Oakville's Guide to

Gardening Naturally

OAKVILLE

May 2008

Mission Statement

The Town of Oakville
1225 Trafalgar Rd
Oakville, Ontario

Phone
905-845-6601

Fax
905-815-6032

Pesticide Hotline
905-815-6090
pesticidebylaw@oakville.ca

Please contact us
with specific concerns regarding:

- lawn and gardening practices
- water-efficient plants
- native plants
- alternative ground covers
- pest problems
- general gardening advice

Reducing pesticides is perfectly natural!

Over the past several years, the Town has virtually eliminated the use of pesticides on public lands. As of January 1, 2008, the use of pesticides within Oakville Town limits on public and private property will be regulated. This is another positive step forward in protecting the health of our community and Oakville's environment.

There are simple and effective ways to maintain your lawn, garden, trees and shrubs without using non-permitted pesticides. This Town of Oakville's Guide to Gardening Naturally can tell you how. It contains information about the Pesticide By-law, tips on how to grow a healthy lawn without using chemicals and much more. I encourage you to keep it on hand and reference it frequently.

By working together we will keep Oakville naturally green and more livable.

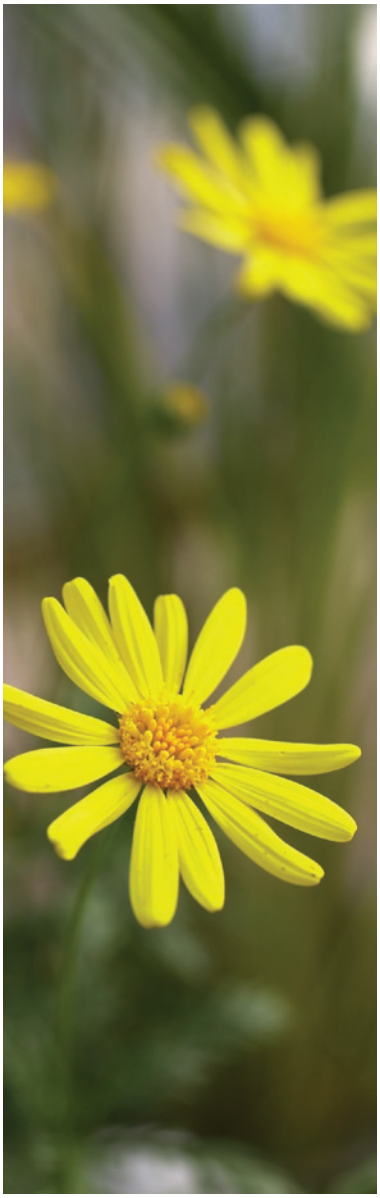
Sincerely,

Mayor Rob Burton

Contents

Disclaimer

This document has been prepared by the Town of Oakville for educational and information purposes only. The Town of Oakville is not responsible for the products, methods and practices described. Residents are solely responsible for the health and appearance of their lawns and vegetation.



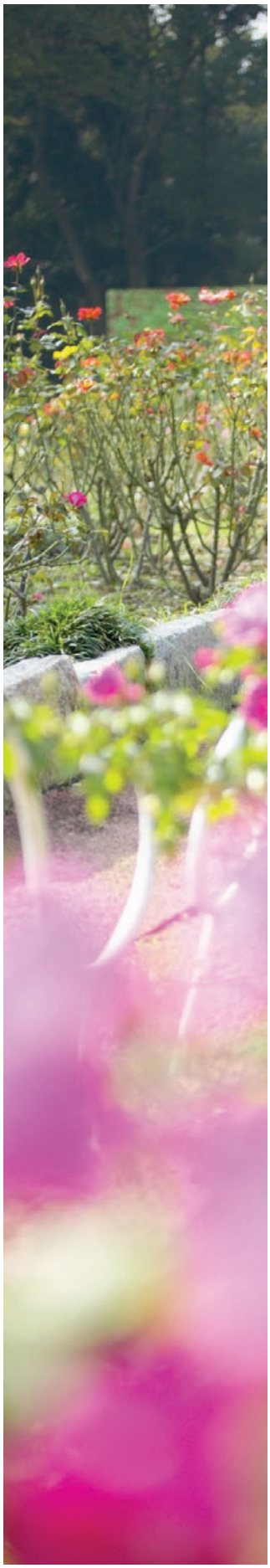
Credits

Various resources have been referenced in the development of this document. The Town of Oakville acknowledges that the "Pesticides & Herbicide Free Greenspace in the City of Thorold" by the City of Thorold served as the template for this Guide.

The City of Thorold	www.thorold.com
The City of Toronto	www.toronto.ca/
The Town of Markham	www.markham.ca
Pest Management Regulatory Agency	www.pmra-arla.gc.ca/
Landscape Ontario	www.landscapeontario.ca
Health Canada	www.healthylawns.net/english/index-e.html
Oakville's Pesticide Task Force	www.oakville.ca
Halton Partners for Naturally Green	www.halton.ca/health/services/pesticides

There are many excellent sources of green gardening information accessible through the internet.

How it all came about



Proud of its reputation as a vibrant, clean and safe town, Oakville is committed to practicing and promoting environmental stewardship. Every year, the Town implements environmental programs, policies and by-laws for the benefit of our community. In December of 2006, Oakville Town Council proposed implementing a by-law restricting the use of pesticides within the Town on both private and public lands.

On February 5 & 6 of 2007, Town Council listened to over 40 delegates who wished to speak to the proposed pesticide by-law. On February 12th, 2007 Oakville Council passed the Pesticide By-law (By-Law 2007-036), which will regulate the use of chemical pesticides on public and private properties within Town limits. **This by-law will come into force and effect on January 1, 2008.**

In June 2007, several by-law revisions and an implementation plan were approved by Council.

Implementation Plan

Pesticide Task Force

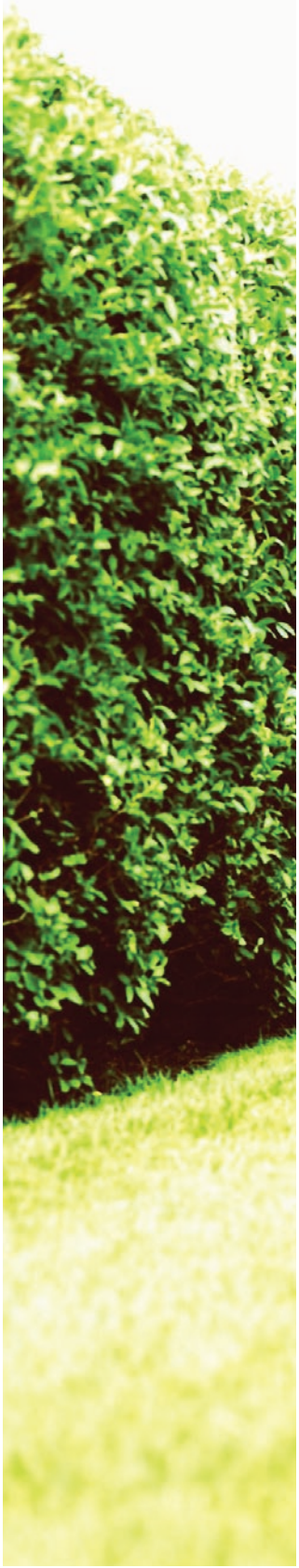
To aid in developing a community-based public awareness strategy, Council approved the establishment of a Pesticide Task Force with the mandate to:

"...provide advice to Council on the creation and execution of an education plan to enhance efforts already being undertaken by the Town and Region of Halton to support the objectives of the proposed Pesticide By-law and the development of a strategy to encourage cooperation and support from retailers who presently sell pesticides"

- (Pesticide Task Force Terms of Reference)

Affiliation	Name
2 members of Council	Councillor Jeff Knoll Councillor Allan Elgar
1 member of the Environmental Strategic Plan Advisory Committee	Liz Benneian
1 member engaged in the retail sale of pesticide	Aaron Mahoney, Home Depot, Special Events/Community Outreach
1 member of the lawn and garden industry who actively carries out business in the Town	Don McQueen, Owner, Nutri-Lawn
2 members nominated by Gardens Off Drugs	Joanne Kay Susan Curran
Director of Environmental Policy	Cindy Toth
Director of Parks and Open Space	Chris Mark

The Task Force met often over a six-week period to consider the best components of an Education and Outreach Strategy. A key recommendation was to develop this Guide to support the Oakville community's compliance with the By-Law in a positive way by providing a comprehensive reference on Gardening Naturally.



Public Lands

The Town has responsibility for 1,280 hectares of land out of a total of 13,971 hectares within the Town. Chemical pesticides have been used as a last resort on Town owned property since 2002. The Town has used a number of practices for turf management and other areas to maintain greenspaces, including:

- Different cutting regimes to increase the vigor of turf and reduce weed invasion
- The use of integrated pest management techniques, emphasizing cultural, biological and monitoring techniques
- Increased use of naturalization
- The installation of irrigation system

One preferred practice has been to use horticultural vinegar to aid in controlling unwanted pests. Under regulations set by the Ministry of the Environment, Town staff must post pesticide signs when applying horticultural vinegar.

Private Lands - Naturally Green Education Campaign

Together with the City of Burlington, Town of Milton, Town of Halton Hills, Landscape Ontario and the Organic Landscape Alliance, Oakville is a member of *Halton Partners for Naturally Green* led by Halton Region, . In June 2003, the partners launched a public education and awareness program to inform the public about the potential risks of pesticides and the alternatives that are available, such as biological and cultural control methods, to create healthy and attractive lawns and gardens. Council, at its meeting of February 16, 2004, resolved to develop and implement a targeted education campaign to promote a reduction in the use of pesticides on private property.

