

Healthy Lawns
Homeowner Internet Survey Report
to the
Healthy Lawns Working Group

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EXECUTIVE SUMMARY

In October 2000, the Pest Management Regulatory Agency (PMRA), the provinces and territories committed to a Federal/Provincial/Territorial (F/P/T) Healthy Lawns Strategy. This strategy is one component of the Action Plan on Urban Use Pesticides announced by the Minister of Health in October 2000. The goal of the strategy is to reduce reliance on pesticide use for lawn care through the application of Integrated Pest Management (IPM) principles, with particular emphasis on pest prevention, use of reduced risk products and application of pesticides only when necessary.

One initiative under the Healthy Lawns Strategy is the development of training materials and programs to educate homeowners on healthy lawn practices which minimize the need for pesticides. Key messages about healthy lawns were developed by the Healthy Lawns Working Group (HLWG), a partnership formed under the auspices of the existing Federal/Provincial/Territorial Committee on Pest Management and Pesticides. Stakeholders were also consulted during the development of the key messages which were posted on the Healthy Lawns Web site in March 2002. The *Healthy Lawn Tips* pocket folder was developed by the PMRA and distributed in September 2002 through HLWG members and PMRA regional offices. Copies of the folder were also provided to approximately 1,300 members of the Canadian Federation of Municipalities in March 2003, and the folder was posted on the Healthy Lawns Web site in April 2003.

This pilot survey was conducted to measure the success of this initiative to educate homeowners. The objectives of the survey were to:

1. test homeowners' knowledge of healthy lawn care practices;
2. gather homeowners' opinions about reducing reliance on pesticides for lawn care;
3. gather information about the lawn care practices that homeowners are using; and
4. determine if this approach gathers information that would allow the HLWG to evaluate and adjust their homeowner education activities.

The target population was Canadian homeowners so the survey was placed only on the Home Gardeners page of the Healthy Lawns Web site. Participation was strictly voluntary to help ensure that a random sample of homeowners participated.

The survey questions were developed around the Healthy Lawns Key Messages promoted on the Healthy Lawns Web site and in the Healthy Lawns Tips pocket folder. The knowledge questions were designed to determine whether homeowners understand the Healthy Lawns Lawn maintenance messages. The opinion questions were designed to gather information about homeowners' support for reduced reliance on pesticides. Finally, questions about lawn care practices were designed to determine whether respondents have been, or will be using, the key messages promoted on the Healthy Lawns Web site.

During the 87 days the survey was posted from June 24th to Sept. 19th, 2003, 185 respondents completed the survey. Homeowners from all ten provinces participated and 88% of them voluntarily identified the municipality in which they live, naming 97 distinct municipalities.

Testing homeowner's knowledge of the Healthy Lawn key messages revealed that 81% of respondents knew all the healthy lawn maintenance practices; 80% knew that maintaining a healthy lawn was the best way to prevent infestations; and only 64% of respondents knew all the best ways to protect beneficial organisms in their lawn. Seventy percent of respondents knew all the things they should do before using a pesticide.

While the majority of respondents (59%) indicated they would tolerate as many weeds as they wish or up to 40 weeds per square metre, over one third of respondents indicated they would only tolerate 10 weeds per square metre or none at all. The opinion question about whether homeowners think reducing reliance on pesticide use for lawn care is good for the health and environment of Canadian generated a strong (86%) positive response.

When asked about whether they had changed their lawn maintenance practices as a result of information on the Healthy Lawns Web site, the majority (44%) of respondents indicated that they had not changed any of their practices. When asked whether they will change their lawn maintenance practices as a result of information on the Healthy Lawns Web site, 73% of respondents indicated they would change one or more of their lawn care practices. Of those who indicated they would change practices, the majority (32%) indicated they would reduce their reliance on lawn care pesticides.

