

## Worksheet #6 – Gardening and Landscaping

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# Worksheet #6a – Landscape Water Efficiency

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Use this worksheet to learn about water efficiency in the landscape.

## ***Why should you be concerned?***

- There is a limited supply of fresh, clean water.
- As water moves through the ground, it is filtered and purified before it is stored in underground aquifers.
- If water is drawn from these aquifers at a rate faster than it can be replenished by the water cycle, we can experience severe shortages and damage to aquatic systems.
- Prolonged temperature changes, such as heat waves, make the problem worse by lowering the groundwater levels even further.
- While the fresh water supply is shrinking, demand from municipalities, industries, and agriculture is always increasing.
- The more water you draw from your well, the greater your ‘cone of influence’ in the surrounding landscape. Minimizing your use of ground and surface water will also minimize your impact on local ecosystems.
- Whether your drinking water comes from a private or a municipal well, we’re all pulling water from the same limited source.

## ***What can you do?***

- 1.** Find out how much water you use in your landscaping and gardening.
- 2.** Choose proper equipment that is water efficient and keep it in good condition. Repair all leaks.
- 3.** Consider plants that grow well in local conditions without a lot of irrigation.
- 4.** Teach children to respect the natural environment. Encourage them to help with recycling, weeding, and conservation. Help them understand how your actions influence the world around you.

# Landscape Water Efficiency: How do you rate?

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
<b>WATER MANAGEMENT AND USE</b>					
<b>1 Knowledge of Water use in the Landscape</b>	Water use is monitored regularly and steps are taken to improve efficiency.		Water use is monitored on occasion.	Water use is not monitored.	<input type="checkbox"/>
	Regular monitoring for leaks. Leaks are fixed immediately.		Leaks are repaired only when they become a problem.	Leaks are not repaired.	<input type="checkbox"/>
<b>2 Watering Equipment Type</b>	Irrigation equipment applies water to plant rooting area only (e.g. drip system).	Low-level sprinkler system.	Mid-level sprinkler or mobile sprinkler head.	Fixed sprinkler head.	<input type="checkbox"/>
<b>3 Watering System</b>	System is properly designed and sized for the size of the garden or landscaped area.			Irrigation system too large for the garden area.	<input type="checkbox"/>
	No ponding of irrigation water.	Water ponds briefly but then infiltrates soil.	Irrigation water ponds but does not run off the property.	Water runoff along the surface and into any underground drains.	<input type="checkbox"/>

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
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**QUALITY OF WASTEWATER** *continued*

**4 Watering your Plants**

Good knowledge of plant water needs and limitations; use of plants with low water needs,

**AND** soil moisture, water application rate, and the volume of water are monitored.

General recommendations followed for water needs of specific plants; plants with low water needs considered,

**OR** soil moisture, water application rate and the volume of water are monitored.

General recommendations for water needs of specific plants known but not always followed.

Water needs of plants are not known.

Watering schedule is adjusted according to rainfall, stage of plant development, use of water gauges, and plant appearance.

Watering schedule is sometimes adjusted according to rainfall, stage of plant development, use of water gauges, and plant appearance.

Monitored watering limited to when establishing new plants.

Watering is not adjusted according to rainfall, stage of plant development, use of water gauges, and plant appearance.

**tip**

Use rain barrels or cisterns to collect irrigation water for plants.

Water only in the early morning.

Water only in the early morning or early evening.

Water only in the late evening, thereby increasing the chance of fungal disease.

Water during the hottest hours of the day.

**tip**

Watering in the morning (versus the evening) lowers the chance of fungal disease on plants.

**tip**

Contact your local municipality for info about local rebates for toilets, rain barrels, and downspout disconnection.

# Resources List

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## Landscape Water Efficiency

### ***For more information...***

#### **Capital Regional District**

Factsheet:

Straight Talk About... Landscape Care During Water-use Restrictions

[crd.bc.ca/water/conservation/outdoorwateruse/index.htm](http://crd.bc.ca/water/conservation/outdoorwateruse/index.htm)

#### **Municipalities**

Contact your municipality regarding water wise programs they may have, e.g. Halton Region Outdoor Water Use Program.

Contact your municipality concerning available financial rebates for water saving devices (e.g. flush toilets, clothes washers), availability of rain barrels. Also some municipalities provide water -wise landscaping advisory services, e.g. Water Smart Peel

#### **Water Efficiency Programs – Toronto Water**

[toronto.ca/watereff/plan.htm](http://toronto.ca/watereff/plan.htm)

#### **Water for Tomorrow**

Multiple on-line resources for water conservation

[waterfortomorrow.ca/en](http://waterfortomorrow.ca/en)

# Worksheet #6b – Natural Shoreline Buffers

Use this worksheet to learn about living within natural buffer areas.

## Why should you be concerned?

- Healthy streams, wetlands, bluffs, and lake shorelines in the Huron watershed are lined and protected by local natural buffers.
- A buffer is an area of natural vegetation extending from the high water mark to the water's edge.
- Natural buffers can include native grasses, forest corridors, dunes, wetlands, beaches, and any native vegetation along the shoreline or bank.
- Natural buffers not only protect the stability of the shoreline, bluff, or bank, but they protect water quality by filtering and purifying water before it enters a watercourse, and by keeping the water cool.
- In order to visually or physically access water, or to maximize areas of lawn or cropland, people sometimes remove all or part of a buffer. This activity weakens the buffer's ability to protect against erosion or poor water quality.
- This leads to the degradation of ecological function. It can also lead to liability cases with neighbours and criminal charges if fish habitat is harmed.
- Protect your land and property from erosion, naturally, and economically.

## What can you do?



Vulnerable stream



Stream with some buffer protection

1. Minimize water access points, avoid locating access ways through Environmentally Sensitive Areas.
2. Maintain the existing buffer(s).
3. Restore buffers where they have previously been removed or degraded, in consultation with your local Conservation Authority.
4. Divert downspouts into screened rain barrels to reduce erosion.