The Town produced an information sheet to keep residents informed on the actions taken across Halton Region regarding pesticide use (Appendix A). Appendix B provides the Halton Partner's "10 Steps to Naturally Green."

Pesticide Registry and Sensitive Use Areas

The Town had established a registry for individuals who are sensitive to pesticides. Individuals sensitive to the use of pesticides registered by contacting the Pesticide Information Line. Educational materials, along with a letter from the Town, were sent to neighbouring properties within 50 metres of registrants. The information advised that an individual with pesticide sensitivities, lived nearby and promoted consideration.

This service was discontinued on January 1, 2008 when the by-law came into force and effect.

Town-wide "Sensitive Use" Areas

Town residents were encouraged to identify if their property is within 50 metres of an area identified as being a "sensitive use." Reducing the use of pesticides in locations where children and residents with vulnerable health reside is advisable. Sensitive use areas include properties containing schools, licensed daycares, playgrounds, parks, churches and other faith organizations, licensed seniors' residences, universities and hospitals. This service was discontinued on January 1, 2008 when the by-law came into force and effect.

Education is where it all begins....

A general understanding of the by-law is critical to its success community-wide. It is not about what is prohibited, but about what options are available and successful.

This document provides:

- Information to Oakville residents on the specifics of the by-law
- Detailed information regarding proper cultural practices, alternatives to chemical fertilizers and pesticides, common pest problems and identification, water-efficient landscaping and native plants

Outreach Initiatives

The Town of Oakville, in partnership with the Naturally Green education program, participates regularly in a wide variety of community outreach activities each year. Check the Town of Oakville's and the Region of Halton's websites for more information on Green Gardening community events throughout Halton.

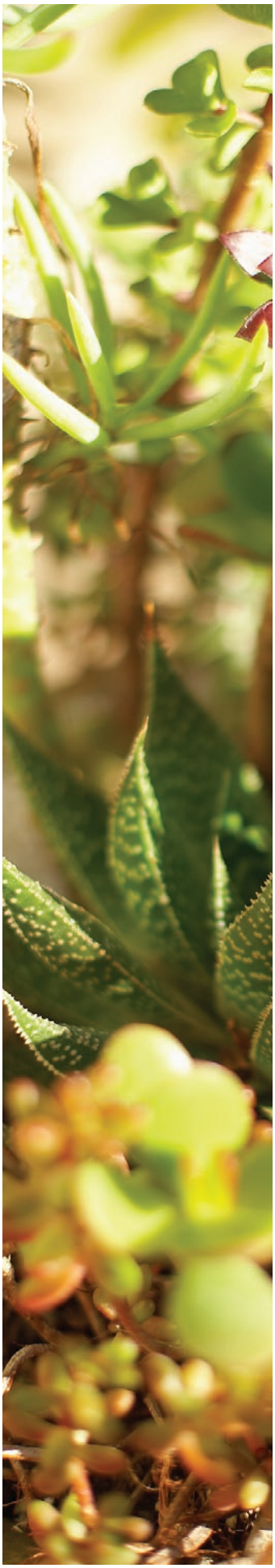
Governing the Sale of Pesticides

Although the Town of Oakville has worked to protect the natural environment from the unnecessary application of chemical pesticides, it cannot govern the sale of pesticides. Products not in compliance with Oakville's by-law will still remain available. It is up to the consumer to ensure the products they purchase are in compliance with the Town's by-law. Look for naturally organic products, such as the ones described in this guide.

Education and Outreach

"Education: a debt due from present to future generations."

- George Peabody



Did you know...

Pesticides include herbicides, insecticides and fungicides, as well as products that are a combination of pesticides and fertilizers (such as **"Weed and Feed"**).

Even biodegradable or products permitted for use under the by-law are still pesticides and are regulated by the Pest Management Regulatory Agency (PMRA). All pesticides have the inherent risk of danger when not used as directed.

Oakville's By-Law

- By-law 2007-036, A by-law to regulate the use of pesticides within the Town of Oakville.
- Consolidated Pesticide By-law 2007-036, amended by By-Law 2007-123.

Definitions

In this by-law, the following word has the following meaning:

I.P.M. accredited golf course – means a golf course that:

(i) Obtains and maintains accreditation in a recognized integrated pest management program from the IPM-PHC Council of Ontario, or equivalent, as determined by the Town; and

(ii) Provides proof of I.P.M. accreditation to the Town Clerk on or before January 31st of each year.

Pesticides – means:

(i) A product, an organism or a substance that is a registered control product under the federal Pest Control Products Act which is used as a means for directly or indirectly controlling, destroying, attracting or repelling a pest or for mitigating or preventing its injurious, noxious or troublesome effects.

(ii) Despite Subsection (i), a pesticide does not include the products listed in Schedule "A" to this by-law.

Pest – means any animal, a plant or other organism that is injurious, noxious or troublesome, whether directly or indirectly, and an injurious, noxious or troublesome condition or organic function of an animal, a plant or other organism.

By-Law 2007-036 Section 2

No person shall apply or cause or permit the application of a pesticide within the boundaries of the Town of Oakville.

By-Law 2007-036 Section 3

Exceptions

Notwithstanding Article 2, it is permitted to apply or use a pesticide in the following cases:

a) In a public or private swimming pool;
b) To control termites;
c) As a wood preservative;
d) To exterminate or repel rodents;
e) For injection into or painting on trees, stumps or wooden poles;
f) To purify water for human or animal use;
g) Inside of a building;
h) On land used for the commercial production of food;

i) To control, destroy, reduce or repel, directly or indirectly, an animal, plant or other organism which is harmful to human health;
j) On an I.P.M. accredited golf course or at the Oakville Lawn Bowling green, provided that any such use or application is in keeping with the integrated pest management program in place at the golf course or lawn bowling green;
k) To control buckthorn;
l) At a hydro substation, a utility distribution station or within a hydro or railway corridor; or
m) As an insect repellent applied on the person.

By-Law 2007-036 Section 4

a) Every individual who is convicted of an offence is liable to a fine of not less than $250 and not more than $5 000 for a first offence, and to a fine of not more than $10 000 for a subsequent offence.
b) If a corporation is convicted of an offence, the maximum penalty that may be imposed upon the corporation is $50 000 for a first offence and $100 000 for a subsequent offence and not as provided in a).
c) For the purpose of subsections a) and b), an offence is a subsequent offence if there has been a previous conviction under this by-law.

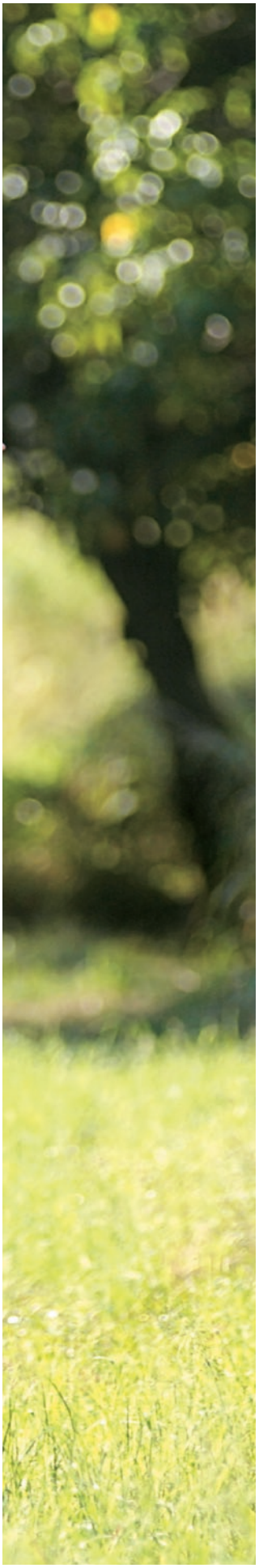
By-Law 2007-036 Section 5

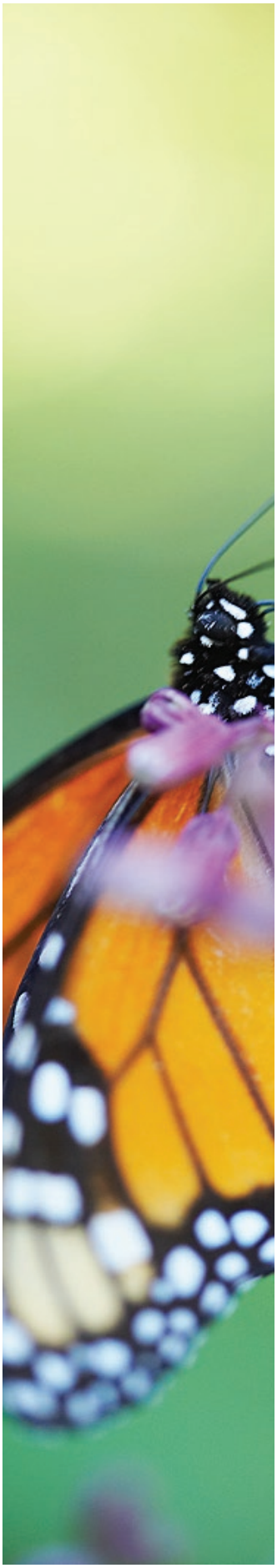
Effective Date: This by-law comes into force and effect on **January 1, 2008.**

Schedule "A"

(1) A product that uses pheromones to lure pests, sticky media to trap pests or "quick kill" traps for vertebrate species considered pests, such as mice and rats.