Despite the low response rate (approx 2%), an internet survey is still a good method of gathering information, especially information about the use of a Web site. These results indicate that the information on the Healthy Lawns Web site is encouraging homeowners to make healthy changes to their lawn care practices.

Conducting a similar survey next year would also allow the Agency to gauge any changes in public attitudes towards the Healthy Lawns Strategy in light of the increasing number of municipal restrictions being imposed on the "cosmetic" use of pesticides.

Homeowners scored lowest on the pesticide handling and lawn ecology questions. The HLWG should consider this in developing future homeowner communication projects and when updating of the *Healthy Lawns Tips* pocket folder begins in June 2004.

Based on the findings of this survey, the following recommendations are being made:

- A similar survey should be conducted next year.
- The survey should be launched early in the Spring to increase participation.
- The information from this survey should be considered when updating the Healthy Lawns pocket folder in 2004. In particular, educational efforts on lawn ecology should be increased.

1.0 INTRODUCTION

1.1 Background

In October 2000, the Pest Management Regulatory Agency (PMRA), the provinces and territories committed to a Federal/Provincial/Territorial (F/P/T) Healthy Lawns Strategy. This strategy is one component of the Action Plan on Urban Use Pesticides announced by the Minister of Health in October 2000. The goal of the strategy is to reduce reliance on pesticide use for lawn care through the application of Integrated Pest Management (IPM) principles, with particular emphasis on pest prevention, use of reduced risk products and application of pesticides only when necessary. The main target groups are homeowners, lawn and landscape service providers, municipal parks managers, green space managers, golf course managers, grounds keepers of school playing fields, and vendors.

One initiative under the Healthy Lawns Strategy is the development of training materials and programs to educate homeowners on healthy lawn practices which minimize the need for pesticides.

Key messages about healthy lawns were developed by the Healthy Lawns Working Group (HLWG), a partnership formed under the auspices of the existing Federal/Provincial/Territorial Committee on Pest Management and Pesticides. Stakeholders were also consulted during the development of the key messages which were posted on the Healthy Lawns Web site in March 2002. The *Healthy Lawn Tips* pocket folder was developed by the PMRA and distributed in September 2002 through HLWG members and PMRA regional offices. Copies of the folder were also provided to approximately 1,300 members of the Canadian Federation of Municipalities in March 2003, and the folder was posted on the Healthy Lawns Web site in April 2003.

1.2 Objectives of the survey

The objectives of the survey were to:

1. test homeowners' knowledge of healthy lawn care practices;
2. gather homeowners' opinions about reducing reliance on pesticides for lawn care;
3. gather information about the lawn care practices that homeowners are using; and
4. determine if this approach gathers information that would allow the HLWG to evaluate and adjust their homeowner education activities.

2.0 METHODOLOGY AND SURVEY DESIGN

The survey questions were developed around the Healthy Lawns Key Messages promoted on the Healthy Lawns Web site and in the Healthy Lawns Tips pocket folder. They were reviewed by ASRAD's Strategic Communications Section and "focus tested" by ASRAD staff to ensure that they were understandable and that responses would yield useful information.

The knowledge questions were designed to determine whether homeowners understand the Healthy Lawns Lawn maintenance messages. The opinion questions were designed to gather information about homeowners' support for reduced reliance on pesticides. Finally, questions about lawn care practices were designed to determine whether respondents have been, or will be using, the key messages.

Privacy concerns were addressed by consulting with Health Canada's Access to Information and Privacy Division on the content of the survey. No concerns were identified since the survey does not collect any information that could be used to identify the survey respondents. Participant profile questions were about province or territory, municipality, and size of lawn only. Public Opinion Research (POR) requirements were addressed by registering the survey with the Health Canada's Research, Evaluation and Coordination Division.