# Natural Shoreline Buffers: How do you rate?

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
<b>1 Puncturing the Buffer</b>	Buffer is not punctured.	Only a small puncture in buffer.	Buffer is punctured but vegetation is allowed to re-establish naturally,  <b>OR</b> punctures are concentrated in one area.	Buffer mostly punctured or non-existent,  <b>OR</b> vegetation cleared and prevented from re-establishing.	<input type="checkbox"/>
<b>2 Size of Buffer</b>	Buffer is greater than 30m (100 feet) wide and in ESA areas, buffer is 150m (500 feet) wide.	Buffer is at least 30m (100 feet) wide.	Buffer is less than 30 m (100 feet) wide.	There is no buffer present. Grass/lawn extends to property limit.	<input type="checkbox"/>
<b>3 Composition of Buffer</b>	Buffer comprised of native vegetation.	Buffer comprised mostly of native vegetation and some non-invasive, introduced species.	Buffer comprised of some native vegetation and mostly non-invasive introduced species.	Buffer comprised of no native vegetation and mostly invasive and/or non-invasive introduced species.	<input type="checkbox"/>
<b>4 Property Maintenance</b>	Aware of any especially sensitive buffers, including wetlands, bluffs, ESA, ANSI, and active in protecting them.	Aware of any especially sensitive buffers, including wetlands, bluffs, ESA, ANSI, and plans to protect them.	Aware of any especially sensitive buffers including wetlands, bluffs, ESA, ANSI. No plans to protect them.	No awareness of especially sensitive buffers such as wetlands, bluffs, ESA, ANSI, and no plans to protect them.	<input type="checkbox"/>
<b>tip</b> Stop or reduce mowing of areas adjacent to streams, ponds, or wetlands	All trees, woody debris, and leaves are left in place.	Vegetation alterations are limited to pruning branches from trees to provide visual access.	Trees removed to provide access are concentrated in one area. Other vegetation is not removed.	Trees are removed throughout to provide visual or physical access.	<input type="checkbox"/>

# Resources List

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## Natural Shoreline Buffers

### ***For more information...***

#### **Book**

Hilts, S., Mitchell, P. 2012. *Natural Pond Management Handbook*.

#### **Conservation Authorities**

Contact your local Conservation Authority for information on shoreline buffer development options. CA listings are available at [conservation-ontario.on.ca](http://conservation-ontario.on.ca)

#### **Lake Huron Centre for Coastal Conservation**

[lakehuron.on.ca/](http://lakehuron.on.ca/)

#### **LandOwner Resource Centre**

Extension Notes: Water and Wetlands

[rconline.com/Extension\\_Notes\\_English/water/water\\_index.html](http://rconline.com/Extension_Notes_English/water/water_index.html)

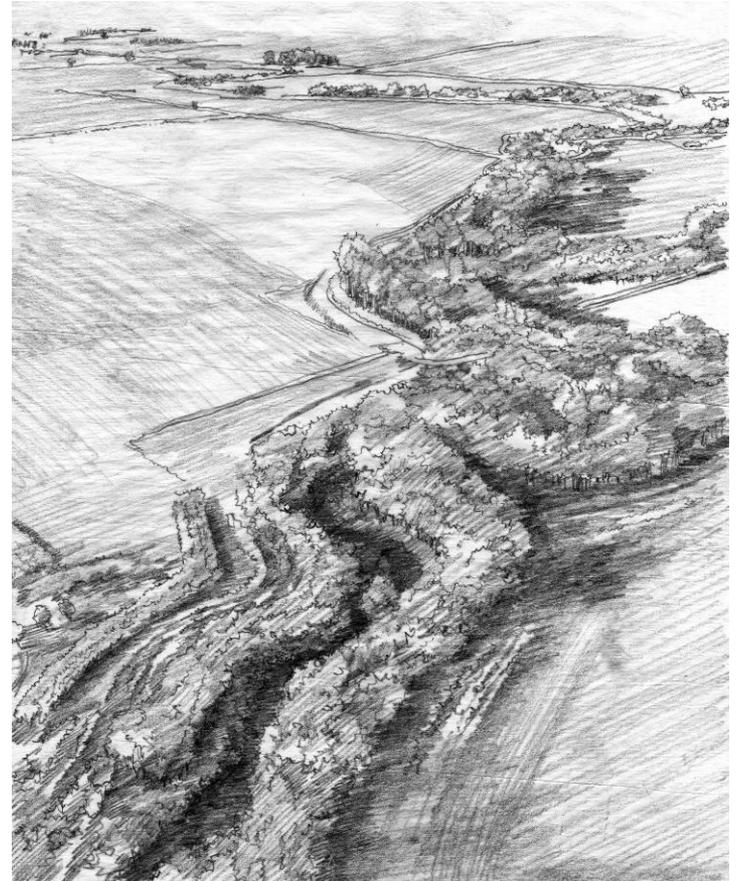
#### **Service Ontario Publications**

**Booklet:**

Best Management Practices: Buffer Strips (pub no. BMP15E)

#### **Solutions for Shoreline Erosion**

[rvca.ca/PDF/SolutionsforShorelineErosion\\_PDF\\_EN1.pdf](http://rvca.ca/PDF/SolutionsforShorelineErosion_PDF_EN1.pdf)



A well-established stream buffer, as seen from the air

# Worksheet #6c – Trees Around the Homestead

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Use this worksheet to assess trees around your home or cottage.

## Why should you be concerned?

- Ecologically, trees provide shelter and a food source for wildlife. Their presence is critical to the health of their ecosystems and watersheds.
- The roots of trees and shrubs anchor the soil, helping to stabilize slopes and prevent the loss of soil through erosion.
- Trees remove carbon dioxide, one of the main gases involved in climate change, from the atmosphere. They also absorb and store many pollutants that are emitted into the air from industry and cars. This helps to improve the quality of air that we breathe.
- Trees can be natural air conditioners. If planted strategically around windows, doors, and outdoor activity areas, trees (especially larger, mature ones) can provide shade from the hot summer sun.
- Similarly, in winter, evergreen trees can provide shelter from cold winds. This can lower the heat loss from buildings and help reduce heating costs.
- From a real-estate perspective, trees add value to a property. They not only help to create an established feeling in a neighbourhood or property, they also improve the appearance.

