Reducing Pesticide Use in Lawn Care: Barriers and Opportunities

A Barrier/Motivation Inventory: The Basis of Community-Based Social Marketing

Introduction

What are the factors that might motivate people to reduce or eliminate the use of pesticides in caring for their lawns? What factors would likely make it difficult for people to take this step? Homeowners, lawn care companies, hardware stores and garden centers and local health boards may all experience motivations to reduce pesticide use in lawn care, as well as barriers that make it difficult for them to move in this direction.

What are the alternatives to the regular use of pesticides in lawn care? Integrated pest management (IPM) focuses on preventing pest problems by keeping the lawn as healthy as possible. Chemical pesticides are used only as a last resort. Chemical fertilizers may also be used. In organic lawn care, neither chemical pesticides nor chemical fertilizers are used. As in the IPM approach, the focus is on enhancing resistance to pests by creating a healthy lawn. This is achieved through different mowing habits, leaving grass clippings on the lawn, improving soil fertility, etc. Biological pest controls, such as beneficial insects, may be used. Organic fertilizers are used as needed.

The existing information about barriers and motivations associated with reducing pesticide use in lawn care comes from surveys, focus groups and in-depth interviews conducted by government agencies, academics, trade organizations and polling firms. University extension agents, lawn care operators, and government and non-profit environmental staff also contribute anecdotal information gleaned from many years of working in the field. Here are some patterns that emerge from the existing information on pesticide use in lawn care.

Homeowners

Barriers:

The following factors may inhibit homeowners from reducing pesticide use.

Perception of low environmental and public health risk

In 1996, urban and rural residents of Cache County, Utah were surveyed about the social acceptability of pesticide use in food production, pest control and lawn/garden maintenance. The safer residents believed pesticides to be, the more socially acceptable they viewed pesticide use to be.[1] A perception that pesticides carry little risk, therefore, may decrease the likelihood that people will reduce or eliminate their use.

- Although there was some evidence of concerns about pesticide safety and the potential for health risks associated with pesticide use, such concerns did not appear to be pervasive among Cache County residents.[2]
- In 1993, focus groups were convened in four major US cities to discuss lawn care. Members generally believed that moderation and proper usage of pesticides were the key to safety. The opinion was also expressed that if these products were approved and available for general use, they must be safe.[3]
- Twenty-one of forty homeowning couples interviewed in Michigan and Georgia in 1994 asserted that pesticides were not a health threat. These individuals

emphasized that they applied pesticides properly and used them sparingly, so there was no danger. Respondents who indicated that they felt there was a threat to their health generally considered it to be something that would be immediate and serious, such as spilling a quantity of the chemical on the skin.[4]

- Furthermore, the couples interviewed did not believe that chemicals impact the global environment, or were uncertain about this. Some believed that if many people stop using chemicals, it might make a difference.[5]
- Government and non-profit environmental staff report anecdotal evidence that people perceive pesticides as safe due to their prevalence, availability and the lack of perceptible messages about environmental and public health risks.[6] For example, lawn care operators don't necessarily wear protective equipment, which gives a false impression of safety.[7]

In contrast, a number of studies have found that people do perceive pesticides as dangerous.

- A King County, Washington survey conducted in 2000 found that "a strong majority of residents are concerned about the impact of pesticides on people's health and on the environment." Furthermore, most residents think that dangerous pesticides are widely available.[8]
- A study published by the Water Quality Consortium of Seattle, Washington in 1996 indicated that residents do understand the environmental concerns about pesticides and consistently rank them as the leading cause of pollution in the neighborhood.[9]

It is worth noting that the Local Hazardous Waste Management Program in King County (in which Seattle is located) has been working for a number of years to educate residents about the need to reduce pesticide use.

