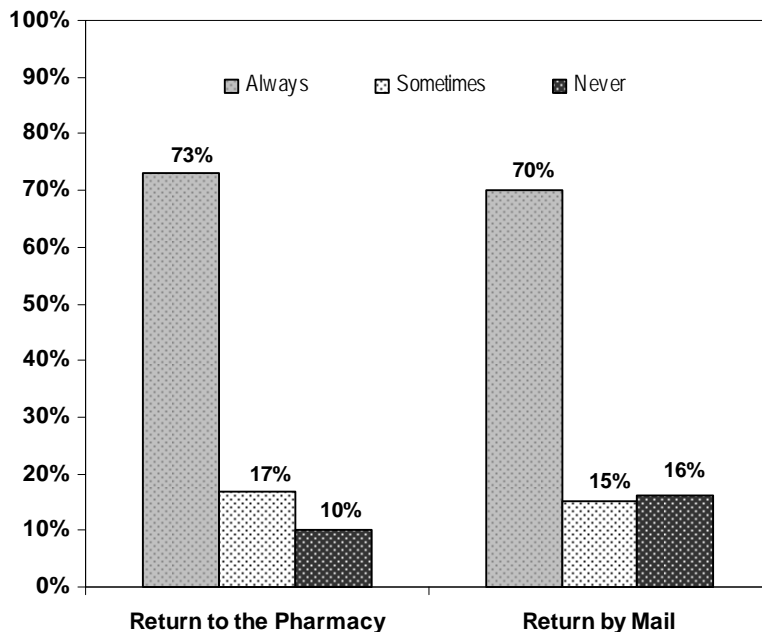
Willingness of Oregonians to Return Old CFLs to the Store

All respondents who had purchased or been given CFLs (n=461) were asked, "Would you be willing to take old compact fluorescent light bulbs back to the store where you bought them, if they accepted them for recycling?" A large majority (89%) of respondents reported being willing to return their CFLs. There were no geographic differences in willingness to return CFLs, nor did people with different disposal approaches differ. However, women (96%) were significantly more willing than men (83%) and 25- to 64-year-olds (95%) were more willing than 65- to 80-year-olds (86%). There was also a general trend for respondents from lower income levels (less than \$50,000) to be more willing to recycle CFLs at the store than respondents from higher income levels (more than \$50,000).

Willingness of Oregonians to Return Unwanted Pharmaceuticals

All respondents who had unwanted pharmaceuticals were asked two questions: "How often would you be willing to take unwanted medications to a pharmacy in your area, if they accepted them for safe disposal?" and "If your pharmacy provided postage-paid mailing envelopes, how often would you be willing to mail your unwanted medications in for safe disposal?" Figure 3 shows that the majority of respondents are willing to return pharmaceuticals either to a pharmacy or by mail.

Figure 3: Willingness to Return Unwanted Pharmaceuticals (n=409)



For these items, women were significantly more willing to *always* return pharmaceuticals to a pharmacy (80%) and by mail (76%) than were men (64% and 63%, respectively). In addition, respondents from Non-Metro Facilities (18%) were more likely than respondents from Metro Facilities (8%) to *never* return them to a pharmacy. Two other demographics showed significant differences for willingness to *always* return pharmaceuticals by mail: those who rent (82%) were more likely than those who own their home (67%), and those with incomes of \$100,000+ (77%) or \$35,000-\$49,999 (79%) were more likely than those with incomes of \$50,000-\$74,999 (61%). Respondents with incomes of \$35,000-\$49,999 (79%) were also more likely than those with incomes of \$25,000-\$34,999 (61%) to return pharmaceuticals by mail. There were no differences across respondents with different approaches to disposal (e.g., garbage, flush, recycle) for willingness to either return pharmaceuticals to the pharmacy or by mail.

C. Use of Household Hazardous Waste Collection Services

Two-thirds (67%) of all statewide survey respondents reported having taken leftover or unwanted products to a household hazardous waste collection event or facility at any time in the past. Individuals from Local Events counties (74%) and from Metro Facilities counties (70%) were significantly more likely to have used HHW collection services than those from No Local Service counties (54%). Although a large proportion of respondents from Non-Metro Facilities counties (66%) also reported having used HHW collection services, the difference was not statistically significant. According to DEQ staff, these figures may over-represent actual use of HHW collection services. The data that DEQ has been collecting since 1991 suggest that fewer residents actually use these services.

Other significant demographic differences in use of HHW collection services were:

- 45- to 64-year-olds (71%) and 65- to 80-year olds (69%) were *more likely* than 25- to 44-year-olds (57%).
- Home owners (70%) were *more likely* than renters (49%).
- Households with an annual income of \$25,000 or more (individual income categories ranged from 67% to 77%) were *more likely* than those with an annual income of \$15,000-\$24,999 (50%) and less than \$15,000 (48%).

Why are HHW collection services not used?

The respondents (32%) who reported having never taken leftover or unwanted products to a household hazardous waste collection event or facility were asked why they had never used those services. If respondents provided more than one reason, interviewers were instructed to ask, “What is the main reason?” Interviewers coded the unprompted responses into categories. Table 10 summarizes the reasons non-users gave both in total and by HHW service level. Because the largest proportion of responses fell into the “other” category, those were further broken down into the coded responses listed. Interestingly, the largest proportion of respondents (31%) did not use HHW collection services because they did not have any leftovers or unwanted products to dispose of. The next most common reason, “Don’t know if we have any service,” was almost as likely for respondents in Metro counties, which have a facility (21%), as it was for respondents in No Local Service counties, which truly don’t have any service (24%).

When two of the reasons are considered together, 20% of respondents reported never thinking about using HHW collection services or thinking that it isn't needed or worth the effort.

Table 10: Reasons for Not Using HHW Collection Services (n=200)

Reasons for Not Using HHW Collection Services <i>(listed in descending order of TOTAL frequency)</i>	Total	HHW Service Level			
		Metro Facilities	Non-Metro Facilities	Local Events	No Local Service
Other – coded into the following responses ¹ :	47%	46%	59%	53%	32%
Don't have any leftovers or unwanted products	31%				
Don't buy those products	4%				
Forgot, lazy, inconvenient, or don't do that sort of thing	3%				
Don't drive or have someone else do that	2%				
Has someone else do that	2%				
Throw away	1%				
Other (e.g., too complicated, too dangerous, too expensive)	1%				
Don't know if we have any service	16%	21%	2%	12%	24%
Don't think it is needed/Isn't worth the effort	11%	10%	12%	9%	12%
Have never thought about it	9%	9%	14%	5%	7%
Schedule/Timing of service not convenient	6%	7%	2%	6%	6%
Don't have any service	6%	2%	5%	8%	11%
Too far to travel	3%	5%	2%	2%	2%
Don't like to wait in line (at event, facility)	<1%	0%	0%	2%	1%
Don't Know/Refused	2%	0%	2%	3%	6%

¹Data for the coded responses in the “Other” category did not have the HHW Service Level proportions calculated. Also, the percentages for all of the further coded “Other” responses total only 44% because they were based on “unweighted” data.

D. Perception of Product Safety and Role of Manufacturers

All respondents were asked a series of questions rating their level of agreement with four statements related to product safety and the responsibilities of manufacturers. Table 11 summarizes the distribution of responses for each of those four questions. The spread of respondents across the ratings suggests that they do not agree about the safety of household cleaners or lawn chemicals. However, looking at the “strongly agree” and “somewhat agree” ratings combined, there is a tendency for more people to believe that household cleaners are safe (39%) relative to lawn chemicals (31%)

Table 11: Perceptions of Product Safety and Manufacturer Responsibility (n=615)

Item	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Don't Know or Refused
I trust that the household cleaners I find in the store are safe for me, my family, and the environment.	6%	33%	30%	30%	<1%
I trust that the lawn chemicals I find in the store are safe for me, my family, and the environment.	7%	24%	29%	38%	1%
Manufacturers should be required to provide a complete list of ingredients in their products.	84%	11%	3%	2%	0%
Manufacturers should be required to share in the responsibility for safely recycling or disposing of the products they make and sell to consumers.	68%	21%	5%	6%	<1%

Looking at the demographic characteristics of the respondents, the following statistically significant and meaningful differences were found.

Strongly DISAGREE that Household Cleaners Are Safe:

- Women (40%) were *more likely* than men (20%).
- 45- to 64-year-olds (36%) were *more likely* than 65- to 80-year-olds (23%).
- Respondents with young children (41%) were *more likely* than those without (30%).
- Respondents with pets (35%) were *more likely* than those without (23%).

Strongly DISAGREE that Lawn Chemicals Are Safe:

- Women (50%) were *more likely* than men (26%).
- 45- to 64-year olds (44%) were *more likely* than 65- to 80-year olds (31%).
- Respondents with pets (43%) were *more likely* than those without (32%).
- Households with incomes of \$25,000 to \$34,999 (50%) were *more likely* than those with incomes of \$50,000 to \$74,999 (34%).

Strongly AGREE that Manufacturers Should Provide a Complete List of Ingredients:

- Women (90%) were *more likely* than men (78%).
- Households with an annual income of \$25,000 to \$99,999 (individual income categories ranged from 85% to 90%) were *more likely* than those with an annual income of \$15,000-\$24,999 (72%).

Strongly AGREE that Manufacturers Should Share in the Responsibility for Safe Recycling:

- Women (73%) were *more likely* than men (63%).
- Respondents with young children (77%) were *more likely* than those without (66%).
- Households with an annual income of \$25,000 to \$34,999 (79%) and \$35,000 to \$49,999 (78%) were *more likely* than those with an annual income of \$50,000 to \$74,999 (62%).

In addition, although the level of statistical significance varied across the items, higher perceived danger ratings of common household products corresponded with lower product safety and higher manufacturer responsibility ratings.

III. LAWN CARE

Respondents in the full, statewide survey were asked if they participated in, or knew about, the care of their lawn and purchasing of lawn supplies. “Lawn” in this case excluded any gardens, flowers, vegetables, or trees. Those that replied yes were then asked several questions regarding their use of lawn care products and lawn care practices, as well as questions to measure their attitudes about lawns and lawn care. A total of 398 respondents, or 65%, from the statewide survey completed the section on lawn care. 11% of respondents have no yard, while another 7% reported using a lawn care service, and did not complete the lawn care portion of the survey.

A. Turf Management Practices

Respondents were asked a series of questions related to how they take care of their lawns, to identify those who are using low-intensity turf management practices. Respondents were asked the following questions:

1. How many times a week do you water your lawn in the summer?
2. Do you normally leave grass clippings on the lawn after mowing, or do you remove them?
3. What do you think is the recommended height to set mower blades to keep your lawn healthy?

Low-intensity turf management includes watering the lawn once a week or less, or not at all, during the summer, leaving grass clippings on the lawn after mowing, and setting the height of the lawn mower blades to three inches or more. A total of 56% of respondents who leave grass clippings on their lawn after mowing also water once a week or less, or never, in the summer, while just 40% of respondents who remove grass clippings water once a week or less, or never. There was no significant relationship between reported mower blade height and other turf management practices.

Table 12 illustrates the percentage of Oregonians who are practicing low-intensity turf management by watering once a week or less, or never, in the summer; leaving grass clippings on the lawn; and reporting a recommended mower blade height of 3 inches or more.

Table 12: Proportion of Oregonians with Low-Intensity Turf Management (n=398)

Low-Intensity Turf Management Practices	HHW Service Area				
	Total	Metro Facilities	Non-Metro Facilities	Local Events	No Local Service
Water once a week or less, or never, in summer	46%	51%	51%	39%	37%
Leave grass clippings on lawn after mowing	41%	34%	48%	42%	43%
Mower blade height of 3 inches or more	34%	35%	33%	32%	36%

Watering Lawns in the Summer

Overall, 46% of Oregonians report low-intensity turf watering - watering their lawns once a week or less, or never, during the summer - but a majority (53%) are watering twice a week or more. Table 13 shows the frequency at which Oregonians are watering their lawns during the summer.

Table 13: Frequency Oregonians Water Their Lawns in Summer (n=398)

Frequency of Watering in Summer ¹	Total	HHW Service Area			
		Metro Facilities	Non-Metro Facilities	Local Events	No Local Service
Never	19%	26%	15%	19%	13%
Once a week or less	27%	26%	36%	21%	24%
Two to Four times a week	42%	39%	41%	50%	41%
Five to Seven times a week	11%	8%	9%	11%	21%

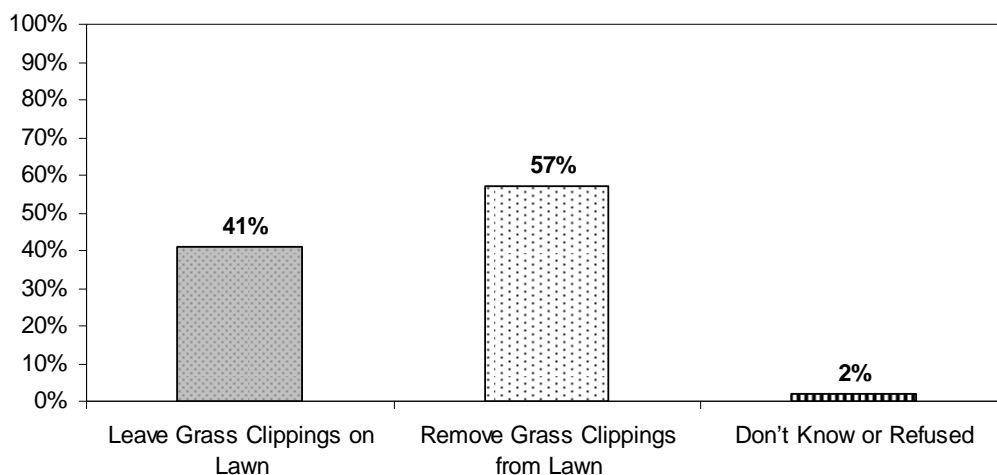
¹Data originally included nine categories from 'Never' to 'Every Day'. Significance ratings were lost when numbers were recalculated into the four categories presented here.

When looking at the frequency of watering by HHW service area, respondents in the Metro Facilities area had the highest proportion of respondents that report low-intensity turf watering, with 52% of Metro area residents watering their lawns once a week or less, or not at all, during the summer. Respondents in the No Local Service area (62%) had the highest proportion of respondents watering their lawns *more* than once a week during the summer.

