

TORONTO STAFF REPORT

February 10, 2004

To: Toronto Board of Health

From: Chief Administrative Officer

Subject: Pesticide By-law Advisory Committee Report to Assist in the Implementation of the City's Pesticide By-law.

Purpose:

To present to Council the findings and recommendations of the Pesticide By-law Advisory Committee to assist in the implementation of the City's Pesticide By-law.

Financial Implications and Impact Statement:

There are no financial implications as a result of implementing this report. A report prepared by the Medical Officer of Health "Implementation of the Pesticide By-law" to be considered at the Board of Health meeting on February 23, 2004 addresses the financial implications associated with the implementation of the By-law including the cost of developing a public education and outreach campaign. The Commissioner of Economic Development, Culture and Tourism will be reporting to Economic Development and Parks Committee in six (6) months on the financial implications relative to a full Integrated Pest Management (IPM) program throughout all City of Toronto parklands.

Recommendations:

It is recommended that:

- (1) the definition of infestation as previously adopted by City Council be maintained;
- (2) the eleven principles for establishing action thresholds as identified by the Pesticide By-law Advisory Committee be adopted and applied to the selection process for developing specific action thresholds applicable to Toronto;
- (3) the Medical Officer of Health in consultation with the Commissioner of Economic Development, Culture and Tourism report back to the Board of Health by April 2005 on specific action thresholds for the most common weeds and insect pests. This report to consider seasonal factors and any newly developed amendments to action thresholds. Further, that a review of action thresholds proposed or in use in other jurisdictions

including Ontario Ministry of Agriculture and Food (OMAF), be conducted and consolidated into the range of existing action thresholds;

- (4) the Medical Officer of Health and the Commissioner of Economic Development, Culture and Tourism in their development of specific action thresholds include options related to exceptional circumstances such as summer drought conditions, the emergence of new species of pests, or any other circumstances they deem appropriate;
- (5) the Medical Officer of Health continuously review new products that could be added to the exempt product list in the Pesticide By-law, taking into account any products that Health Canada deems as reduced risk and make recommendations to the Board of Health if appropriate, as they emerge or on an ongoing basis;
- (6) the City's Agencies, Boards, Commissions and Departments, as well as pest control and horticultural industries, golf clubs, lawn bowling greens and cemeteries (either individually or through provincial associations) be requested to submit to the Medical Officer of Health by January 31 of each year a written report of measures which have been taken to reduce the use of pesticides and produce a detailed inventory of all pesticides applied in the previous year;
- (7) the Commissioners of Works and Emergency Services and Economic Development, Culture and Tourism implement an operational policy that there be no application of pesticides within two (2) metres of the perimeter of City owned golf club property lines and five (5) metres of any open watercourses on City owned land and report to the Medical Officer of Health any exceptional circumstances that may exist. It is further recommended that the privately owned golf clubs, lawn bowling greens and cemeteries be requested by the Medical Officer of Health to do the same;
- (8) the Commissioner of Economic Development, Culture & Tourism develop an evaluation mechanism to annually review any use of non-exempt pesticides for infestations in City-owned and operated sports areas (e.g. golf courses, playing fields) and make possible adjustments to the landscape and maintenance practices to further reduce such use;
- (9) the Commissioner of Economic Development, Culture and Tourism report to the Economic Development and Parks Committee on the cost of implementing a full Integrated Pest Management (IPM) program for City parklands within six (6) months and any recommendations be included in the 2005 budget submission;
- (10) the Provincial Minister of the Environment be requested to amend the Pesticides Act to require retailers to report on annual sales of pesticides by product-type and municipality, and that this information be made publicly available;
- (11) the Board of Health request retailers, manufacturers and distributors of lawn care products to voluntarily commit to sell and preferentially promote pest control products exempted under the Pesticide By-law. Retailers be requested to place non-exempt pesticides behind the counter. It is further recommended that the Medical Officer of Health explore a partnership with the lawn care industry and retailers of pest control

products to distribute information and educational resources on the By-law through retailers, manufacturers and distributors of lawn care services and products;

- (12) in the evaluation of the Pesticide By-law to be submitted to the Board of Health in 2006 the Medical Officer of Health in consultation with the Commissioners of Works and Emergency Services and Economic Development, Culture and Tourism include an analysis of the value of the key principles, the volume of public complaints regarding the quality of lawns, the frequency of use of non-exempt pesticides, the public education campaign, the reduction in pesticide use by sector, the impact of enforcement, and whether there should be mandatory reporting of the use of non-exempt pesticides;
- (13) City Council thank the members of the Pesticide By-law Advisory Committee for their participation on the Committee and their advice relative to the five tasks as directed by Council; and
- (14) the appropriate City Officials be authorized and directed to take the necessary action to give effect thereto.

Background:

At its meeting of May 21, 22 and 23, 2003 City Council passed By-law 456-2003, the Pesticide By-law and directed that an Advisory Committee be established, called the Pesticide By-law Advisory Committee (PBLAC). The purpose of the Committee was to assist in the implementation of the Pesticide By-law and consider information relevant to a series of tasks directed by Council.

The Chief Administrative Officer was requested to report on the advice of the Committee to Council by April 2004 and to include, if appropriate, recommended amendments to the Pesticide By-law.

Council directed the Advisory Committee consist of the following members:

- two representatives from the Toronto Environmental Alliance;
- one representative of the Water and Wastewater Division of the Works and Emergency Services Department;
- one representative of the Economic Development, Culture and Tourism Department;
- one Public Health official;
- one representative of the medical profession;
- two representatives of the lawn care industry;
- two representatives of Landscape Ontario; and
- one scientific representative (the scientific representative was unable to attend meetings due to his schedule, but was kept on the mailing list and did submit written comments).

Staff of the Chief Administrator's Office chaired the Committee.