However, it is also worth bearing in mind that the degree of risk resulting from human exposure to pesticides is a hotly debated issue that is likely to continue to be debated for some time. "Since there are no scientific absolutes, people are left to draw their own conclusions about the risks and the benefits, based on their perceptions and knowledge of the facts."[10]

A pattern does emerge across studies showing that women are significantly more concerned than men about the impact of pesticides on people's health and the environment.[11] In addition, younger adults appear to be more concerned than older adults.[12] Finally, the Cache County study indicated that the more educated people were, the less safe they perceived pesticides to be.[13]

Narrow Standard for Acceptable Lawn Appearance

- Anecdotal evidence indicates that people are barraged with images of how lawns are supposed to look. They are supposed to look like a golf green. "The green carpet is so ingrained."[14]
- In interviews with homeowning couples in Michigan and Georgia, the greenness of grass was mentioned many times as an aspect of its beauty.[15]
- Focus group members discussing lawn care expressed the opinion that the standard for an acceptable lawn was high. It should be a "clean, well manicured, pest free, lush lawn."[16]

Perceived Need for Pesticides

- Results of the Cache County, Utah survey indicated that the belief that pesticides are necessary is related to other beliefs that there are no alternative ways to remove pests and that the benefits of pesticide use outweigh the risks.[17]

- Anecdotal evidence suggests that people are concerned that they could lose their lawn if they stop using pesticides.[18]
- A majority of pesticide users in King County believe that it takes too much time and effort to maintain a lawn without pesticides and that you cannot have the same quality lawn without pesticides.[19]
- When homeowners in Georgia and Michigan were asked if it would make any difference to their local natural environment if they stopped using chemicals, most interviewees, instead of answering the question, responded with concerns that if they stopped using chemicals, the appearance and quality of their lawn would deteriorate.[20]

Limited Sources of Lawn Care Information

- Reggie Coler, of the University of Massachusetts Extension Service states, "Education about lawn care comes mainly from TV commercials. Commercials come from chemical companies."[21]
- An article from *Watershed Protection Techniques* notes, "Study after study indicates that product labels, store attendants and lawn care companies are the primary and almost exclusive source of lawn care information for the average consumer."[22]
- A working group at the 1994 EPA Urban/Suburban Intregrated Pest Management Conference concluded that pesticide industry advertising is very influential. "The lack of consumer knowledge together with the marketing efforts of chemical pesticide companies has resulted in the excess use of chemical pesticides by the general public."[23] For example, Mary Owen of the Central Extension Center at Umass noted that some pesticide firms promote regular pesticide use regardless of whether there is a determined need for a particular pesticide at a particular time. Furthermore, Ms. Owen noted that radio advertisements for grub killing pesticides had aired in Massachusetts in early June, even though June is the wrong time to try to kill grubs in New England.[24]

People also use limited information sources when choosing a lawn care company.

- Focus group research conducted in Baltimore and Boston revealed that word of mouth appeared to the single most influential factor in people's selection of a lawn care service.[25]
- Other studies indicate that customers rely on direct mail and word of mouth as the primary factors in choosing a service.[26]

Social Pressure to Maintain Lawns

- The working group at the 1994 EPA Integrated Pest Management conference felt that peer pressure (keeping up with the Jones's) influences homeowners to try to achieve perfection, and thus to be amenable to the use of chemical treatments.[27]
- Pesticide users in King County were much more likely than non-users to agree that it is their responsibility to have a well-maintained yard.[28]
- When residents were asked their opinions on over 30 statements about lawns in a Michigan survey, the most favorable overall response was to the statement, "a green, attractive lawn is an important asset in a neighborhood."[29]
- Homeowners interviewed in Michigan and Georgia expressed their belief that the lawn is one of the first things others notice about one's home and it is important that these are positive impressions.[30]
- Individual homeowners who have attempted to plant wildflowers or encourage a "natural" lawn have met resistance and in some cases lawsuits.[31]

- Government environmental staff say anecdotal evidence confirms that homeowners worry if their neighbor's lawn looks better, and feel that they need to hire a lawn service and apply chemicals to keep up.[32]
- Not surprisingly, homeowners also feel that the appearance of their lawn reflects personally on them. "The lawn is a source of personal pride, provides individuals with a sense of accomplishment, and is a reflection of one's self."[33] This is particularly true of the man of the house. A pattern emerges across studies indicating that husbands are primarily responsible for the care and maintenance of the lawn.[34]

Property Value

- Homeowners responding to a 1986 Gallup poll said that landscaping (including lawns) added almost 15% to the value or selling price of a home. And the "curb appeal" – a pleasing first view of a landscaped home – is said to reduce the time a house stays on the market.[35]
- For homeowning couples in Michigan and Georgia, the primary economic consideration regarding their lawn was the real or perceived dollar value that the lawn added to their property.[36]

Transition Difficulties

- Transitioning from pesticide use to organic lawn care involves higher up-front costs because the lawn must be remediated after years of pesticide use.[37]
- An organic lawn can take up to 3 years to fully establish, meaning that its appearance may be substandard in the meantime.[38]

In addition to the barriers listed above, homeowners who use lawn care services and homeowners who care for their own lawns each face a specific set of barriers to reducing pesticide use.