The target population for this survey was Canadian homeowners. To target their participation, and to reduce the possibility of other Healthy Lawn target groups participating, the direct link to the survey was placed only on the Home Gardeners page of the Healthy Lawns Web site. An indirect link to the survey was also put on the Healthy Lawns Home page directing homeowners to the full survey announcement and link located on the Home Gardeners page. The artwork and descriptive text used on the survey links to encourage homeowners to participate were provided by the Publications section of ASRAD. Participation was strictly voluntary; advertising to encourage participation was not done to help ensure that a random sample of homeowners participated.

The Business Line Improvement and Technology Development Division (BLITDD) assisted with the selection of electronic survey software by downloading and testing trial versions from company Web sites. Software that was easy to use and would ensure that participants could submit their answers only once was selected. Survey software could have been developed in-house by BLITDD but it would have been costly and time consuming. Purchasing this software also precluded the BLITDD from having to install and configure survey software on PMRA servers thereby saving space on Agency servers. BLITDD posted the survey on the Healthy Lawns Web site also assisted with the compilation of the final results and "cleaned up" the data by adding province names where only municipality names were provided.

In line with the PMRA's "Single Window" policy for inquiries to the PMRA, a "Contact Us" link was provided to the Agency's Information Service in the opening paragraph and at the end of the survey for participants with any questions. Questions and Answers were prepared to handle potential questions and a meeting was held with the Information Service to brief them regarding the possibility of receiving calls from survey participants.

Upon completion of the survey, participants were automatically directed to the Answer Page (see Annex B). Answer rankings were prepared (Annex C) for the knowledge questions and used to help analyze the results.

3.0 FINDINGS

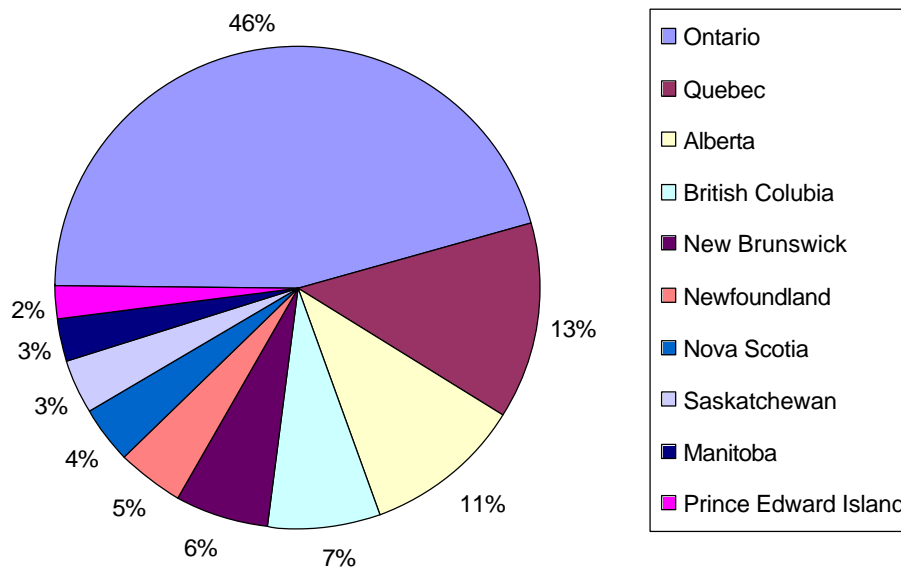
The survey was posted for three months from June 24th to Sept. 19th, for a total of 87 days. During that time 185 homeowners participated. During this time period the HL Web site hosted an average of 115 user sessions per day, so this represents response rate of 2%. Few (1%) participants provided comments to knowledge and opinion questions, while 10% of participants commented on the questions regarding lawn care practices. Although the Agency was prepared to answer questions from the public regarding the survey, no one contacted the PMRA Information Service with questions about the survey.

3.1 Who participated

Although homeowners in all ten provinces participated in the survey, the majority (46%) of respondents were from Ontario, followed by 13% from Quebec, and 11% from Alberta (see Figure 1). The majority (74%) of respondents stated that their lawns were average-size residential lots.