Grass Clippings

Figure 4 illustrates how Oregonians deal with their grass clippings after mowing the lawn. The majority (57%) remove the grass clippings from their lawn. The Metro Facilities area (64%) has the highest proportion of respondents who remove their grass clippings, while the Non-Metro Facilities area (48%) has the highest proportion who leave the grass clippings, although the differences across HHW service area are not statistically significant.

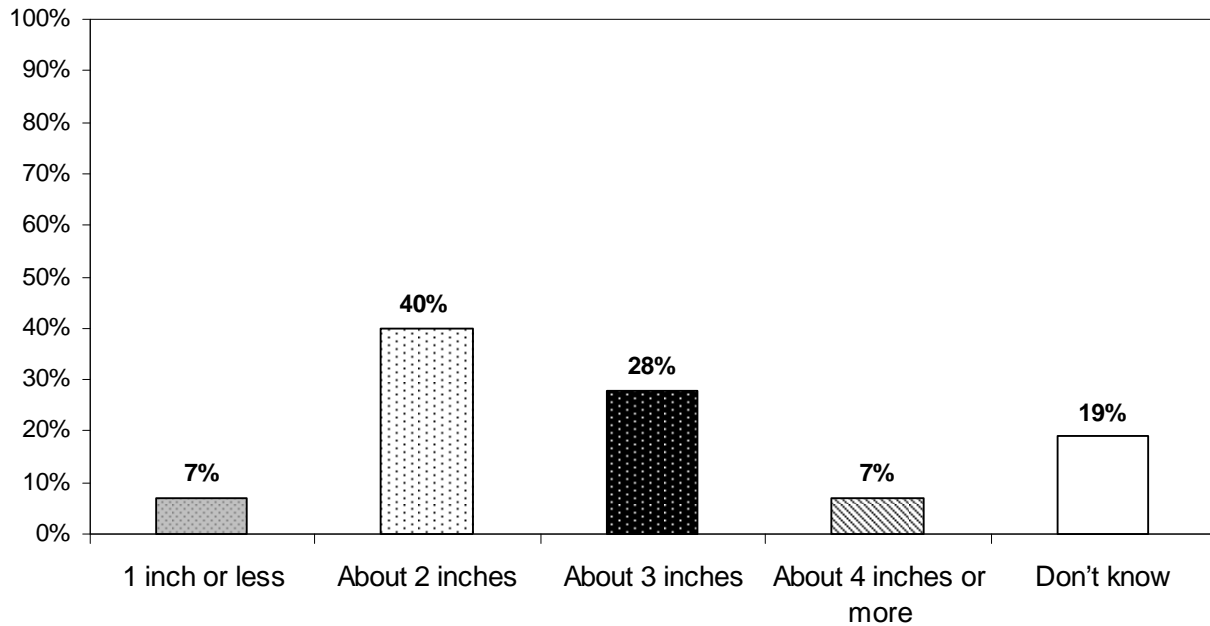
Figure 4: How Oregonians Deal with Grass Clippings (n=398)



Mower Blade Height

A total of 81% of respondents answered with what they thought is the recommended height for mower blades, while 19% said they did not know (see Figure 5). It should be noted that respondents were asked what they thought the recommended height for mower blades was to keep their lawn healthy, and not what height they actually set their mower blades at. Therefore, it is important to consider in the analysis that responses to this question may not reflect the respondents' actual practices. Just 34% of respondents answered with the correct height of three inches or more.

Figure 5: Recommended Mower Blade Height (n=398)



Low-Intensity Turf Managers

When looking at demographics and turf management practices, the following differences emerge between those following low-intensity turf management practices and those who do not:

- ♦ Households with an estimated annual income of \$100,000 or more had the *highest* proportion of respondents who water their lawns **five to seven times a week** in the summer (21%), and the *lowest* proportion of respondents (11%) who **never water** their lawns.
- ♦ Households with an estimated annual income of less than \$15,000 had the *highest* proportion of respondents who **never water** their lawns (34%).
- ♦ Households earning less than \$15,000 annually (65%) had the *highest* proportion of respondents with low-intensity turf management, reporting watering **once a week or less**, or **never**. Conversely, just 41% of respondents from households earning \$75,000 or more annually water their lawns **once a week or less**, or **never** in the summer.

- 45- to 64-year-olds (48%) were *more likely* to **leave clippings** than those of other age groups, with a significant difference compared to 25- to 44-year-olds (33%), and 65- to 80-year-olds (32%).
- 65- to 80-year olds (31%) were significantly *more likely* to report not watering their lawn compared to 45- to 64-year olds (18%) or 25- to 44-year olds (12%).
- Households with pets that walk on the lawn (44%) are significantly *more likely* to **leave clippings on the lawn** than those without pets that walk on the lawn (32%).
- Women (25%) were significantly *more likely* than men (13%) to say they **don't know** the recommended height for mower blades to keep their lawn healthy, but of those who provided a response, there were no significant differences in responses between men and women.

There were no significant differences in turf management practices when looking at other demographic categories such as race, presence of children in the home, or home ownership.

B. Use of Lawn Pesticides

Respondents were given a list of common lawn care products and asked if they had applied each of the following types of products to the entire lawn in the last twelve months: **Combination weed and feed product, weed killer, moss controller, and insect controller**. Respondents were also asked if they had applied a **spot spray chemical weed killer** to just certain spots on their lawn. For each product, less than 50% of Oregonians have used any in the last twelve months.

Table 14 presents the total proportion of Oregonians who reported having used each type of product in the last year, as well as the proportion of respondents who have used each type of product by HHW service level. The products are listed in order of prevalence, with **spot spray chemical weed killer** being the *most commonly* used product, and **insect controller** being the *least commonly* used.

Table 14: Proportion of Oregonians Who Use Lawn Pesticides (n=398)

Product <i>(listed in descending order of usage frequency)</i>	Used the Product on Lawn in the Last Year				
	Total	Metro Facilities	Non-Metro Facilities	Local Events	No Local Service
Spot Spray Chemical Weed Killer ¹	47%	48%	40%	52%	48%
Combination Weed and Feed Product ²	44%	42%	41%	45%	48%
Weed Killer ²	29%	23%	30%	25%	44%
Moss Controller ²	23%	27%	25%	21%	15%
Insect Controller ²	17%	13%	17%	18%	24%

¹Respondents were asked “Do you use a spot spray chemical weed killer that you apply to just certain spots on your lawn?”

²Respondents were asked if they had applied the product to their *entire lawn*.

There were no significant differences in usage of products when compared across HHW service areas, except for **weed killer**, with respondents in the No Local Service category significantly

more likely to have used weed killer on their entire lawn than respondents from other service areas. It should be noted that a response choice for fertilizer was originally included in this item; however, it was deactivated along with other items before the survey was completed to reduce the overall length of the survey.

Characteristics of Lawn Pesticide Users

In considering the demographic characteristics of those using lawn pesticides there were no significant trends that emerged consistently across all types of pesticides. Generally speaking, those with higher incomes, those who owned their homes, and those without pets were more likely to have used certain lawn products than other groups. In terms of attitudes, those who use chemicals are more likely to rate them as safe, and as more effective and easier than alternative natural methods.

When considering the demographic characteristics of respondents, the following differences were statistically meaningful:

- Respondents reporting household incomes of \$50,000 or more (51%) were significantly *more likely* than those earning less than \$50,000 (33%) to have used a **combination weed and feed product**. Those earning \$75,000 or more (52%) had the *highest rate of usage*, while those earning less than \$25,000 (22%) had the *lowest rate of usage*.
- 65- to 80-year-olds (28%) had the *highest rate of usage* of **insect controller** on their lawns, and are significantly *more likely* to have used an **insect controller** on their lawns when compared to 24- to 44-year-olds (13%), or 45- to 64-year-olds (14%).
- Households without pets (23%) are somewhat *more likely* to have used **insect controller** on their lawns than households with pets (15%). Households without pets (54%) are significantly *more likely* to have used a **spot spray chemical weed killer** than households with pets (43%).
- Men (29%) are significantly *more likely* to have used a **moss controller** on their lawns than women (16%). Men (51%) are also somewhat *more likely* to have used a **spot spray chemical weed killer** than women (42%).
- Respondents who own their homes (25%) are significantly *more likely* than those who rent (4%) to have used a **moss controller** on their lawns.

In considering the attitudinal characteristics of those using lawn pesticides, the responses to the following questions were analyzed:

1. “I trust that the lawn chemicals I find in the store are safe for me, my family, and the environment.”
2. “Using lawn chemicals is easier than using natural methods.”
3. “Chemical methods are more effective than natural methods of lawn care.”
4. “Having a green, mostly weed-free lawn all year round is important to me.”

Respondents were given the option to **strongly disagree, somewhat disagree, somewhat agree, or strongly agree** with each of the above statements. In general, those who **somewhat or strongly agreed** with the above statements were *more likely* to have used lawn pesticides than those who **somewhat or strongly disagreed** with the statements. The following statistically significant trends emerged among responses to each of the four statements:

“I trust that lawn chemicals I find in the store are safe for me, my family, and the environment.”

- Those who strongly disagreed (29%) are significantly *less likely* to have used a **spot spray chemical weed killer** than those who somewhat disagreed (61%), or somewhat agreed (56%)
- Those who strongly disagreed (27%) are significantly *less likely* to have used a **combination weed and feed product** on their lawns than those who somewhat disagreed (52%) or somewhat agreed (60%).
- Those who strongly disagreed (18%) are significantly *less likely* to have used a **weed killer** on their entire lawn than those who somewhat disagreed (36%) or somewhat agreed (38%).
- Those who strongly disagreed (10%) are significantly *less likely* to have used a **moss controller** on their lawns than those who somewhat disagreed (32%) or somewhat agreed (30%).
- Those who strongly disagreed (7%) are significantly *less likely* to have used an **insect controller** on their entire lawn than those who somewhat disagreed (23%) or somewhat agreed (22%).

See Figure A1 in Appendix A for the percentage of respondents who use each lawn product based on their level of agreement with the statement, “I trust that the lawn chemicals I find in the store are safe for me, my family, and the environment.”

“Using lawn chemicals is easier than using natural methods.”

- Those who strongly disagreed (26%) are significantly *less likely* to have used a **spot spray chemical weed killer** than those who somewhat agreed (59%) or strongly agreed (52%).
- Those who strongly disagreed (18%) that using lawn chemicals is easier than natural methods are significantly *less likely* to have used a **combination weed and feed product** than those who somewhat disagreed (37%), somewhat agreed (57%), or strongly agreed (46%).
- Those who strongly agreed (31%) or somewhat agreed (40%) are significantly *more likely* to have used a **weed killer** on their entire lawn than those who strongly disagreed (13%) or somewhat disagreed (17%).
- Those who strongly disagreed (7%) are significantly *less likely* to have used **moss controller** on their lawns than those who somewhat disagreed (20%), somewhat agreed (28%), or strongly agreed (23%).

- Those who strongly disagreed (4%) are significantly *less likely* to have used **insect controller** on their lawns than those who somewhat disagreed (13%), somewhat agreed (28%), or strongly agreed (13%).

See Figure A2 in Appendix A for the percentage of respondents who use each lawn product based on their level of agreement with the statement, “Using lawn chemicals is easier than using natural methods.”

“Chemical methods are more effective than natural methods of lawn care.”

- Those who strongly agreed (68%) or somewhat agreed (56%) are significantly *more likely* to have used a **spot spray chemical weed killer** on their lawn than those who somewhat disagreed (42%) or strongly disagreed (19%).
- Those who strongly disagreed (21%) are significantly *less likely* to have used a **combination weed and feed product** on their lawns than those who somewhat disagreed (44%), somewhat agreed (55%), or strongly agreed (51%).
- Those who somewhat agreed (38%) or strongly agreed (44%) are significantly *more likely* to have used **weed killer** on their entire lawn than those who somewhat disagreed (21%) or strongly disagreed (11%).
- Those who somewhat agreed (32%) are significantly *more likely* to have used **moss controller** on their lawns than those who somewhat disagreed (11%) or strongly disagreed (10%).
- Those who somewhat agreed (25%) or strongly agreed (23%) are significantly *more likely* to have used **insect controller** on their lawns than those who somewhat disagreed (7%) or strongly disagreed (9%).

See Figure A3 in Appendix A for the percentage of respondents who use each lawn product based on their level of agreement with the statement, “Chemical methods are more effective than natural methods of lawn care.”

“Having a green, mostly weed-free lawn all year round is important to me.”

- Those who strongly disagreed (26%) are significantly *less likely* to have used a **spot spray chemical weed killer** on their lawn than those who somewhat disagreed (52%), somewhat agreed (54%), or strongly agreed (56%).
- Those who somewhat agreed (54%) or strongly agreed (65%), are significantly *more likely* to use a **combination weed and feed product** on their lawn than those who strongly disagreed (22%) or somewhat disagreed (34%).
- Those who strongly disagreed (11%) are significantly *less likely* to have used **weed killer** on their entire lawn than those who somewhat disagreed (28%), somewhat agreed (37%), or strongly agreed (42%).
- Those who somewhat agreed (29%) or strongly agreed (38%) are significantly *more likely* to have used a **moss controller** on their lawns than those who somewhat disagreed (16%) or strongly disagreed (11%).

- Those who strongly agreed (31%) are significantly *more likely* to have used **insect controller** on their lawns than those who somewhat agreed (16%), somewhat disagreed (17%), or strongly disagreed (8%).

See Figure A4 in Appendix A for the percentage of respondents who use each lawn product based on their level of agreement with the statement, “Having a green, mostly weed-free lawn all year round is important to me.”

Does participation in low-intensity versus high-intensity turf management affect the rate of use of lawn pesticides?

Respondents who practice low-intensity turf management for watering in the summer and dealing with grass clippings were less likely to have used lawn pesticides than those who did not have low-intensity turf management practices.

When comparing usage rates of lawn products to the questions “How many times a week do you water your lawn in the summer?” and “Do you normally leave grass clippings on the lawn after mowing, or do you remove them?” the following statistical differences emerged:

- Those who do not water their lawns are *less likely* to use a **spot spray chemical weed killer, combination weed and feed product, weed killer, insect controller, or moss controller** compared to those who water their lawns at least once a week during the summer.
- Respondents who leave the grass clippings on their lawn after mowing are significantly *less likely* to use a **combination weed and feed product, weed killer, or insect controller** compared to those who remove the grass clippings. They are somewhat *less likely* to use a **moss controller or spot spray chemical weed killer** than those who remove the grass clippings from their lawn.

There were no significant differences in rates of use of lawn products when compared to responses to the question “What do you think is the recommended height to set mower blades to keep your lawn healthy?”