Specifically, Council instructed the Pesticide By-law Advisory Committee to consider five tasks:

1. To further define pest infestation and develop “action thresholds” for the most common weed and insect pests, including dandelions, for which non-exempt pesticides may be used. Council also directed that the principles of Integrated Pest Management (IPM) plant health care be supported and integrated into the definition of “infestation” and the “action thresholds” under which the use of non-exempt pesticides may be implemented.
2. To review the Federal Government’s pest management research and initiatives, such as the Federal/Provincial/Territorial Healthy Lawns Strategy for Urban Pesticide Reduction, to facilitate the development of “action thresholds” and report on the status of the initiatives of the Federal Government and/or its agencies in reviewing chemical pesticides as products safe for public use.
3. The Medical Officer of Health, in collaboration with the Pesticide By-law Advisory Committee, integrate the definition of pest infestation, which is based on action thresholds, into resource materials that will form the basis of a public education campaign and the core of the City enforcement policy for the Pesticide By-law.
4. That the proposed By-law be amended by requiring that any person that applies a “non-exempt” pesticide under the By-law report such application to the Medical Officer of Health within five (5) business days of the application for the purpose of monitoring trends in pesticide use. The Pesticide By-law Advisory Committee should be consulted in determining how that reporting can take place at minimum cost to the City of Toronto and to the lawn care industry. Further, that the reporting system be capable of monitoring non-exempt pesticide application.
5. That the proposed By-law be amended to provide that it is permitted to use a pesticide on a golf course or a lawn bowling green or cemetery, as long as the following conditions are met:
 - i) the pesticide is applied by a licensed applicator only;
 - ii) the pesticide is stored in a fire proof storage area with containment, ventilation, steel shelving and a fireproof sign, and the golf clubs, cemeteries or lawn bowling club must maintain an up-to-date inventory list which must be available to the City’s Medical Officer of Health;
 - iii) the applicator must have and comply with material safety data sheets available for each pesticide they might apply and they must provide the sheet, upon request, to any person abutting the golf club or lawn bowling green or cemetery property;
 - iv) there be no application of pesticides within two (2) metres of the golf club, cemetery or lawn bowling green’s property lines;

- v) there be no application of pesticides within five (5) metres of any open watercourses; and
- vi) on January 31 of each year, the golf clubs or lawn bowling greens must submit to the Medical Officer of Health a written report of all measures which have been taken to reduce the use of pesticides and produce a detailed inventory of all pesticides applied in the previous year on the golf course or cemetery or lawn bowling club.

The Pesticide By-law Advisory Committee held regular meetings between July 8, 2003 and January 30, 2004. In order to assist the Committee in its deliberations, the Committee received presentations from:

Royal Canadian Golf Association and Ontario Allied Golf Associations

- Pests, Preventative Treatments, Action Thresholds

Integrated Pest Management / Plant Health Care Council of Canada

- Integrated Pest Management Accreditation

City of Toronto Legal

- Proposed Integrated Pest Management Accreditation By-law

Ontario Association of Cemeteries and Funeral Professionals

- Action Thresholds, Integrated Pest Management Principles

Mount Pleasant Group of Cemeteries

- Lawncare Practices, Pesticide Reduction Strategies

Toronto Public Health

- Pesticide Use Reduction, Integrated Pest Management Manual, Education Outreach

Toronto Environmental Alliance

- Healthy Lawn Strategy, Plant Health Care Programs, Managing Infestation

Lawncare Industry, Landscape Ontario

- Lawncare Practices, Lawncare Industry, Exempted Pesticides that Lawn care Professionals Can't Use, Integrated Pest Management Accreditation

Landcare (Organic lawn care strategies)

- Healthy Lawn Strategies, Chemical-Free Lawn Care

Clean Nova Scotia Foundation

- Halifax Experience with Action Thresholds, Public Education, Integrated Pest Management Accreditation

Landscape Nova Scotia

- Halifax and the Reality of the Existing By-law

The Committee also received written submissions from:

Health Canada

- Pest Management Regulatory Agency, Healthy Lawn Strategy

Ontario Greens

- Pesticide use on Lawn Bowling Greens in Toronto

Toronto Environmental Coalition

Landscape Ontario

- Lawncare Recommendations and Rationale

Dr. Gerald R. Stephenson

Department of Environmental Biology

University of Guelph

- Action thresholds for PBLAC

Works & Emergency Services

Economic Development, Culture & Tourism

Toronto Public Health

- Recommendations and Justification to assist By-law implementation.

Comments:

The Advisory Committee represented a diversity of opinions including that of the lawn care industry, environmental groups, and a range of City staff perspectives including public health, parks and recreation and water and wastewater. Given the nature of the task before them and the members' diverse positions, it was not possible to reach consensus. As Chair of the Committee, the Chief Administrator's Office took into consideration all opinions and advice provided by the Committee members and is recommending a series of actions necessary to move the implementation of the by-law forward. It is apparent that the most important step to implementing a successful Pesticide By-law is a strong public education campaign and as such it is essential that the time between now and when enforcement begins in September 2005 be used for public education purposes.

The City's Pesticide By-law states "No person shall apply or cause or permit the application of pesticides within the boundaries of the City". The By-law incorporates the need for an Integrated Pest Management (IPM) approach – i.e. managing pest populations by using strategies that combine biological, cultural, mechanical, behavioural, and when necessary chemical controls.

Provisions are set out in Section B of the By-law on when pesticides may be used – such as the need for disinfecting swimming pools, purifying water, to control termites or to control or destroy pests which have caused infestation to property and noxious weeds.

The City has adopted a phase-in approach to the implementation and compliance of the Pesticide By-law. This will allow the public to learn about the changes and how they will impact homeowners immediately and in the long-term.

The Pesticide By-law is based on recommendations from the Toronto Board of Health and the City's Environmental Plan to create a strategy for phasing out non-essential outdoor use of pesticides. Concern has been expressed across the City regarding the use of pesticides and was well documented in the Medical Officer of Health's report on the Proposed Pesticide By-law, March 25, 2003. The City's Environmental Plan reports that the use of pesticides is harmful to the environment and people; Toronto Public Health has expressed concerns that there's a link between prolonged exposure to pesticides and adverse health effects. Toronto Public Health and Works and Emergency Services, Water and Wastewater Division also raised concerns that pesticides have been detected in city watercourses.