(2) A product that is or contains one the following active ingredients:
a) A soap;
b) A mineral oil, also called "dormant or horticultural oil";
c) Silicon dioxide, also called "diatomaceous earth";
d) Biological pesticides, including Bt (Bacillus thuringiensis) and nematodes;
e) Borax, also called "boric acid" or "boracic acid";
f) Ferric phosphate;
g) Acetic acid;
h) Pyrethrum or pyrethrins;
i) Fatty acids;
j) Sulphur; or
k) Corn gluten meal.





Approved Pesticides for use in Oakville

Always Remember ...

All pesticides, whether chemical or organic, permitted or restricted, have the inherent or potential danger of:

- killing or harming beneficial plants, insects and mites;
- being harmful (toxic) to plants, animal, fish and humans if not used as directed;
- causing skin or eye irritations;
- being toxic until diluted or washed away; and
- being harmful if ingested or inhaled.

Always read and follow manufacturer's directions before applying any type of product to your lawn or garden.

More Information on Permitted Pesticides

By-Law 2007-036 speaks specifically to the products which can still be applied to your lawn and garden. The products listed as acceptable under the by-law have been successfully used by gardeners for years. Many of the techniques suggested work with nature to create healthy lawns and gardens. If you have been using pesticides on your lawn and garden regularly, it is likely that many of the beneficial organisms in your soil have been killed. Be patient. Over time, as you use the good cultural practices suggested in this guide, they will come back and work to improve your lawn's appearance.

Insecticidal Soaps

(fatty acids)

Makeup: fatty acids that are biodegradable similar to household soaps
Qualities: works upon contact with target pests
Available in: ready-to-use products, liquid concentrates, (may be in combination with other pesticides)
Targets: soft body insects, aphids, caterpillars, crickets, fleas, flies, mites

Mineral Oil

(horticultural oil, dormant oil)

Makeup: emulsified oil to be diluted in water
Qualities: acts upon contact with pest, suffocates and disrupts physical processes
Available in: liquid concentrate
Targets: aphids, spider mites, mealy bugs, sawfly larvae, whiteflies, plant bugs, caterpillars, and plant diseases such as rust and mildew

Silicon Dioxide

(diatomaceous earth)

Makeup: fossilized diatom (phytoplankton algae) shells from natural deposits
Qualities: dehydrates pests, has long residual effect under dry conditions
Available in: dust form or wettable powders
Targets: earwigs, ants, cockroaches and fleas both indoor and outdoor applications

Bacillus Thuringiensis

(Bt)

Makeup: common species of soil bacteria that produces spores and protein crystals that infect and kill caterpillars
Qualities: short residual affects, as it causes caterpillars to stop feeding and eventually starve to death
Available in: liquid concentrate or wettable powder
Targets: caterpillars, mosquito and beetle larvae, tent caterpillar, tobacco hornworm, gypsy moth

Nematodes

Makeup: naturally occurring, earth friendly microscopic worms that work to destroy grubs
Qualities: nematodes require a lot of water and proper water and soil temperatures to be successful.
Available in: microscopic worms
Targets: White grubs, citrus root weevil, japanese beetles, may/june beetles, european/masked chafer, black vine weevil, sod webworm

Borax

(boric acid)
Makeup: mined from deposits in the earth
Qualities: acts as a stomach poison; long residual effects if kept dry
Available in: ready to use liquids, dusts and baits
Targets: many crawling insects such as roaches, termites, fire ants, palmetto bugs, ticks, bedbugs, fleas, boxelder bugs, carpet beetles, centipedes, crickets, earwigs, grasshoppers, millipedes, scorpions, slugs, water bugs

Ferric Phosphate

(iron phosphate)
Makeup: solid that does not readily dissolve in water
Qualities: when eaten, it causes snails and slugs to stop feeding and die within 3-6 days; it's inability to dissolve in water maximizes its dispersal time
Available in: pellets which contain bait to attract snails and slugs
Targets: slugs and snails

Acetic Acid

(vinegar)
Makeup: formed out of the naturally decaying process of plants; horticultural vinegar contains 18% acetic acid
Qualities: A non-selective herbicide, it will kill whatever it comes into contact with; spot spray carefully to avoid non-target plants, repeat applications on sunny days is needed
Available in: liquid concentrations
Targets: all plant life that it comes into contact with

Pyrethrins (non synthetic)

(pyrethrum)
Makeup: extracted from pyrethrin daisies, not to be confused with pyrethroids or permethrin, which are synthetic versions
Qualities: acts upon contact
Available in: ready to use liquids, liquid concentrates and dusts, may be in combination with other insecticides and fungicides
Targets: aphids, caterpillars, fleas, beetles, leafhoppers, spider mites, ants, cockroaches, earwigs, flies, mosquitoes, gnats, yellow jackets

Corn Gluten Meal

Makeup: is a product of the corn milling industry
Qualities: found to be an excellent all natural and organic weed and feed product for lawns and gardens, there is no post emergence weed control, therefore weeds already established will not be controlled with this product
Available in: granules, fine yellow powder, palletized form
Targets: will control the emergence of crabgrass, clover, foxtail, dandelions, perslane, lamb's quarter, creeping bentgrass, smart weed, redroot pigweed, banyardgrass, and bermudagrass

At this point in time there are no organic or exempt herbicides that will selectively control an unwanted weed without also hurting the grass. Currently, all organic herbicides on the exempt list are non-selective in that they kill both the targeted weed and the immediate surrounding grass. Reseeding or resodding will be required to fill in the resultant dead spots.

The next two tables provide you with 'quick hit' references that will identify the option of remedies available for your common pest problem. Neither list should be considered as comprehensive. Products and manufacturers, along with pest problems, are ever-changing.

Please note..

The next **two tables** provide you with **'quick hit' references** that will identify the option of remedies available for your common pest problems. Neither list should be considered as comprehensive. Products and manufacturers, along with pest problems, are ever-changing.

Common Insect Solutions

Permitted Pesticides	Insecticidal Soap or Fatty Acid	Mineral Oil Dormant or Horticultural Oil	Silicon Dioxide	Bt (Bacillus Thuringiensis)	Nematodes*	Borax, Boric acid, Boracic acid	Ferric Phosphate	Acetic Acid	Pyrethrum or Pyrethrins
Aphids	■	■					■		■
Ants			■			■			■
Army Worms				■					
Bedbugs						■			
Beetles (Japanese/June)									■
Boxelder				■		■			
Caterpillars	■	■		■					■
Centipedes						■			
Chinch Bugs	■								
Cockroaches			■			■			■
Cranefly Larvae (Leatherjackets)					■				
Crickets	■					■			
Cutworms				■					
Earwigs			■		■	■			■
European Chafer					■				
Fire ants						■			
Fleas	■		■		■	■			■
Flies	■								■
Gnats									■
Grasshoppers						■			
Gypsy Moths				■					
Leafhopper									■
Scorpions						■			
Silverfish					■				
Slugs			■			■	■		
Snails							■		
Sod Webworms				■					
Spider Mites		■							■
Tent Caterpillars				■					
Termites						■			
Ticks						■			
Mealy bugs	■	■							
Mites	■								
Mosquito Larvae				■					
Water bugs						■			
White Grubs					■				
Yellow Jackets									■

***Nematodes:** micro-organisms that are sprayed onto your lawn under optimal weather and rain conditions. Nematodes are selected based on the targeted pest. Not all nematodes control all pests. Check the manufacturer's label for proper application.

Permitted Product Brands Available In Stores

By-Law Schedule "A"	Active Ingredient	Common Names	Sample of Available Products
(1)	Pheromone Sticky media Quick kill traps		
2 a)	A soap	Insecticidal soap	Safer's Trounce Yard and Garden Insecticide Green Earth Insecticidal Soap Wilson Pro Insecticidal Soap Concentrate
b)	Mineral oil	Dormant oil Horticultural oil	Plant Products Dormant Oil Green Earth Horticultural Oil Insect Spray Later's Dormant Oil Spray
c)	Silicon Dioxide	Diatomaceous earth	Chemfree Insectigone Crawling Insect Killer Green Earth Bio Bug and Slug Killer Raid Earthblends Ant and Earwig Dust Bugout Insecticide C-I-L Mother Earth Insect Dust
d)	Bacillus thuringiensis Nematodes	Bt	Safer's BTK Biological Insecticide Environmental Factor Grub Busters Natural Insect control Lawn Guard Nematodes
e)	Borax	Boric acid Boracic Acid	Wilson Liquid Antex Raid Liquid Ant Killer Safer's Attack Ant Killer
f)	Ferric Phosphate		Sluggo Slug and Snail Bait for Gardens Scott's EcoSense Slug and Snail Bait Safer's Slug and Snail Bait
g)	Acetic Acid	Horticultural Vinegar	EcoClear President's Choice Weed Controller Herbicide Scott's EcoSense Weed Control
h)	Pyrethrum Pyrethrins		Raid Earthblends Vegetable Bug Fogger Safer's Vegetable Garden Insecticide
i)	Fatty Acids		Environmental Factor Zap Insecticidal Soap Scott's EcoSense Insecticidal Soap Safer's Agro-Chem's Insecticidal
j)	Sulphur		Safer's Defender Garden Fungicide Green Earth Garden Fungicide Later's Garden Sulphur Fungicide
k)	Corn gluten meal		Environmental Factor Turf Maize WOW Without Weeds

This list is for illustrative purposes only and is subject to change. It is not a comprehensive list of all available products. The Town of Oakville does not endorse any product or brand. Be sure to read the label and manufacturer's instructions for any warnings or precautions. Apply products as directed.

