

# Summary of results for the Lawn and Garden Care Survey

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## Research objectives

This analysis reports the results of a survey compiled by the Center for Ecological Technology (CET). The purpose of the survey was to identify behaviors, attitudes, and barriers to behavior change related to the use of pesticides, herbicides, and fertilizers on household lawns and gardens in Berkshire County. The survey design was loosely based on the model of fostering sustainable behavior developed by Doug McKenzie-Mohr. The research questions were informed by the latest research on the use of chemicals in lawn and garden care, and were developed collaboratively by CET staff. Results will be used to help understand behaviors and attitudes of residents of Berkshire County, and to inform CET's educational programs and materials related to the use of chemicals in lawn and garden care.

This report will review the research results by highlighting findings of interest including the demographic profile of respondents, reported chemical use in lawn and garden care, and responses to questions related to attitudes and the relative effectiveness of different informational messages. Statistical tests, specifically t-tests, are used to compare the average numerical value for responses from chemical users and non-users. The results of these analyses are reviewed to identify differences in attitudes and beliefs between these two groups. Descriptive statistics including average responses are presented in appendix A, which will be referred to throughout this report.

## Research methodology

The survey was pilot tested on a group of approximately 25 people. Most respondents completed the survey in 2-3 minutes. After making minor changes in survey format and question wording based on the pilot study, the survey was administered to 458 individuals using an opportunistic sampling methodology. The limits of time and money prevented the use of statistically random or representative sampling, however an effort was made to obtain completed surveys from individuals living in towns throughout the county with varying levels of education, and from varying age groups. Surveys were distributed at local public libraries, children's soccer leagues, to large employers, at local churches, daycare centers, at public events such as household hazardous waste collection days and a public presentation about climate change.

When receiving their surveys, respondents were asked to take a few minutes to reply to the survey to inform CET about how they care for their lawn and garden. They could fill out and return the survey immediately or take it home and send it in. As an incentive, all respondents could choose to be entered into a drawing for a gift certificate to a local mall or movie theatre. The identities of survey respondents were anonymous.

Data were entered into a Microsoft Excel spreadsheet and analyzed using StatView statistical analysis software. Descriptive analyses were conducted to look at response distributions, averages (means), mode (the most frequently given response), and median (the fiftieth percentile response) for each scaled questions, and response frequency and percentage for categorical questions. Analysis of variance (ANOVA) were conducted to compare average response values across questions. T-tests were done to compare the average responses between groups, such as between respondents who use chemicals and those who do not. All differences reported here are statistically reliable with a p value of less than .05, meaning the likelihood that the difference is due to chance is less than 5 percent. Most reported differences had much lower p values, reflecting even greater confidence in the reli-

ability of the reported difference.

### **Demographic profile of respondents**

Most respondents (54%) were between the ages of 45 and 64, with no respondents under the age of 18. Forty-four percent of respondents were male; 89% own their home. Eighteen percent of respondents have no high school degree and 4% have a graduate degree. Thirty-four percent live in a household with children under the age of eighteen. Thirty percent of respondents get their drinking water from a well. Respondents were from towns throughout Berkshire County (Table 1)

### **Lawn care and chemical use (Questions 3-9)**

Technically, one cannot generalize from the results of a non-randomized survey, however, given the extreme differences found between users and non-users of pesticides, some working hypotheses have been generated. Based on these differences, we found the following:

As indicated in Appendix A, 79% of respondents indicate that they or a family member take care of their lawn, and 90% say that they or a family member take care of their gardens/landscaping. Seven percent of respondents pay a landscaper to take care of their lawn and 10% say they pay someone other than a landscaper to take care of their lawn. Three percent pay a landscaper to take care for their garden/landscaping and 3% pay someone other than a landscaper.

The majority of the sample do not use chemicals in their lawn and garden. Seventy-nine percent never use herbicide/fungicide, 70% never use pesticide/insecticide, and 59% never use chemical fertilizer. Of chemical users, most use chemicals in their lawn and garden 1-3 times a year, and few (5 or 6 respondents) use chemicals 6 or more times a year. Only 33% of respondents say that they never use non-chemical practices such as compost, companion planting, and home remedies.

