

# The Health Index



## Residential Pesticide Use in London-Middlesex: Attitudes and Behaviours

Issue 9, April 2004

### Key Points:

- Current levels of residential pesticide use indicate substantial opportunities for reduction as nearly half of lawn and garden owners reported using pesticides.
- Lawn care companies should be encouraged to offer pesticide-free alternatives as only a third of household users reported being offered pesticide-free methods.
- Information and awareness raising activities may be helpful strategies to increase voluntary use of alternatives. Nearly half of those that did not use pesticide-alternatives attribute not using them to a lack of knowing about them.
- Strategies to get information out to the public on pesticide-free methods should be multi-pronged and include mail-outs and the use of web sites on the internet.
- Less than half of adults thought that pesticides had a negative effect on human health or the environment.
- Base-line levels of awareness during the start-up year of the City of London's "Plant Health-Care- Integrated Pest Management" Program were low and should be monitored over the course of the initiative.

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### BACKGROUND

Attractive lawns and gardens are a source of pleasure and pride for many residents of the City of London and Middlesex County. However, the use of pesticides on lawns and gardens as well as hard surfaces such as patios and driveways has increasingly

been recognized as a cause for concern due to their potential to harm human health and the environment. The City of London has developed a five-year "Community Plant Health Care/ Integrated Pest Management (PHC/IPC) Plan" aimed at minimizing the use of potentially harmful pest control practices. A key component of this plan is an educational initiative for residential property owners to foster increased awareness of plant health care and pest management while encouraging the use of pesticide alternatives. The ultimate goal of this increased awareness is a significant reduction in the use of urban pesticides and a complete phase-out of pesticide use for non-essential purposes by the year 2007 in the City of London. Outside of the City, within the County of Middlesex, less formal initiatives are underway. It is anticipated that some of the initiatives undertaken by PHC/IPC will

influence the residents in the County of Middlesex. For example, promotional materials in the newspaper and on the web site, or brochures channeled through school boards have the potential to influence residents in the County of Middlesex. On the national level, these initiatives are supported by Health Canada's Pest Management Regulatory Agency which along with provincial and territorial governments has created a national "Healthy Lawns Strategy" to encourage homeowners to adopt environmentally sound lawn care practices, such as using pesticides only when necessary.

Previous survey work on pesticide use by the Middlesex-London Health Unit (MLHU) focused on the support for pesticide by-laws. In April 2002, MLHU collaborated with Statistics Canada to conduct an adult door-to-door, household survey of 546 dwellings in the City of London. Questions were included on the level of support for a chemical-based pesticide ban on private property. Results from that survey indicated that 44% strongly supported and an additional 33% somewhat supported a pesticide ban on private property for a total of 77% in support. From May through to December 2002, MLHU monitored the support for a by-law banning the use of pesticides on private property using the Rapid Risk Factor Surveillance System (RRFSS). The RRFSS is an ongoing population health survey that collects approximately 100 telephone responses for the Middlesex-London Health Unit area in monthly increments (waves). During that time period 57.8% ( $\pm 3.4\%$ ) of adults in the City of London and Middlesex County strongly or somewhat supported a by-law that bans the use of pesticides on private lawns and gardens. An additional 6.6% ( $\pm 1.7$ ) were not sure if they supported such a by-law and 35.6% ( $\pm 3.3\%$ ) were somewhat or strongly opposed to a by-law.

This Health Index provides the results related to attitudes and use of pesticides from the RRFSS in 2003, the first year of

the City of London's Plan to promote the reduction in use of lawn care pesticides throughout the City. The City of London commissioned MLHU to design and analyze a series of questions to measure baseline levels of the awareness, attitudes and behaviours related to residential use of pesticides, using the RRFSS. Middlesex-London began collecting some information related to opinions on pesticides in May 2003. The questions were further augmented in June and continuously collected for 7 months through to January 9, 2004. Further information is provided in the "Methods" section.