Did you know...

Sandy soils are predominant south of the QEW, whereas red clay is common north of the QEW.

To 'Garden Naturally' the focus must be prevention and not a product-based approach. This plan is based on sustainability and may take some time. It should start by identifying organic matter and soil composition.

Get to know your soil.

Conduct a Soil Strength Test or Textural Analysis

By getting to know your soil, you can concentrate your efforts where they are needed. First you must know your soil composition. There is a simple strength test that can be done with your own hands.

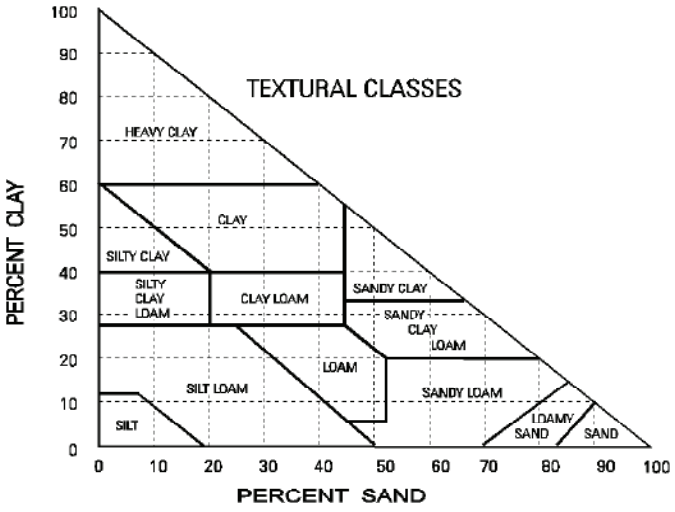
1) Take a small amount of moist soil in the palm of your hand
2) Squeeze this moist ball of soil in your hands or try to roll it between the palms of your hands, and if the soil:
    a) breaks apart when you open your hands, you have sandy soil
    b) stays together, try pushing some of the soil out of the ball and into a ribbon. If you can't make a ribbon, you have loamy sand soil

For all other types of soils, you should be able to form a ribbon of soil by rolling it between the palms of your hands. Roll it out as long as possible and measure it, then take a small piece of that ribbon and discard the rest. Add enough water to this smaller piece of soil, to make a mini mud puddle. Now rub your finger in this mud puddle to determine if it feels gritty like sand or smooth and sticky like clay. Once that is determined, compare your findings with the results below. This will confirm your soil type.

If the ribbon is:	Type
Gritty and shorter than 1"	Sandy Loam Soil
Smooth and equally short ribbons	Silty Loam
Gritty and smooth short ribbons	Loam
Gritty ribbons between 1" – 2"	Sandy Clay Loam
Smooth	Silty Clay Loam
Gritty and smooth	Clay Loam
Gritty and longer than 2"	Silty Clay
Smooth and gritty and longer than 2"	Clay

Now that you know what soil type you are working with, you can determine your soil's ability to hold nutrients and water and its likelihood of compaction. Soil composed mostly of sand has fewer tendencies to hold nutrients and is also less likely to become compacted when compared to soil made mostly of clay.

Canadian Soil Texture Triangle



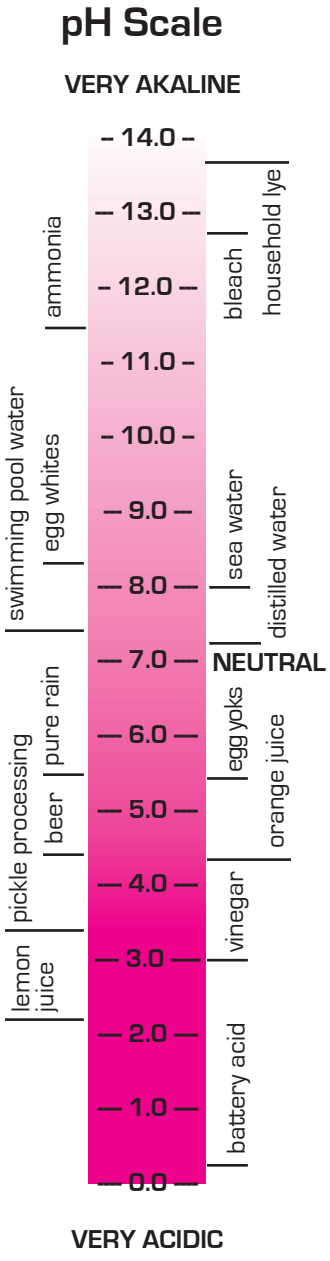
http://sis.agr.gc.ca/cansis/glossary/texture,_soil.html

Soil pH

The next soil characteristic to determine is soil pH. Once this has been determined, you can amend your soil as needed. Generally plants do well in soils that are between 6-7 on the pH scale. This relates to a neutral soil with the same pH characteristics as milk or pure water. Soils below 6 are considered too acidic, while soils above 7 are considered too alkaline.

For soils that are too acidic, it is recommended you add:
Lime: to neutralize the acidity of your soil. Known as a balancing agent, lime increases the alkalinity of your soil.
Solomitic Lime: high in magnesium and used to increase alkalinity
Hi-Cal Lime: contains calcium and is used to increase alkalinity where soil is adequate in magnesium
Egg & Seafood Shells: when broken down, they help to neutralize acidic soils

For soils that are too alkaline, it is recommended you add:
Flowers of Sulphur: used to increase soil acidity and should be applied before the growing season
Evergreen Needles: are highly acidic and work as a great mulch



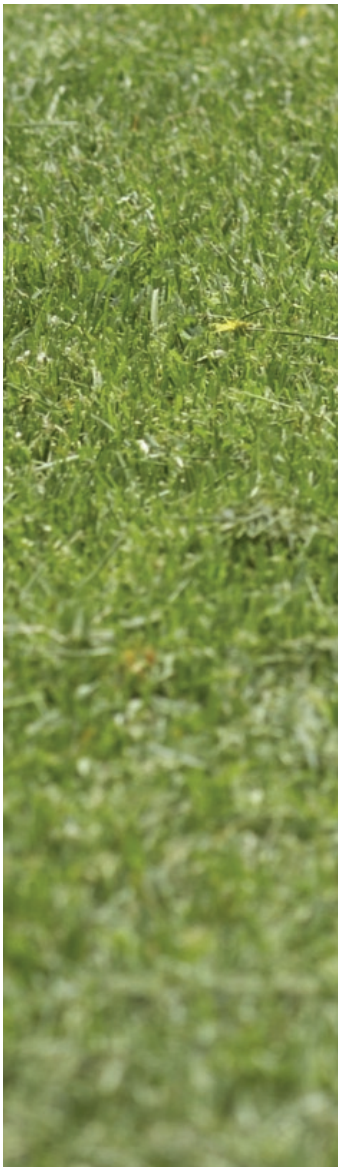
Nutrient Analysis

It is very important to note that many fertilizers available for purchase are a combination of pesticides and fertilizers all in one bag. These products are **not in compliance with the by-law**. No restrictions have been placed on fertilizers in this by-law, only on the combination products such as the 'Weed and Feed' products.

Although no restrictions have been placed on chemical fertilizers, there is still the option to go organic. Below is a list of natural fertilizers and some general information useful to review before purchasing fertilizer products.

Did you know...

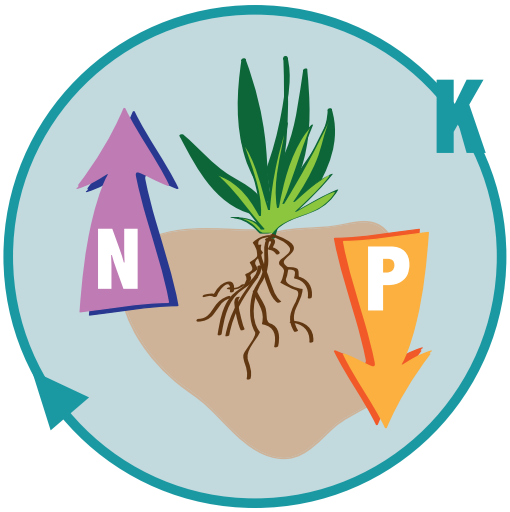
Soil pH test kits are available at most home and garden centres within Oakville. It is recommended to take multiple samples from different areas in your yard, mix them together and test the mixed sample.



When purchasing fertilizer, what do the numbers mean?

The numbers represent the percentage of each nutrient that is contained in each bag. The order that these number appear will remain constant; only the percentage of each nutrient will change.

For example: 20-10-4 indicates that the fertilizer mixture contains 20% nitrogen, 10% phosphorous and 4% potassium. The ratio of nitrogen to phosphorus to potassium should be consistent at a 4:1:2 ratio such as 20-5-10.



Up Nitrogen (N)	Down Phosphorus (P)	All Around Potassium (K) Potash
helps the grass grow green and UP	helps the roots grow DOWN and healthy	helps the overall health and propagation of the plant

Natural Fertilizers

Blood Meal: is a rich source of nitrogen that has the ability to burn plant life if applied in excess. Blood meal is a powdered form of cattle's blood. Blood meal's NPK ratio is 15-1.3-0.7

Bone Meal: a high phosphorus fertilizer, bone meal contains upwards of 30% phosphorus and only 1-2% Nitrogen

Seaweed Kelp: recommended for use on roses, orchids and tomato gardens. A great source of potassium if applied according to directions. Should not be used on potted plants; it is has the tendency to burn plants if too strong.