Eighty eight percent of participants voluntarily identified the municipality in which they live, naming 97 distinct municipalities. Since there are approximately 3,800 municipalities across Canada (Federation of Canadian municipalities), only 2.5% of Canadian municipalities were represented.

Figure 1



3.2 Knowledge of healthy lawn maintenance practices

When asked about the best ways to maintain a healthy lawn, 81% of respondents indicated that they knew that mowing high, leaving grass clippings on the lawn, watering deeply and infrequently, and overseeding and aerating your lawn in the fall were all good practices. Seventeen percent responded by indicating at least one of these practices, while the remaining two percent didn't know or recommended another practice such as fertilizing and choosing the correct seed variety for the growing conditions of your lawn. The response to this question revealed that the majority (98%) of homeowners understand one or all the key messages for lawn maintenance.

Eighty percent of respondents were aware that the best approach to managing pests (e.g. weeds, insects) in their lawn was to prevent infestations by maintaining a healthy lawn. An additional nine percent knew that spot treating with pesticides, only when necessary, was a good approach. Very few respondents thought fertilizing on a regular basis (4%) and broadcast (full coverage) spraying of pesticides (1%) was a good approach. The response to this question revealed that the majority (89%) of homeowners understand the key messages for common lawn problems.

3.3 Knowledge of handling pesticides

When asked about the most important thing you should do before using a pesticide, 70% of respondents knew that correctly identifying the pest, thinking about a variety of approaches to handling the pest, and reading the label were all important considerations. Twenty five percent of respondents correctly identified at least one of the important things to do, while the remaining 5% indicated they either didn't know or would not use a pesticide. The response to this question indicated that 95% of homeowners understand some or all of the Healthy Lawns key messages about safe handling of pesticides.

3.4 Knowledge of lawn ecology

Only 64% of respondents knew that both reducing the use of insecticides and fungicides, as well as avoiding excessive watering and over fertilization, were the best ways to protect beneficial insects and earthworms in their lawns. Twenty six percent of respondents were able to identify at least one of these "best" practices while the remaining 10% didn't know or recommended a different practice. The response to this question revealed that the majority (90%) of homeowners understand some or all of the Healthy Lawns key messages regarding lawn ecology.

3.5 Opinions about how many weeds are acceptable

When survey participants were asked about how many weeds (the average number per square metre) they felt were acceptable on their lawn, just over half the respondents (56%) indicated that "as many as they wish to tolerate" were acceptable and an additional three percent felt they could tolerate 40 weeds per square metre. Over one third (34%) of respondents felt that 10 per square metre, less than one per square metre, or no weeds at all were acceptable on their lawn. The

remaining seven percent of respondents indicated they didn't know how many weeds were acceptable on their lawn.

3.6 Opinions about reducing reliance on pesticides

Most respondents (86%) think that reducing reliance on pesticide use for lawn care is “very much” or “somewhat” good for the health and environment of Canadians. Eight percent of respondents indicated they were neutral and had no opinion, or just didn't know. The remaining six percent felt that reducing reliance on pesticide use for lawn care was not much to not at all good for the health and environment of Canadians.

Only three comments were made in response to this question: that sometimes there is no choice but to use pesticides; that pesticides should be banned from parks and homes; and that “good care is needed to keep lawns healthy”.