## What can you do?

1. Protect existing trees from animal browsing, insect and disease infestation, and physical damage from machinery or weather events.
2. Plant appropriate trees where possible. Check with *Worksheet #6d - Plant Selection and Use*, or your local Conservation Authority to ensure that you are not planting invasive species. Native plants are best suited to local conditions.
3. Identify mature and rare trees that you want to protect. Include these in a long-term management plan.
4. Select and plant trees carefully so that they do not become hazards to personal safety, to your home or to your property. Do not plant trees on or too near to your septic system.

### tip

Trees play an essential role in safeguarding a variety of species and ecosystems. Learn about the Ontario Government Plan to Conserve Biodiversity at [mnr.gov.on.ca/en/Business/Biodiversity/](http://mnr.gov.on.ca/en/Business/Biodiversity/).

# The Value of a Tree: How do you rate?

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating	
<b>TREE ECOLOGY</b>						
<b>1 Understanding and Appreciation for the Role of Trees in Ecosystem Health</b>	Proper instructions followed when planting trees,  <b>AND</b> tree species selected to suit existing site conditions,  <b>AND</b> priority given to native species suited to your location.	Trees planted following proper instructions,  <b>AND</b> tree species selected to suit existing site conditions.	Non-invasive, exotic species are planted.	No consideration given to tree ecology in selection of new trees,  <b>OR</b> invasive species are planted.	<input type="checkbox"/>	
	<b>tip</b> Before clearing or trimming trees on a slope, get a resource person to help you with your plans.	Standing, non-hazard dead trees are left in place to provide habitat. Only hazard trees are felled and left to rot in place.	Hazard or other trees that are felled are left to rot in place.	Some wood is left to rot and provide habitat while some is removed.	All felled wood is removed from your property.	<input type="checkbox"/>
	<b>tip</b> Before you cut a tree down, consider the time it took for it to grow to its current size, and check local tree bylaw requirements.	Trees and shrubs on bluffs and other slopes are protected and never removed.	Only some trees (e.g., hazard trees) are removed from bluffs and other slopes. Great care is taken to ensure that slope stability is not compromised.	Many trees are removed from bluffs and other slopes. No care is taken to ensure that slope stability is not compromised.	All natural vegetation is removed from bluffs and other slopes,  <b>OR tree limbs that overhang waterways or shores are cut.*</b>	<input type="checkbox"/>

\* These conditions may violate provincial legislation or municipal by-laws.

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
<b>TREE MANAGEMENT</b>					
<b>2 Tree Maintenance and Care</b>	All trees are protected against browsing, injury, and potential diseases,  <b>AND</b> no healthy trees are removed.	Trees in shoreline and watercourse buffers are protected,  <b>AND</b> no healthy trees are removed.	Trees are not protected,  <b>OR</b> some healthy trees are removed.	<b>Lot is generally cleared.*</b>	<input type="checkbox"/>
	Branch pruning is done properly and at the right time to provide views from a distance.	Branch pruning is irregular but is done properly.		Trees are pruned carelessly or without regard for tree health and vigour.	<input type="checkbox"/>
	Trees are watered properly and regularly for a minimum of three years after planting.  <b>AND</b> mulch is properly piled at least 10 cm (3 inches) from tree trunk.	Trees are watered during hot, dry periods for the first three years after planting.  <b>AND</b> mulch is properly piled at least 10 cm (3 inches) from tree trunk.	Trees are watered irregularly,  <b>AND</b> mulch is properly piled at least 10 cm (3 inches) away from tree trunk.	Watering is inadequate during the first three years following planting,  <b>OR</b> mulch is piled too close to the tree trunk, causing damage to bark.	<input type="checkbox"/>
<b>3 Knowledge of Issues Related to Tree Health</b>	Have knowledge of potential insect and disease problems in your area,  <b>AND</b> a resource person is consulted to assess tree health and development and to develop a long-term management plan.	A professional is hired to assess tree health and development and to develop a long-term management plan.	Existing trees are checked periodically for disease or insect infestation.	No consideration is given to tree health or insect problems in your area.	<input type="checkbox"/>

**tip**

Protect trees during construction by ensuring that there is no disturbance within the drip line.

**tip**

Be aware of the source of new trees when purchasing and ensure they are infection-free before planting.

**tip**

If necessary, ensure trees are properly staked after planting and that stakes are removed after 2 years.

\* These conditions may violate provincial legislation or municipal by-laws.

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
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**TREE MANAGEMENT**

**4 Tree Root System**

Tree rooting zone has adequate soil volume and conditions appropriate to the tree species.

Tree rooting zone is adequate but may need supplemental feeding.

Tree rooting zone, or the area available for root growth, is at least 60% of appropriate volume and may require supplemental watering during dry spells.

Soil volume and growing conditions of rooting zone are inadequate for the tree species selected.

**tip**

Most tree roots extend beyond the drip line of the tree.

**5 Soil**

Tree species selected is well suited to existing soil conditions, especially soil structure and moisture availability.

Tree species selected is tolerant of existing soil conditions.

Tree species selected will survive existing soil conditions with occasional supplemental feeding and watering.

Tree species selected is unsuited to existing soil conditions, especially moisture availability.

**tip**

Cues for proper species selection can be gained by looking at nearby native or non-invasive trees that are thriving in the same conditions as your property.

**tip**

Never pile mulch too close to the trunk of a tree. This can damage the bark, possibly girdling and killing the tree.