Homeowners Using Lawn Care Services:

- People who have a lawn care service like the way their lawn looks most of the time.[39]
- Lawn care operators promote the safety of the chemicals they are using.[40]
- Most lawn care operators don't know how to maintain lawns using IPM or organic approaches.[41]
- To go IPM or organic, a homeowner will probably need to switch lawn care companies.[42]
- Due to confusion about what the term "organic" means, and due to problems with "truth in advertising," it can be difficult for homeowners to determine which lawn care operators provide organic service and which don't.[43] Similar confusion pertains to the term "integrated pest manage-ment.
- Many residents are unaware of the pesticide application practices that their lawn care company employs, preferring to leave it up to the professionals.[44]

Homeowners Caring for Their Own Lawns

- Many homeowners are unaware that their lawn care product actually contains herbicides. This confusion stems from the growth of "weed and feed" lawn care products that combine weed control and fertilization in a single bag.[45]
- When homeowners go to the hardware store or nursery and ask for help to care for their lawn, they are directed to pesticides as the solution. It is necessary to be much more persistent in order to get information on less/non-toxic methods.[46]

- Eliminating the use of pesticides altogether involves learning a whole new method of lawn care. People don't have time, and getting a "4-Step" program is easier than thinking and learning about lawn care. Replacing toxic chemicals with less toxic ones is a lower barrier than changing methodology, but less toxic chemicals are sometimes less effective or slower acting.[47]
- Some organic methods are more time consuming than using chemicals. (However, some are not. It depends on what the pest problem is.)[48]
- Many stores, especially hardware stores, do not carry alternatives to pesticides. Even if the store does carry alternatives, the products at ends of aisles and near cash registers and on sale tend to be the pesticides. The situation is better in gardening stores and nurseries, where many of the staff are organic gardeners themselves. They want to carry products they feel good about pitching to customers. In hardware stores, however, the sales staff tends not to know much about plants.[49]

Motivations:

Homeowners may be motivated to reduce or eliminate the use of pesticides in lawn care for a variety of reasons:

- Concerns about their kids' health;[50]
- Concern about their pets' health;[51]
- Prevention of well and waterway contamination;[52]
- Caring for lawns without the use of pesticides is cheaper over the long run[53] (Even though transitioning from pesticide use to organic lawn care involves higher up-front costs, Philip Dickey of the Washington Toxics Coalition states that the pay back time is shorter than for purchasing an energy-efficient appliance, for example;[54])
- Concern about the health of soils, birds, insects, butterflies and wildlife;[55]
- A relative, friend or acquaintance who had an adverse reaction to pesticides;[56]
- Concern about multiple chemical sensitivities;[57]
- Concern about pesticide use on their lawn bothering the neighbors;[58]
- Desire to be an environmental trend setter;[59]
- When asked if there was anything that would make them more likely to reduce their use of pesticides, one fifth of King County residents said hard evidence of the dangers;[60]
- In response to the same question, one fourth of King County residents said safer products that worked.[61] "People want to be convinced that it works, and they want simple steps."[62]

Lawn Care Companies

Barriers:

The following factors may inhibit lawn care companies from reducing pesticide use.

Low Perception of Risk

A variety of studies indicate that occupational affiliation with chemicals lowers the perceived risk of chemicals.[63]

Demanding Customers

- Anecdotal evidence suggests that lawn care customers are very demanding. Lawn care operators have learned how to (mostly) keep customers happy by using chemicals. They face losing customers if lawns are not as perfect.[64]

- The primary concern of homeowning couples interviewed in Michigan and Georgia regarding their lawn service company was that the lawn look like a service was being used. The homeowner expects to see a green, thick, weedfree lawn.[65]
- IPM practitioners emphasize that landscaping clients want quick action and quick results.[66]

Lack of Knowedge

- Environmental staff and organic lawn care practitioners indicate that most lawn care operators do not know how to maintain lawns organically, and do not know where to go to learn about organic lawn care.[67]
- Some IPM practitioners state that there is a need for more practical and applied research from the university system locally and nationally.[68] To the contrary, Mary Owen of the Central Extension Service at UMass, says that there is a great deal of research currently being done on reducing the amount of pesticides needed in turf management. There is not a lot of research being done on organic (pesticide-free, synthetic fertilizer-free) lawn care, however.[69]