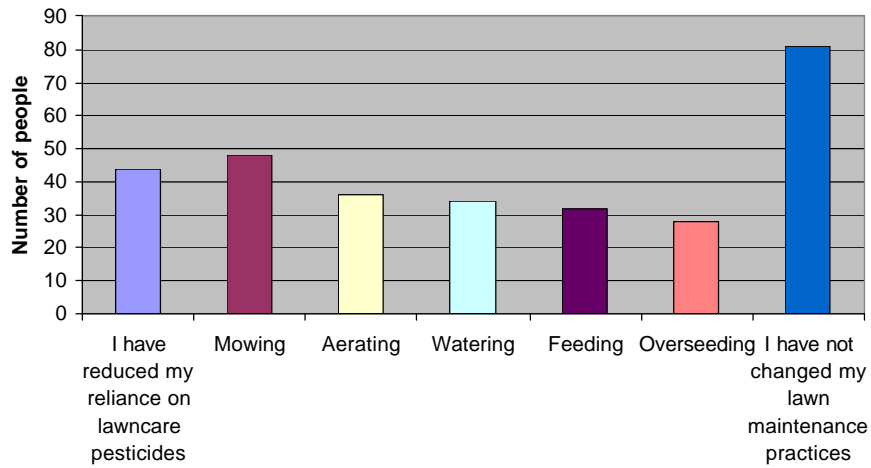
3.7 Changing lawn maintenance practices

Questions on changing lawn maintenance practices allowed participants to select as many responses that applied.

When asked whether they had changed their lawn maintenance practices as a result of the information on the Healthy Lawns Web site, the majority (44%) of respondents indicated they had not changed their practices. Of those who changed their practices, most (26%) indicated they had changed their mowing practices and 24% indicated they had reduced their reliance on lawn care pesticides. The distribution of responses is shown in Figure 2.

Of the 20 respondents who commented on this question, 10 indicated that they had not yet changed any of their lawn maintenance practices and the majority of these (7) indicated that this was because this was their first visit to the Healthy Lawns Web site. Five respondents said that they had already changed their practices, but not because of the information on the Healthy Lawns Web site. Four respondents commented that they never use pesticides and one stated that they don't worry about their lawn.

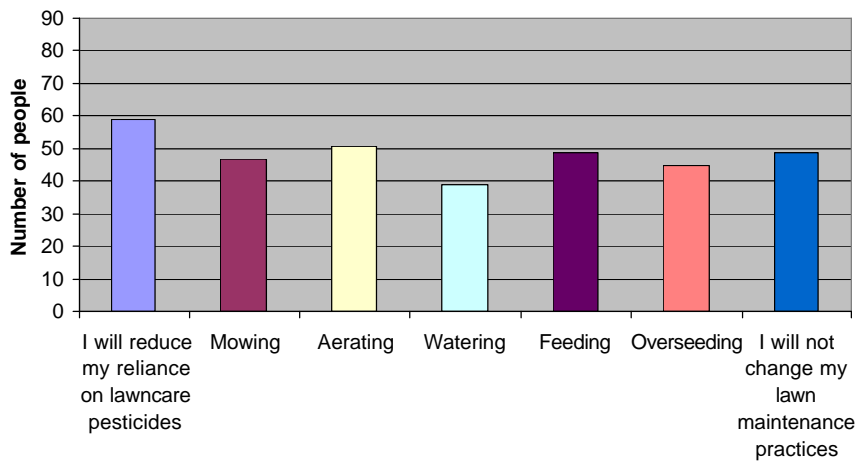
Figure 2



When asked whether they will change their lawn maintenance practices as a result of information on the Healthy Lawns Web site, the majority (32%) indicated they would reduce their reliance on pesticides. Of those who indicated they would change their practices, most (28%) indicated they would change their aerating practices, and 27% indicated they would change their feeding practices. The distribution of responses is shown in Figure 3.

Twenty one comments were received in response to this question. Eight commenters indicated that they have already used or always use the types of practices described on the Healthy Lawns Web site while six other respondents indicated that they will or probably will change their practices. Five respondents indicated that they were uncertain about whether they would change practices. One respondent commented that they don't use pesticides and another endorsed homeowner education and the best means to achieving safe pesticide use.

Figure 3



4.0 DISCUSSION AND CONCLUSION

4.1 Homeowner Knowledge

This pilot survey allowed the PMRA to gather baseline information regarding homeowners' knowledge of healthy lawn care practices and to some degree, their uptake of the Healthy Lawns key messages. Since 81% of respondents knew all the best ways to maintain a healthy lawn and 80% knew the best approach to managing pests was prevention, it appears that respondents have a good understanding of healthy lawn care practices.