Figures 6 and 7 illustrate the rate of use of various lawn products according to how frequently lawns are watered, and the rate of use according to how respondents deal with grass clippings on their lawns after mowing.

Figure 6: Rate of lawn pesticide use according to watering frequency (n=398)

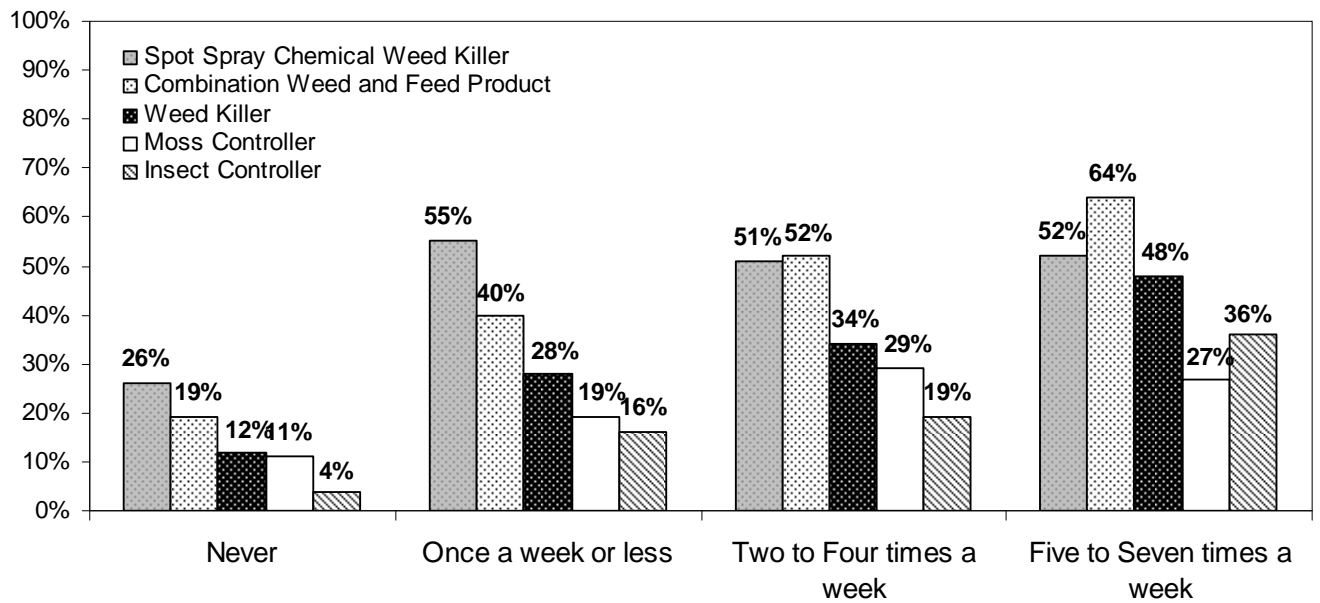
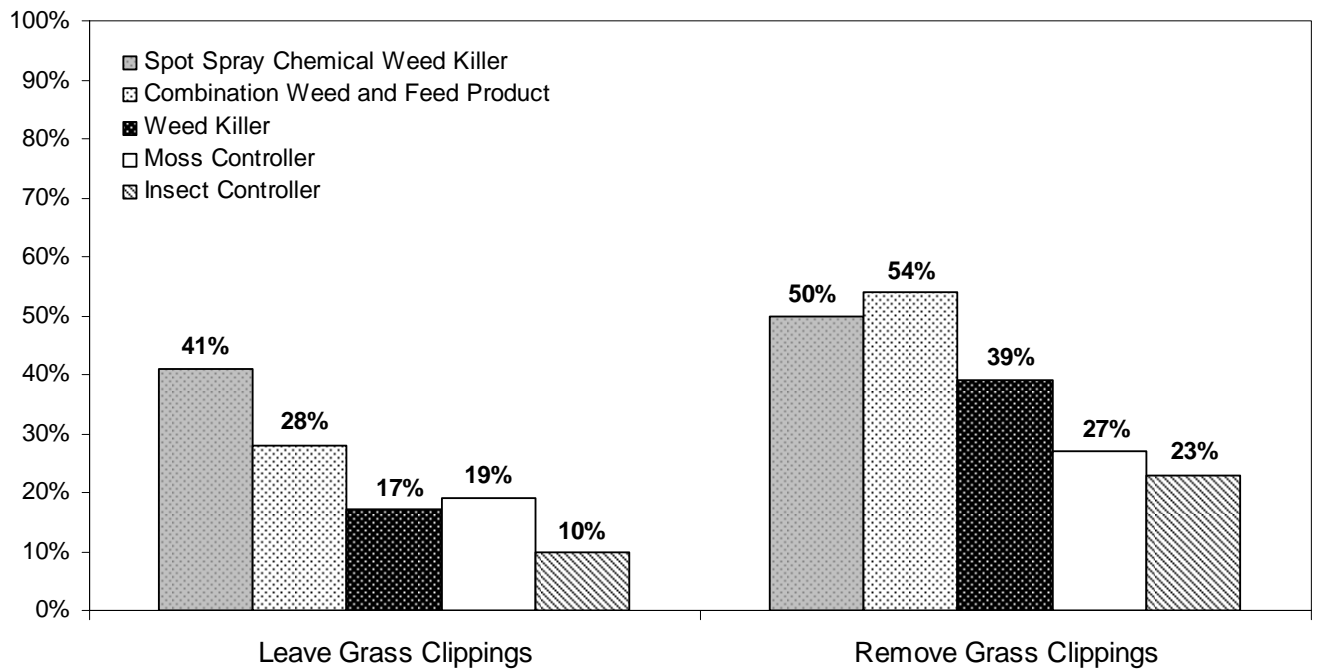


Figure 7: Rate of lawn pesticide use by method of dealing with grass clippings (n=398)



C. Chemical and Organic Lawn Pesticides

Organic and Chemical Lawn Pesticides

Respondents who said, yes, they had applied a lawn care product on their entire lawn in the last twelve months were then asked:

1. “Do you know if these products are conventional chemical products, organic products, or a combination?”

Respondents were provided with specific examples of chemical products as needed. Organic products were defined as: “Manures, compost, corn gluten, bone meal, blood meal, lime, compost tea, ladybugs, nematodes, other beneficial insects, and other minimally manufactured natural products.”

The majority of respondents (52%) were using only **conventional chemical products** on their lawn, while 24% were using a **combination of chemical and organic products**, and 7% were using only **organic products**.

Table 15 illustrates the rate of use of conventional chemical products and organic products statewide and by HHW service level.

Table 15: Type of Lawn Products Used by Oregonians (n=281)

Product <i>(listed in descending order of usage frequency)</i>	Total	HHW Service Level			
		Metro Facilities	Non-Metro Facilities	Local Events	No Local Service
Chemical Products	52%	51%	53%	63%	41%
Combination – both chemical and organic	24%	28%	24%	15%	26%
Don't Know	17%	11%	16%	18%	27%
Organic Products	7%	10%	6%	4%	6%

Those in the Metro Facilities area were significantly *more likely* to **know** what kind of product they had used than those in No Local Service area. It is important to note that the fairly large proportion of lawn product users who did not know (17%) what type of product they were using affects the comparison of usage rates across service levels.

Characteristics of Chemical Lawn Product Users

There were no significant demographic trends among those respondents using chemical lawn products instead of organic. Respondents from different income, race, and gender categories were all using chemical lawn products at similar rates. In terms of attitudes, Oregonians using just **organic products** were *more likely* to disagree that chemical products are safe, easier, or more effective than natural methods, but the opposite trend was not as clear among chemical product users. Those using just **chemical products** were more likely to agree that chemicals

were easier than natural methods, but the majority of respondents (54%) who rated lawn chemicals as **very** or **moderately dangerous** were still using them.

When looking at demographic characteristics of those using just conventional chemical or just organic lawn products, the following differences were found:

- Men (22%) were significantly *more likely* to **not know** what kind of product they had used than women (9%).
- 65- to 80-year-olds (25%) were significantly *more likely* to **not know** what kind of product they had used compared to 25- to 44-year-olds (7%), and somewhat *more likely* **not know** compared to 45- to 64-year-olds (14%).
- Households that did not have pets that walk on the lawn (59%) were somewhat *more likely* to have used just **chemical products** than households that did have pets (48%).
- Of the respondents with an annual income of \$25,000 or less, none reported using just **organic products**, but this difference was not statistically significant.

In looking at the potential relationship between attitudes and the usage of conventional or organic products, responses to the following survey questions were analyzed:

1. “I trust that the lawn chemicals I find in the store are safe for me, my family, and the environment.”
2. “How dangerous do you consider lawn chemicals to be?”
3. “Using lawn chemicals is easier than using natural methods.”
4. “Chemical methods are more effective than natural methods of lawn care.”

In general, the most significant differences across these questions were found in the responses of those who used just **organic products**. The following differences were seen in responses to each of the above questions:

“I trust that the lawn chemicals I find in the store are safe for me, my family, and the environment.”

- Respondents who **strongly disagreed** (15%) with this statement had the highest rate of use of just **organic products**. They were significantly *more likely* to have used only **organic products** than those who **somewhat disagreed** (2%) and somewhat *more likely* than those who **somewhat agreed** (6%).
- Respondents who **somewhat agreed** (25%) were significantly *more likely* to **not know** what kind of product they had used compared to respondents who had **strongly disagreed** (10%).

“How dangerous do you consider lawn chemicals to be?”

- Of respondents who rated lawn chemicals as **very** or **moderately dangerous**, a majority (54% on both) reported having used just conventional chemical lawn products.

- Respondents rating lawn chemicals as **moderately** or **very dangerous** (both 9%) were somewhat *more likely* to have used just **organic products** than those rating them **not at all** or **a little dangerous** (both 0%).
- Those who rated lawn chemicals as **moderately** (17%) or **a little** (42%) **dangerous** were significantly *more likely* to **not know** what kind of product they had used than those who rated it **very dangerous** (9%).

“Using lawn chemicals is easier than using natural methods.”

- Respondents who **strongly agreed** (61%) with this statement were significantly *more likely* to have used only **chemical products** than those who **strongly disagreed** (35%) or **somewhat disagreed** (40%).
- Respondents who **strongly disagreed** (26%) were significantly *more likely* to have used only **organic products** than those who **somewhat agreed** (2%) or **strongly agreed** (5%), and somewhat *more likely* than those who **somewhat disagreed** (12%).
- Respondents who **strongly agreed** (14%) were significantly *less likely* to have used a **combination of both chemical and organic** than those who **strongly disagreed** (34%) or **somewhat disagreed** (35%).
- Respondents who **somewhat agreed** (20%) or **strongly agreed** (20%) were significantly *more likely* to **not know** what kind of product they had used than those who **strongly disagreed** (6%).

“Chemical methods are more effective than natural methods of lawn care.”

- Respondents who **strongly disagreed** (31%) were significantly *more likely* to have used just organic products than those who **somewhat disagreed** (9%), **somewhat agreed** (3%) or **strongly agreed** (3%).
- Respondents who **somewhat disagreed** (12%), **somewhat agreed** (19%), or **strongly agreed** (21%) were significantly *more likely* to **not know** what kind of product they had used compared to those who **strongly disagreed** (0%).

D. Application of Lawn Pesticides

In order to determine how carefully lawn pesticides were being used, respondents were asked how many times a year they spread a lawn care product over their entire lawn, how they know how much to apply, and whether they checked the weather prior to applying a product to their lawn. Careful use of lawn pesticides is defined as:

1. Less frequent use of products on the entire lawn.
2. Reading the product label for instructions on appropriate use, or using the prescribed setting on the sprayer.
3. Checking the weather prior to using the product.

The largest proportion of respondents reported using a lawn care product on their entire lawn either **once** (30%) or **twice a year** (36%). Only 5% of respondents said they use a lawn care product on their entire lawn **five times a year or more**. The majority of respondents (81%) also **read the label and follow the instructions** to determine how much of the product to apply. Overall, 83% of respondents reported that they do **check the weather forecast** prior to applying chemicals to their lawns. As shown in Appendix D, comments regarding weather covered a wide variety of topics, from sun and wind to temperature and precipitation. Many respondents reported not applying lawn chemicals before an expected rain due to concerns about run-off or decreased efficacy, while others stated that lawn chemicals need to be applied before the rain to be effective. A few respondents noted that proper timing of application varies by type of product - some need to be watered in, others shouldn't. Survey design does not allow for a determination of how many recipients are applying properly with respect to weather. If DEQ chooses to pursue additional work involving lawn pesticides, this area may be deserving of additional research.

Table 16 shows the rates that respondents use various methods to determine how much lawn product to apply, both for the total sample and across the different HHW service levels. Respondents were able to select more than one method in response to this question, therefore the percentages total more than 100%.

Table 16: Methods of Lawn Product Application (n=230)

Method ¹ <i>(listed in descending order of usage frequency)</i>	HHW Service Level				
	Total	Metro Facilities	Non-Metro Facilities	Local Events	No Local Service
I read the label and follow the instructions	81%	79%	81%	86%	81%
I use the prescribed setting on the spreader	9%	11%	4%	11%	7%
Other ²	6%	6%	4%	7%	8%
I do what looks right	5%	7%	4%	0%	6%
I do what I've always done	4%	8%	4%	0%	1%
Don't Know	1%	0%	2%	2%	2%
I read the label but the instructions are unclear	1%	1%	0%	0%	1%

¹ Respondents' answers were coded into the appropriate category without reading options. Options were not read to respondents except as needed to clarify

² For a complete list of "Other" responses, please refer to Appendix D

Characteristics of Careful Users

There were no notable demographic trends and few significant differences that emerged among those responses characterized as careful versus non-careful. The few differences that did emerge are:

- Men (86%) are somewhat *more likely* than women (75%) to **read the label and follow the instructions** when determining how much lawn product to apply.
- Women (3%) were somewhat *more likely* to say they **don't know** to the question, "How do you know how much to apply?" than men (0%).
- Respondents from households without pets that walk on the lawn (11%) were significantly *more likely* to **do what they've always done** when determining how much lawn product to apply compared to households with pets (0%).
- Respondents who **strongly agreed** (62%) with the statement, "Chemicals are easier than natural methods" were significantly *less likely* to **read the label and follow the instructions** than those who **somewhat agreed** (83%) or **somewhat disagreed** (89%) with the statement.

Does participation in low-intensity versus high-intensity turf management affect the level of care taken in lawn pesticide application?