Perception of Difficulty

The organic method is seen by lawn care operators as too difficult.[70] Don Rivard, of the Pest Control Association felt that "organic practitioners may be martyring themselves for the cause, putting in so much time that they make the methods work. But, that kind of time commitment is unrealistic for most professionals."[71]

Concern about Effectiveness

The university extension service researchers and educators who provide training for lawn care operators are not comfortable recommending organic alternatives because "the materials and methods that have been touted often don't work or are inconsistent. The organic materials are often 2-10 times more expensive."[72]

Lack of Demand

Lawn care operators and landscapers who offer both traditional and IPM services stress that they have to do what their clients are willing to pay for. "If it doesn't produce income fairly quickly, we've got to consider not doing it, because we're losing money at it, and a profit is what keeps us in business."[73]

- Mark Tobin, a long-time IPM practitioner in tree care, says, "In our experience, 90% of the time what our clients want is not less pesticides. What our clients want is a more attractive landscape."[74]
- Paul Harder of Prescription Turf Services, Inc. confirmed that, "the response we've had to date as far as people and clients interested in a no pesticide or pesticide-free approach, has been very limited."[75]

Therefore, there is less financial risk for lawn care services to continue doing what they've been doing than in changing to IPM or organic lawn care practices.[76]

Need for Client Education

Integrated pest management and organic lawn care rely on monitoring the health of the turf and plants in place of regular pesticide applications. Pesticides, or organic pesticide alternatives are applied only as last resort, to combat a pest problem. Landscaping professional Michael Lueders says that educating the client is crucial "to get the client even comfortable with the idea that it might be ok if we show up and look things over and walk away without doing any kind of an application."[77]

A Pollution Prevention Fact Sheet produced by the Center for Watershed Protection offers a somewhat different perspective, however. " Lawn care companies can exercise considerable authority over which practices are applied to the lawns they tend, as long as they still produce a sharp looking lawn." A Florida study found that 94% of lawn care companies reported that they had authority to change practices, and that about 60% of their customers were "somewhat receptive to new ideas." A survey of suburban Michigan residents also found that residents expressed a high level of trust in their lawn care company.[78]

Need for a More Predictable Regulatory Environment

Massachusetts arboriculture professional Mark Tobin says, "In the last two years, I have spent more of my time dealing with local regulations that have cropped up from community to community in Massachusetts than I have on figuring out what is the next generational leap in technology that we can use to reduce pesticide exposure to our employees, our clients and the environment."[79]

Motivations:

Lawn care operators may be motivated to reduce or eliminate the use of pesticides in their lawn care practices for a variety of reasons:

- Concerns about industry image;[80]
- Concerns about public health and environment;[81]
- Concerns about their own health or their children's health;[82]
- Getting in on the increase in demand for IPM and organic business;[83]
- Local pesticide awareness campaigns advertising the hazards of pesticides;[84]
- Not having to suit up and clean up;[85]
- Not having to clean the tanks, or dispose of product containers;[86]
- Not having to answer questions from unhappy neighbors;[87]
- Being able to market a service to clients that is cheaper *over the long term* than lawn care using pesticides.[88]

Hardware Stores/Garden Centers

Barriers:

The following factors may inhibit hardware stores and garden centers from offering and marketing pesticide alternatives.

- Lack of knowledge about less toxic or non-pesticide alternatives for lawn care;[89]
- High volume sales of pesticides;[90]
- Companies that make alternatives typically have smaller number of products, so the store has to deal with more vendors; and have a motley display of products. The big firms have a product for every problem. The Ortho "problem solver" guide makes it easy to figure out which Ortho product to use for which problem;[91]
- There may be additional logistical problems with some non-toxic alternatives. For example, beneficial nematodes may have to be refrigerated.[92]

Motivations:

Hardware stores and garden centers may be motivated to offer and market alternatives to pesticides for a variety of reasons:

- Local pesticide awareness campaigns increase business in non-pesticide alternatives;[93]

- Good public image of organic alternatives;[94]
- Knowledge and concern about public health and environment;[95]
- Worker complaints about having to work on aisle with all the "smelly" products; spills are worrisome; there is a disposal issue for out-of-date products.[96]

Boards of Health

Barriers:

Local boards of health also experience barriers to promoting reduced pesticide use.