Some Committee members did not necessarily agree that there is a health concern with the use of pesticides and noted that several presentations to the Committee found that only pesticide products with a wide margin of safety are currently available for use on home lawns. This information was conveyed through several documents, including Health Canada's Pest Management Regulatory Agency (PMRA). The Medical Officer of Health in her report "Implementation of the Pesticide By-law", indicates that the Federal Commissioner of the Environment and Sustainable Development has identified weaknesses in the federal testing and registration process for products. This raises concerns about the management of the risks to health and the environment with pesticides. The Federal government has passed new legislation, which will update the types of pesticides currently on the exempt and non-exempt list.

Ten Steps to a Healthy Lawn

The Advisory Committee had numerous discussions on minimizing the use of pesticides through the maintenance practices of good health care using an Integrated Pest Management program. It was agreed that this was the best approach to reduce the overall use of pesticides throughout the city. Health Canada's definition of IPM is "a decision-making process that uses all necessary techniques to suppress pests effectively, economically, and in an environmentally sound manner to sustain healthy landscapes". IPM dictates that reaching a threshold means that there is a need for action, hence the term "action threshold". Under IPM principles, when an action threshold is reached, alternative treatment options should be exhausted before non-exempt pesticide use is allowed. The IPM process recognizes ten key steps in maintaining a healthy lawn.

1. Prevention:

This is the foundation of an Integrated Pest Management (IPM) program and involves planning and managing ecosystems to prevent organisms from becoming pests.

2. **Identification:**
It is essential to identify pests correctly to plan effective pest management programs and ensure that the correct treatment is applied.
3. **Monitoring:**
This consists of making regular inspections or counts and writing down the results. Plant managers need monitoring records to make decisions about whether treatments are needed and when.
4. **Action:**
In IPM programs, determining when to apply treatments involves two concepts that are called injury level (or injury threshold) and action level (or treatment threshold). The injury level is the point when the pest population causes an unacceptable amount of injury or damage. The action level or treatment threshold is applied to keep pest numbers from reaching the injury level.
5. **Treatments:**
Ideally, treatments are only needed where preventative measures have not solved a pest problem. Controls used in landscapes fall under five general types: cultural, physical, mechanical, biological, chemical.
6. **Cultural:**
This involves removing potential breeding sites for pests including:
 - pulling weeds that act as hosts for insects and diseases;
 - correcting drainage problems;
 - removing trash and plant debris that harbour pests; and
 - cutting weeds before they set seed and spread.
7. **Physical:**
This involves manual techniques such as hoeing or pulling weeds and pruning out branches with nests or fungus infections. Physical controls also include:
 - barriers that stop pests from reaching their food supply;
 - insect barriers, such as screens and covers;
 - weed barriers, such as mulch mats, landscape fabric or bark;
 - traps that attract and catch pests; and
 - physical controls such as trapping and removing pests by hand.
8. **Mechanical:**
This involves machines or devices used to control pests, such as:
 - vacuum equipment for insects and cultivars, mowers and line trimmers; and
 - heat applicators, hot-water or steam applicators and infra-red radiation equipment.
9. **Biological:**
This is the use of natural enemies to pests such as:
 - augmentation of beneficial insect populations, importation of predators, and microbial controls;

- protecting and attracting natural enemies; and
- using natural enemies from commercial suppliers.

10. Chemical Controls:

In IPM programs, pesticides should only be used after careful assessment shows that they are the best control for the situation. This would be in circumstances such as with the introduction of a new species like the Asian Long-horn beetle, where there are no exempt products that address an infestation (e.g. European Chafer), or for extreme conditions such as a drought year where the result could be substantial damage or loss.

Preferred controls are generally those that:

- present the least short-and long-term health risk to humans;
- have the lowest environmental impact, usually because of short residual effects or because they specifically affect target pests;
- are registered for the specific weed type;
- are applied as a spot treatment instead of a broadcast application; and
- applied at the right time to have the greatest effect.

Pesticide By-law Advisory Committee Tasks

Task 1: Further define infestation.

One of the first tasks the Advisory Committee undertook was to look at further defining infestation.

The current definition of “infestation” in the By-law is “the presence of pests in numbers or under conditions which involve an immediate or potential risk of substantial loss or damage”. The City Solicitor, in consultation with key staff across the corporation, including Parks and Recreation, Works and Emergency Services, and Toronto Public Health developed the current definition. The definition incorporates an IPM approach and takes into account the operational needs of the City and its residents regarding the use of non-exempt pesticides in situations where not using them would result in substantial loss or damage.

Some Advisory Committee members recommended that the word “substantial” be removed from the definition believing that reference to damage would be sufficient. They felt that the word could cause confusion among well-intentioned homeowners and the professional industry. What is substantial to one person could mean something completely different to another. There was also a concern that allowing small pest populations to go unchecked and waiting until there is substantial damage could result in increased pesticide use, not a reduction, as blanket pesticide applications would be used to treat the damage.

At the same time, without the word substantial in the definition, the remaining Committee members believed that it would leave the impression that any level of infestation might be an appropriate action threshold. Therefore, the determination of what substantial means is critical to ensuring the appropriate treatment of infestations. Ensuring that everyone understands and

applies the definition consistently will require a significant public education campaign on the part of the City. When action thresholds are determined, however, it may be helpful to refer back to the definition to determine the need for refining or updating.

It is recommended that the definition of infestation as previously adopted by City Council be maintained.

Task 2: Set “action thresholds” for which non-exempt pesticides may be used to treat an infestation.

The second task of the Advisory Committee was to develop action thresholds for which non-exempt pesticides may be used to treat an infestation. This refers to the point at which a pest population causes an unacceptable amount of injury or damage or at the point where it is possible to keep pest numbers from reaching the injury level.

PBLAC reviewed a variety of resource materials and received a number of submissions and presentations. This included the Federal Government’s pest management research and initiatives, such as the Federal/Provincial/Territorial Healthy Lawns Strategy for Urban Pesticide Reduction as well as Health Canada’s submission on the Pest Management Regulatory Agency (PMRA) and the Healthy Lawns Strategy.