Participation in either low-intensity or high-intensity turf management appears to have minimal impact on the amount of care taken in the application of lawn pesticides. Responses to questions identifying low-intensity turf management and careful use of lawn products were analyzed to identify any significant relationship between the variables. There were no significant differences in rate or method of use of lawn products when compared to turf management questions. The only exception was in response to the question, "Do you normally leave grass clippings on the lawn after mowing, or do you remove them?" Respondents who **leave their grass clippings on the lawn** (16%) are significantly *more likely* to use a lawn product on their entire lawn less than once a year, compared to those who **remove their grass clippings** (2%).

E. Attitudes Towards Lawns and Lawn Care

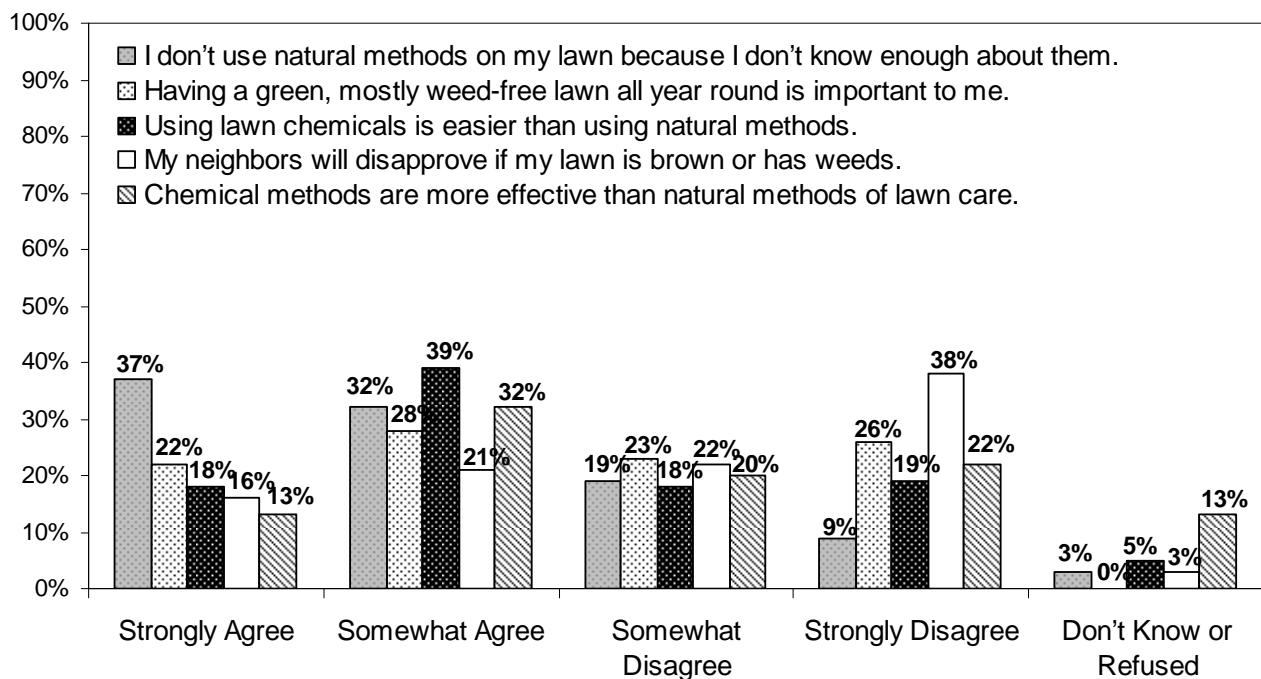
Oregonians have diverse attitudes about lawns and lawn care. Half of Oregonians (51%) agree that having a green, weed-free lawn all year is important to them, although just 37% feel that their neighbors would disapprove if their lawn was brown or had weeds.

To measure attitudes, respondents were asked to rate their level of agreement with five statements related to lawns and lawn care. Those statements were:

1. “I don’t use natural methods on my lawn because I don’t know enough about them.”
2. “Having a green, mostly weed-free lawn all year round is important to me.”
3. “Using lawn chemicals is easier than using natural methods.”
4. “My neighbors will disapprove if my lawn is brown or has weeds.”
5. “Chemical methods are more effective than natural methods of lawn care.”

For each statement respondents were given the option to **strongly disagree**, **somewhat disagree**, **somewhat agree**, or **strongly agree**. The statement, “**I don’t use natural methods on my lawn because I don’t know enough about them,**” was only asked of respondents who indicated they did not use organic products, resulting in a smaller sample size of 146. The statement, “**My neighbors will disapprove if my lawn is brown or has weeds,**” had the highest rate of strong disagreement (38%), while the statement, “**I don’t use natural methods on my lawn because I don’t know enough about them,**” had the highest rate of strong agreement (37%). Figure 8 summarizes the distribution of responses for each of these five statements.

Figure 8: Oregonians’ Attitudes about Lawns (n=398)



There were a few notable trends when looking at how attitudes about lawns vary by gender. Men are *more likely* to value a green, weed-free lawn all year round, and are also *more likely* to **agree** that chemicals are more effective and easier than natural methods of lawn care. More specifically:

- Women (56%) were significantly *more likely* to **strongly** or **somewhat disagree** than men (31%), with the statement, **“Chemical methods are more effective than natural methods of lawn care,”** while men (17%) are significantly *more likely* to **strongly agree** with this statement than women (8%).
- Men (18%) were significantly *more likely* to say they **don’t know** whether **“chemical methods are more effective than natural methods of lawn care,”** than women (8%).
- Women (30%) were significantly *more likely* to **strongly disagree** than men (11%), that **“using lawn chemicals is easier than using natural methods.”**
- Women (32%) were significantly *more likely* to **strongly disagree** than men (21%) with the statement, **“Having a green, mostly weed-free lawn all year round is important to me.”**

When looking closer at HHW service areas, the following differences emerge:

- Respondents outside the Metro area (17%) were significantly *more likely* than those living inside the Metro area (6%) to **strongly agree** with the statement, **“Chemical methods are more effective than natural methods of lawn care.”**
- Respondents in the No Local Service area (46%) were significantly *more likely* to **strongly agree** than those in the Local Events area (24%) with the statement, **“I don’t use natural methods on my lawn because I don’t know enough about them.”**
- Respondents in the Non-Metro Facilities area (38%) were significantly *more likely* to **strongly disagree** than residents in the No Local Service area (21%) or the Local Events area (22%) with the statement, **“Having a green, mostly weed-free lawn all year round is important to me.”**

In the comparison between households with pets that walk on the lawn and households without pets, the following differences emerge:

- Households with pets that walk on the lawn (22%) are somewhat *more likely* to **strongly disagree** than households without pets (14%) that **“using lawn chemicals is easier than using natural methods.”**
- Respondents with pets that walk on the lawn (41%) are significantly *more likely* to **strongly disagree** than those without pets (30%), and are also significantly *less likely* to **strongly agree** (12%) than those without pets (24%) with the statement, **“My neighbors will disapprove if my lawn is brown or has weeds.”**

How do attitudes about lawns and lawn care affect turf management practices?

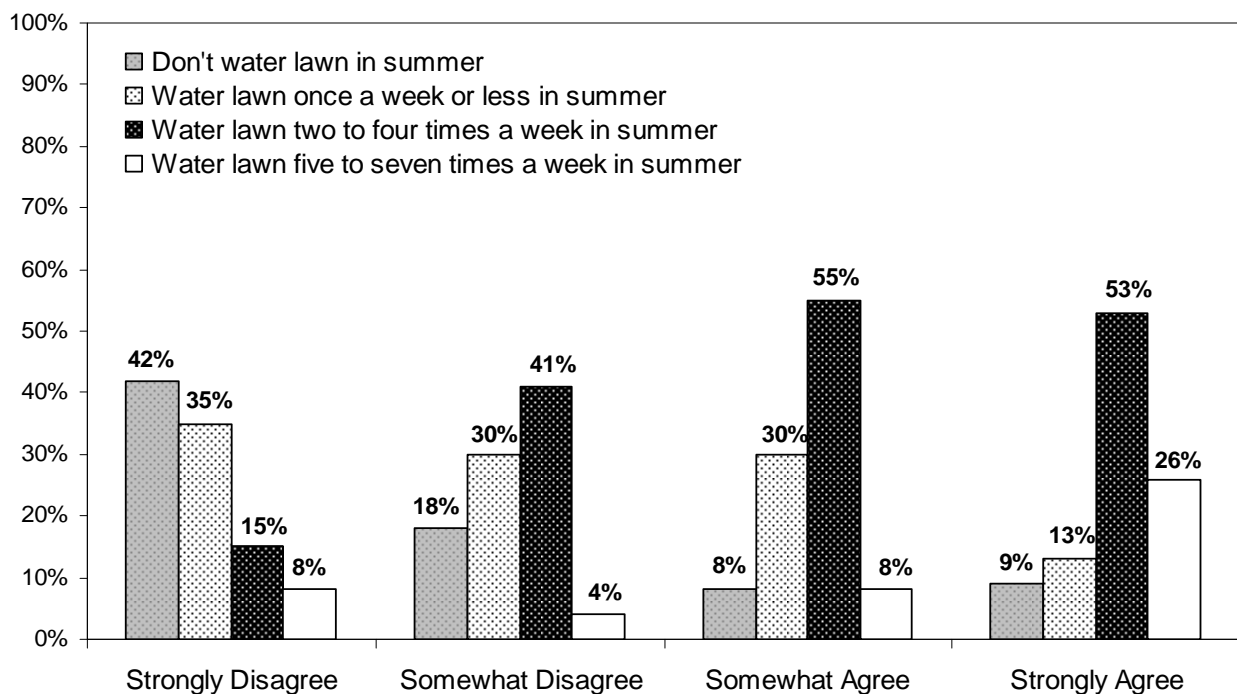
Oregonians who value a green, weed-free lawn or feel their neighbors will disapprove if their lawn is brown are *less likely* to be practicing low-intensity turf management. A few notable trends in turf management emerged when looking at responses to the following two statements:

1. “Having a green, mostly weed-free lawn all year round is important to me.”
2. “My neighbors will disapprove if my lawn is brown or has weeds.”

Respondents who **agreed** with the above statements are in general *more likely* to water their lawns **more than once a week** in the summer and **remove their grass clippings** after mowing, and are *more likely* to use only **chemical lawn pesticides** than those who disagreed.

Figure 9 illustrates how frequently Oregonians are watering their lawns in the summer according to their level of agreement with the statement, “**Having a green, mostly weed-free lawn all year round is important to me.**”

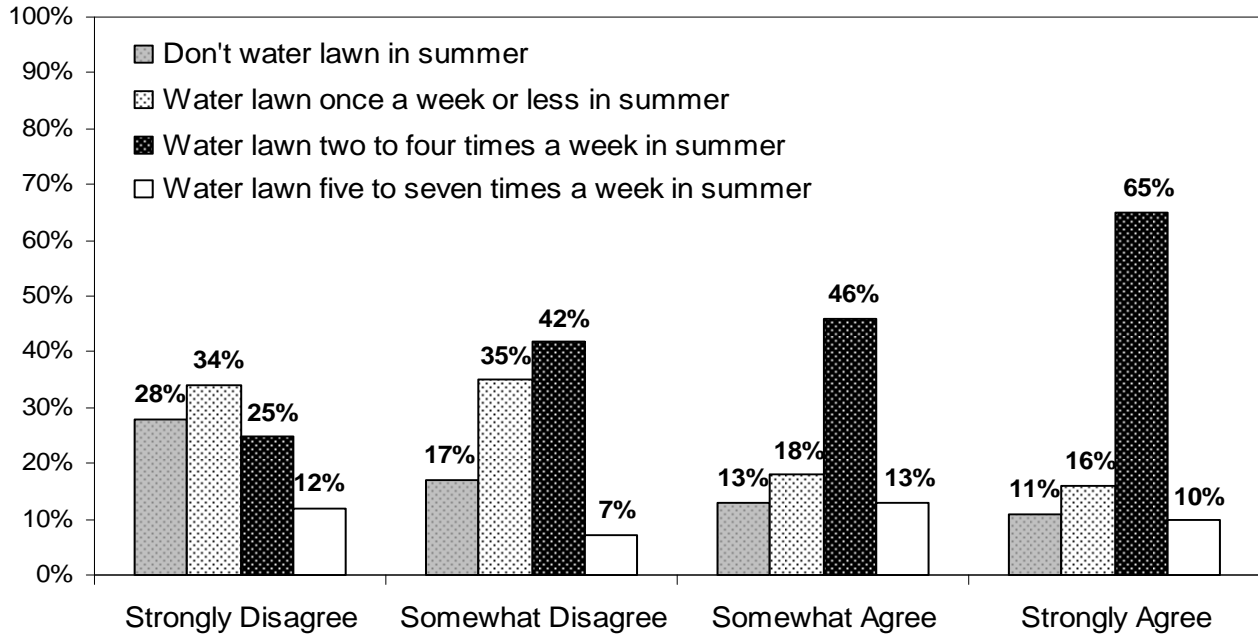
Figure 9: Value of a green lawn and frequency of watering (n=398)



- Those who strongly disagreed (42%) that a “**having a green, mostly weed-free lawn all year round**” is important to them are significantly *more likely* to **never water their lawns in the summer** than those who somewhat disagreed (18%), somewhat agreed (8%), or strongly agreed (9%).
- Those who strongly agreed (26%) are significantly *more likely* to **water every day** than those who somewhat agreed (6%), somewhat disagreed (4%), or strongly disagreed (7%) that a “**having a green, mostly weed-free lawn all year round**” is important to them.