**tip**

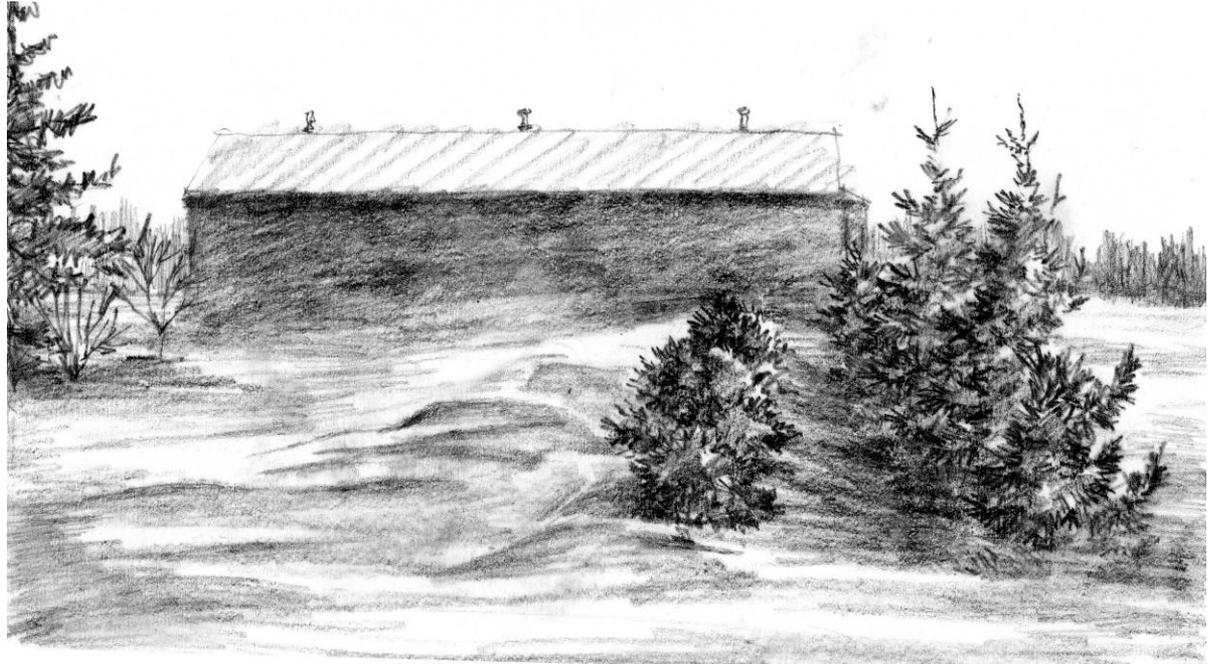
Never plant trees within the septic system area (tank or leaching field).

# Factsheet: Windbreaks and Shelterbelts

## *Creating comfort and protecting your property*

For the most part synonymous, a *windbreak* or *shelterbelt* is made up of one or more rows of trees or shrubs designed and situated to provide shelter from the wind. The term *shelterbelt* is generally used when the location and function is to protect buildings and homesteads.

Windbreaks and shelterbelts help reduce the impacts of blowing winds. They can help to keep heated buildings warmer, reducing energy use and costs. They provide screening for the home from adjacent roads and neighbours, also reducing dust and noise. In fields, soil erosion is checked and crops are less stressed from strong winds. Windbreaks and shelterbelts can also act as a living snow fence, reducing snow accumulation on roads and around buildings and yards and parking areas. They also serve to beautify a property and the landscape.



Windbreaks and shelterbelts also serve as wildlife habitat. Certain birds may nest within them and they serve as corridors for travel for other creatures.

Depending on the specific need, the design of a windbreak or shelterbelt can be varied as to the density, width, and height. A dense, wider design will provide more protection against strong winds and provide more wildlife habitat. Height will determine the “shadow” of the effect, a factor important when one of the functions is as a snowfence.

Generally, conifers are desirable. However, deciduous trees and shrubs can also be incorporated. *See the Resources List for sources of more information.*

# Resources List

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## The Value of a Tree

### For more information...

#### **Book**

Davis, C., Meyer, T. 2004. *Field Guide to Tree Diseases of Ontario*. Sault Ste. Marie, ON: Natural Resources Canada.

#### **Conservation Authorities**

Contact your local Conservation Authority for information on trees for your specific area. CA listings are available at [conservation-ontario.on.ca](http://conservation-ontario.on.ca)

Factsheet: Buffer Strips and Swales

[creditvalleyca.ca/wp-content/uploads/2011/02/FS01-BufferStripsandSwales.pdf](http://creditvalleyca.ca/wp-content/uploads/2011/02/FS01-BufferStripsandSwales.pdf)

#### **Forest Gene Conservation Association**

On-line guide to tree and shrub species native to your local area  
[fgca.net](http://fgca.net)

#### **LandOwner Resource Centre**

Extension Notes: Forests

[lrconline.com/Extension\\_Notes\\_English/forestry/for\\_index.html](http://lrconline.com/Extension_Notes_English/forestry/for_index.html)

#### **Ontario Woodlot Association**

[ont-woodlot-assoc.org](http://ont-woodlot-assoc.org)

#### **Society for Ecological Restoration (Ontario Chapter)**

Native Plant Resource Guide

[serontario.org](http://serontario.org)

#### **Stewardship Network of Ontario**

[stewardshipnetwork.ca](http://stewardshipnetwork.ca)

#### **Ontario Forestry Association**

[oforest.on.ca](http://oforest.on.ca)

#### **Ontario Ministry of Natural Resources**

[mnr.gov.on.ca](http://mnr.gov.on.ca)

Biodiversity: It's in Our Nature

[mnr.gov.on.ca/en/Business/Biodiversity/](http://mnr.gov.on.ca/en/Business/Biodiversity/)

#### **Invasive Species Strategic Plan**

[mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@biodiversity/documents/document/stdprod\\_097634.pdf](http://mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@biodiversity/documents/document/stdprod_097634.pdf)

#### **Trees Ontario**

[treesontario.ca](http://treesontario.ca)

# Worksheet #6d – Native Plant Selection and Use

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Use this worksheet to help select appropriate plants for your landscape.

## ***Why should you be concerned?***

- Native plants have evolved as part of a greater ecological community. They are well adapted to local conditions, and generally have few disease or insect problems.
- Using native species helps to integrate your property into the greater landscape context.
- Native plants are a valuable food source for insects and native wildlife. They also provide valuable habitat for many kinds of species including ‘Species-at-Risk’.
- Invasive species can spread into other areas and are difficult to eradicate. They can also introduce disease and require more maintenance such as watering and fertilizing.
- Avoid extensive lawns because they reduce biodiversity.
- Extensive lawns also contribute to erosion and increase the potential for slope instability.