Corn Gluten Meal: does not permit seeds to germinate when applied at a certain rate, although it is not selective to just weeds. Do not apply corn gluten meal until at least three weeks after seeding. Corn gluten meal is considered a slow release organic fertilizer, as it contains 10% nitrogen.

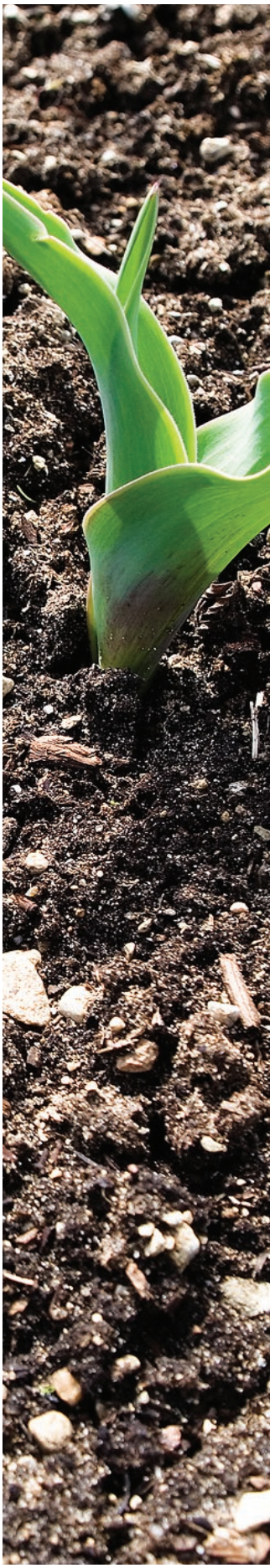
Slow Release Fertilizers

These fertilizers are designed to release nutrients to your lawn and garden over time as they are needed instead of as they are applied. Advantages of slow release fertilizers include improved efficiency with fewer applications resulting in less product being applied , improved quality and yield, since plants are receiving nutrients when needed and not only when applied plus less environmental damage since slow release fertilizers leach less nutrients into the natural environment.

There are 2 main types of slow release fertilizers:
(i) coated products, where a physical barrier restricts contact with soil moisture, and
(ii) reacted chemical fertilizers, in which molecules are chemically altered to form polymers with reduced solubility

Please use any type of fertilizer in moderation. The accumulation of nutrients in the natural environment has its negative effects on aquatic plants and wildlife. The abundance of phosphorus applied to lawns, gardens, farm crops and golf courses has caused significant effects on our local water quality. Phosphorus that washes off the land into rivers, streams and lakes causes increased aquatic plant growth. During the winter months aquatic plants are receiving as much sunlight for photosynthesis to occur therefore limiting the production of oxygen and this can result in "winter fish kills"

Amending your soil



Now that you know what your soil composition and pH levels are, you can start making amendments to improve the soil and to promote plant health. Amendments are needed to supply organic matter, improve drainage, increase moisture retention and improve aeration. Homemade composting is the natural and cheapest choice to obtain soil amendment material. As an alternative, consider these amendment products.

Composted manure — an odourless organic farm by-product used as a plant food to enrich potting mix and seed beds. Dehydrated manure is basically the same, but with less moisture.

Humus — consists of decayed organic matter used as a soil amendment to add fertility, hold moisture and provide aeration.

Sphagnum peat moss — an organic, odorless and natural material. Peat moss absorbs water up to 20 times its dry weight. Absorbed water is then slowly released to plant roots. Sphagnum peat moss aerates and lightens heavier soils, such as clay. It adds mass to sandy soils to reduce the leaching of nutrients. Although a regular ingredient in planting mix recipes used for container plants, peat moss should not be confused with plain sphagnum moss, which is mostly used by floral designers.

Top soil — a commercially produced soil rich with amendments. Because of the rough texture, it is best to use top soil in the yard or mixed with other products, not as a potting soil.

Top Dressing — applied to amend your soil at different points throughout the season. Top dressing consists of compost, top soil and fertilizers. Top dressings can also include many seeds of various grass and weeds. When purchasing top dressing, consult with your distributor to obtain the highest quality soil with the fewest weed seeds.

Mushroom compost — a mixture of straw, peat moss and other organic components, its sole purpose is for use in commercial mushroom production. The mixture is only used once for mushrooms and is a great by-product for use in the garden.

Halton Region

Compost Give-Away - Halton Waste Management Services
Twice yearly, Halton Region provides fresh organic compost to its residents free of charge. These events are advertised on the Region's website and local print media.

Outdoor Water Efficiency Program
During the summer months residential use of clean drinking water can nearly double due to outdoor water use such as lawn and garden irrigation. To help residents reduce outdoor water use while still maintaining a healthy and attractive landscape, Halton Region is again offering free Water Efficient

Landscape Assessments
Halton's Water Efficiency Landscape Advisor will visit your home, assess its natural features such as soil type and drainage conditions, and provide information and advice on how to make your lawn and garden more water efficient. To reserve an appointment call Halton Region at 905-825-6000 or email accesshalton@halton.ca . For additional information visit www.halton.ca/waterconservation

GreenCart Program – Halton Region Waste Management Services
More Blue and Green for a Better Planet. Halton Region successfully piloted the GreenCart program since 2005 and has now implemented the program throughout Halton. The GreenCart and Blue Box is collected once a week, while garbage is collected every other week with a 6 bag/can limit. These changes help protect our environment, extend the life of our landfill, reduce greenhouse gas emissions improving air quality, and create useful recycling and compost products. It is estimated that 45% of your household garbage consists of food waste and compostable paper products that can be used to make compost. This initiative aims to divert 60% of waste, extending the life of our landfill.

Halton Region 905-825-6000 Toll-free 1-866-442 -5866 TTY 905-827-9833 www.halton.ca

Backyard Composting

Another Option for your Organic Waste
Composting units can be purchased from the Halton Waste Management Site or from many lawn and garden centres. Composters come in many shapes and sizes, above and below ground, tumbling and stationary usage. Deciding on which composter to use may require research.

Applying compost to your lawn and garden is a great way to amend your soil with beneficial organisms and natural fertilizers. It will also aid in improving water retention and compaction of soils. Compost amendments should be made in the spring and fall. If you only add compost once a year, fall would be preferable.

It is important to be selective when adding organic matter to your composter. All waste added to your compost should be chopped into fine pieces, as this helps to break it down faster. Below is a table describing the benefits of compostable materials.

Acceptable Product List for Backyard Composting
Below is a list of acceptable biodegradeable materials for your backyard composter.

Material to be Composted	Benefits to Soil	Suggestions
Citrus fruits		Bury to discourage fruit flies
Banana Peels	Loaded with plant nutrients	Breaks down fast and acts as a compost accelerator
Coffee Grounds	Excellent earthworm food; can be added directly to plants	Compost the filters as well
Corn cobs	Adds nutrients and fibre; good mulch	Slow to break down, so chopping into finer bits is recommended
Egg shells	Excellent earthworm food; help neutralize acidity; as mulch it may discourage slugs	Dry and crush first; slow to break down
Feathers	Extremely high in nitrogen	Keep damp
Grass clippings	Leave some clippings on your lawn	Readily available; avoid clumping of grass
Hair (human and pet)		Keep damp and avoid composting if hair is treated with chemical dyes
Dryer Lint		Holds moisture
Manure	Many nutrients are provided	Cow, horse, pig, rabbit, poultry only
Seafood Shells	Reduce acidity; good mulch	Crush or grind very finely; break down very slowly
Sod, weeds, leaves, hay, and Straw	Good for nutrients and fibre	Should be kept damp; leaves tend to be slightly acidic
Tea Leaves	High in nitrogen	Compost tea bags as well
Toadstools	Excellent source of minerals	Decompose quickly
Soil	Adds more soil for decomposition	Lightly scatter throughout pile to avoid compaction

This is not a complete list.

Did you know...

Native Planting
Successful gardening can be enhanced by using native plants.

Native plants are accustomed to our soil types, climate and rain conditions, and therefore take less time and water to keep healthy. Native plants, wildflowers and trees encourage, attract and feed native wildlife. There are many resources available on the internet. One helpful resource from Halton Region is provided as Appendix C.

Hints:
Grey leaves usually identify plants tolerant of sunny conditions, while being drought resistant.

Dark green leaves mean the plant enjoys shade moist soil.

Seeding and Overseeding

Spring	Summer	Fall
• Monitor for insect problems in late spring • Hand-pulling of weeds is recommended, if possible. Many hand weeding tools are available to aid you. Most help reduce the strain of bending and pulling. • Top-dress with compost and overseed areas where grass is not well established	• Too hot and dry; not recommended	• Early fall is ideal for seeding, as the warm soil helps to speed germination • Overseed once again

Mowing

Spring	Summer	Fall
• Sharpen mower blades each season • Dull blades may cause damage to the lawn • Gradually increase mowing height to 3 inches or 7.5 cm	• Mow to a height of 3 inches or 7.5 cm throughout the entire summer • Cut lawn less often in hot and dry weather • To prevent shocking the grass, and turning it a pale-green, do not cut more than one-third of the grass blade at one time.	• Grass may grow weaker and may require more frequent mowing • Keep mowing lawn until weather turns cooler and growth slows • Leave all grass clippings on the lawn. This will improve nutrient content and water retention capabilities of your soil.