Figure 10 shows how frequently Oregonians are watering their lawns in the summer according to their level of agreement with the statement, “**My neighbors will disapprove if my lawn is brown or has weeds.**”

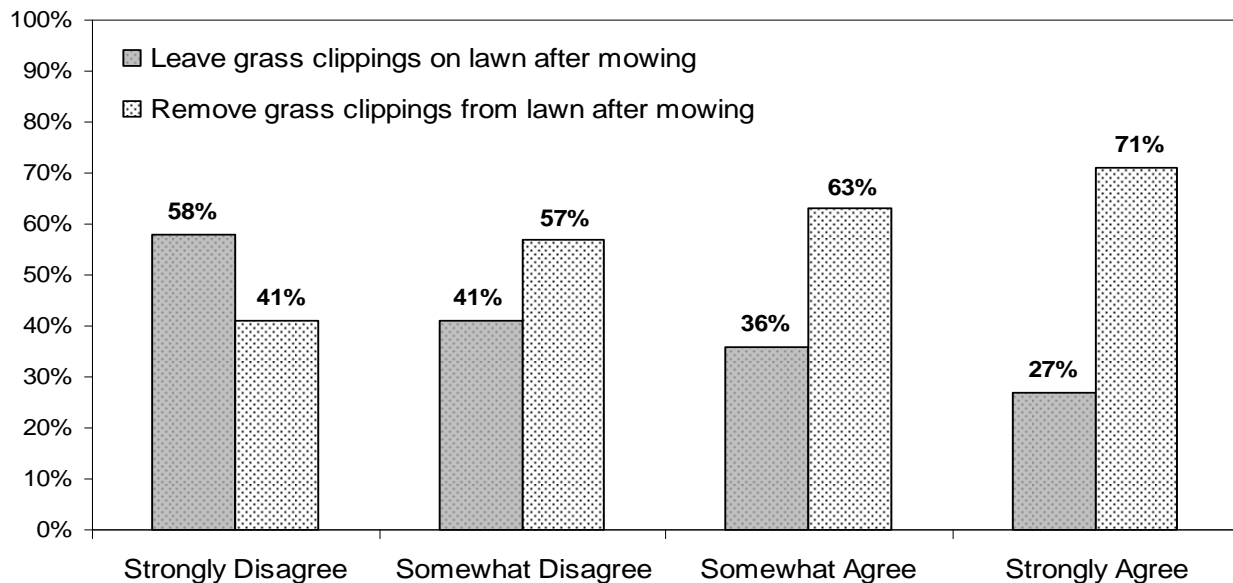
Figure 10: Neighbors’ disapproval and frequency of watering in summer (n=398)



- ♦ Those who strongly disagreed (28%) that their “**neighbors will disapprove**” if their lawn is brown are significantly *more likely* to **never water their lawns in the summer** than those who somewhat agreed (13%), or strongly agreed (11%).

Figure 11 illustrates the rate of leaving or removing grass clippings after mowing according to the level of agreement with the statement, “**Having a green, mostly weed-free lawn all year round is important to me.**”

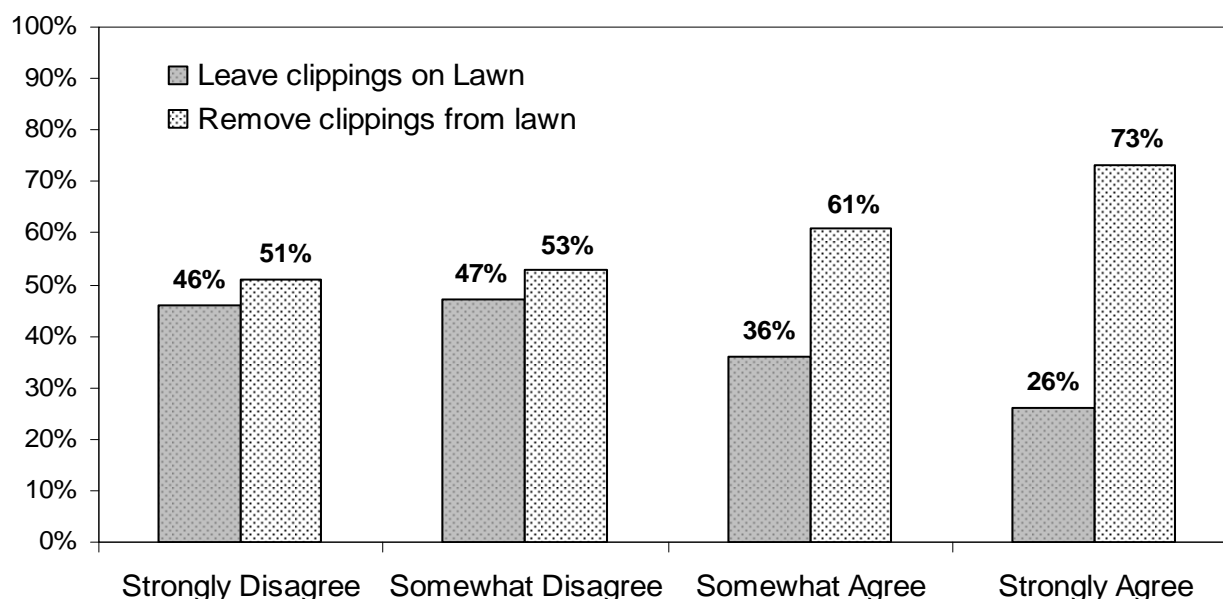
Figure 11: Value of a green lawn and method of dealing with grass clippings (n=398)



- Those who strongly disagreed (58%) that a **“green, mostly weed-free lawn all year round”** is important to them are significantly *more likely* to **leave grass clippings** on the lawn after mowing than those who somewhat disagreed (41%), somewhat agreed (36%), or strongly agreed (27%) with that statement.
- Those who strongly agreed (71%) are significantly *more likely* to **remove grass clippings** from their lawn than those who strongly disagreed (41%) or somewhat disagreed (57%) that a **“green, mostly weed-free lawn all year round”** is important to them.

Figure 12 shows how Oregonian’s deal with their grass clippings according to their level of agreement with the statement, **“My neighbors will disapprove if my lawn is brown or has weeds.”**

Figure 12: Neighbors' disapproval and method of dealing with grass clippings (n=398)



- Those who strongly agreed (73%) that their “**neighbors will disapprove**” if their lawn is brown are significantly *more likely* to **remove grass clippings** than those who strongly disagreed (51%) or somewhat disagreed (53%) with the statement.

In terms of product use, those who agreed that **having a green, mostly weed-free lawn all year round was important** to them were *more likely* to have used lawn pesticides than those who disagreed. Those who agreed are significantly *more likely* to have used a **combination weed and feed product, moss controller, weed killer, insect controller, or spot spray chemical weed killer** than those who strongly disagreed that a green, weed-free lawn was important to them.

Those who agreed were also *less likely* to be using just organic lawn pesticides when they did use them. Specifically, respondents who strongly disagreed (31%) with the statement, “**Having a green, mostly weed-free lawn all year round is important to me,**” were significantly *more likely* to use only organic lawn pesticides than those who somewhat disagreed (9%), somewhat agreed (3%), or strongly agreed (3%) with that statement. See **Figure A4 in Appendix A** for the rates of use of lawn pesticides according to the level of agreement with the statement, “**Having a green, mostly weed-free lawn all year round is important to me.**”

IV. HOUSEHOLD CLEANERS

Before beginning this section of the survey, respondents who either participate in or know about the cleaning and maintenance of the household needed to be identified. Nearly all of the respondents (95%) reported being knowledgeable about the household cleaning practices. Those 581 respondents were asked questions regarding how they unclog drains, clean their bathrooms, and clean their ovens, as well as the types of products they use. In general, conventional chemical cleaners were used by Oregonians to clean their homes more commonly than non-toxic cleaners. When it comes to unclogging drains and cleaning ovens, however, non-chemical methods of cleaning, such as using plungers or self-cleaning oven systems, were also fairly common.

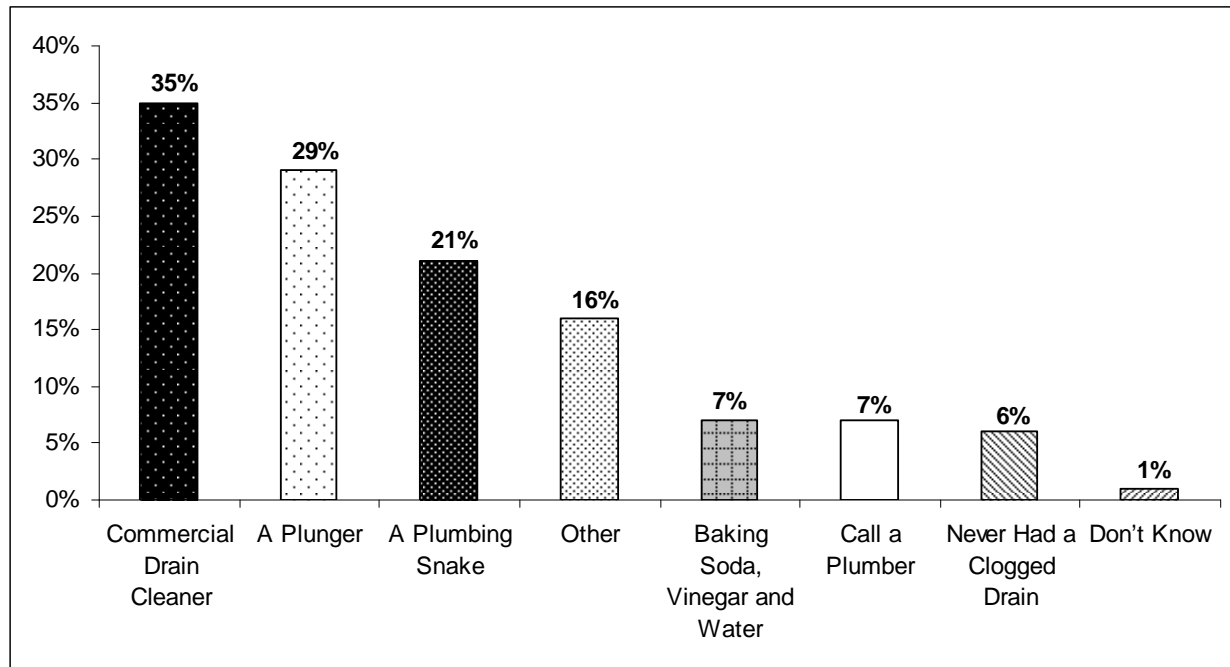
A. Dealing with Clogged Drains

One area of household cleaners included in this survey addressed the issue of dealing with clogged drains. Conventional, fast-acting drain cleaners represent one of the more hazardous cleaning products in many homes. The vast majority of respondents (94%) had experienced clogged drains, while a somewhat smaller majority (70%) took steps to prevent clogged drains from happening. Women (75%) were significantly *more likely* than men (65%) to actively try to prevent clogged drains. Respondents were further asked about the methods they used to prevent clogged drains and unclog drains once they became a problem.

Unclogging Drains

All respondents (n=581) were asked to think back to the last time they unclogged a drain and identify all of the approaches they used. Without being prompted with response choices, the largest proportion of respondents reported having used a **commercial drain cleaner** (35%). As can be seen in Figure 13, **plungers** (29%) and **plumbing snakes** (21%) were the next most common approaches to unclogging drains.

Figure 13: Methods Used to Unclog Drains¹ (n=581)



¹Options were not read aloud to respondents and more than one option could be identified by each respondent.

There were no significant differences across the different HHW service areas, although the following demographic characteristics did reveal statistically significant differences:

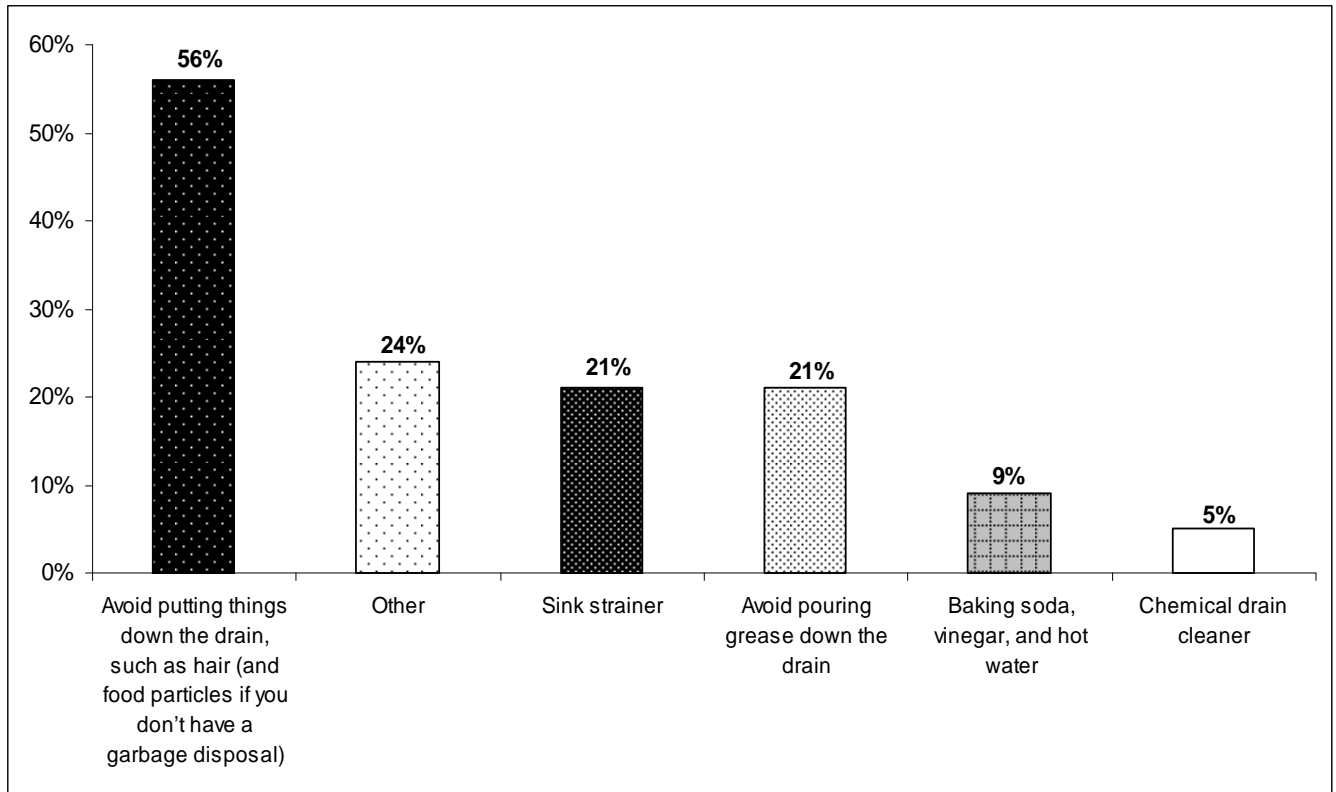
- Respondents who strongly agreed (50%) and somewhat agreed (41%) that household clearers are safe were significantly *more likely* to use **commercial drain cleaners** than respondents who somewhat disagreed (30%) and strongly disagreed (30%) that household clearers are safe.
- Renters (44%) were significantly *more likely* to use a **plunger** than homeowners (27%), as are respondents who live in an apartment complex (56%) compared to respondents in a single family home (27%).
- Homeowners (22%) were significantly *more likely* to use a **plumbing snake** than renters (11%).