PMRA undertakes scientific pre-market assessment of new pesticides, and periodically re-evaluates registered pesticides. They also evaluate persistence in the environment and identify the lowest effective rate of a product. The Pest Control Products Act (PCPA) currently register and de-register products based on their efficacy and on the risks they pose to human and environmental health. No other jurisdiction can register and de-register a pest control product. Most of the products in common use today were registered decades ago, with data that may be considered unacceptable today, without public input, and without public access to information about health and ecological hazards. The PCPA was amended by Parliament on December 12, 2002. The new PCPA is still awaiting implementation through enabling regulation. It is expected that this regulation will not come into force for about another year.

Under the new Pest Control Products Act (PCPA) assessments will give more consideration to identifiable subgroups and vulnerable populations such as infants and children. The PMRA has recently harmonized its registration process for reduced-risk pesticides and biopesticides in the United States, which should result in more products available in Canada.

The Federal Government is addressing public concern regarding lawn pesticides by implementing the Action Plan on Urban Use Pesticides, including the re-evaluation of lawn care products, facilitating registration of reduced risk products and the Healthy Lawns Strategy. The Healthy Lawns Strategy uses IPM to reduce reliance on pesticides. The strategy was developed and implemented in partnership with the provinces and territories (Healthy Lawns Working Group). The strategy includes assessing types of pesticide products available to homeowners, and identifying those no longer permitted for retail sale, improving pesticide product labelling, increasing the knowledge of landscape service providers and developing educational material for homeowners.

Health Canada acknowledged that although economic threshold values are widely available for pests of agriculture crops, there have been differing levels of research into threshold values for pests in the urban sector. The Healthy Lawns Working Group is currently working with the Expert Committee on Integrated Pest Management (ECIPM) on this issue.

Principles to Guide the Establishment of Action Thresholds

Developing action thresholds for specific pest problems is both a technically complicated and time-consuming activity, particularly given the range of pests and scenarios involved within the urban environment. PBLAC was not able to recommend a final list of quantitative action thresholds; however, Committee members did provide information on action thresholds developed by other agencies, including the Ontario Ministry of Agriculture and Food. It was noted that there is considerable variation in action thresholds reported in the scientific literature. As a result, the Advisory Committee engaged in valuable discussions around the principles for selecting the final action thresholds that would be appropriate for the situation in Toronto, particularly as they relate to the use of non-exempt pesticides. The following are principles that should guide any further work on the development of action thresholds.

1. The use of non-exempt pesticides should be permitted only if the applicator can demonstrate commitment to an integrated plant health care program, including the use of exempted pesticides, if appropriate, and there remains a risk of substantial loss or damage.

Several Committee members noted that the use of non-exempt pesticides cannot be a substitute for good plant maintenance practices. If residents adopt a regimen of care that will improve the health of their lawns so they are naturally more resistant to insects and weeds, it is believed that the need for non-exempt products should decline. The use of non-exempt pesticides on pest populations that are a result of poor management practices should be considered unacceptable and will undermine the incentive for residents and others to learn how to keep their lawn healthy and pesticide-free. If, however, the situation arises that an infestation reaches the action threshold level despite good plant care methods, the judicious use of pesticides may be warranted within an IPM framework. Repeated pesticide application, as a result of poor lawn care practices, should not be permitted.

2. Action thresholds must consider the functionality and use of greenspace.

The use of greenspace will determine an action threshold. Under this principle of function, sports surfaces may have infestation thresholds that allow for non-exempt pesticide application that differ from home lawns and general turf. 'Playability' is an essential feature for sports fields, golf course fairways, greens and lawn bowling greens.

3. No thresholds should be set for fungicides or herbicides for home lawn care, cemeteries and general parkland.

This principle reflects the recommendation from OMAF that turf disease should be treated with cultural practices, and that fungicides are not recommended for home lawn care. This report takes the OMAF recommendation principle one step further by including herbicides. As a lawn becomes healthier and thicker through techniques such as proper watering and seeding, weed populations typically decrease. The City's public education program will encourage residents to maintain healthy lawns in ways that naturally minimize the invasion of unwanted plant species. However, there may be instances such as during a drought season or an insect infestation where the use of insecticides may be warranted.

A fundamental shift in care and weed tolerance must be promoted and accepted. This is the purpose of the By-law. Residents must put in an effort to comply with the principles of an IPM program if they want a near perfect lawn and/or be willing to tolerate a higher degree of weed populations in their lawns. If followed properly, the occurrence of unwanted species is likely to be low enough that manual removal is reasonable, given the relatively small size of the vast majority of Toronto lawns.

It was noted that turf issues would be minimized if eight inches of topsoil were laid on all properties. However, this proposal is beyond any requirements in the Building Code, which, as a regulation prescribes the minimum provisions respecting the safety of buildings with reference to public health, fire protection and structural sufficiency.

Thresholds for cemeteries should be the same as for home lawns. Turf in cemeteries has the same basic function and maintenance issues as turf on a home lawn and general parkland. All general parkland including highly maintained areas like the Guild Inn, Edwards Gardens and Centennial Park are treated the same in that no pesticides are used as part of turf maintenance.

Parks & Recreation have noted that their current resource base cannot address full implementation of an integrated plant health care program in general parkland. General parkland refers to grass in a park that is not part of a playing field. Currently, integrated plant health care programs are limited to sports fields, golf courses and a few demonstration sites. Therefore, it is important to understand that without additional resources this principle will result in limited control of weeds in general parkland, and particularly in turf.

Specialized horticultural displays such as roses, carpet beds, topiary and mosaiculture require pesticide inputs in order to survive. These displays are often found as part of an entrance feature at gateways and at specialized displays in parks and cemeteries. A balance should be struck between the cultural and aesthetic value of these displays and pesticide reduction. This specialized application would be implemented in an IPM framework.

The Parks and Recreation Division has recommended consideration of allowing the use of 'knock-down' pesticide applications to gain initial control over infested areas as a prelude to implementation of a plant health care program. This is consistent with the standard initial implementation procedure for a bio-control program. Again the rules that apply to home lawns need to be consistent, wherever possible, with those rules applicable to general parklands and if herbicide application is not permitted on home lawns, then they should not be applicable to general parkland.