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#### RESIDENTIAL PESTICIDE USE

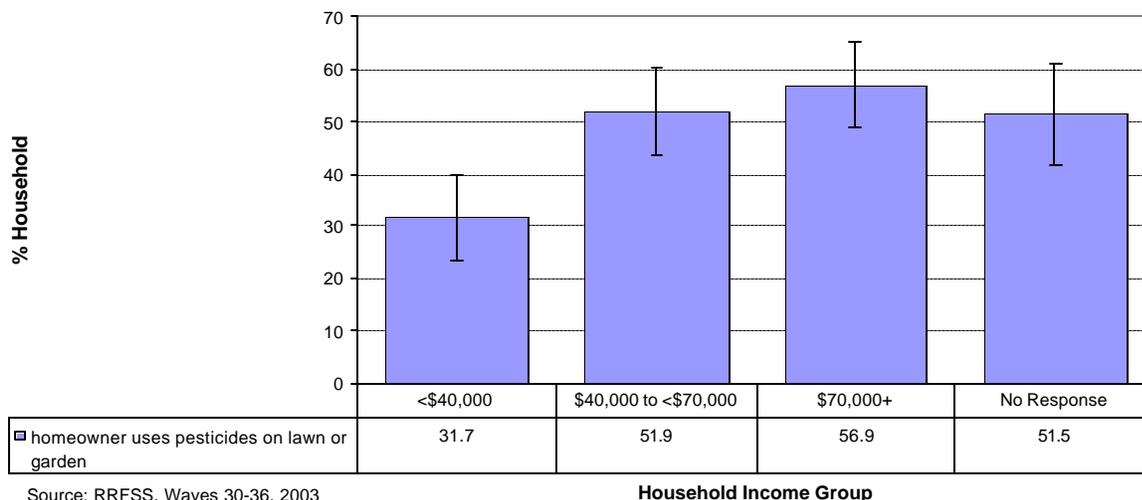
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"Plant Health Care" and "Integrated Pest Management" are potential areas of interest to the majority of residents of the City of London and Middlesex County. Most households have a lawn that they maintain ( $69.3\% \pm 4.2\%$ ), an additional 8% of households maintain a garden ( $76.8\% \pm 3.2\%$ ) and another 5% maintain a lawn, garden or hard surface ( $82.6\% \pm 2.9\%$ ). A greater proportion of those households in the higher income group, \$70,000 and over, reported that they had a lawn, garden or hard surface that they maintained ( $94.1\% \pm 3.7\%$ ) as compared with those households with an income of less than \$40,000 ( $71.5\% \pm 6.0\%$ ). However, it is important to note, that since there are more households overall in the lower income groups, each income group represents an approximately equal proportion of the households that have responsibilities for lawns, gardens and hard surfaces. Also, just over a third of all households ( $37.5\% \pm 4.0\%$ ) that are responsible for lawns, gardens or hard surfaces have children in the household aged 17 or younger. This information may be helpful in understanding the profile of lawn owners and shaping future information resources.

In 2003, just over a third of all households surveyed in the City of London and Middlesex County indicated that they used residential pesticides in some way (37.4% ± 3.6%). When only those households responsible for caring for a lawn, garden or hard surfaces are considered, nearly half reported using pesticides (46.2% ± 4.1%). This proportion is similar for those households that were responsible for taking care of a lawn or garden (48.2% ± 4.4%). It remains relatively steady, when various socio-demographic factors are considered including respondent's gender, age group, and education as well as the household's income, location (City of London or County of Middlesex) and the presence of children under 17 years old in the household. Not surprisingly, pesticide use differs by income group. The proportion of households using pesticides in the lower income group is significantly lower than that of the higher income groups. Figure 1 illustrates the use of pesticides by income group.

One in five households reported hiring or paying a lawn care company to treat their lawn (19.7% ± 3.6%). This means of the approximately 161,000 households in the City of London and Middlesex County identified by the 2001 Census, 31,700 households hired a lawn care company last year. The majority of households reported that the lawn care company used pesticides (63.4% ± 9.9%). However most households that used pesticides were provided with information on the types of pesticides (71.9%, ± 11.7) and an even greater proportion were given information about precautions to take like closing windows and doors, or staying out of the garden for a certain length of time (79.7% ± 12.7%). Only a third of households that hired a lawn care company reported that the company offered to use pesticide-free methods (36.5% ± 11.2%). Even fewer reported that the company used pesticide-free methods (30.3% ± 10.3%).

**Figure 1: Use of Pesticide on Lawn or Garden by Income Group  
London and Middlesex County, June- December 2003**



Regardless of whether or not they hired a lawn care company, 35.4% ( $\pm 4.4\%$ ) of households with lawns reported using commercial pesticides themselves to maintain their lawns. However, the majority is using the pesticides to treat specific weeds themselves ( $76.3\% \pm 7.7\%$ ) and less than a quarter are treating the whole lawn with pesticides ( $23.7\% \pm 7.7\%$ ).