Respondents who said they had used a **commercial drain cleaner** to unclog their drain were then asked if the product was a **fast-acting chemical product**, a **slower-acting enzyme-based product**, or **something else**. **Fast-acting chemical products** (74%) were by far the most commonly used commercial drain cleaners, followed by **slower-acting enzyme-based products** (14%) and **something else** (4%). An additional 8% of respondents reported not knowing what type of product they used.

Preventing Clogged Drains

The respondents who reported actively preventing clogged drains (n=407, 70%) were asked, without being prompted with options, what methods they had used. The most common method used was to avoid putting items such as hair and food down the drain (56%). Figure 14 presents the breakdown of methods used to prevent clogged drains. More than one option could be provided by each respondent.

Figure 14: Methods Used to Prevent Clogged Drains¹ (n=407)



¹Options were not read aloud to respondents and more than one option could be identified by each respondent.

The following demographic characteristics revealed statistically significant differences in use of the various methods to prevent clogged drains:

- ♦ Women (13%) were significantly *more likely* to use **baking soda, vinegar, and hot water** than men (5%).
- ♦ 65- to 80-year-olds (31%) were significantly *more likely* to use **some other method** to prevent clogged drains than 45- to 64-year-olds (20%) and 25- to 44-year-olds (15%).

B. Cleaning Ovens

The next topic addressed in this survey was approaches to oven cleaning. Of the 581 respondents, 86% reported cleaning their ovens, with over half (52%) using self-cleaning oven systems. The rates of using chemical oven cleaners (17%) and non-toxic oven cleaners (14%) were very close. Also, respondents in the Metro Facilities (15%) and Non-Metro Facilities (17%) areas were significantly *more likely* to **not clean their ovens** than those living in the Local Events (8%) or No Local Service (8%) areas. Table 17 shows the distribution of methods Oregonians reported using to clean their ovens, as well as a breakdown by HHW service area.

Table 17: Methods Used to Clean Ovens (n=581)

Method ¹ <i>(listed in descending order of frequency)</i>	HHW Service Area				
	Total	Metro Facilities	Non-Metro Facilities	Local Events	No Local Service
Run oven self-cleaning system	52%	48%	54%	56%	54%
Chemical oven cleaner	17%	18%	13%	17%	22%
Non-toxic oven cleaner	14%	16%	11%	16%	12%
I don't clean my oven	13%	15%	17%	8%	8%
Other [<i>Open-ends</i>]	2%	1%	4%	1%	0%
I don't have an oven	1%	1%	0%	0%	1%

¹Options were not read aloud to respondents except as needed to clarify.

The following demographic characteristics revealed statistically significant differences in use of the various methods to clean ovens:

Users of Chemical Oven Cleaners:

- Males (21%) were *more likely* than females (14%).
- Renters (31%) were *more likely* than homeowners (15%).
- Respondents who somewhat agreed (21%) and somewhat disagreed (20%) that household clearers are safe were *more likely* than respondents who strongly disagreed (11%) that household clearers are safe.

Users of Non-toxic Oven Cleaners:

- Females (19%) were *more likely* than males (9%).
- Renters (29%) were *more likely* than homeowners (12%).
- Respondents who strongly disagreed (21%) that household clearers are safe were *more likely* than respondents who somewhat disagreed (12%) and somewhat agreed (10%).

Users of Oven Self-cleaning Systems:

- 45- to 64-year-olds (55%) and 65- to 80-year-olds (58%) were *more likely* than 81- to 95-year-olds (30%).

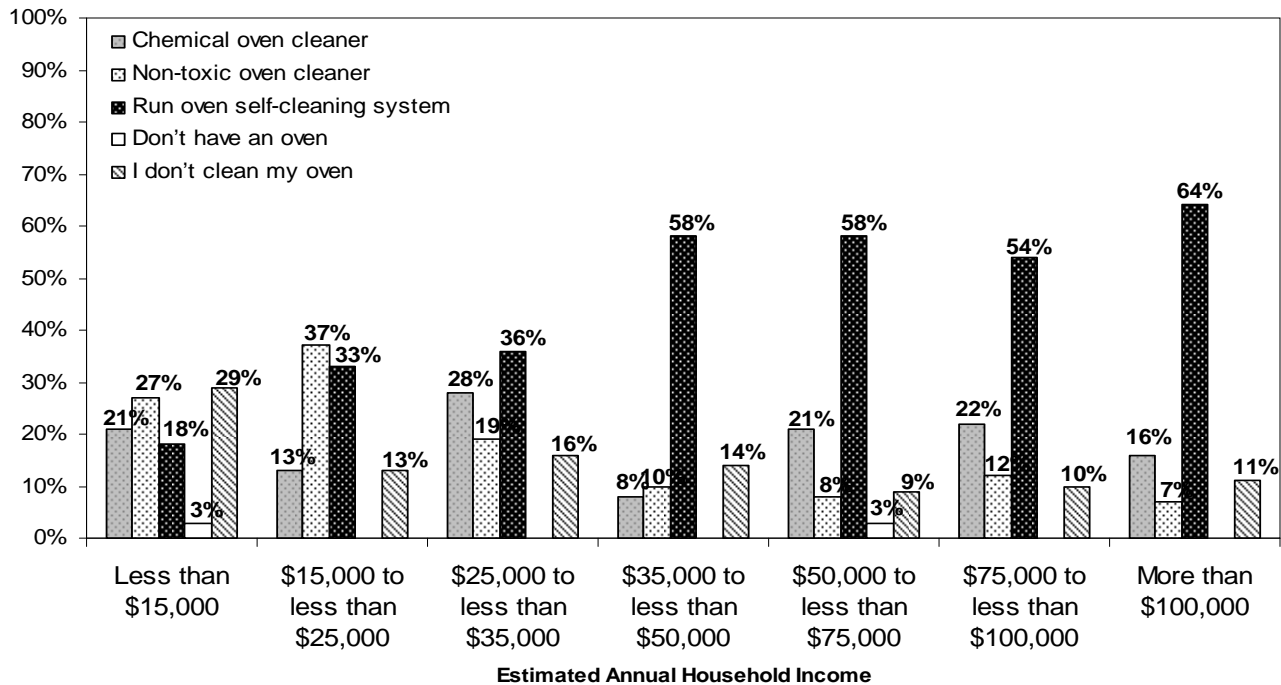
- Homeowners (57%) were *more likely* than renters (21%).
- Respondents who live in single family homes (55%) were *more likely* than respondents who live in apartment complexes (20%).

People Who Don't Clean Their Ovens:

- Respondents who live in apartment complexes (29%) were *more likely* than respondents who live in single family homes (11%).
- Respondents who strongly disagreed (17%) that household clearers are safe were *more likely* than respondents who somewhat agreed (9%).

Due to the detail involved with the varying differences across household income levels, Figure 15 is included rather than itemizing the differences in the above bulleted list. In general, respondents with higher incomes were *more likely* to be using **self-cleaning oven systems** than those with lower incomes, but they are also *less likely* to be using **non-toxic oven cleaners**. While there were a few significant differences between particular income groups in relation to the use of **chemical oven cleaners**, there was no trend across all income groups.

Figure 15: Methods Used to Clean Ovens by Income (n=581)



C. Cleaning Bathrooms

After describing how they clean their ovens, respondents were asked, “When you clean mildew, mold, or other stains from bathroom and shower tiles and walls, what do you use?” Interviewers did not prompt respondents with a list of choices and more than one method could be recorded for each respondent. The most common method, used by over half of the respondents (52%) to clean their bathrooms, was a **multi-purpose household cleaner**. Table 18 shows the breakdown of the different bathroom cleaning methods in total and by gender. The differences between men and women were statistically significant for multi-purpose household cleaners, bleach, and non-toxic cleaners.

Table 18: Methods of Cleaning Bathrooms (n=581)

Method ¹ <i>(listed in descending order of frequency)</i>	Gender		
	Total	Female	Male
Multi-purpose household cleaner (e.g., Soft Scrub, Comet, Fantastic, Formula 409)	52%	47%	57%
Bleach (incl. straight or diluted bleach, not a commercial product containing bleach)	25%	31%	19%
Non-toxic cleaner (e.g., baking soda, Bon Ami)	17%	20%	13%
Elbow grease (no cleaners)	5%	3%	7%
Strong stain remover that requires wearing gloves	4%	5%	4%
Don't clean bathroom	3%	3%	4%
Don't know	3%	<1%	5%
Other	2%	3%	1%

¹Options were not read aloud to respondents except as needed to clarify.

In addition to gender, the following demographic characteristics revealed statistically significant differences in use of the various methods to clean bathrooms:

Users of Multi-purpose Household Cleaners:

- Respondents within the Metro Facilities area (59%) were *more likely* than those within the Non-Metro Facilities area (47%).
- Respondents who strongly agreed (58%), somewhat agreed (60%) and somewhat disagreed (55%) that household clearers are safe were all *more likely* than respondents who strongly disagreed (39%).

Users of Bleach:

- 25- to 44-year-olds (32%) were *more likely* than 65- to 80-year-olds (21%).
- Respondents with young children in the household (40%) were *more likely* than those without young children (23%).
- Respondents who strongly disagreed (35%) that household clearers are safe were *more likely* than respondents who somewhat disagreed (21%) and somewhat agreed (21%).

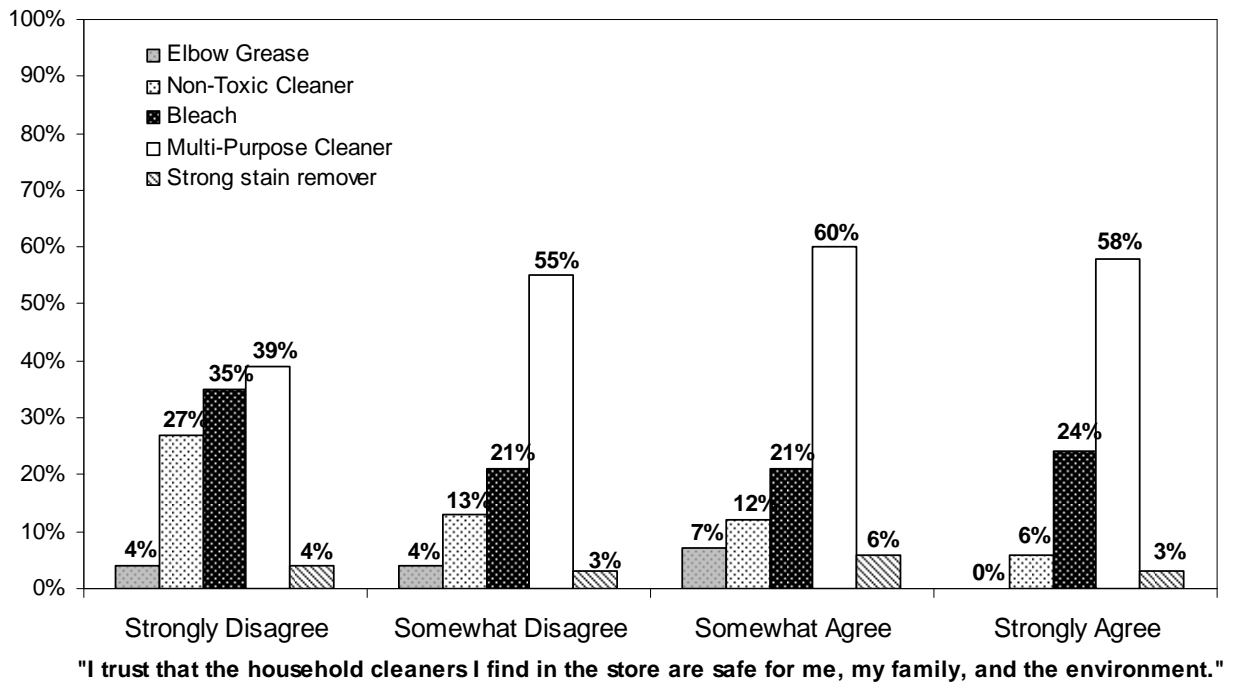
Users of Non-toxic Cleaners:

- Respondents who strongly disagreed (27%) that household clearers are safe were *more likely* than respondents who somewhat disagreed (13%), somewhat agreed (12%) and strongly agreed (6%).

All other differences were not statistically significant, including the small proportion (4%) of respondents who reported using a strong stain remover that requires wearing gloves.

Figure 16 shows the use of various products relative to the level of agreement with the statement, “I trust that the household cleaners I find in the store are safe for me, my family, and the environment.” Two significant differences emerged: respondents who strongly disagreed with the statement were *more likely* to use a **non-toxic cleaner** and *less likely* to use a **multi-purpose household cleaner** than all other groups.

Figure 16: Perceived Trust and Rate of Use of Bathroom Cleaners



D. Factors Impacting Decisions to Purchase Chemical Cleaning Products

Respondents were asked to rate how important certain factors were when deciding to buy household cleaning products. The factors were: cost of the product, effectiveness of the product, potential risks to you and your family, and brand of the product. Each factor was rated on a 4-point scale of importance, with 1 being “Not at all important” and 4 being “Very important.” Overall, effectiveness of the product and potential risks to you and your family were the most influential factors people considered when deciding which cleaning products to buy; whereas brand of the product was least influential. Table 19 displays the distribution of respondents across the four ratings for each of the factors.

Table 19: Ratings of Factors Influencing Chemical Cleaning Product Purchasing (n=581)

Factor Influencing Purchasing Decision	Not at all Important 1	2	3	Very Important 4	Don't Know or Refused
Cost of the product	14%	25%	34%	26%	1%
Effectiveness of the product	0%	2%	14%	82%	1%
Potential risks to you and your family	3%	9%	14%	73%	1%
Brand of the product	50%	27%	13%	9%	1%

The following differences were statistically significant across the various types of cleaners. Although no labels were given to ratings of 2 or 3 during the survey, they have been labeled “Somewhat Unimportant” and “Somewhat Important” for simplicity of reporting the results.

Brand of the Product:

- Those who rated the product brand as somewhat unimportant (43%), or somewhat important (43%) were *more likely* to be users of **commercial drain cleaners** than those who rated the brand as not at all important (29%).
- Those rating the product brand as somewhat important (32%) were *more likely* to be users of **slower-acting enzyme-based products** than those who rated the brand as somewhat unimportant (11%) or not at all important (10%).
- Those rating the product brand as somewhat unimportant (20%), somewhat important (24%), or very important (26%) were *more likely* to use a **chemical oven cleaner** than those who rated the brand as not at all important (13%).