Parks & Recreation are concerned with the potential negative public perception of having one set of rules for home lawns, and another for public spaces. A sound argument can be made for the careful use of herbicides in an IPM program for sports fields and golf courses for purposes of safety and playability. These facilities can easily be seen as distinct from home lawns. General parkland turf, however, has much the same function of a home lawn as an informal recreational surface and as a part of the living, green and aesthetic landscape.

4. Action thresholds should be set at pest infestation levels that healthy well-maintained plants can withstand and speak to what part of the plant is affected such as the leaf or growing tissue.

Infestations can affect different parts of the plant in different ways. For example a plant that is infested at the root (growing tissue) is much more likely to need an action threshold that is lower than a plant affected at the leaf. There is a need to shift public behaviour from pesticide use to the adoption of good gardening practices to make plants as healthy as possible to withstand pest infestations.

5. Use of non-exempt pesticides for infestations should be limited to spot treatments.

Blanket treatments for landscape infestation go against basic IPM principles that call for careful identification and treatment of only affected areas of the landscape in order to reduce cost and exposure to pesticides.

6. Action thresholds should be appropriate and specific to the types of infestation seen in the City of Toronto and specific to the type of pest or plant material.

The report back from the Medical Officer of Health in consultation with the Commissioner of Economic Development, Culture and Tourism on action thresholds for the most common weeds/insects should be based on all available research material from the Greater Toronto Area, or areas with similar pest problems and plant care needs.

7. Action thresholds should be developed around the IPM practices as identified in the ten steps to a healthy lawn.

It is believed that by following these 10 basic steps that most residents may never have to resort to the last step, chemical application. It, therefore, makes sense to develop the thresholds according to these 10 steps.

8. Action thresholds must speak to the effectiveness of treatments.

All of the actions that are recommended with each action threshold will identify options that have demonstrated success. The report back from the Medical Officer of Health on the success of the Pesticide By-law will comment on the success of these treatments.

9. Action thresholds for weeds must be cumulative, as it would be impossible to set thresholds for individual species.

Notwithstanding Principle No. 3 (that no weed thresholds be established for home lawns, cemeteries and general parklands), the Advisory Committee supports the consideration of specific weed thresholds for spaces such as sports fields, golf courses and lawn bowling greens. In this case, establishing individual weed thresholds may not be productive. Complications arise when trying to deal with multiple weed types. For example, five different types of weeds, each occupying 10% of the turf, will result in 50% weed coverage and should qualify as a cumulative action threshold even though no specific weed type meets an individual action threshold.

10. Action thresholds must be set in a manner that permits a timely response to extraordinary conditions that may arise from time to time.

Action thresholds must be established in a manner that allows for timely adoption of thresholds for use of non-exempt pesticides when new pest populations are introduced to Toronto or in the event of unusual circumstances such as drought conditions. The recent arrival of the Asian Longhorn Beetle is an example of a new invasive pest species in Toronto for which chemical control, within an IPM framework is warranted.

11. Action thresholds should take into consideration the products that are legally available and/or any legal limitation of their site specific use.

Two of the products currently available include corn gluten meal and acetic acid. Corn gluten meal is a pre-emergent weed control and the product, a registered pesticide is used by professionals and homeowners who wish to use a legally available alternative approach to reduce weed population. It has received temporary PMRA approval for selected weeds.

Acetic acid (horticultural vinegar), a registered pesticide with the PMRA, is for use around the garden by professionals or homeowners. This product is particularly effective for spot treating weeds and for any weed growth on hard surfaces such as interlocking brick. Some Committee members stated that the results of these products are varied when diluted to 6.25% (the dilution rate currently dictated on labels for application in Canada). United States Department of Agriculture (USDA) researchers have warned that concentrations of acetic acid over 5% can burn and should be handled with protective equipment.

The Medical Officer of Health will ensure that her education materials on pest control will identify any potential hazards, including those associated with incorrect use of exempted pesticides. With respect to pest control, the Medical Officer of Health, in her education materials will list all of the exempt products that are legally available for use by the homeowner or professional and the specific pest infestation that they control.

OMAF Turf IPM Manual

Action thresholds within the OMAF's Turf IPM Manual were presented to PBLAC for consideration. OMAF considers the threshold for weeds to be 5-10% cumulative, with pesticide spraying occurring once weed cover reaches 15% of the lawn area. This is based on a classification A for lawns. Examples of class "A" properties include home lawns, golf and lawn bowling greens and irrigated sports fields. If lawns were classified as B, it would raise the threshold for spraying to between 20-50% weed coverage. Examples of Class "B" properties include non irrigated sports fields, commercial lawns, golf course fairways and general parkland.

Some Committee members felt that having thresholds at 5-10% infestation of any and all weeds combined would be suitable for taking action such as spraying with a non-exempt pesticide. Their rationale was that treating weeds before they overtake larger turf areas results in significantly lower pesticide usage, even when compared to one blanket treatment every four years. The other Committee members believed the OMAF's thresholds were too low and not in keeping with the City's Environmental Plan or its desire to eliminate, where possible, the use of pesticides through the approval of the Pesticide By-law.

Applying OMAF's action thresholds as an interim measure was also discussed and rejected. The majority of Committee members believed that having interim guidelines would only serve to confuse the public by providing them with initial information and changing it within a relatively short period of time.

Based upon the research completed to date and the establishment of principles for action thresholds, particularly as they relate to the use of non-exempt pesticides, some Committee members recommended additional work be undertaken in developing action thresholds. Specifically, it is recommended that the eleven principles for establishing action thresholds as identified by the Pesticide By-law Advisory Committee be adopted and applied to the selection process for developing specific action thresholds applicable to Toronto.