Use of pesticide alternatives was reported by 57.2% ( $\pm 4.1$ ) of those with lawns, gardens or hard surfaces. The most common reason given for not having used pesticide alternatives was that respondents “didn’t know very much about them”. Of those that could have used pesticide-free methods by virtue of the fact that they had lawns, gardens or hard surfaces but did not, 45.2% ( $\pm 6.3\%$ ), reported that they “didn’t know very much about alternatives”. This was cited substantially more often as a barrier than was cost ( $7.5\% \pm 3.3\%$ ). A large proportion of people specified a range of “other” reasons for not using alternatives

( $41.4\%, \pm 6.2\%$ ). Many simply explained that someone else such as a landlord was responsible for the lawn. However some provided other reasons including that they: “had used alternatives before but things have gotten out of hand and we wanted to get on top of things”, “don’t have time”, “find them inconvenient” or “hard to find”, “don’t mind weeds”, and “don’t need anything because lawn and garden are new”.

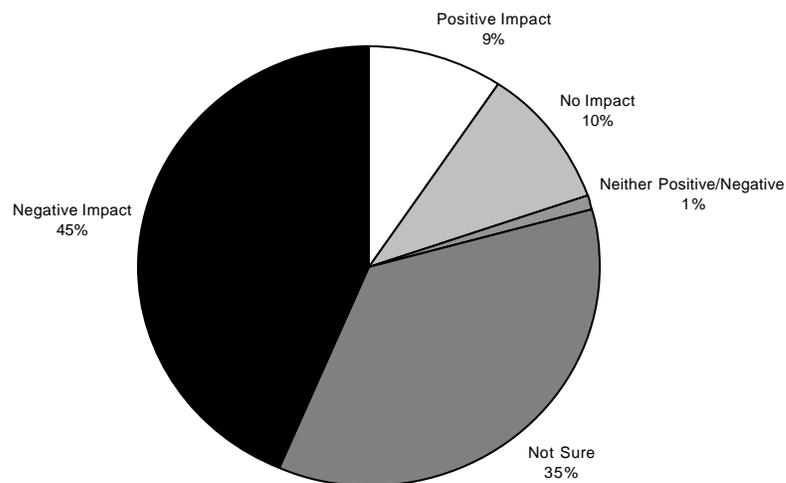
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### ATTITUDES ON PESTICIDES AND THE ENVIRONMENT

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Nearly half of residents of the City of London and Middlesex County identified that pesticides even when used properly have a negative effect on human health ( $43.6\% \pm 3.5\%$ ). Figure 2 shows that ten percent think that pesticide use does not have an effect on human health ( $10.3\% \pm 2.1\%$ ) and a similar percentage thinks that pesticides have a positive effect on human health ( $9.4\% \pm 2.1\%$ ). These rates differ

**Figure 2: Attitudes on the Impact of Pesticide on Human Health, Percent of Adult Population, London and Middlesex County, May - December 2003**



Source: RRFSS, Waves 29-36, 2003.

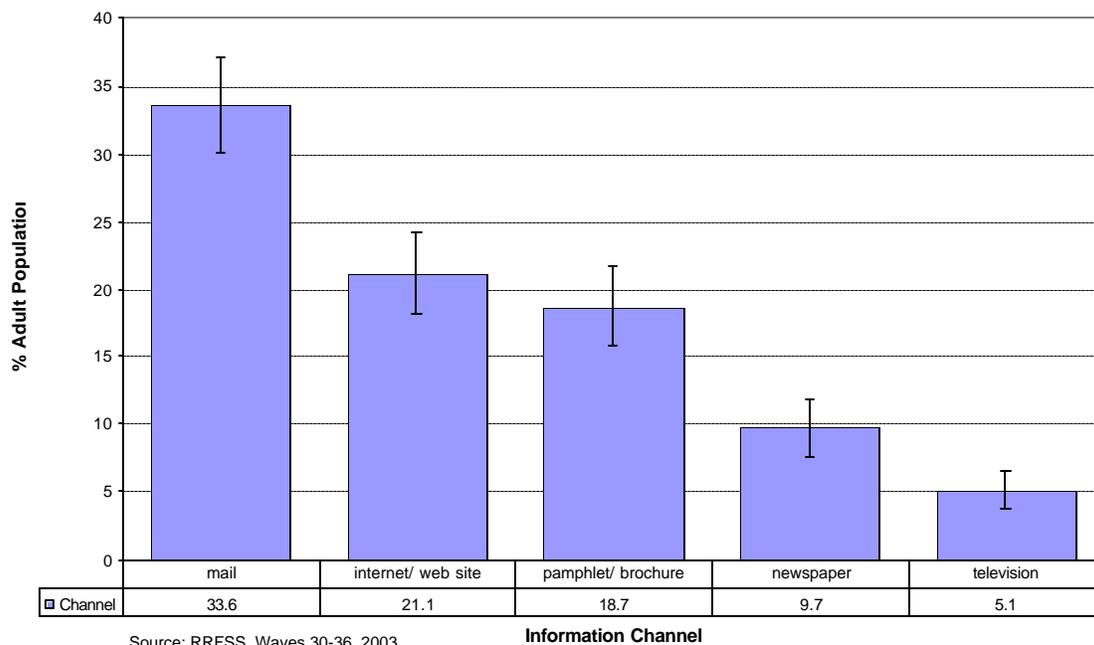
significantly by education level and age group. A significantly lower percentage of those that did not complete high school think that pesticides have a negative impact on human health (18.5.7% ± 8.5%) as compared to those with post secondary education (50.2% ±7.0). This may be due in part to an age effect as more seniors compared with younger age groups have less than a high school education and a significantly lower proportion of seniors identified that pesticides have a negative impact on human health (21.7% ±7.4%).