Cost of the Product:

- Those rating the cost of the product as somewhat important (55%) were *more likely* to use **multi-purpose household cleaners** to clean their bathrooms than those rating the product cost as not at all important (42%)

Effectiveness of the Product:

- Those rating the effectiveness of the product as somewhat important (24%) were *more likely* to be users of **non-toxic oven cleaners** than those who rating product effectiveness as very important (12%).

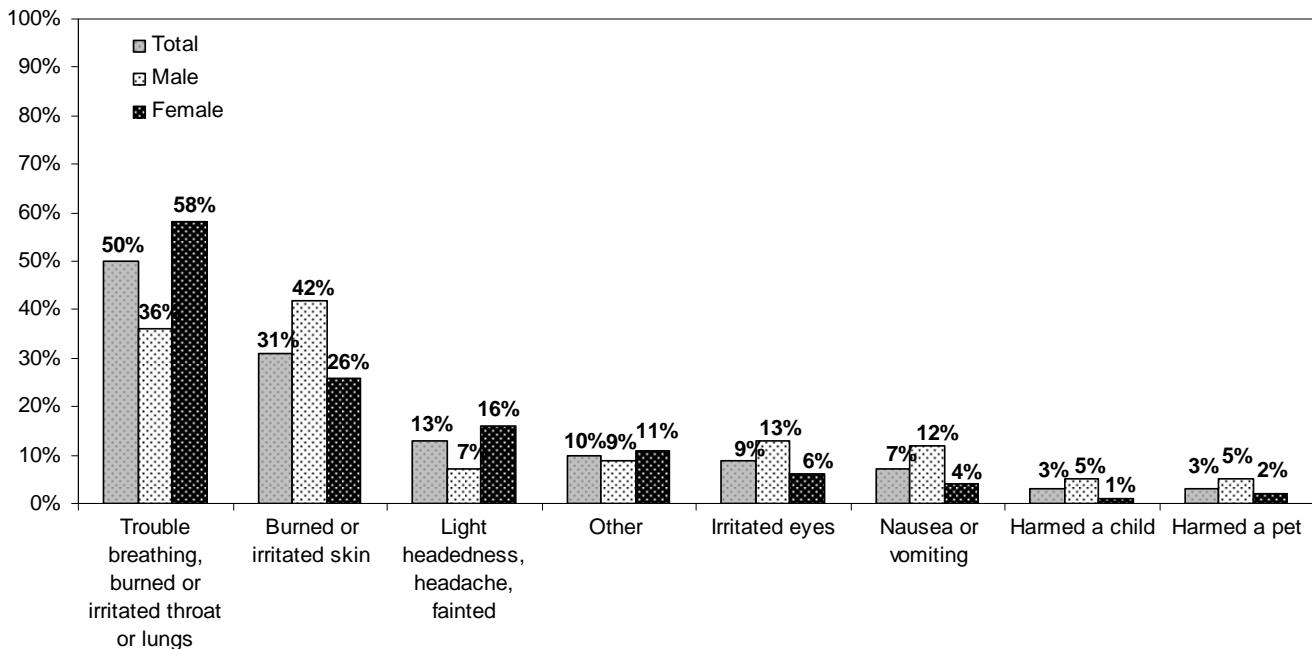
Potential Risks to You and Your Family:

- Those rating the potential risks of a product as somewhat important (47%) were *more likely* use **commercial drain cleaners** to unclog drains than those rating potential risks as very important (31%).
- Those rating the potential risks of a product as somewhat important (24%) were *more likely* to use a **chemical oven cleaner** than those rating potential risks as very important (15%).
- Those rating the potential risks of a product as somewhat unimportant (70%) or somewhat important (66%) were *more likely* to be using **multi-purpose household cleaners** to clean their bathrooms than those who rated the potential risks as very important (47%).

E. Harmed by Chemical Products

All respondents (n=581) were asked, “Have you ever had anything harmful happen because of chemical cleaning products?” The 20% of respondents who had been harmed were asked to describe what had happened. Interviewers did not prompt the respondents with choices, but recorded as many different types of harm as each respondent listed. Figure 17 shows the types of harm experienced for all respondents and by gender because women (25%) were significantly *more likely* to report having experienced harm than men (15%). Renters (32%) were also significantly *more likely* to report having experienced harm than homeowners (18%). Trouble breathing or burned/irritated throat or lungs (50%) was the most commonly reported harm from chemical cleaning products, followed by burned or irritated skin (31%). Specific responses to this question can be found in Appendix D. All other types of harm were reported by less than 15% of respondents.

Figure 17: Harm Experienced from Chemical Cleaning Products (n=116)



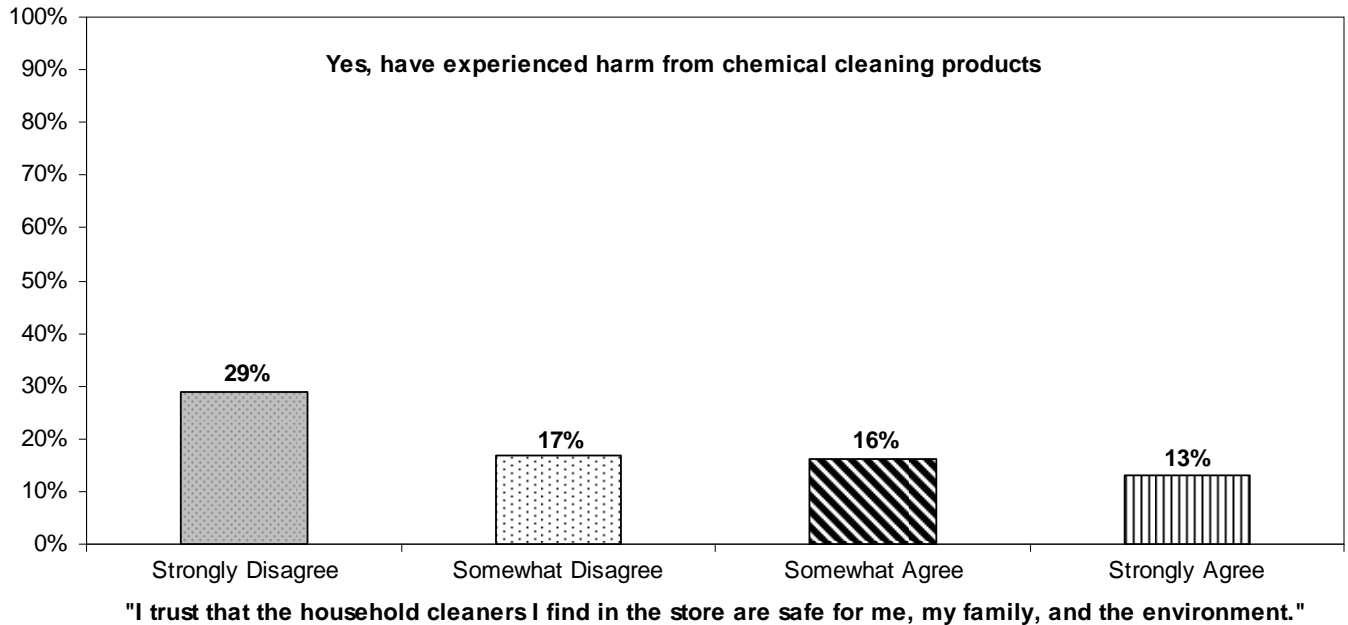
How has being harmed by chemical cleaning products affected the use and perception of household cleaners?

In general, those who have experienced some kind of harm were *more likely* to use non-toxic household cleaners, and to rate the danger of certain household cleaners higher than those who hadn't experienced harm. Two significant differences emerged when looking across the different cleaning products:

- Respondents who have been harmed (24%) are *more likely* to use **non-toxic cleaners on their bathrooms** than those who have not been harmed by chemical cleaning products (15%).
- Respondents who have been harmed by chemical cleaning products (77%) are *more likely* to take steps to **prevent clogged drains** than those who have not been harmed (68%).

Figure 18 shows the proportion of respondents who had experienced harm from chemical cleaning products according to the level of agreement with the statement, "I trust that the household cleaners I find in the store are safe for me, my family, and the environment." Overall, respondents who strongly disagreed with this statement (29%) were significantly *more likely* to have **experienced harm because of chemical cleaning products** than those who somewhat disagreed (17%) or somewhat agreed (16%). However, no statistically significant differences in ratings of the statement were found across the different types of harm experienced.

Figure 18: Perceived Trust and Past Experience of Harm (n=581)



V. LEAD FISHING WEIGHTS

As described in the methodology section of this report, the 615 respondents who completed the full, statewide survey were asked if they had gone fishing in the last year. In addition to that survey, a fishing oversample survey was conducted to gather responses from additional people who fished within the last year in order to have a larger sample of data regarding the use of lead fishing weights. The sample size of fishing data from the statewide survey is 146. Combined with the sample size of the fishing oversample survey (n=177), the total sample size for the fishing weighted data is 323. The data presented in this section reflects the actual percentages of those who responded to the survey, and is not weighted.

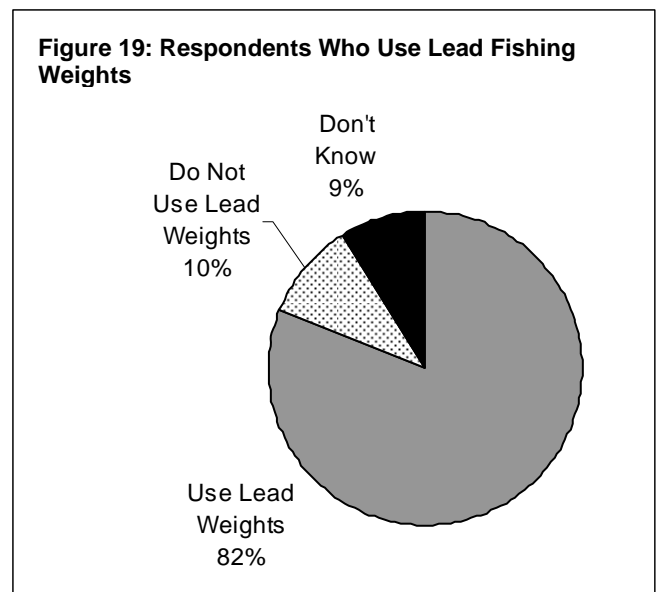
A. Oregonians Who Fish

To accurately represent the characteristics of Oregonians who fish, it is necessary to look only at the respondents who completed the fishing section of the random, statewide survey. One-quarter (24%) of the respondents reported having fished within the last year. In general, people who had fished were more likely to be male, live outside the Metro area, be younger, have a higher income, and live in a home with young children. The following demographics resulted in statistically significant differences for people who had fished within the last year.

- Respondents living outside of the Metro area (27%) were significantly *more likely* than those living within the Metro area (16%).
- Men (37%) were significantly *more likely* than women (17%).
- 25- to 44-year-olds (38%) were significantly *more likely* than 45- to 64-year-olds (25%), 65- to 80-year-olds (16%) and 81- to 95-year-olds (10%).
- Households with incomes of \$75,000-\$99,999 (39%) were significantly *more likely* than households with incomes less than \$75,000 (19%).

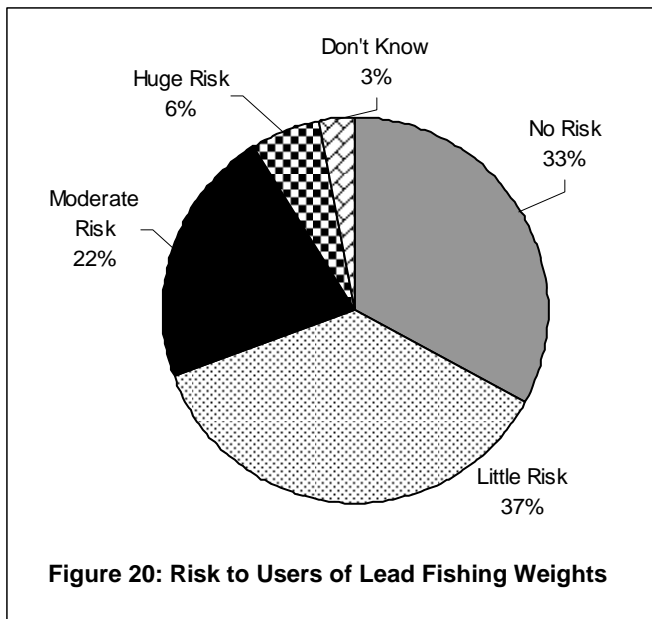
B. Use of Lead Fishing Weights

One purpose of this survey was to determine the proportion of people who use lead fishing weights. It was found that of the 323 respondents who fish, the majority (82%, n=264) reported having used lead fishing weights (see Figure 19). Notably, 9% of fisherpeople did not know whether or not they used weights made of lead, with respondents living in the Local Events (13%) being *more likely* to **not know** whether they use lead weights than those in the No Local Service (6%) area.



Respondents were also asked, “How much risk do you believe that lead fishing weights pose to the people who use them?” Figure 20 presents the breakdown of respondents across the 4-point rating scale. The majority of respondents (70%) rated lead fishing weights as having little to no risk to people who use them. A few characteristics differentiating respondents across the risk ratings were statistically significant:

- Men (42%) were *more likely* to select the rating of **little risk** than women (29%).
- Women (11%) were *more likely* to select the rating of **huge risk** than men (3%).
- Respondents with young children in the home (12%) were *more likely* to select the rating of **huge risk** than those without young children in the home (5%).
- Respondents living in the Local Events area (30%) were *more likely* to select the rating of **moderate risk** than those in the No Local Service area (17%) and the Non-Metro Facilities area (17%).



Looking at the demographic characteristics of respondents who **use lead fishing weights**, the following differences were statistically significant:

- Men (89%) were *more likely* than women (68%) to use lead fishing weights; however, women (19%) were also *more likely* to **not know** whether they were using weights made of lead than men (3%).
- Respondents who believe lead weights pose **no risk** (89%) or **little risk** (89%) were *more likely* to use lead weights than those who believe they pose a **moderate risk** (67%)

C. Attaching Fishing Weights

One of the issues related to the use of lead fishing weights is the manner in which those weights are attached to the line. Of the 264 respondents who reported using lead fishing weights, the majority (58%) identified using pliers to attach their lead weights to the fishing line. Only 19% of the respondents reported using their teeth to attach lead weights. Over one-third (40%) of respondents using lead weights indicated they used other methods to attach weights to their lines. Due to the large proportion of “other” responses, the open-ended descriptions of the method used were further coded into five categories:

1. By hand – Any manual approach using hands or fingers.
2. With an object – Use of any other object (e.g., swivel, tubing, clips) without a direct indication of it being by hand.