It is further recommended that the Medical Officer of Health in consultation with the Commissioner of Economic Development, Culture and Tourism report back to the Board of Health by April 2005 on specific action thresholds for the most common weeds and insect pests. This report to consider seasonal factors and any newly developed amendments to action thresholds. Further, that a review of action thresholds proposed or in use in other jurisdictions including Ontario Ministry of Agriculture and Food (OMAF), be conducted and consolidated into the range of existing action thresholds.

As well, the Medical Officer of Health and the Commissioner of Economic Development, Culture and Tourism in their development of specific action thresholds include options related to

exceptional circumstances such as summer drought conditions, the emergence of new species of pests, or any other circumstances they deem appropriate.

Finally, the Medical Officer of Health continuously review new products that could be added to the exempt product list in the Pesticide By-law, taking into account any products that Health Canada deems as reduced risk and make recommendations to the Board of Health if appropriate, as they emerge or on an ongoing basis.

Task 3: The Medical Officer of Health collaborate with the Pesticide By-law Advisory Committee and integrate the definition of 'infestation' which is based on 'action thresholds' into resource materials that will form the basis of a public education campaign and the core of the City enforcement policy for the Pesticide By-law.

Educating the public on good horticultural practices will aid greatly in reducing unnecessary pesticide use. Toronto Public Health is responsible for the City's education in this area and will ensure consistency in the look and content of the resources and materials that will be available from the City of Toronto. Communications materials will include the definition of infestation as previously adopted by City Council.

Toronto Public Health is developing a new general brochure about the requirements of the By-law, including which pesticide products and uses are exempted, and the stepped nature of the enforcement plan that progresses from education during the first year, to issuing warnings and tickets in future years. In addition, Toronto Public Health is developing a second general brochure about how to minimize the need for pesticides during lawn and garden care. A template is also under development that enables City staff to provide new detailed information, such as through a fact sheet series, as needed. All material can easily incorporate information on specific action thresholds as they relate to common pests of concern in Toronto, once the action thresholds are finalized. All information resources will be available on the City's website <http://www.toronto.ca>.

Residents will be encouraged to contact Toronto Public Health for available education resources. In their communication material, detailed information will be available on the exempt products that may be used and the pest it controls as approved by Federal and Provincial agencies for use by the homeowner or lawn care professional. When all horticultural techniques have been exhausted, an exempt product is not available to address the specific insect infestation, and there is a threat to the health of the lawn, the homeowner will be advised to contact a lawn care professional for the application of a non-exempt pesticide. Homeowners who experience problems with weeds will be directed to fact sheets with detailed information to address their problem. Options for homeowners may include top dressing or overseeding. Again, homeowners will be advised to contact a lawn care expert and request an analysis of their lawn condition and recommendations to remediate their lawn through a pesticide-free approach.

Toronto residents will also have several information resources available over the telephone including a Toronto Public Health information line about the By-law, Toronto Health Connection. The information materials have lists of numbers people can call with questions about pesticide-free lawn and garden care, composting and lawn improvement. Another

component of the public education and outreach plan is proactive visits by Public Health Inspectors to areas of the City where the presence of pesticides may be of the most concern (e.g. schools) and in areas where pesticides may run into surface water.

Residents must be provided with information on ways of identifying and monitoring common pest populations for the home lawn and when to take preventative and/or curative action. This will empower citizens with the know how and tools to manage pests without chemical pesticides and improve the health of their lawns.

There is a recognized challenge in ensuring compliance to the Pesticide By-law in the short term. As with many of the initiatives introduced by the City in the past several years, education and public outreach are considered keys to success. Both the City's recycling initiative and its smoking By-law have been very successful at changing attitudes and behaviours of the City's residents. Both looked at a long-term, phased-in approach to ensure successful implementation and compliance. The Pesticide By-law will change the way people approach their lawn and garden care and introduces a new standard as to what is considered an acceptable level of weeds on property. Careful thought has been given to implementation of the Pesticide By-law through the "stepped" enforcement approach geared towards public education with a provision for warnings for first offenders. From now until August 31, 2005 will be considered a transition period to enable citizens to move to pesticide-free lawn care.

Task 4: Consideration of amending the By-law to require notice to the Medical Officer of Health when non-exempt pesticides are used to manage an infestation.

Committee members had varying opinions regarding the notification process when using a non-exempt pesticide. Some believed it would greatly strengthen the City's ability to monitor and enforce the By-law and assist citizens who are experiencing problems managing pests in their lawns. Others believed it would provide a concrete piece of information respecting compliance and non-compliance. According to TEA, numerous experts on municipal By-laws have commented that By-laws containing infestation clauses use permits as their main method of monitoring reductions in pesticide use and the community's switch to pesticide-free lawn care. Without a permit system to accompany the City's infestation clause, there is a perception that the City has significantly weakened its ability to monitor and control non-exempt pesticide use. TEA believes that a notification system may appropriately mitigate this weakness while complementing the educational program and focusing enforcement measures.

Other Committee members did not support the requirement that all homeowners using non-exempt pesticides must, by law, notify the Medical Officer of Health within five days of pesticide application.

There is a benefit of having access to information on all applications of non-exempt pesticides. If it were possible to ensure that reliable information could be collected, and if the City had sufficient resources available for collecting and analyzing this information, it would provide some value in evaluating the effectiveness of the By-law. Such information would make it possible to determine if there are certain pest problem areas in the City so that specific actions

could be recommended. Given the current financial constraints of the City, however, putting resources on notification requirements would not be considered a priority.

Adding this clause to the By-law would require enforcement to ensure conformity. Unless everyone conforms, the resulting information may not be useful because it may seriously underestimate pesticide use. Enforcement of the reporting provision will divert scarce staff resources away from public education and the identification of inappropriate use of pesticides towards enforcement of an administrative requirement. The reporting requirement may be perceived as overly intrusive of city residents and may yield unnecessary resentment of the By-law, and perhaps, a reduced willingness to give alternative methods a try.

The review of annual trends in pesticide use by Toronto Public Health will be sufficient to assess the effectiveness of the education and enforcement program, and to identify areas within specific sectors where pesticide use could be decreased through enhanced education activities. The thrust of the educational campaign for the Pesticide By-law will be to encourage residents to avoid the use of non-exempt pesticides altogether, and to call a licensed applicator in the event that non-exempt pesticides are required. Therefore there is little reason to burden residents with a reporting requirement, voluntary or otherwise.