Results of this survey also provided useful baseline information about homeowners' knowledge regarding proper handling of pesticides. Since only 70% of respondents knew everything they should do before using a pesticide, there appears to be some room for improvement. Since the Agency intends to publish and distribute a fact sheet for homeowners about How to Read a Label, conducting a similar survey next year may reveal whether this publication has had an impact on homeowner's knowledge about safely handling pesticides.

The survey results also revealed that only 64% of respondents knew about the best approaches to protect non-target organisms while caring for their lawn. Although many (25%) of respondents could identify at least one good approach to protecting beneficial insects and earthworms, additional efforts to educate homeowners about lawn ecology are probably warranted.

4.2 Homeowner Opinions

Responses to the opinion question about how many weeds are acceptable indicate that homeowners have developed a certain level of tolerance for weeds on their lawn. The majority (59%) will tolerate as many as they wish or up to 40 weeds per square metre. According to the Integrated Pest Management Manual for Landscape Pests in British Columbia, 10 weeds per square metre is an action threshold for "weed-free" turf and up to 50 per square metre are acceptable in residential areas. Over one third of homeowners will only tolerate 10 weeds per square metre or none at all. It would be interesting to track changes in these proportions through additional surveys in future years, especially given the trend towards pesticide-free policies being enacted in more and more municipalities.

The opinion question about whether homeowners think reducing reliance on pesticide use for lawn care is good for the health and environment of Canadians generated a strong (86%) positive response. There were more respondents (8%) who had no opinion than there were respondents who felt negatively (6%) about this policy. It appears therefore, that there is a high level of support for the Healthy Lawns Strategy whose objective is to reduce reliance on pesticide use for lawn care.

4.3 Homeowner Practices

When asked about whether they had changed their lawn maintenance practices as a result of information on the Healthy Lawns Web site, the majority (44%) of respondents indicated that

they had not changed any of their practices. This result does not seem unusual since the majority of respondents (80 to 81%) already knew about the best approaches to maintaining a healthy lawn and managing pests.

Of those who provided comments in response to this question, most indicated that changing their lawn care practices was not as a result of the information provided on the Healthy Lawns Web site and many indicated it was their first visit to the site.

When asked whether they will change their lawn maintenance practices as a result of information on the Healthy Lawns Web site, 73% of respondents indicated they would change one or more of their lawn care practices. Of those who indicated they would change practices, the majority (32%) indicated they would reduce their reliance on lawn care pesticides. These results indicate that the information on the Healthy Lawns Web site is encouraging homeowners to make healthy changes to their lawn care practices.

Of those who commented on this question, the majority indicated they were already using healthy lawn care practices. Many of those who commented also indicated that they would probably change or were uncertain about changing because this was their first visit to the site and were as yet unfamiliar with its contents.

4.4 Usefulness of the Survey

Typically, internet surveys have low response rates, around 10%. Despite low response rates, an internet survey is still a good method of gathering information, especially information about the use of a Web site. In 2002, it was estimated (Ipsos-Reid 2002) that the Internet had penetrated 70% of households in Canada. This figure has no doubt increased since then. Internet surveys are less expensive than traditional survey methods and within limits, respondents can set their own time to respond.

The low (2%) response rate seen in this survey was partly due to the non-targeted approach to soliciting participants. In choosing not to advertise this survey or actively solicit participants, it was hoped that participation in the survey would be random and representative of the Canadian homeowner population. Voluntary participation however does not guarantee a random sample and there may be self selection bias at work. From the distribution of participants by province, it appears that participation in the survey was representative of the Canadian population with the largest number of responses coming from the most populated provinces.

The low response rate was also partly attributable to the late launch date. Although the Healthy Lawns Web site hosted approximately 3,500 sessions per month from June to September 2003, peak activity occurred during April and May 2003 when approximately 4,600 and 5,500 sessions were hosted respectively. Any future web-based Healthy Lawns surveys should be launched in early Spring.