about the “Plant Health Care – Integrated Pest Management Program”. This did not differ significantly when comparing the County of Middlesex to the City of London. When asked how they would prefer to get their information on alternatives to pesticides, the greatest proportion of the population reported that they prefer to get the information by mail (33.6% ±3.5), web site (21.1% ±3.0) or pamphlet (18.7% ±2.9%). Figure 3 shows the top five choices including newspaper and television. The other channels for receiving information such as telephone help line, radio, retail outlet, email, information sessions and library, were identified by less than 5% of the population and were not included in the chart.

**CAMPAIGN AWARENESS AND PREFERENCES**

Overall 9.2% (±2.3%) of residents of London and Middlesex County had heard

**Figure 3: Preferred Channels to Provide Pesticide-Free Methods Information**  
London and Middlesex County, June-December 2003



Source: RRFSS, Waves 30-36, 2003

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## SUMMARY AND IMPLICATIONS

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This review provides baseline information on the use of residential pesticides in the City of London and Middlesex County during the initial start-up of the City of London's five-year "Plant- Health-Care-Integrated-Pest-Management Program" (PHC/IPC). It also considers attitudes and knowledge related to the use of pesticide-alternatives and the impact of pesticides on health and the environment. The results indicate that residential pesticide use was common and an issue that has the potential to impact on the majority of homeowners. Current levels of awareness among residents of the effect of pesticides on human health and the environment were low. Residents identified a number of channels through which they might receive information on pesticide alternatives. Direct mail and the internet were the preferred channels. Campaign strategies should use multiple channels to reach residents with a focus on these preferred channels.

The potential for voluntary behaviour change appears to be high if more information is provided. Not knowing very much about pesticide alternatives was identified as a key barrier to using such methods. Currently, baseline awareness of the PHC/IPC Program is less than 10%. The ongoing monitoring of pesticide use, attitudes toward pesticide-alternatives, and awareness of the Community Plant Health Care/ Integrated Pest Management Plan using RRFSS is warranted to assess community impact of the Program during the five year campaign.

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## METHODS

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All data are from the Rapid Risk Factor Surveillance System (RRFSS) and collected for the Middlesex-London Health Unit (MLHU) by the Institute of Social Research, York University. Data were collected in a series of waves of monthly telephone

surveys. Households were selected randomly from all households with telephones in Middlesex-London and respondents aged 18 and older were systematically selected from within each household for the adult that had the next birthday. Once an individual was identified as the person with the next birthday, every effort was made to complete the interview with the appropriate respondent. Although on average five calls were made to a single household in order to complete the interview with the designated respondent, up to 14 attempts was standard practice.

Questions related to respondent's attitudes and opinions on pesticides and the environment were incorporated onto the RRFSS in May 2003 (Wave 29) and included for 8 waves. Additional questions were subsequently added in June 2003 (Wave 30) related to residential pesticide use and awareness of the City of London's campaign on the "Plant Health Care-Integrated Pest Management Program" and preferred information channels for future campaign materials. These questions were asked for 7 waves. All questions were asked through until December 2003. The unweighted sample for questions related to attitudes and opinions on pesticide use included 796 respondents and were collected from May 9, 2003, through January 9, 2004. The unweighted sample for questions related to awareness of the campaign and residential use of pesticides included 690 respondents from London and Middlesex County surveyed from June 10 through January 9, 2004.