Given that the industry-sponsored IPM accreditation program requires the annual compilation of pesticide use data, it is reasonable to request all licensed applicators to submit data on annual pesticide use in the City to the Medical Officer of Health.

It is therefore recommended that the City's Agencies, Boards, Commissions and Departments, as well as pest control and horticultural industries, golf clubs, lawn bowling greens and cemeteries (either individually or through provincial associations) be requested to submit to the Medical Officer of Health by January 31 of each year a written report of measures which have been taken to reduce the use of pesticides and produce a detailed inventory of all pesticides applied in the previous year.

Task 5: Consideration of amending the By-law to regulate the use of pesticides on golf courses, lawn bowling greens and cemeteries.

PBLAC members agreed that functionality is an important principle for establishing action thresholds. Where the members disagreed was in how the application of a threshold might differ depending on the function. The lawn care industry believes that all turf areas should be treated the same. The issue of playability on a golf course or lawn bowling green should apply equally to an individual's own front or backyard.

The majority of members believed that high use sports turfs have a substantially different function and intensity of use than general turf and home lawns. There is also a safety factor to consider on playing fields where bare areas or large weedy patches can lead to an increased slipping hazard. Therefore, it may warrant setting infestation thresholds for certain weeds. Thresholds may be different depending on what sort of sport is played on the surface, how weeds affect the play, and intensity of use leading to stress that makes the turf more susceptible to

infestation. It was agreed that more work is required around the use of non-exempt pesticides for different types of high use sports turf.

The Committee was requested to consider amending the By-law to provide that the use of a pesticide be permitted on a golf course or a lawn bowling green or cemetery, as long as certain conditions apply. Discussions with the Allied Golf Associations have indicated that they could comply with these conditions and expressed interest in helping the City develop a template for recording required information.

Regarding the conditions specifically for application of pesticides within two (2) metres of the perimeters of golf clubs', cemeteries' or lawn bowling greens' property lines, the Allied Golf Associations believed in most instances this can be achieved. However, in places where existing greens are within the two-metre limit, other mitigating measures can be taken to minimize exposure risk. The Associations offered to work with the City to identify these situations and devise solutions. With regard to the condition on the use of pesticides within five metres of any open watercourses, the Associations felt that where the existing design forbids the setback, alternative measures can be implemented. They felt that different considerations should be contemplated when dealing with land-locked ponds versus water bodies that flow through the golf course property.

The Committee does not recommend any exemptions because the By-law permits the use of non-exempt pesticides if required to control damaging infestations. The special needs of golf courses and lawn bowling greens can be accommodated within the existing By-law.

It is recommended that the Commissioners of Works and Emergency Services and Economic Development, Culture and Tourism implement an operational policy that there be no application of pesticides within two (2) metres of the perimeter of City owned golf club property lines and five (5) metres of any open watercourses on City owned land and report to the Medical Officer of Health any exceptional circumstances that may exist. It is further recommended that the privately owned golf clubs, lawn bowling greens and cemeteries be requested by the Medical Officer of Health to do the same.

It is recommended that the Commissioner of Economic Development, Culture & Tourism develop an evaluation mechanism to annually review any use of non-exempt pesticides for infestations in City-owned and operated sports areas (e.g. golf courses, playing fields) and make possible adjustments to the landscape and maintenance practices to further reduce such use.

Turf in cemeteries has the same basic function and maintenance issues as turf on a home lawn and general parkland. All general parkland including highly maintained areas like the Guild Inn, Edwards Gardens and Centennial Park are treated the same in that no pesticides are used as part of turf maintenance.

The Ontario Association of Cemetery and Funeral Professionals highlighted the issue around the unique nature of a cemetery. Cemetery grounds are viewed through the unique lenses of a bereaved public, whose expectations are very different from the homeowner or casual park visitor. Turf is not just turf to a cemetery visitor who has just recently interred a family member.

Urban cemeteries are “highly maintained areas” by their very nature, and the public that visit these properties expect this high level of maintenance. Many cemeteries have specialized horticultural displays, such as roses, at their entrances and within their grounds that may require use of a non-exempt pesticide within an IPM framework.

It should be noted that the Mount Pleasant Group of Cemeteries (operators of ten (10) cemeteries in the Greater Toronto Area) in their presentation to PBLAC described their commitment to a healthy lawn strategy. Some examples of the healthy lawn strategies they currently use include:

- majority of insecticides have been replaced by horticultural soap formulations and in some cases dormant oils are applied to control aphids in rose beds, shrubs and Special Care plantings;
- weeds on Special Care lots and flower beds are pulled by hand after initial spraying by a contractor; and
- feature areas are aerated to thicken turf.

The sensitivity around cemeteries is recognized, however, in keeping with the Toronto Environmental Plan to develop a strategy to eliminate pesticide use on private land, fungicides and herbicides should not be used on cemetery turf. The City should consider working with facilities such as cemeteries to develop formal signage. Signage could be erected at the entrances to these facilities, that would explain that the grounds may contain a variety of grasses and some weeds in order to adhere to the City’s Pesticide By-law, which aims to better protect the environment and the health of children.

Parks & Recreation has operated pesticide free turf maintenance for two decades in some areas of Toronto. Due to insufficient resources, a City-wide plant health care program on general parklands has not been implemented to ensure that turf quality and therefore weed control are in place. A weed free turf area, in the absence of the use of herbicides and a plant health care program, will become infested with weeds such as dandelions to a 50% cover within 4-5 years. Within 7 –8 years the turf area will be 80-90% non-turf ground cover (weeds). City Council and the Toronto community will need to accept this “turf” composition and appearance in general parkland, boulevards and streetscapes should the Pesticide By-law and companion Principles to Guide the Establishment of Action Thresholds be implemented, unless sufficient funds are provided to implement a full IPM program.