Conducting a similar survey next year would also allow the Agency to gauge any changes in public attitudes towards the Healthy Lawns Strategy in light of the increasing number of municipal restrictions being imposed on the “cosmetic” use of pesticides.

Homeowners scored lowest on the pesticide handling and lawn ecology questions. The HLWG should consider this in developing future homeowner communication projects and when updating of the *Healthy Lawns Tips* pocket folder begins in June 2004.

Any future Healthy Lawn survey should consider those segments of the Canadian homeowner population not being reached by the educational material made available on the Healthy Lawns Web site and through other communication channels.

5.0 RECOMMENDATIONS

Based on the findings of this survey, the following recommendations are being made:

- A similar survey should be conducted next year.
- The survey should be launched early in the Spring to increase participation.
- The information from this survey should be considered when updating the Healthy Lawns pocket folder in 2004. In particular, educational efforts on lawn ecology should be increased.

ANNEX A Healthy Lawns - Homeowner Survey

Dear Homeowner -

Health Canada's Pest Management Regulatory Agency (PMRA), in partnership with the provincial and territorial governments, has been encouraging homeowners to adopt healthy lawn care practices. Now we want to know what Canadians think about these practices aimed at reducing reliance on pesticide use for lawn care.

This short survey will test your knowledge of healthy lawn care practices and gather your opinions. The information gathered will be used by the Federal/Provincial/Territorial Healthy Lawns Working Group to focus future activities aimed at educating homeowners about pest prevention, the use of reduce-risk products, and the application of pesticides only when necessary.

This confidential survey is intended for homeowners and anyone who cares for their lawn. If you have any questions, please contact us.

Your participation is greatly appreciated!

1) What are some of the best ways to maintain a healthy lawn?

- Water deeply and infrequently
- Overseed and aerate your lawn in the fall
- Mow high and leave the grass clippings on the lawn
- All of the above
- Don't know
- Other?

If you selected other, please specify: _____

2) What is the best approach to managing pests (i.e. weeds, insects) in your lawn?

- Broadcast (full coverage) spraying of pesticides
- Spot treating with pesticides only when necessary
- Preventing infestations by maintaining a healthy lawn
- Fertilizing on a regular basis
- Don't know
- Other?

If you selected other, please specify: _____

3) What is the most important thing you should do before using a pesticide?

- Think about a variety of approaches (i.e. cultural, mechanical) to handling the pest
- Correctly identify the pest
- Read the label
- All of the above
- Don't know
- Other?

If you selected other, please specify: _____

4) What are some of the best ways to protect beneficial insects and earthworms in your lawn?

- Reduce the use of insecticides and fungicides
- Avoid excessive watering and over fertilization
- All of the above
- Lay stones in high traffic areas
- Don't know
- Other?

If you selected other, please specify: _____

5) How many weeds (average number per square metre) are acceptable on your lawn?

- As many as I wish to tolerate
- 10
- 40
- None
- Don't know
- Other?

If you selected other, please specify: _____

6) Do you think reducing reliance on pesticide use for lawn care is good for the health and environment of Canadians?

- Yes, very much so
- Yes, somewhat
- Neutral/No opinion
- No, not much
- No, not at all
- Don't know

Comments: _____

7) Have you changed any of your lawn maintenance practices as a result of the information on this Healthy Lawns Web site? (Please select as many as apply)

- Feeding
- Aerating
- Mowing
- Watering
- Overseeding
- I have reduced my reliance on lawn care pesticides
- I have not changed my lawn maintenance practices

Comments: _____

8. Will you change any of your lawn maintenance practices as a result of the information on this Healthy Lawns Web site? (Please select as many as apply)

- Feeding
- Aerating
- Mowing

- Watering
- Overseeding
- I will reduce my reliance on lawn care pesticides
- I will not change my lawn maintenance practices

Comments: _____

9) Please tell us where you live:

Select One [Drop down menu of provinces and territories]

10) Please tell us which municipality you live in:

11) My lawn is:

- Small – townhouse, garden home
- Medium-size – average residential
- Large-size – country estate
- None of the above
- Other?