Given that this survey is random household survey, weights were applied to approximate a random individual survey for those questions where individual rather than household results were the unit of interest. For example the results for residential household pesticide use are provided unweighted whereas the results on individuals opinions related to pesticide use, awareness of the campaign and preferred information channels are weighted. Those

that did not respond to any individual question were excluded prior to calculating proportions provided the non-response category represented less than 5% of the total respondents. Difference in proportions were considered statistically significant at  $p < 0.05$ . All weighted proportions were provided with 95% confidence intervals. Bar charts include error bars illustrating 95% confidence intervals. Results were considered unstable and subject to suppression if any one of the following conditions existed: denominator of a rate was less than 30, numerator was less than 5 or coefficient of variation was greater than 33.3.

Where applicable results were analysed by age group, gender, education level, income bracket, residence (City or County) and the presence of children in the household.

Four age groups were considered in the analysis. Sixteen respondents were excluded for individual analysis that considered age groups that did not report their birth date. Of the remaining 780, 12.1% (n=94) were aged 18-24 years old, 37.6% (n=293) were aged 25-44 years old, 31.4% (n=245) were aged 45-64 and the remaining 19.0% (n=148) were 65 years and older. Figure 4 illustrates the effect of weighting on the counts and percents by age group.

**Figure 4 Comparison of Sample and Weighted Counts and Percents by Age Group**

		Sample Count	Percent %	Weighted Count	Weighted Percent %
Valid	18-24	94	12.1	129	16.6
	25-44	293	37.6	284	36.3
	45-64	245	31.4	247	31.6
	65+	148	19.0	121	15.5
	Total	780	100	781	100
Missing		16		15	
Total		796		796	

The respondents were 41.8% males (n=333), and 58.2% (n=463) females. Seven respondents did not provide their education level and were excluded from individual analysis using education level. Of the remaining 789, 12.3% (n=97) reported having less than high school education, 36.2% (n=286) reported having completed high school and 51.5% (n=406) reported having some post secondary education. Income was grouped into three household income brackets; <\$40,000, 33.2% (n=364), \$40,000 to less than \$70,000, 24.2% (n=193), \$70,000 and over, 22.1% (n=176) as well as a non-response category 20.5% (n=163).

Overall, 23% (n=181) of the households sampled were in Middlesex County and the remaining 77% (n=605) were in the City of London. Ten respondents did not provide their municipality to the interviewer and were thus excluded from any analysis where the City of London and County of Middlesex households or residents were compared. These overall proportions closely parallel the Census 2001 population counts for all ages in the area where 17% of residents are in the County and 83% are in the City.

Pesticide use and behaviours was of particular interest for those households with children in the home. Overall 32.7% (n=260) households identified that they had children aged 17 or younger living in their home.

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## DEFINITIONS

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### Pesticide

Any product, device, organism, substance or item that is manufactured, represented, sold or used as a means for directly or indirectly controlling, preventing, destroying, mitigating, attracting or repelling any pest by interfering with their biological processes. Pesticides include herbicides (used to control weeds), insecticides (used to control

insects such as ants), fungicides (used to control fungus), miticides (used to control mites including termites), antimicrobial agents, pool chemicals, microbials, material and wood preservations, animal and insect repellents and insect- and rodent-controlling devices.

### **Plant Health Care (PHC)**

The City of London defines Plant Health Care (PHC) as a plant production concept that emphasizes good cultural practices – for example, adding organic material (compost) to soil, proper watering, selecting proper plant species for a site, etc. – to produce a healthy lawn able to tolerate moderate pest attacks. This in turn can significantly reduce pesticide use.

### **Integrated Pest Management (IPM)**

The City of London defines Integrated Pest Management (IPM) as a holistic decision-making process that uses all necessary techniques to suppress pest effectively, economically and in an environmentally sound manner to sustain healthy, functional landscapes while protecting human health, especially that of pregnant women and children. IPM aims to reduce and control the populations of harmful organisms rather than to eradicate them and thus minimizing the use of potentially harmful pest control products.

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## **CONTACTS**

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This report is also available at: [www.healthunit.com](http://www.healthunit.com). Document disponible en français.

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