## ***What can you do?***

- 1.** Inform yourself of the plant community in which you live and select plants with the help of your local Conservation Authority, Naturalist Club, or a reputable nursery.
- 2.** Never plant invasive plants on your property and understand which invasive species already exist in your area.
- 3.** Know your soil type and depth. Some areas in the Lake Huron watershed have very shallow soils.
- 4.** Reduce your lawn area to only what is needed for particular activities and keep it as far as possible from any waterbody or shoreline.
- 5.** Use low-maintenance plants that don’t require watering or fertilizing.
- 6.** Do not dispose of plant materials in natural areas as they can spread invasive species through seeds and/or smother native plants. Instead, compost your garden waste either in a back yard composter or use your municipal compost program where the heat will kill any remaining seed and prevent the spread of invasive species.

# Native Plant Selection and Use: How do you rate?

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
<b>1 Selection of Non-invasive Plants</b>	No use or presence of invasive plants on property.	No new planting of invasive plants,  <b>AND</b> measures taken to eliminate existing invasive plants.	No new planting of invasive plants.	Continued use of invasive plants.	<input type="checkbox"/>
<b>Control of Invasive Plants</b>	Complete eradication and proper disposal of existing invasive plants on your property.	Long-term management plan for the eradication of existing invasive plants.	Short-term management plan for the eradication of existing invasive plants.	No attempts to eradicate invasive plants.	<input type="checkbox"/>
<b>Selection of Native and Non-invasive Non-native Plants</b>	Match plant selection to your soil conditions,  <b>AND</b> only native plants used.	Plant selection suits local soil and climate conditions,  <b>AND</b> non-invasive plants selected.	Occasional addition of nutrients to support non-invasive plants.	Plant selection does not suit local soil and climate conditions.	<input type="checkbox"/>

## tip

When selecting any plant, consider its size at maturity and determine if it is appropriate to the space available.

When planting in a floodplain, ensure that plants can tolerate seasonal flooding conditions.

## tip

Test your soil for nitrogen, phosphorous and potassium levels before adding nutrients. Contact a soil testing lab for more details on soil sampling.

## At the Nursery: What you should ask...

1. What native, local plants do you have?
2. Are they nursery grown or were they harvested from the wild?
3. Is there potential for invasion?
4. How can you control or eradicate it if necessary?
5. What are the nutrient and water requirements?

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
<b>2</b> <b>Monitoring of Invasive Plants</b>	Regular checks to ensure that invasive species have not established in gardens,  <b>AND</b> once spotted, invasive plants are immediately disposed of in an appropriate manner.	Regular checks to ensure that invasive species have not established in gardens.	Occasional checks to ensure that invasive species have not established in gardens,  <b>OR</b> once spotted, invasive plants are immediately disposed of in an inappropriate manner.	No checks to ensure that invasive species have not established in gardens,  <b>OR</b> once spotted, invasive plants are not disposed.	<input type="checkbox"/>
<b>3</b> <b>Lawns</b>	Lawn is kept to a minimum size and at a maximum distance from any water's edge,  <b>AND</b> no use of pesticides, fertilizers or irrigation.	Lawn is kept to a minimum size,  <b>OR</b> at a maximum distance from any water's edge.	Non-invasive plants used that tolerate some mowing and drought.	Much of property is given over to lawn,  <b>OR</b> lawn is used to the water's edge.	<input type="checkbox"/>
<div style="border: 1px solid black; padding: 5px;"> <p><b>tip</b> If planting a traditional lawn, choose a grass that is hardy, pest resistant and non-invasive.</p> <p>During hot, dry weather, allow grasses to go dormant.</p> </div>	Learn about appropriate alternative groundcovers from local experts and plant them,  <b>AND</b> encourage local nurseries to stock native groundcovers.	Allow for a mix of native and non-invasive plants that tolerate some mowing and drought.	Establishment of new lawn with seed, subject to erosion.	Species used require extensive use of irrigation, fertilizer, or pesticides,  <b>OR</b> use of invasive species.	<input type="checkbox"/>
<div style="border: 1px solid black; padding: 5px;"> <p><b>tip</b> To gradually remove or reduce the size of your lawn, stop mowing. Gradually, native plants will return.</p> </div>		Sod is used to establish new lawn.		Bare soil.	<input type="checkbox"/>

# Lawn Care: How to have a healthy, low-maintenance lawn

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## tip

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### *When to water? How much?*

- In hot, dry weather and during water shortages, allow grass to become dormant. Water 7-12 mm (0.25- 0.5 in) every 2 or 3 weeks. Grass will look brown but it is dormant, not dead.
- Encourage deep rooting by watering infrequently but thoroughly. Your lawn needs no more than 2.5cm (1 inch) of water per week.

## tip

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### *Fertilizing*

- Leaving grass clippings on the lawn can increase soil fertility up to 50%.
- If you do use a fertilizer, choose a slow-release product. The nutrients are released slowly, preventing 'lawn burn' and groundwater contamination.

## tip

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### *When to mow? How?*

- Mow when the grass is as dry as possible.
- Leave your grass at least 8 cm (3 in) long. This encourages root growth and lessens moisture loss.
- Aerating your lawn improves rooting conditions.

## tip

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### *Dealing with weeds*

- Remove unwanted plants from lawn by hand using long handled tools. It is easier to remove weeds when the ground is damp. Alternatively, pour boiling water over the exposed roots of unwanted plants.
- Spread a layer 8-10 cm (3-4 in) thick of natural mulch overtop of your garden. This will prevent weed seeds from germinating.
- If you do use a pesticide, directly spray only those plants that you want to get rid of. Avoid spraying the entire lawn.
- Appropriately dispose of invasive plants. Check the Resources List for information on the control of invasive species.

# Factsheet: Invasive Species on Your Property

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## Why should you be concerned?