If you selected other, please specify: _____

Thank you for participating!

Any questions, please [contact us](#).

ANNEX B Healthy Lawns - Homeowner Survey - Answer Page

1) What are some of the best ways to maintain a healthy lawn?

- Water deeply and infrequently
- Overseed and aerate your lawn in the fall
- Mow high and leave the grass clippings on the lawn
- All of the above

Answer: All of the above. Water deeply and infrequently, overseed and aerate your lawn in the fall, and mow high and leave the grass clippings on the lawn are some of the best ways to maintain a healthy lawn.

2) What is the best approach to managing pests (i.e. weeds, insects) in your lawn?

- Broadcast (full coverage) spraying of pesticides
- Spot treating with pesticides only when necessary
- Preventing infestations by maintaining a healthy lawn
- Fertilizing on a regular basis

Answer: Preventing infestations by maintaining a healthy lawn.

3) What is the most important thing you should do before using a pesticide?

- Think about a variety of approaches (i.e. cultural, mechanical) to handling the pest
- Correctly identify the pest
- Read the label
- All of the above

Answer: All of the above. Thinking about a variety of approaches (i.e. cultural, mechanical) to handling the pest, correctly identifying the pest, and reading the label are all important things to do before using a pesticide.

4) What are some of the best ways to protect beneficial insects and earthworms in your lawn?

- Reduce the use of insecticides and fungicides
- Avoid excessive watering and over fertilization
- All of the above
- Lay stones in high traffic areas

Answer: All of the above. Reduce the use of insecticides and fungicides and avoid excessive watering and over fertilization are some of the best ways to protect beneficial insects and earthworms in your lawn.

5) How many weeds (average number per square metre) are acceptable on your lawn?

- As many as I wish to tolerate
- 10
- 40
- None

Answer: As many as I wish to tolerate.

6, 7, 8) These were opinion questions.

9, 10, 11) These were survey participant profile questions.

Thanks again for participating in our survey!

ANNEX C Healthy Lawns - Homeowner Survey - Answer Rankings

Rankings: ++ = correct, + = partly correct, 0 = neutral, - = partly incorrect, - - = incorrect

1) What are some of the best ways to maintain a healthy lawn?

- Water deeply and infrequently (+)
- Overseed and aerate your lawn in the fall (+)
- Mow high and leaving the grass clippings on the lawn (+)
- All of the above (++)
- Don't know (- -)
- Other? Please specify _____ (0)

2) What is the best approach to managing pests (i.e. weeds, insects) in your lawn?

- Broadcast (full coverage) spraying of pesticides (- -)
- Spot treating with pesticides only when necessary (+)
- Preventing infestations by maintaining a healthy lawn (+ +)
- Fertilizing on a regular basis (- -)
- Don't know (-)
- Other? Please specify _____ (0)

3) What is the most important thing you should do before using a pesticide?

- Think about the variety of approaches to handling the pest (+)
- Correctly identify the pest (+)
- Read the label (+)
- All of the above (+ +)
- Don't know (- -)
- Other? Please specify _____ (-)

4) What are some of the best ways to protect beneficial insects and earthworms in your lawn?

- Reduce the use of insecticides and fungicides (+)
- Avoid excessive watering and over fertilization (+)
- All of the above (++)
- Lay stones in high traffic areas (-)
- Don't know (- -)
- Other? please explain _____ (0)

5) How many weeds (per square metre) are you able to tolerate on your lawn?

- As many as I wish (+ +)
- 10 (-)
- 40 (+)
- None (- -)
- Don't know (0)
- Other? Please specify _____ (0)