Watering

Spring	Summer	Fall
• Water when rain ceases to fall for 7-10 consecutive days • Typically watering does not need to take place until late June, but watch for high temperatures and water accordingly	• Always water in early morning or early evening as temperatures are lower and less water gets evaporated by the sun and wind • When temperatures are <28°C, recommend watering: - Sand: ¾ inch every 5 days - Clay: 1 inch every 7 days • When temperatures are > 28°C, recommend watering: - Sand: ¾ inch every 3-4 days - Clay: 1 inch every 5 days • Avoid light watering as this promotes shallow root growth	• Do not water unless there is very little rain

Fertilizing

Spring	Summer	Fall
• Small amounts of nitrogen help to revive grass – eg. blood meal • Ideal time for aeration • If needed, certain species of nematode can be applied; check with a garden centre or lawn care service provider • One application of corn gluten meal is recommended before weeds germinate	• Fertilizers at this time have a tendency to burn the grass, making it more susceptible to weed infestations unless you use the slow release or organic fertilizers • Natural nitrogen can be applied by leaving grass clippings on the lawn after mowing • Note: 3-4 lbs of nitrogen should be applied to your lawn throughout the year, depending on need. Applications can take place throughout the summer by the homeowner or in by a lawn care service provider (/0.75/0.7/0.6/ 0.7/1.0 + 0.25 from natural mulch = 4 lbs)	• Fall is the best time to apply lime, unless you have just seeded your lawn • A little nitrogen is needed in mid-August to early September. More importantly, fertilizers rich in potassium and nitrogen should be applied • Top-dressing can be applied if necessary

Dethatching

Spring	Summer	Fall
• Can be done with a rake or thatch removing machine in late spring. . If thatch is over 2 cm thick you should remove with thatch machine or an aerator. • Dethatching may open space for weeds to germinate so overseeding is important	• Not recommended	• If fall decomposition is slow check pH of soil as excess acidity lowers the decomposition rate. • De-thatch and remove excess debris

Aerating

Spring	Summer	Fall
• April and May	• Not recommended	• September or early October

Insect Problems

Spring	Summer	Fall
• White grubs begin to appear in May and early June • European Cranefly damage occurs in May	• Not recommended	• Sod webworm • European Cranefly larvae, leatherjackets, emerge mid- September

Definitions

Top Dressing:
is applied to amend your soil at different points throughout the season. Top dressing consists of compost, top soil and fertilizers. Top dressings can also include many seeds of various grasses and weeds. When purchasing top dressing, consult with your distributor to obtain the highest quality soil with the fewest weed seeds.

Overseeding:
the term used to describe applying more seed to your already established lawn. You should overseed thinly grassed areas in order to out-compete weed growth. Ensure you are using the proper grass seed for the area you are trying to establish. Always overseed with a mixture of three grass types, preferably rye, bluegrass and fescue. Using native seeds is always recommended, as these seeds are already accustomed to our soil, rain and drought conditions. Overseeding is best done in spring and fall. While you are overseeding, consider top dressing with compost or a weed-free topsoil.

Preferred Grass Types

Kentucky Bluegrass
- needs small amount of fertilizers
- goes dormant without water but repairs itself through rhizomes
- slow to establish from seed (~21 days)
- prone to necrotic ringspot and bluegrass billbug

Perennial Rye Grass
- Drought tolerant
- Quick to establish
- Fast growing but cannot repair itself

Fescues
- Low maintenance
- Prefers shade or partial sun
- Does not repair itself or recover well

Tall Fescues
- Coarse texture
- Heat, shade, drought tolerant
- Best established when self seeded

EcoLawn
- Will go dormant
- Highest root to shoot ratio
- Needs less watering, mowing and fertilizing
- Produces the most thatch

Aerating:
the process where small cores of soil are removed from the lawn to increase its breathe ability, reduce soil compaction, and accelerate thatch decomposition. Core aeration can be accomplished by renting an aerating machine, purchasing a hand aerator, or hiring a lawn care service provider. Aerating your lawn allows for more water, oxygen and nutrients to penetrate deeper into the soil. Overseeding after aeration is important, as the holes left are perfect places for grass seed to germinate since the seed and new seedlings are better protected. The aeration holes also hold moisture for better seed germination.

Lime:
is used to neutralize the acidity of your soil. Known as a balancing agent, lime, increases the alkalinity of your soil.

Mulch:
refers to organic debris placed throughout your lawn and garden to help with water retention and weed control. Mulch usually consists of chopped up leaves, bark, grass clippings etc. Some mulch provides some nutrient enhancement.

Using Cultural Practices to Eliminate Pests**

	Corn Gluten Meal *	Nitrogen Fertilizer	Limestone Fertilizer	Compost	Hand Pulling Weeds	Irrigation	Overseed & Topdress	Mulching	Mowing High	Aerating	Vinegar (acetic acid)	De-thatching	Borax
Broad Leaf	■				■				■		■		
Chinch Bugs		■	■			■			■	■		■	
Clover (Annual)					■			■			■		
Clover (Perennial)					■			■			■		
Common Plantain					■		■		■	■	■		
Crabgrass	■			■	■		■		■		■		
Creeping Charlie					■					■			■
Dandelions	■				■		■		■		■		
Fairy rings				■			■		■				
Grubs						■			■	■		■	
Mushrooms					■						■		
Sod Webworms						■			■			■	
Thistle											■		

***Corn gluten meal** provides pre-emergent weed control only, and only at rates recommended by the manufacturer. Corn gluten meal does not provide post-emergent control of weeds.

**At this point in time there are no organic or exempt herbicides that will selectively control an unwanted weed without hurting the grass. Currently, all organic herbicides are non-selective in that they kill both the targeted weed and the immediately surrounding grass. Reseeding will be required to fill in the dead spots.

Identifying your Common Turf Garden Pests – Weeds

Information on how to rid your lawn of these weeds

Crabgrass

- Will adapt height to escape mowing
- Seeds germinate in spring and summer under moist conditions of watering or rain
- Likes bare and weak soil – therefore amending your soil, overseeding and aerating is recommended

Dandelion

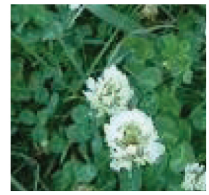
- Will adapt height to escape mowing
- Flowers in spring and fall
- Long, strong tap root must be completely removed
- If pieces of root remain pour some salt on remainder, fill with compost
- Aerate and add compost in spring and fall

Common Ragweed

- Reproduces by seed only
- Leading cause of hay fever
- Pollen can be carried over 200 km
- Hand pull or apply a non-selective exempt herbicide

Creeping Charlie

- Also called 'ground ivy'
- Perennial weed in the mint family
- Small bluish flowers in spring
- Thrives in moist shady spots



Clover

- Not always considered a weed; does provide excellent ground cover
- Will appear in cold weather
- Indicates low nitrogen and poor soil

Prickly Lettuce / Thistle

- Blooms in early spring and lasts until fall
- Quickly propagates from seed

Common Plantain

- Reproduces by seed only
- Found in wet, low-nutrient, compacted soils
- Aerate, top dress and overseed

Identifying your Common Garden Pests – Insect

Information on how to rid of insects

Picture courtesy of: www.uky.edu

White Grub

ID- brownhead with 3 pairs of legs

- Most damage is caused by other animals such as raccoons and skunks digging your lawn up to get at the grubs
- Lawns will be dead when heavily affected
- July and August are the best times to assess your lawn for infestation

Picture courtesy of: bexar-tx.tamu.edu/.../chinch%20bugs.jpg

Chinch Bug Damage

Chinch Bugs

ID- can see X pattern on wing covers

- To check for chinch bugs, cut out the bottom of a coffee can and stick it into the lawn. Proceed to fill the coffee can with water. Once filled, wait a couple of minutes and the chinch bugs will start to float to the top
- Count the chinch bug population in the coffee can.
- Infestation level: 5 to 10 bugs per can
- Over 25 chinch bugs per can damage can be caused

Picture courtesy of: www.mass.gov/.../pestfacts/sodwebworm_adult.jpg

Sod Webworm

ID- active in the evenings

- Avoid nitrogen-rich lawn applications as this encourages plant life that benefits the sod webworm
- The use of harsh pesticides kills bug life that would usually prey on the webworm
- Dethatch your lawn

June Beetle Grub

ID- adults (10-20mm) appear in May to early June. Apparent when turf damage appears in mid summer

- Scarab beetles are native to Canada

Japanese Beetle

ID- bright metallic green/brinze wing covers

- Adults live and feed on ornamental plants for 30-45 days

Bluegrass Billbug

ID- long curved weevil snout, larvae have white body and brown head

- Enjoys kentucky bluegrass
- Lays egg in grass sheath
- Produces frass, a sawdust like excrement left behind from feeding
- Plants turn yellow and pull away from the ground easily

European Chafer

- Most common of the grub species

Appendices

2008

Town of Oakville – Environmental Policy Department

What's going on in Oakville with …

Pesticide Management

ESP Goal 1: To sustain and enhance our natural resources – airsheds, watersheds, shoreline, landscapes, flora and fauna

According to the By-law..

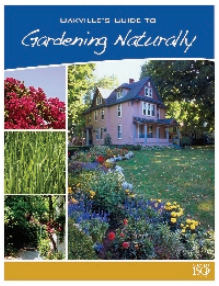
Integrated Pest Management (IPM) is define as?
IPM promotes minimized pesticide use, enhanced environmental stewardship and sustainable ecological systems.

A pesticide is defined as -
A product, an organism or a substance that is a registered control product under the federal Pest Control Products Act which is used as a means for directly or indirectly controlling, destroying, attracting or repelling a pest or for mitigating or preventing its injurious, noxious or troublesome effects.