- Ecosystems and biodiversity can be greatly compromised by invasive species. Not all introduced plants are invasive; however, it is important to recognise that flora and fauna should remain in their native habitat. Fewer native plants results in decreased biodiversity.
- Invasive species out-compete native species, lack natural predators, grow aggressively, reproduce rapidly, and are difficult to control. Problems arise when species are moved (e.g. in a bait bucket) to an area outside of its natural range and compete with other ecosystems for resources in a new environment.
- Invasive species have the ability to establish quickly and thrive in new or disturbed areas.
- Aquatic invasive plants in and around waterbodies can result in a variety of negative economic, ecological, and social outcomes, such as slowing down water flow and altering oxygen levels.
- As a rural landowner, you should check your property on a regular basis to ensure that invasive plants have not established themselves.
- Provincial regulations and policies provide guidelines on the prevention, management, and control of invasive species. To help prevent the spread of invasive species, Ontario's Ministry of Natural Resources, Ministry of Agriculture, Food and Rural Affairs, Ministry of the Environment, and Ministry of Transportation developed the **Ontario Invasive Species Strategic Plan**.

## What can you do?

1. Learn about the identification, control measures, and removal of terrestrial and aquatic invasive species that are a threat to the Ontario landscape.
2. Avoid planting invasive species in your garden. Purchase natives or non-invasive species from a local and reputable garden supplier.
3. Dispose of invasive plants from your property in a garbage bag. Never discard them in the compost or in the natural environment; in doing so you avoid annual seed production and quick establishment of dense colonies. Yard waste may contain invasive plant seeds and therefore should always be disposed of through your municipality or in your backyard composter.
4. Make sure to inspect your boat, trailer, and other equipment after each use. Before moving to a new waterbody, ensure that all plants, animals, and mud have been removed from your vessel.
5. Before leaving natural areas, always clean off your bicycle, hiking boots or clothes, and brush your dog's fur to avoid the transfer and spread of invasive plants and their seeds to new areas.
6. Volunteers are sometimes needed to help with locating and controlling invasive species. For invasive plant management projects in your community, refer to the Resources List for contact information of various organizations involved in Invasive Species awareness and prevention programs.

# Dangerous Beauty! The Problem with Invasive Species

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## Be aware of the plant that can grow anywhere...

A well-intentioned ‘gift’ from a friend or neighbour may end up taking over your garden and spreading into nearby plant communities where it can have a disastrous impact on the health of that ecosystem. Being invasive depends on site conditions. It is possible that a well-contained plant in your garden may run rampant in a friend’s garden.

Never accept or give plants if you are unsure. The following is a *partial* list of invasive plants that are of concern in Ontario. Check with your Conservation Authority to learn if additional plants are invasive in your area.

## AVOID USING THESE PLANTS!

### Trees

- Manitoba maple (*Acer negundo*)
- Norway maple (*Acer platanoides*)
- Horse chestnut (*Aesculus hippocastanum*)
- European birch (*Betula pendula*)
- Russian Olive (*Elaeagnus angustifolia*)
- Autumn Olive (*Elaeagnus umbellata*)
- White mulberry (*Morus alba*)
- Scots pine/Scotch pine (*Pinus sylvestris*)
- White poplar/Silver poplar (*Populus alba*)
- Black locust (*Robinia pseudoacacia*)
- European mountain ash (*Sorbus aucuparia*)
- Siberian Elm (*Ulmus pumila*)

### Shrubs

- Japanese barberry (*Berberis thunbergii*)
- Oriental bittersweet (*Celastrus orbiculatus*)
- European privet (*Ligustrum vulgare*)
- Japanese honeysuckle (*Lonicera japonica*)
- Common Buckthorn (*Rhamnus cathartica*)
- Glossy Buckthorn (*Rhamnus fragula*)
- Multiflowered rose (*Rosa multiflora*)
- European mountain ash (*Sorbus aucuparia*)
- Wayfaring tree (*Viburnum lantana*)
- European highbush cranberry (*Viburnum opulus*)

### Herbaceous Plants

- Goutweed (*Aegopodium podagraria*)
- Garlic mustard (*Alliaria petiolata*)
- Leafy spurge (*Euphorbia esula*)
- Giant Hogweed (*Heracleum mantegazzianum*)
- European frogbit (*Hydrocharis morsus-ranae*)
- Himalayan Balsam (*Impatiens glandulifera*)
- Yellow flag (*Iris pseudacorus*)
- Silver dollar (*Lunaria annua*)
- Chinese silver grass (*Miscanthus sinensis*)
- Reed canary grass (*Phalaris arundinacea*)
- Common reed (*Phragmites communis*)
- Kentucky blue grass (*Poa pratensis*)
- Japanese knotweed (*Polygonum cuspidatum*)
- Periwinkle, Myrtle (*Vinca minor*)
- Dog-Strangling Vine (*Vincetoxicum rossicum*)

# Resources List

## Native Plant and Selection Use

### For more information...

#### **Books**

Deacon, G. 2006. *Green Tips: How to Save Money and the Planet*. Toronto, ON: Green Living Enterprises.

Rubin, C. 1990. *How to get your Lawn and Garden off Drugs: Pesticide-free Gardening for a Healthier Environment*. Madeira Park, BC: Harbour Publishing.

#### **Conservation Authorities**

Contact your local Conservation Authority for information on native plant selection for your area. CA listings are available at [conservation-ontario.on.ca](http://conservation-ontario.on.ca)

#### **Credit Valley Conservation**

##### **Invasive Species Program –**

[creditvalleyca.ca/watershed-science/plants-animals-communities/invasive-species/](http://creditvalleyca.ca/watershed-science/plants-animals-communities/invasive-species/)

##### **Invasive Species Strategy –**

[creditvalleyca.ca/wp-content/uploads/2011/02/InvasiveSpeciesStrategy-draft.pdf](http://creditvalleyca.ca/wp-content/uploads/2011/02/InvasiveSpeciesStrategy-draft.pdf)

##### **Invasive Species Resources & Tools –**

[creditvalleyca.ca/watershed-science/plants-animals-communities/invasive-species/resources/](http://creditvalleyca.ca/watershed-science/plants-animals-communities/invasive-species/resources/)