It is recommended that the Commissioner of Economic Development, Culture and Tourism report to the Economic Development Parks Committee on the cost of implementing a full IPM program for City parklands within six (6) months and any recommendation be included in the 2005 budget submission.

Restricting Access to Pesticides

As noted in the Medical Officer of Health’s report entitled “Implementation of the Pesticide By-law”, there is a sense that the most direct means to encourage residents to reduce their use of pesticides outdoors is to limit access to the purchase of lawn and garden pesticides. Although beyond the jurisdiction of municipalities, it is within the jurisdiction of provinces. The Province

of Quebec moved to restrict the sale and use of pesticide products and increase public awareness of the value of eliminating the use of pesticides in the urban environment by adopting a Pesticide Management Code. It phases out the sale of “weed and feed” products and will phase out over the next three years the sale and display of many other pesticide products. Toronto’s Medical Officer of Health is recommending the adoption of a Pesticides Management Code similar to Quebec’s to restrict public access to pesticides by prohibiting the sale of some pesticides and restricting the sale of other pesticides in the province of Ontario.

PBLAC was concerned with the ongoing availability and public access to pesticides in light of the new City By-law. Restricting the use of pesticides for lawn care companies while allowing access for individual use has caused great concern particularly with the lawn care companies. The restrictions placed on them will result in an inequity between individual consumers and the lawn care industry thus impacting their ability to respond to consumer demand and provide safer natural, biological alternatives. The introduction of a Pesticide Management Code would create a level playing field in terms of access to products.

There are specific concerns with residents’ direct use of pesticides and herbicides that are purchased through the retail sector. There is no requirement for signage, there is no level of training on the safe and most effective use of the appropriate pesticide, and there is a high probability of not applying the pesticide in the most effective manner, in the correct dose. All of these concerns are valid and need to be considered within the issue of retail availability of pesticides. Professional applicators, with their specific training and expertise, combined with requirements for posting and notification signage at least provide warning of applications so that individuals who are sensitive can be aware of the application. Therefore, in the short term, Toronto Public Health should begin to engage retailers by offering educational materials and staff training to support their customers who seek to purchase lawn care products.

Without the Pesticide Management Code, several PBLAC members believe that the By-law will actually encourage some residents to use pesticides through retailers. However, other members noted that residents who use pesticides when not warranted would be in breach of the By-law and subject to fines during enforcement, which would function as a deterrent to increase pesticide use. PBLAC members did agree that compliance with the By-law by residents would be enhanced if retail access to non-exempt pesticides was limited. In absence of a Pesticide Management Code, or until a Code is implemented, it will be important to understand the total change in pesticide usage, therefore, the tracking of sales data is recommended. There is a recognition that the numbers will not be 100% accurate because people often buy more than they use and although a sale of a pesticide is made inside Toronto, the application could be for outside the boundaries of the City. However the information may be useful in determining some level of success in the thrust to reduce pesticide usage.

It is therefore recommended that the Provincial Minister of the Environment be requested to amend the Pesticides Act to require retailers to report on annual sales of pesticides by product-type and municipality, and that this information be made publicly available.

The Pesticide By-law will be more effective if retailers place non-exempt pesticide products behind the counter, if retail staff distribute Toronto Public Health educational material to

purchasers of non-exempt products, and if retail staff advise the homeowner that such products may only be used in the case of an infestation. This will all combine to help emphasize the safe use of the product.

It is therefore recommended that the Board of Health request retailers, manufacturers and distributors of lawn care products to voluntarily commit to sell and preferentially promote pest control products exempted under the Pesticide By-law. Retailers be requested to place non-exempt pesticides behind the counter. It is further recommended that the Medical Officer of Health explore a partnership with the lawn care industry and retailers of pest control products to distribute information and educational resources on the By-law through retailers, manufacturers and distributors of lawn care services and products.

Finally, as a way to measure the level of success and impact of the Pesticide By-law, it is recommended that in the evaluation of the Pesticide By-law to be submitted to the Board of Health in 2006, by the Medical Officer of Health in consultation with the Commissioners of Works and Emergency Services and Economic Development, Culture and Tourism include an analysis of the value of the key principles, the volume of public complaints regarding the quality of lawns, the frequency of use of non-exempt pesticides, the public education campaign, the reduction in pesticide use by sector, the impact of enforcement, and whether there should be mandatory reporting of the use of non-exempt pesticides.

Conclusion:

The City has made a commitment to a clean, green and healthy city through Council's unanimous adoption of the Environmental Plan (2000). Recommendation No. 7 of the Plan states the City's objective is to eliminate, where possible, the use of pesticides and to develop a strategy to eliminate pesticide use on private lands. The purpose of the Pesticide By-law is to ensure the health, safety and well being of the City's inhabitants. The approval of the Pesticide By-law in May 2003 and Council's direction to staff to establish action thresholds for the use of non-exempt pesticides brings the City closer to accomplishing both these goals.

Initially, Toronto Public Health intends to inform the public that the Pesticide By-law goes into effect April 1, 2004 and to provide homeowners and lawn care managers with educational resources and materials on how to maintain a healthy lawn and garden without the use of pesticides. While the homeowner may experience additional weeds in making the transition to pesticide-free lawn care, this should be reduced in time through adherence to healthy lawn strategies. There is a recognition that the use of pesticides will not be totally eliminated in the short-term, however, the objective of the By-law and the establishment of action thresholds will be to dramatically reduce the use of herbicides while acknowledging the exceptional circumstances where insecticides may have to be used.

The Pesticide By-law Advisory Committee provided valuable assistance in the development of action thresholds and consideration of the five tasks as directed by Council. City Council should thank and recognize the contribution of the Committee members in assisting with the implementation of the By-law. Given the variation and often-conflicting nature of the advice provided to the Committee it was not possible to reach consensus on appropriate action

thresholds. However, the group did provide information that led to the creation of a number of important principles to guide the City's next steps in the development of action thresholds. The Medical Officer of Health, together with the Commissioner of Economic Development, Culture and Tourism can now use these principles as the basis for developing realistic action thresholds that will work in tandem with the Pesticide By-law to substantially reduce the use of pesticides throughout Toronto.

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