A pest is defined as -
any animal, a plant or other organism that is injurious, noxious or troublesome, whether directly or indirectly, and an injurious, noxious or troublesome condition or organic function of an animal, a plant or other organism.

Town of Oakville

- On February 12th, 2007 Oakville Council passed **Pesticide By-law 200-036,** as amended, a by-law to regulate the use of pesticides on public and private properties within the Town of Oakville. This by-law will came into force and effect on January 1, 2008. For more information on this by-law please visit http://www.oakville.ca/pesticidebylaw.htm , call 905-815-6090 or write to pesticideby-law@oakville.ca
- Oakville's **Gypsy Moth Control Plan** was approved by Council in March of 2008,when a recommendation from staff and an independent forestry management expert suggested the implementation of an aerial spray program to help control the insect infestation. The aerial spraying of Btk is permitted under the Town's Pesticide By-Law. Btk has been identified as the most responsible way to handle the current gypsy moth infestation and minimize potential outbreaks.
- The **Town's Parks and Open Space Department** has responsibility for 1,280 hectares of land out of a total of 13, 971 hectares within the Town. Pesticides are only used on an emergency basis on Town property. The Town has undertaken a number of turf management practices, including: * cutting regimes that increase the turf vigour to reduce weed invasion * integrated pest management techniques * Increased use of naturalization * a sophisticated irrigation system to saves water, staff time and money.



Oakville's Guide To Gardening Naturally

Compiled by Town staff and the Pesticide Task Force to provide detailed information regarding proper cultural practices, permitted pesticides, common pest problems and identification, water-efficient landscaping and native plants. This document can be found at events throughout the spring and summer or can be downloaded from our website at http://www.oakville.ca/Media_Files/General/Oak_Guide_Gardening_Naturally.pdf

Schedule 'A'

(1)A product that uses pheromones to lure pests, sticky media to trap pests or "quick kill" traps for vertebrate species considered pests, such as mice and rats.
(2) A product that is or contains one the following active ingredients:
a) A soap;
b) A mineral oil, also called "dormant or horticultural oil";
c) Silicon dioxide, also called "diatomaceous earth";
d) Biological pesticides, including Bt (Bacillus thuringiensis) and nematodes;
e) Borax, also called "boric acid" or "boracic acid";
f) Ferric phosphate;
g) Acetic acid;
h) Pyrethrum or pyrethrins;
i) Fatty acids;
j) Sulphur; or
k) Corn gluten meal.

OAKVILLE

2008

Pesticide Management

Halton's 10 Steps to be Naturally Green

1. Mow high to promote gorous growth, prevent eeds and discourage insect ests. Cut grass to a height of to 8 cm or 2.5 to 3 inches. se a sharp blade.

2. Water deeply and frequently to promote deep ots. Too much water starves e soil of oxygen and invites sease. Give 2.5 cm or 1 inch f water per week to the lawn.

3. Feed your lawn with mpost and leave grass ippings where they fall. ompost improves the soil, hich is where plant health egins. Clippings decompose uickly, and are another source f nutrients for your lawn.

Aerate compacted soil in the ll. This helps oxygen, water nd nutrients reach the roots nd also helps decompose atch.

5. Overseed in spring or fall choose alternative ground vers in difficult spots.

Replace grass with paving ones or use mulch in heavy affic areas. Alternate your pproach with shrubs, vines or ative plants, especially in haded, dry or difficult areas.

. Fertilize if necessary with ow-release fertilizer, at an pplication rate guided by soil sting.

8. Check lawn regularly to etect pests and other roblems early.

9. Discover that healthy wns are less susceptible to est problems. Keep your lawn ealthy using these good aintenance practices.

10. Enjoy! A healthy lawn is n ideal place to relax.

Halton Partners for Naturally Green

- Oakville is a member of the **Halton Partners for Naturally Green** led by Halton Region, together with the City of Burlington, Town of Milton, Town of Halton Hills, Landscape Ontario and the Organic Landscape Alliance. In June 2003, the partners launched a public education and awareness program to inform the public about the potential risks of pesticides, and the alternatives that are available, such as biological and cultural control methods, to create healthy and attractive lawns and gardens.
- The Halton Partners for Naturally Green have diverted over 5785 L of new and unused pesticides from the Halton Landfill since 2003. These pesticides were collected at the **Pesticide Exchange** and **Environment Day** in which residents are encouraged to return unwanted pesticides free of charge.
- **Pesticide Exchange** – June 7, 2008 - 8:30 am – 4:00 pm, Household Hazardous Waste Depot
- **Environment Day** – May 31, 2008 - 8:30 am – 4:00 pm, Household Hazardous Waste Depot

Provincial Government

The Ministry of the Environment is processing the implementation of a **Provincial Pesticide Ban** similar to the one established in Quebec. This could mean new regulations in regards to the sale of pesticides, stricter enforcement, enhanced training of certified applicators, plus a new signage system. This proposal was posted for a 30 day public review and comment period that began January 18, 2008 and ended February 17, 2008.More details can be found at http://www.ebr.gov.on.ca/ERS-WEB-External/, Registery Number 010-2248

Further Information

Health Canada, Healthy Lawns
http://www.healthylawns.net
Health Canada, Pest Management Regulatory Agency (PMRA)
http://www.hc-sc.gc.ca/pmra-arla/
Responsible Pest Management
http://www.pestinfo.ca
Nature Challenge
http://www.davidsuzuki.org/NatureChallenge/
Details on Halton resources can be found at:
http://www.region.halton.on.ca/health/pesticides
Partners for Naturally Green
http://www.region.halton.on.ca/health/pesticides/default.htm
Landscape Ontario http://www.horttrades.com
Gardens off Drugshttp://www.gardensoffdrugs.com for information.

How to Get Involved

For more information on the Environmental Strategic Plan and the Town's other environmental initiatives contact:

Environmental Policy Department
Town of Oakville
P.O. Box 310
1225 Trafalgar Road
Oakville, ON, L6J 5A6

(905) 845-6601
www.oakville.ca/environment.htm

Helpful Tips to Gardening Naturally

Lawn mower blades need to be sharpened upon purchasing? Regulations state that the blades must be dull to ensure safety until sold. Have your blade sharpened by a reputable service provider to ensure a properly sharpened and balanced blade.

Each season you should **sharpen your blades** and change the oil in your lawnmower. Please remember to dispose of used oil properly at the Halton Household Hazardous Waste Depot. This helps to keep our water resources clean.

Watering too much can be just as detrimental to your lawn as under watering. Embrace the water bans set by the Region and use them as a reminder to not overwater.

Use the methods described in the composting and soil amendment sections.

Halton Partners for Naturally Green

The Halton Partners for Naturally Green is lead by Halton Region with support from The Town of Oakville, City of Burlington, Town of Milton, Town of Halton Hills, Landscape Ontario and the Organic Landscape Alliance. In June 2003, the partners launched a public education and awareness-raising program to inform the public about the potential risks of pesticides and alternatives that are available, such as biological and cultural control methods, to create healthy and attractive lawns and gardens. Council, at its meeting of February 16, 2004, resolved to develop and implement a targeted education campaign to promote a reduction in the use of pesticides on private property.

Through this team effort we have produced many materials for residents, including Naturally Green lawn signs, plaques that highlight Naturally Green areas within the Town, brochures, stickers, and seasonal calendars, and have run such events as the Pesticide Exchange and Green Gardening symposiums.

Ten Tips for your lawn Halton Partners for Naturally Green:

Ten steps to be Naturally Green
Keep your lawn healthy using good maintenance practices.

1. Mow high to promote vigorous growth, prevent weeds and discourage insect pests. Cut grass at a height of 6 to 8 cm or 2.5 to 3 inches. Use a sharp blade.

2. Water deeply and infrequently to promote deep roots. Too much water starves the soil of oxygen and invites disease. Give your lawn 2.5 cm or 1 inch of water per week. Put a container (rain gauge) on your lawn to measure how much you have watered.

3. Feed your lawn with compost and leave grass clippings where they fall. Compost improves the soil, which is where plant health begins. Clippings decompose quickly and are another source of nutrients for your lawn.

4. Aerate compacted soil in the fall. This helps oxygen, water and nutrients reach the roots, and also helps decompose thatch.

5. Overseed thinned areas in spring or fall, or choose alternative ground covers in difficult spots.

6. Replace grass with paving stones or use mulch in heavy traffic areas and alternate your approach with options such as shrubs, vines or native plants, especially in shaded, dry or difficult areas.

7. Fertilize with slow-release fertilizer, at an application rate guided by soil testing.

8. Check the lawn regularly to detect pests and other problems early. Early detection of problems can help significantly. Become proactive rather than reactive.

9. Discover that healthy lawns are less susceptible to pest problems. Keep your lawn healthy using these good maintenance practices.

10. Enjoy! A healthy lawn is an ideal place to relax.

Many neighbourhoods have pitched in together to **rent an aerator** from their local lawn and garden store.

Each household is entitled to the machine for a certain number of hours and the cost is split by the number of households participating.

Your lawn needs **aerating** when:
- Ground is hard and compacted
- Thatch is building up
- Water does not penetrate well
- Clover and knotweed are present

Overseeding will help to out compete many weeds. Ensure you are using the proper grass seed for the area you are seeding.

Think about how much sun or shade the area gets and what has worked or failed in the past.

Understand what your soil is missing before trying to **replace unneeded fertilizers.**

Soil tests are available at your local lawn and garden stores and offered by The University of Guelph.