##### **Native Plant Nurseries and Seed Sources –**

[creditvalleyca.ca/wp-content/uploads/2011/03/CVCNativePlantNurseries.pdf](http://creditvalleyca.ca/wp-content/uploads/2011/03/CVCNativePlantNurseries.pdf)

##### **Native Plants for Your Garden -**

[creditvalleyca.ca/wp-content/uploads/2011/02/1068-PlantCardsForWeb.pdf](http://creditvalleyca.ca/wp-content/uploads/2011/02/1068-PlantCardsForWeb.pdf)

#### **Ontario Ministry of Agriculture, Food and Rural Affairs**

Ontario Weeds – Weeds Gallery

[omafra.gov.on.ca/english/crops/facts/ontweeds/weedgal.htm](http://omafra.gov.on.ca/english/crops/facts/ontweeds/weedgal.htm)

#### **Ontario Ministry of Natural Resources**

Ontario Invasive Species Strategic Plan

[mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@biodiversity/documents/document/stdprod\\_097634.pdf](http://mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@biodiversity/documents/document/stdprod_097634.pdf)

#### **ServiceOntario – e-Laws**

Weed Control Act

[e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_gow05\\_e.htm](http://e-laws.gov.on.ca/html/statutes/english/elaws_statutes_gow05_e.htm)

#### **Ontario's Invading Species Awareness Program**

[invadingspecies.com](http://invadingspecies.com)

#### **Canadian Wildlife Federation**

Invasive Species Encyclopedia

[cwf-fcf.org/en/discover-wildlife/resources/encyclopedias/invasive-species\\_resource.html](http://cwf-fcf.org/en/discover-wildlife/resources/encyclopedias/invasive-species_resource.html)

## Worksheet #6e – Nutrients

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Use this worksheet to help select appropriate plants for your landscape.

### ***Why should you be concerned?***

- Nutrients have an important and beneficial role in plant growth and soil amendments. As plant roots take up nutrients from the soil over time, the soil may become depleted, resulting in less vigorous plant and lawn growth.
- Over-application of fertilizers can result in fertilizer running off the garden or lawn. This can contaminate both groundwater and surface water, and encourage algae and algal blooms.
- Our activities both inland and along shorelines affect the nutrient-loading of our streams, rivers, and lakes.
- Water quality protection includes nutrient management and the appropriate use of fertilizers.
- We can all potentially contribute to harmful eutrophication, reducing water quality and thereby recreational pleasure.

### ***What can you do?***

1. Test to find out the nutrient level in your soil before adding any nutrients.
2. Effectively manage nutrients in an environmentally responsible manner.
3. Reduce your nutrient application volume.
4. Plant species of shrubs and plants that require little or no fertilizing.

### **N-P-K**

<b>Nitrogen (N)</b>	<b>Phosphorous (P)</b>	<b>Potassium (K)</b>
For leaf development and vivid green color.	For root growth.	For root development and disease resistance.

# Nutrients: How do you rate?

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
<b>FERTILIZER USE AND APPLICATION</b>					
<b>1</b> Understanding of Plant Requirements and Fertilizer Use	Good understanding of plant nutrient requirements,  <b>AND</b> soil is tested to determine nutrient requirements before fertilizing. Fertilizer used accordingly.	Good understanding of plant nutrient requirements,  <b>AND</b> plants are monitored regularly to detect nutrient deficiencies. Fertilizer used accordingly.	Basic understanding of plant nutrient requirements,  <b>AND</b> occasional monitoring for plant nutrient deficiencies. Fertilizer used regularly.	No consideration for soil condition or plant nutrient requirements,  <b>OR</b> excessive use of fertilizer.	<input type="checkbox"/>
	Fully-composted manure and yard waste are used appropriately to amend soil,  <b>AND</b> no additional fertilizer is used.	Fully-composted manure and yard waste are used appropriately to amend soil,  <b>AND/OR</b> some controlled spot use of fertilizer as necessary.	Occasionally apply fertilizer over the entire garden and/or lawn.	Over-application of nutrients,  <b>OR</b> poor care taken in following package instructions.	<input type="checkbox"/>
	Compost produced on-site.	Local, well-rotted compost or manure is used,  <b>OR</b> slow-release synthetic fertilizer is used.	Well-rotted compost or manure used but not obtained from local sources,  <b>OR</b> quick-release fertilizer used but nutrient composition appropriate to situation.	A quick-release synthetic/commercial fertilizer is over-used.	<input type="checkbox"/>

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
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**FERTILIZER USE AND APPLICATION** *continued*

<b>2</b> Application Practices and Water Access	Nutrient application is a minimum of 30 metres (100 feet) from wells, water intakes, streams and water courses,	Nutrient application is a minimum of 30 metres (100 feet) from wells, water intakes, streams and water courses,	Nutrient application is a minimum of 30 metres (100 feet) from wells, water intakes, streams and water courses.	Fertilizer, compost or manure applied to frozen or saturated soils, or on slopes where surface run-off is likely,	<input type="checkbox"/>
	<p><b>AND</b> a permanently vegetated buffer, greater than 3 metres (10 feet) wide runs between the area of nutrient application and any well, water intake, stream or water course,</p> <p><b>AND</b> check to ensure that heavy rain or thunderstorms are not forecast for at least 24 hours following application.</p>	<p><b>AND</b> check to ensure that heavy rain or thunderstorms are not forecast for at least 24 hours following application.</p>	<p><b>OR</b> closer than 30 metres (100 feet) to wells, water-intakes, streams and water courses.*</p>		

**tip**

NEVER compost invasive species unless you are sure that there are no seeds present and that composting will effectively kill the root system.

**COMPOST MANAGEMENT**

<b>3</b> Composting Practices	Household compost is rodent proof,	Compost composition is monitored and mixed regularly,	Household compostable waste is sent to local composting facility.	Compostable material not composted.	<input type="checkbox"/>
	<p><b>AND</b> compost composition is monitored and mixed regularly,</p> <p><b>AND</b> compost is used on-site.</p>	<p><b>AND</b> compost used on-site.</p>			

\* These conditions may violate provincial legislation or municipal by-laws.