- Lack of knowledge about the public health threat;[97]
- Lack of time to address the issue;[98]
- Lack of funding to mount a public education campaign;[99]
- Concern about landscape situations that contribute to rodent, flea and allergy problems;[100]
- General bias that pests are more dangerous than pesticides;[101]
- Federal, state and local agencies are afraid to state unequivocally that pesticides are dangerous because they are afraid of being sued by the pesticide industry.[102]

Motivations:[103]

- Pesticide use is a legitimate public health threat;
- Local citizen group pressure to raise awareness;
- Desire to look good in public eye (elected boards).

Next Steps:

Homeowners, lawn care companies, hardware stores and garden centers and local health boards all experience a multitude of barriers and motivations associated with reducing pesticide use. In designing a program to promote alternatives to pesticides in lawn care, a good approach is to target those factors that you believe are key to change in your community and that you can address with available resources.

However, with so many factors influencing pesticide use, carrying out some additional research can lead to greater certainty regarding the most important barriers and motivations for each group. In this way, scarce resources can be best utilized to promote change. Statistically valid phone surveys of homeowners, lawn care operators, etc. are the best way to obtain information on the relative importance of each factor described in this inventory. Start by contacting the recycling staff at DEP and others working in this field to ask if such a phone survey has taken place since the date of this inventory. If none has, consider cost-effective ways of commissioning a survey, such as partnering with other communities to share the cost, or securing outside grant funding.

Conducting this additional research will involve more time and/or money up front than simply making your best judgement regarding the key factors influencing pesticide use. However, the upside will be greater certainty about the most important barriers and motivations for change.

Resources for learning about and contracting for phone survey research can be found at http://www.state.ma.us/dep/recycle/recycle.htm.
Click on "Behavior Change Tools." DEP's "Behavior Change Tools" web page also provides ideas for designing effective strategies to promote environmentally-friendly behavior.

Questions?

Questions about this inventory can be directed to Brooke Nash of the Massachusetts Department of Environmental Protection at 617-292-5984.

End Notes

[1] Coppin, D. (2002) p391.
[2] Coppin, D. (2002 p391.
[3] Shern, L.C. (1995) p50.
[4] Shern, L.C. (1995) p90, 97 & 98.
[5] Shern, L.C. (1995) p96.
[6] Dinerman, R. (2002); Little, S. (2002).
[7] Dickey, P. (2002).
[8] Evans/McDonough Company. (March 2000) p5 & 6.
[9] Schueler, T. & Swann, C. (2000) p4.
[10] Shern, L.C. (1995) p30.
[11] Coppin, D. (2002) p384; Evans/McDonough Company. (March 2000) p5; Shern, L.C. (1995) p98.
[12] Coppin, D. (2002) p384.
[13] Coppin, D. (2002) p391.
[14] Little, S. (2002); Dinerman, R. (2002); Frahm, A. (2002).
[15] Shern, L.C. (1995) p79.
[16] Shern, L. C. (1995) p 50 &79.
[17] Coppin, D. (2002) p382.
[18] Little, S. (2002).
[19] Evans/McDonough Company. (March 2000) p6.
[20] Shern, L.C. (1995) p50, 60 & 94.
[21] Coler, R. (2002).
[22] Schueler, T. & Swann, C. (2000) p3.
[23] EPA. (1994) p46.
[24] Owen, M. (2002).
[25] Shern, L.C. (1995) p51.
[26] Schuler, T. & Swann, C. (2000) p3.
[27] EPA (1994) p46.
[28] Evans/McDonough Company. (March 2000) p5.
[29] Schuler, T. & Swann, C. (2000) p3.
[30] Shern, L.C. (1995) p82 & 84.
[31] Shern, L.C. (1995) p 44.
[32] Little, S. (2002).
[33] Shern, L.C. (1995) p81.
[34] Little, S. (2002); Shern, L.C. (1995) p86; Schuler, T. & Swann, C. (2000) p3; Evans/McDonough Company. (March 2000) p5.
[35] National Institutes of Health. (1998).
[36] Shern, L.C. (1995) p86.
[37] Dickey, P. (2002).
[38] Wild, B. (2002).
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[42] Little, S. (2002).
[43] Harrington, T. (2002).
[44] Schueler, T. & Swann, C. (2000) p3.
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