3. With a tool – Using any sort of tool (e.g., leatherman, forceps).
4. Multiple – Responses that included multiple approaches depending on the location (e.g., rivers vs. lakes).
5. Other – Additional responses that could not be included in any of the above categories.

Table 20 shows the breakdown of the methods Oregonians reported using to attach lead weights to the line. Respondents were able to select more than one method in response to this question. The breakdown by HHW service level is also included in the table to depict the differences across the geographic areas for the three primary response options (i.e., pliers, teeth, other). Respondents in the Non-Metro Facilities area (32%) were significantly *more likely* to use their **teeth** than those in the Local Events (15%), No Local Service (17%), or Metro Facilities (16%) areas. In addition, respondents in the No Local Service area (46%) were significantly *more likely* to use some **other method** than those in Non-Metro Facilities (28%) area.

Table 20: Methods of Attaching Lead Weights to Fishing Lines (n=264)

Method of attaching lead weights ¹ (listed in descending order of TOTAL frequency)	Total	HHW Service Area			
		Metro Facilities	Non-Metro Facilities	Local Events	No Local Service
Pliers	58%	59%	62%	56%	55%
Other – coded into the following responses ²	40%	41%	28%	39%	46%
By hand	18%				
With an object	16%				
With a tool	3%				
Other	3%				
Multiple	1%				
Teeth	19%	16%	32%	15%	17%

¹ Respondents could select more than one option.

² Data for the coded responses in the “Other” category did not have the HHW Service Level proportions calculated.

No other significant differences were found across the different methods for attaching lead weights to fishing lines.

D. Homemade Lead Weights

Respondents who use lead fishing weights were asked two additional questions to gain more detailed information about their interaction with the lead material of the weights. Only 16% (n=43) of the respondents reported making their own lead fishing weights. People living in Local Events counties (24%) were significantly *more likely* to make their own weights than people living in Non-Metro Facilities counties (9%).

Respondents who reported making their own lead weights (n=43) were further asked where they made the weights. Without being prompted with response options, the majority of those individuals reported making the lead weights in their garage (37%), followed by their porch or yard (26%). An additional 19% of respondents reported “other” locations, including at the fishing hole or in a shed. There were no significant differences between respondents who made the lead weights in different locations, which could be due to the overall small sample size of respondents.

F. Non-Lead Weights

All respondents *except* those who did not know if any of the weights they used were made of lead were asked about purchasing non-lead fishing weights (n=295). Approximately one-third of respondents (34%) reported having purchased non-lead fishing weights. Over half (58%) reported having never purchased non-lead fishing weights. The following demographic differences were statistically significant:

- Men (64%) were *more likely* than women (46%) to **not purchase** non-lead weights.
- Respondents with young children in the home (48%) were *more likely* than those without young children (31%) to **purchase** non-lead weights.
- Respondents who believe lead weights pose **moderate risk** (48%) were *more likely* to purchase non-lead weights than those who believe lead weights pose a **little risk** (28%) or **no risk** (28%).

When asked where they purchased non-lead fishing weights (multiple responses were accepted), the vast majority of respondents who purchased weights (96%) reported buying them at retail stores. Only a few respondents purchased weights online (3%) or through some other means (3%).

Respondents who had never purchased non-lead fishing weights (n=171) were asked if they had ever considered doing so. Table 21 presents the breakdown of respondents, with only 26% reported having considered purchasing non-lead fishing weights. People living in the non-Metro Facilities area (41%) were significantly *more likely* to have considered purchasing non-lead fishing weights than those in the No Local Service area (21%).

Table 21: Consideration of Purchasing Non-Lead Fishing Weights (n=171)

Considered purchasing non-lead weights	HHW Service Area				
	Total	Perm-Metro	Perm-NonMetro	Event	No Service
Yes	26%	29%	41%	23%	21%
No	73%	68%	59%	75%	79%
Don't Know	1%	3%	0%	3%	0%

To further understand this issue, respondents were asked why they hadn't considered buying non-lead weights. Table 22 presents a breakdown of those responses. Not knowing about alternatives to lead weights was the most common reason. Interviewers did not read the response options and only one answer was coded into the available categories for each respondent. No significant differences were found across all demographic characteristics.

Table 22: Reasons for Not Considering Purchasing Lead Weights (n=124)

Reasons for not considering purchasing lead weights <i>(listed in descending order of TOTAL frequency)</i>	HHW Service Area				
	Total	Perm-Metro	Perm-NonMetro	Event	No Service
I didn't know they made non-lead weights/not aware of alternatives	52%	48%	47%	60%	50%
No reason	13%	14%	11%	20%	9%
I'm happy with what I'm using	13%	14%	21%	3%	15%
Other	9%	10%	11%	7%	9%
They are hard to find/I don't know where to find	6%	0%	11%	0%	9%
Non-lead weights don't work as well or are harder to use	4%	5%	0%	7%	4%
They cost more	3%	10%	0%	3%	2%
I don't think non-lead weights are safer/not concerned about lead	0%	0%	0%	0%	0%

VI. DEQ INFORMATION REQUESTS

At the end of both surveys, all respondents were asked if they wanted the Department of Environmental Quality to send them information about how to avoid and handle hazardous household waste. Slightly less than half (47%) responded that they did want to receive information from DEQ.

A. Characteristics of Respondents Who Requested Information

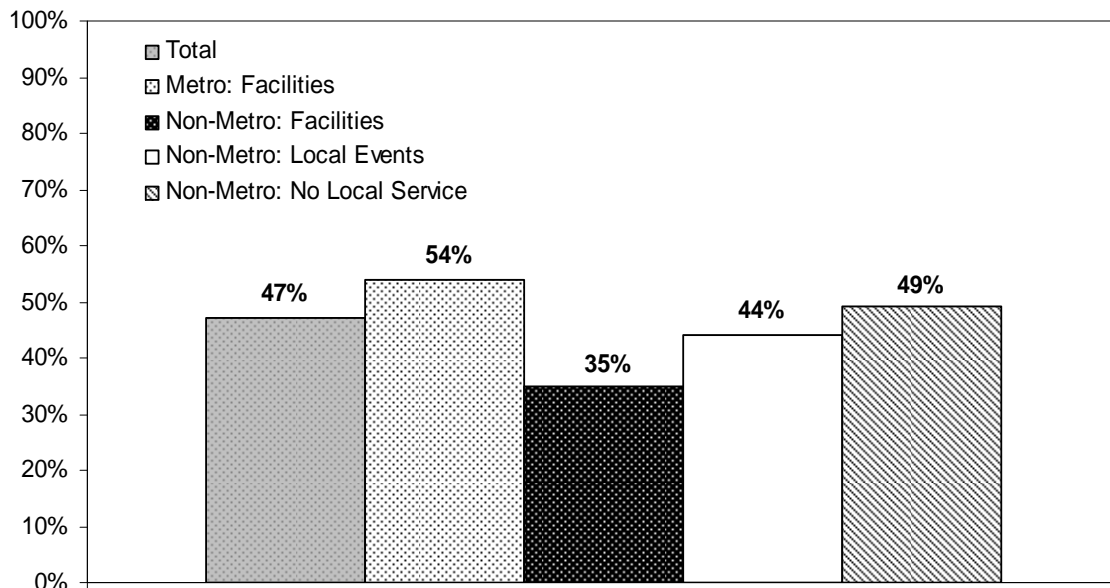
In general, slightly more women (53%) than men (47%) requested information from DEQ, although the difference was not statistically significant. The largest geographic groups of respondents requesting information lived in the Metro Facilities area (48%). Across age groups, the largest proportion of those who requested contact were 45 to 64-year-olds (46%), while the smallest proportion was 18- to 24-year-olds (1.4%). Across income brackets, requests were fairly evenly spread across most of the categories.

B. Comparisons of Respondents Who Requested Information and Those Who Did Not

Demographics

There were a few notable demographic differences between those requesting information and those who did not. Respondents in the Metro Facilities HHW service area (54%) were significantly *more likely* to request contact than those in the Non-Metro Facilities area (35%). Figure 21 shows the percentages of respondents who requested DEQ information contact, statewide and in each HHW service region.

Figure 21: Geographic Comparison of Respondents Requesting Information from DEQ



For gender and race, no group was more or less likely to request contact than any other group. The few statistically significant demographic differences that did emerge among other categories were:

- ♦ Households with young children (59%) were *more likely* to request information from DEQ than households without young children (45%).
- ♦ 25- to 44-year-olds (58%) were *more likely* to request contact than 65- to 80-year-olds (43%) and 81- to 95-year-olds (38%).
- ♦ Households with annual incomes of \$75,000 to \$99,999 (64%) were *more likely* to request DEQ information than households with annual incomes of \$35,000 to \$49,999 (46%) and \$100,000 or more (47%).

Beliefs, Attitudes and Behaviors

There were only a few cases in which respondents requesting information from DEQ were *more likely* to rate the danger of household chemical products as higher than those who did not make the request. Specifically, the following two differences were statistically significant:

- ♦ Respondents who requested DEQ information (46%) were significantly *more likely* to rate **lawn chemicals** as *very dangerous* than those who did not make the request (38%).
- ♦ Respondents who requested DEQ information (24%) were significantly *more likely* to rate **oil-based wall paint** as *very dangerous* than those who did not make the request (18%).

In terms of attitudes about product use, the following statistically significant differences were found:

- ♦ Those who requested information (46%) were significantly *more likely* to strongly agree with the statement, **“I don’t use natural methods on my lawn because I don’t know enough about them,”** than those who did not request information (26%).
- ♦ Those who requested information (7%) were significantly *less likely* to **strongly agree** with the statement, **“Chemical methods of lawn care are more effective than natural methods of lawn care,”** than those who did not request information (17%).
- ♦ Those who requested information (90%) were significantly *more likely* to **strongly agree** that **manufacturers should be required to include a complete list of ingredients on products** than those who did not request information (78%).
- ♦ Those who requested information (75%) were significantly *more likely* to **strongly agree** that **manufactures should share in the responsibility for safely recycling or disposing of their products** than those who did not request information (61%).

Respondents who requested information from DEQ were *more likely* to have used certain household chemical products, including **commercial drain cleaner** and **multi-purpose household cleaner**. They were *less likely* to have used certain **lawn pesticides**, but *more likely* to have used **chemical lawn products**. Specifically, respondents who requested information were significantly *less likely* to have:

- Used a **combination weed and feed product** (38%) on their entire lawn in the last year than those who did not request information (49%).
- Used a **weed killer** (24%) on their entire lawn in the last year than those who did not request information (34%).

Respondents who requested information from DEQ were significantly *more likely* to have:

- Used **chemical products** (64%) on their lawn than those who did not request information (41%).
- Use the **spreader settings** (13%) to determine **how much lawn pesticide to apply** to their lawns than those who did not request information (5%).
- Purchased **compact fluorescent light bulbs** (79%) than those who did not request information (70%).
- Used a **commercial drain cleaner** (40%) to **unclog a drain** than those who did not request information (30%).
- Use a **strainer to prevent clogged drains** (29%) than those who did not request information (14%).
- Use a **multi-purpose household cleaner** (57%) to clean their bathrooms than those who did not request information (47%).

When looking at methods of disposal of leftover household chemicals, respondents who requested information were significantly:

- *Less likely* (24%) to have taken **leftover lawn chemicals** to an **event or facility** for disposal than those who did not request information (65%)
- *More likely* (45%) to **still have leftover lawn chemicals in storage** than those who did not request information (9%)
- *More likely* (16%) to have had **leftover pool or hot tub chlorine** that they wanted to get rid of than those who did not request information (3%).
- *More likely* (71%) to have had **leftover pharmaceuticals** that they wanted to get rid of than those who did not request information (63%).

Respondents who requested DEQ information varied regarding their willingness to take additional steps to recycle or safely dispose of certain products. Specifically, the significant differences were found for the following:

- *More likely* to be willing to **always** take their **unwanted medications** to a pharmacy for disposal (81%) than those who did not request information (65%).
- *Less likely* to **never** be willing to take their **unwanted medications** to a pharmacy (4%) than those who didn't request information (16%).
- *More likely* to be willing to **always** mail their **unwanted medications** for disposal (79%) than those who didn't request information (60%).

- *More likely* to be willing to take **compact fluorescent lightbulbs** back to the store if they were accepted (95%) than those who did not request information (83%).

For the subset of respondents who had fished in the last year, the following significant differences were found:

- Respondents who requested DEQ information (19%) were *less likely* to believe **lead fishing weights** posed *no risk* to those who used them than those who did not request information (38%).
- Respondents who requested DEQ information (41%) were *more likely* to have purchased **non-lead weights** than those who did not request information (30%).
- Of those who have not purchased **non-lead weights**, respondents who requested information (67%) were *more likely* to say they had not considered purchasing non-lead weights because they *didn't know they made them or were not aware of alternatives*, than those who did not request information (40%).
- Respondents who requested information (69%) were *more likely* to use **pliers** to attach lead weights to the fishing line than those who did not request information (51%). They were also significantly *less likely* to use their **teeth** to attach lead weights to the line (12%) than those who did not request information (26%).

By Sending Information to the People Who Request It, Is DEQ “Preaching to the Choir”?

Although respondents who had requested information from DEQ were more likely to rate certain chemical products as more dangerous and less likely to use certain lawn pesticides, overall, it is not possible to conclude that those requesting information are more aware or more careful users of hazardous household chemicals. Notably, in two cases, those requesting information seemed to be *less aware* – they were *more likely* to agree that they **didn't use natural methods on their lawns because they didn't know enough about them** and *more likely* to say they were unaware of **alternatives to lead fishing weights**. They were also more likely to be using **chemical lawn pesticides** when they did use lawn product. Those who requested information were more likely to have **leftover pool or hot tub chlorine** and **leftover pharmaceuticals**, but there were no significant differences in how they disposed of these unwanted hazardous wastes when compared to those not requesting information. The only difference in disposal methods showed that those requesting information were *less likely* to have taken **lawn pesticides** to an event or facility, and *more likely* to still have **leftover lawn pesticides** in storage.

Ultimately, the data does not conclusively answer the question; however, the fact that people requested information from DEQ suggests that they are receptive to information on alternatives and proper handling of hazardous household waste. In addition, the data does not show that those who requested the information are consistently more knowledgeable or careful in their current practices than those who did not request the information.