The most commonly mentioned major pests and weeds are identified in Table 2. Most commonly used products on lawn and garden were Miracle Grow, Roundup, Scott's products (need to see spreadsheet to review). Respondents got most of their information about chemical products they purchase from the hardware store and their landscaper or lawn care company.

### **Importance of variables in product selection (Questions 10-14)**

Respondents were asked to rate the importance of various factors in their purchase of fertilizers, pesticides, or herbicides. Product safety was rated as the most important (average response 3.4 out of 4). Ease of application was the next most highly rated factor (average response 2.8 of 4). Cost, rapid results, and product familiarity were rated of similar importance overall (average response 2.3 or 2.4 out of 4). When comparing the average response for chemical users versus non-users it is interesting to note that product safety is significantly less important for chemical users (average response 3.4) compared to non-users (3.7).

### **Summary of responses to attitude variables (Questions 15-26)**

Analysis of questions 15 through 26 indicate significant differences between responses from chemical users versus non-users for each question. These groups will be described here using the terms "ever" versus "never". The "ever" group consists of people who indicate in the survey that they ever use pesticides, herbicides, or fertilizers in their yard. The "never" group consists of people who never use any of these products. Appendix A has overall response averages. Table 3 indicates

average response values for the “ever” and “never” groups.

Members of the “ever” group are significantly more likely to agree that an attractive lawn is a weed free lawn, are significantly more likely to be bothered by the presence of weeds in their yard, are more likely to believe that a neighborhood looks less attractive when neighbors don’t maintain a weed-free lawn, are significantly more likely to agree that they need to keep their lawn as green and weed-free as their neighbor. Members of the “ever” group are more likely to believe chemical fertilizer is necessary for a healthy, attractive lawn and garden, and that chemical fertilizer is safe. People who ever use chemicals are less likely to believe that a beautiful lawn and garden are possible with the use of chemical fertilizers or herbicides, that pesticide use contaminates drinking water. Members of this group are more likely to believe that most of the dangerous pesticides have been banned by the government, and that chemical products in the lawn and garden become harmless within days after they are applied. “Questions 23, 24, and 26 had 100 or more people who responded, “don’t know”, indicating that product use and safety are areas where educational efforts should be concentrated.

### **What chemical users would like (Questions 27-33)**

These questions were addressed to those who use no chemical pesticides, herbicides, or fertilizers in their yard. People from the “ever” group who did respond to these questions were excluded from the analysis. Results revealed that respondents were most interested in learning more about natural gardening methods and about less toxic methods to care for their yard and garden. Respondents would also like their local store to stock and promote less toxic products for their lawn and garden.

### **Landscaping company users (Questions 34-36)**

Respondents who use a landscaping company disagreed with the statement “I’m not concerned about safety and health risks from products my lawncare or landscaping company uses in my lawn or garden” with an average response of 2.6 on a 6 point scale. Respondents generally agreed that they would like their landscaper/lawn care company to use less toxic products (average response of 4.9 on a 6 point scale). As indicated in question 36, 15 respondents say their landscaper uses fertilizer, 6 indicate herbicide use, 11 indicate pesticide use, and 9 respondents indicate they don’t know what products their landscaper uses.

### **Message testing (Questions 37-42)**

Questions 37 to 42 were developed to test the relative effectiveness of different informational “messages” in inhibiting chemical use. Analysis reported here looked at the relative effectiveness of each message for the “users” group only. All of the messages appear to hold promise for changing behavior since average responses indicate people are at least “somewhat likely” to change their behavior based on the information given. The most effective messages for users of chemicals were questions 37 (chemicals entering water supply), question 38 (not tested for health effects on children) and question 42 (wildlife such as songbirds are poisoned). The message in questions 41, schools and day care centers are no longer allowed to use chemicals without written notification, was less effective. The least effective messages were questions 39 (my neighbors do not want these chemicals used), and 40 (my board of health has asked residents to use fewer chemicals). Average response values to each of these questions for the “users” group are reported in Appendix A.