Topic	Best <b>4</b>	Good <b>3</b>	Fair <b>2</b>	Poor <b>1</b>	Your Rating
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**WATER CONTAMINATION**

<p><b>4 Artificial Water Features and Ponds</b></p>	<p>There is no <u>artificial</u> water feature or pond on the property.</p>	<p>Water feature and landscaping are designed to minimize the amount of light falling on water feature,</p> <p><b>AND</b> water is continuously moving in water feature,</p> <p><b>AND</b> water feature(s) are located as far from waterways or open natural water as possible.</p>	<p>Water feature(s) are located as far from waterways or open natural water as possible.</p>	<p>Indiscriminate design, placement, and chemical treatment of artificial water features.</p>	<input type="checkbox"/>
<p><b>5 Livestock Access</b></p>	<p>Livestock are restricted from all water features.</p>	<p>Livestock are restricted from accessing water features except at controlled crossing points or controlled points of access.</p>	<p>Livestock have unrestricted access to all water features, <b>BUT</b> alternative, acceptable source is available.</p>	<p>Livestock have unrestricted access to all water features and no alternative source.</p>	<input type="checkbox"/>

**tip**

If you are experiencing problems with algae in your water feature or pond, be sure to properly diagnose the cause of the problem before attempting treatment.

# Tips About Cosmetic Pesticides & Alternatives

## Why should you be concerned?

- Ontario's cosmetic pesticides ban is in effect to reduce the unnecessary use of pesticides for cosmetic purposes. The ban improves human health and the natural environment by protecting families, especially children, from the potential risk of pesticides in and around the household.
- Under the Pest Control Products Act, a pesticide must be registered by Health Canada's Pest Management Regulatory Agency and classified by the Ministry of the Environment for legal sale and use in Ontario, for instance:
  - Class 7 'controlled sales' products cannot be used on driveways, patios, lawns, or gardens to control weeds or other vegetation as these are cosmetic uses.
  - Class 10 pesticides are allowed under the poisonous plant exception.
  - Class 11 pesticides (lower risk pesticides and biopesticides) can be used to manage some common pests of lawns and gardens (e.g. weeds, insects, and plant diseases).

## What can you do?

1. Inform yourself of the Pesticides Act ban and the alternatives.
2. Do not use domestic products which contain glyphosate or glufosinate ammonium in ready-to-use containers unless your intended purpose is to protect the health or safety of your family (e.g. killing wasps or treating poison ivy).
3. Don't over-fertilize your lawn and/or garden, and follow label directions carefully. It is best to use organic products, such as finished compost and grass clippings, that can be applied throughout the growing season.
4. **Using home-made pesticides is illegal.** Contact a certified pesticide applicator for further information on the cosmetic pesticides ban and details on which pesticides can be used under licensed professionals.

### Ontario's Cosmetic Pesticides Ban – What You Need to Know

Ontario Regulation 63/09 made under the Pesticides Act bans cosmetic pesticide use in Ontario. The ban prohibits the use of class 9 pesticides for cosmetic purposes on lawns, gardens, parks and school yards, and includes many herbicides, fungicides, and insecticides. Over 250 products are banned for sale and more than 90 pesticide ingredients are banned for cosmetic uses. **Exceptions include:** The use of products that contain Class 9 pesticides for non-cosmetic purposes, to protect the health of pets, or to control indoor pests that can cause structural damage to the home. Class 8 domestic products are banned for sale and use. Under certain conditions for the protection of a natural resource, landowners can apply to the appropriate Director at the Ministry of Natural Resources (MNR) to receive a written opinion that states a Class 9 pesticide use is necessary. For more information contact the MNR or the Ministry of the Environment.

# Tips About Cosmetic Pesticides & The Alternatives

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Successful landscapes rely on preventative measures and careful monitoring, just like your health. Timely effort saves you time and hassle later on – and your garden will thank you for it!

- Learn about your garden's current situation, such as nutrients, soil type, and moisture/shade conditions. Add only what is needed, and work with what can't be changed.
- Keep your lawn fed (compost/manure/fertilizer), aerated, de-thatched, and maintain adequate soil moisture. Most problems can be avoided if your lawn is in good shape. Lawn grasses go dormant naturally in the last days of summer and will green up with fall rains.
- Try old-fashioned remedies for pests, such as borax sprinkled around ant nests, insecticidal soap for sap-suckering insects, and baking soda or sulphur for fungal diseases.
- To make plants less appetizing, use a garlic spray (10 cloves of garlic in 1 litre (4 cups) of water and heated for 5 minutes).
- Bring in reinforcements. Create suitable habitat for birds that will eat insect pests.

These are just a few ideas – more abound in literature, on the web and with your local nursery or plant club. Just ask about pesticide alternatives!



# Resources List

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## Nutrients

### For more information...

#### **Books**

Smillie, J. and G. Gershuny. 1999. *The Soul of Soil* (4th Ed.) White River Junction, Vermont: Chelsea Green Publishing Company. ISBN 1-890132-31-4

#### **Composting Council of Canada**

[compost.org](http://compost.org)

#### **Landscape Ontario**

[landscapeontario.com](http://landscapeontario.com)

#### **Montreal Botanical Garden**

Fertilizers and Soil Amendments  
[espacepourelavie.ca/en/fertilizing](http://espacepourelavie.ca/en/fertilizing)

#### **North Shore Recycling Program**

GardenSmart  
[nsrp.bc.ca](http://nsrp.bc.ca)

#### **Ontario Horticultural Association**

[gardenontario.org](http://gardenontario.org)

#### **Ontario Ministry of Environment**

Factsheets:

Backgrounder: Ontario's Cosmetic Pesticides Ban, 2009  
[ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01\\_079826.pdf](http://ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079826.pdf)

Green Tips: Six Good Reasons to Grasscycle (pub no. 3684e)

[ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01\\_079368.pdf](http://ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079368.pdf)

#### **Soil Testing**

For a soil testing lab near you, conduct an internet search or contact your local library for reference assistance.