NATIVE PLANTS RECOMMENDED for NATURAL LANDSCAPING & ECOLOGICAL RESTORATION in HALTON REGION

NATIVE PLANTS FOR ENHANCING HALTON'S RICH NATURAL HERITAGE

From Carolinian forests on the Lake Ontario shoreline to ancient cedar stands along the escarpment and vast tracts of woodlands in Nassagewya, Halton contains a rich and diverse natural heritage. This list has been prepared as a guide to property owners, land stewards and planners in the selection of native plant species that are biologically appropriate for re-planting, naturalization and restoration projects in our Region. It is based on species that naturally occur in our Region, and are generally available from commercial sources. Habitat and other information for each species includes:

F: Forests, woodlands and other shady sites.
M: Meadows, Prairies and other sunny dry to moist sites.
W: Wetlands and other moist sites. Includes marshes, meadow, marshes and swampy areas.
NOTES **C**: Carolinian species. These species are generally confined to the southern part of the Region.
R: Regionally rare species; generally restricted to specific habitat types, such as prairie.
*: Highly recommended. These species are generally readily available and perform well in naturalized settings.

TREES, SHRUBS & VINES					
SPECIES	COMMON NAME	HABITAT			NOTES
		F	M	W	
Acer rubrum	Red Maple	❖		❖	
Acer saccharum ssp. Saccharum	Sugar Maple	❖			*
Amelanchier arborea	Downy Serviceberry	❖	❖		*
Amelanchier laevis	Smooth Serviceberry	❖	❖		
Amelanchier sanguinea	Shadbush	❖	❖		
Betula alleghaniensis	Yellow Birch	❖			
Betula papyrifera	White or Paper Birch	❖			
Carpinus caroliniana	Ironwood	❖			
Carya cordiformis	Bitternut Hickory	❖			
Carya ovata	Shagbark Hickory	❖			C
Celastrus scandens	Bittersweet	❖	❖		*
Clematis virginiana	Virgin's-bower			❖	
Cornus alternifolia	Alternate leaved Dogwood	❖			*
Cornus florida	Flowering Dogwood	❖			C
Cornus foemina ssp. racemosa	Grey Dogwood		❖		
Cornus stolonifera	Red-osier Dogwood		❖	❖	*
Corylus cornuta	Beaked Hazel	❖			
Crataegus spp.	Hawthorn spp.	❖	❖		*
Dirca palustris	Leatherwood	❖			
Euonymus obovata	Running Strawberry-bush	❖			C
Fagus grandifolia	American Beech	❖			
Fraxinus americana	White Ash	❖			
Fraxinus pennsylvanica	Red Ash	❖		❖	
Hamamelis virginiana	Witch-hazel	❖			C
Juglans nigra	Black Walnut	❖			C
Juniperus virginana	Eastern Red Cedar		❖		R
Lindera benzoin	Spicebush	❖		❖	C
Ostrya virginiana	Hop Hornbeam	❖			
Parthenocissus inserta	Virginia Creeper	❖	❖		*
Pinus strobus	Eastern White Pine	❖			*
Populus balsamifera	Balsam Poplar			❖	
Populus deltoides	Cottonwood	❖			C
Populus grandidentata	Large-toothed Aspen	❖			
Populus tremuloides	Trembling Aspen	❖		❖	
Prunus nigra	Canada Plum	❖			
Prunus pensylvanica	Fire or Pin Cherry	❖	❖		
Prunus serotina	Black Cherry	❖			
Prunus virginiana	Chokecherry	❖	❖		*
Quercus alba	White Oak	❖			*
Quercus macrocarpa	Bur Oak	❖			
Quercus rubra	Red Oak	❖			*
Quercus velutina	Black Oak	❖			C
Rhus typhina	Staghorn Sumac		❖		*
Rosa blanda	Smooth Wild Rose		❖		
Rubus odoratus	Flowering Raspberry	❖			
Salix amygdaloides	Peach-leaved Willow			❖	
Salix bebbiana	Beaked Willow			❖	
Salix discolor	Pussy Willow			❖	
Sambucus canadensis	Elderberry			❖	
Sambucus racemosa ssp. pubens	Red-berried Elder	❖			
Staphylea trifloia	Bladdernut	❖			C
Symphoricarpos albus	Snowberry	❖			
Taxus canadensis	American Yew	❖			
Thuja occidentalis	Eastern White Cedar	❖		❖	*
Tilia americana	Basswood	❖			
Tsuga canadensis	Eastern Hemlock	❖			
Viburnum acerifolium	Maple-leaved Viburnum	❖			
Viburnum lentago	Nannyberry	❖	❖	❖	*
Viburnum trilobum	Highbush Cranberry			❖	

Vitis riparia	Riverbank Grape	❖	❖	❖	
Zanthoxylum americanum	Prickly Ash	❖	❖		C
WILDFLOWERS					
SPECIES	COMMON NAME	HABITAT			NOTES
		F	M	W	
Actaea pachypoda	White Baneberry	❖			
Actaea rubra	Red Baneberry	❖			
Allium tricoccum	Wild Leek	❖			
Anemone canadensis	Canada Anemone	❖	❖	❖	
Anemone virginiana	Thimbleweed	❖	❖		
Antennaria neglecta	Field Pussytoes		❖		
Apocynum androsaemifolium	Spreading Dogbane		❖		
Aquilegia canadensis	Wild Columbine	❖	❖		*
Asarum canadense	Wild Ginger	❖			
Asclepias syriaca	Common Milkweed		❖		
Asclepias tuberosa	Butterfly-weed		❖		R
Aster cordifolius	Heart-leaved Aster	❖	❖		*
Aster laevis	Smooth Aster		❖		
Aster macrophyllus	Large-leaved Aster	❖			*
Aster novae-angliae	New England Aster		❖		*
Caltha palustris	Marsh Marigold			❖	
Circaea lutetiana ssp. Canadensis	Enchanter's Nightshade	❖			
Desmodium canadense	Showy Tick-trefoil	❖	❖		*
Desmodium glutinosum	Wood Tick-trefoil	❖			
Dicentra canadensis	Squirrel-corn	❖			
Epilobium angustifolium	Fireweed		❖		R
Eupatorium maculatum	Spotted Joe Pye Weed			❖	*
Eupatorium perfoliatum	Boneset			❖	
Eupatorium rugosum	White Snakeroot	❖			*
Euthamia graminifolia	Grass-leaved Goldenrod	❖	❖	❖	
Galium aparine	Cleavers	❖			
Geranium maculatum	Wild Geranium	❖			
Helianthus divaricatus	Woodland Sunflower	❖	❖		
Hydrophyllum virginianum	Virginia Waterleaf	❖			
Lespedeza capitata	Round-headed Bush Clover		❖		R
Lilium michiganense	Canada Lily	❖		❖	
Lobelia cardinalis	Cardinal Flower			❖	
Mitella diphylla	Bishop's Cap	❖			
Monarda fistulosa	Wild Bergamot		❖		*
Oenothera biennis	Common Evening-primrose		❖		
Oenothera parviflora	Small-flowered Evening-primrose		❖		
Osmorhiza claytonii	Hairy Sweet Cicely	❖			
Penstemon digitalis	White Beard-tongue		❖		
Penstemon hirsutus	Hairy Beard-tongue		❖		

http://www.halton.ca/PPW/Planning/PDFs/Environment_Stewardship_NativePlantList.pdf

Phlox divaricata	Blue Phlox	❖			
Rudbeckia hirta	Black-eyed Susan		❖		*
Rudbeckia laciniata	Green-headed Coneflower			❖	
Sanguinaria canadensis	Bloodroot	❖			
Solidago caesia	Blue-stem Goldenrod		❖		
Solidago canadensis	Canada Goldenrod		❖		
Solidago flexicaulis	Zig-zag Goldenrod	❖			*
Solidago nemoralis	Gray Goldenrod		❖		
Thalictrum dioicum	Early Meadow Rue	❖			
Verbena hastata	Blue Vervain			❖	
Viola pubescens	Downy Yellow Violet	❖			
Viola sororia	Common Blue Violet	❖			

GRASSES & SEDGES					
SPECIES	COMMON NAME	HABITAT			NOTES
		F	M	W	
Andropogon gerardii	Big Bluestem		❖		R
Carex arctata	Drooping Wood Sedge	❖			
Carex communis	Fiberous Rooted Sedge	❖			
Carex laxiculmis	Spreading Sedge	❖			
Carex pedunculata	Long-stalked Sedge	❖			
Carex pensylvanica	Pennsylvania Sedge	❖			
Carex spp.	Sedge spp.	❖	❖	❖	
Danthonia spicata	Poverty Oat Grass		❖		
Elymus canadensis	Nodding Wild Rye		❖		
Hystrix patula	Bottle-brush Grass	❖			
Schizachyrum scoparius	Little Bluestem		❖		R

For more information:
This list is only one of many sources available to help you design your naturalization or restoration project. The following organizations can provide additional guidance and detail in the selection and design of native plant communities.

Conservation Halton
www.hrca.on.ca
- information on existing natural areas

Society for Ecological Restoration
www.trentu.ca/ser
- publishes source list on native plant suppliers in Ontario and guidelines for project design

North American Native Plant Society
www.acorn-online.com/hedge/cws.html
- information on local wildflower groups, native plant biology and propagation

Carolinian Canada
www.carolinian.org
- information on the unique biology and conservation issues of Canada's most threatened eco-region

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Ecological & Environmental Advisory Committee

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