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Cornell University
Cooperative Extension
of Suffolk County



Department of
Environmental
Conservation

IMIDACLOPRID: Reducing Risks to Groundwater from Commercial Landscape Tree and Shrub Uses

Practical Approaches for Users

Introduction. The pesticide imidacloprid (found in Merit, Criterion, Bandit, Mallet, Zenith, Xytect, etc.) is showing up in Long Island’s groundwater. Imidacloprid insecticide is commonly used in commercial landscape maintenance. This fact sheet was prepared to help arborists and other landscape professionals use imidacloprid more conservatively while continuing to effectively manage pests and protect Long Island’s groundwater.

This and other factsheets have been developed as part of The Long Island Pesticide Pollution Prevention Strategy, which became effective July 2014. The strategy was developed by the NYS Department of Environmental Conservation (DEC) in collaboration with numerous stakeholders. The goal of the strategy is to protect groundwater and surface water from pesticide related contamination while continuing to meet the region’s pest management needs.

Protect Our Drinking Water

The Long Island aquifer is used by nearly three million people as a source of high-quality potable water. The aquifer is an underground water source that yields over 300 million gallons of water every day. The characteristics that allow the aquifer to reliably supply this much water also make it vulnerable to contamination from above ground. This is especially important for materials like imidacloprid that have widespread use and can move easily through soil to the underlying groundwater. For these reasons, the commercial landscape industry needs to exercise careful environmental stewardship when using imidacloprid.



A profile of a Long Island's sandy/gravelly subsoil.

Modify Practices (Best Management Practices)

To reduce or eliminate the risk of imidacloprid movement to Long Island’s groundwater, landscape managers should modify day-to-day practices especially where soil applications are used:

Application Rates – When applying imidacloprid as a soil treatment use the lowest label rate. Labels allow for a range of rates when making soil applications. Although residual activity may be reduced, lower rates can still provide acceptable control especially for younger or smaller plants. Always stay below the maximum allowable per-acre use of 0.4 pounds of active ingredient/acre/year (e.g. 0.4 lb active ingredient/acre = 8.6 oz Merit 75WP/acre = 4 level teaspoons Merit 75WP/1000 sq. ft.).



Application Timing – Imidacloprid soil treatment is likely to be most effective when applied in mid-spring or early fall. Summer applications may not be translocated to where and when it is needed in the plant. Annual preventive application is not needed in most cases. Foliar applications should not be made to blooming plants to protect pollinators and only when pests are present at potentially damaging levels. Avoid making soil or foliar applications when heavy rain is predicted within 24 hours, where soil is frozen or saturated, or in areas with shallow water tables. Take care to avoid runoff and drift to storm drains and waterways.

Application Method – Never apply imidacloprid as a soil

injection on Long Island. Soil treatments should be drenched around the base of plants, below any mulch and directed to the root zone. Where drift and residual control are not issues, foliar application can be very effective against some pests such as aphids and adelgids. Keep application equipment in good working order with no leaks and fill tanks away from storm drains, sumps and other routes to groundwater.

KEY POINTS

- Three key practice modifications can be applied to reduce risk of imidacloprid movement to groundwater:
- Use lowest label rates
 - Use or alternate with other effective insecticides or practices
 - Avoid spills, drift, or runoff to storm drains

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Some Alternative Insecticides

Other insecticides approved for use on Long Island control many of the same pests. Some alternatives are summarized below for a few target species including organic (*), reduced-risk (**), and conventional options. Note that imidacloprid is not effective against mites and most caterpillars – use other products or methods if needed for these pests. Use insecticides selectively and as a last resort to help maintain biological controls.

Pest	Insecticide	Active Ingredient	Notes
Boxwood Leafminer	**TriStar SL	acetamiprid	Foliar spray when adult miner active in spring or for larvae in early summer
	Avid, Lucid Ornamental Miticide, Abamectin, Merlin, Minx, Timectin	abamectin	Foliar spray when adult miners active
Hemlock Woolly Adelgid	**TriStar SL	acetamiprid	Trunk spray or injection spring or fall
	Mavrik	fluvalinate	Foliar spray late April to early May
	Safari	dinotefuran	Basal trunk spray April to Nov. when favorable (with SLN label only)
	*SunSpray, Ultra-Pure, Damoil, Lesco Hort. Oil, Purespray, SuffOil-X, Gordon's Dormant Oil, RTSA Horticultural Oil	paraffinic horticultural oil	Foliar spray at spring dormant timing
	*M-Pede	insecticidal soap (potassium salts of fatty acids)	Foliar spray late April to early May
Japanese beetle (adults)	Orthene TTO, Acephate	acephate	Foliar application when beetles active
	Sevin	carbaryl	Foliar application when beetles active
	Tempo, Talstar, Scimitar, etc.	pyrethroids (various)	Foliar application when beetles active
	*beetleGONE! tlc	<i>Bacillus thuringiensis galleriae</i> spores, fermentation solids & insecticidal toxins	Foliar application when beetles active

Integrated Pest Management Practices

The following are non-pesticide practices that can be utilized as part of an IPM program to manage pests targeted by imidacloprid. If not sure of the pest or cause of a plant problem submit samples to a diagnostic laboratory for identification.

Boxwood leafminer: Plant resistant varieties such as 'Vardar Valley,' 'Newport Blue,' or 'Suffruticosa'; annual insecticide treatments are not usually necessary. Boxwoods appear to tolerate some infestation.

Hemlock woolly adelgid: Avoid use of concentrated nitrogen fertilizer around roots of infested plants. Prune out small or spotty infestations.

Japanese beetle: Remove adult beetles by hand on smaller plants. Use traps for monitoring. Silver linden (*Tilia tomentosa*) is somewhat resistant.

Aphids: Dislodge with jet of water. Check for natural enemies. Populations are often tolerable if not causing noticeable damage or distortion. Avoid use of concentrated nitrogen fertilizer around roots of infested plants.

Bronze birch borer: Plant resistant species (e.g. river birch cultivars, *Betula nigra*)

Viburnum leaf beetle: Plant resistant varieties (<http://www.hort.cornell.edu/vlb/suscept.html>). Remove adults, larvae by hand. Prune off twigs with eggs before spring.

Pine and other sawfly larvae: Remove by hand, prune off infested terminals on pines.

Soft and armored scale insects: Dislodge scales on bark with a jet of water. Check for natural enemies – in some years some scale-killing fungi or other natural enemies cause high mortality.

Trade names used in this publication are for convenience only. No endorsement of products is intended, nor is criticism of unnamed products implied.

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For more information or electronic copies of this factsheet go to <http://ccesuffolk.org>

Cornell Cooperative Extension of Suffolk County Diagnostic Lab: <http://ccesuffolk.org/agriculture/horticulture-diagnostic-labs>

For more information on the Long Island Pesticide Pollution Prevention Strategy: <http://www.dec.ny.gov/chemical/87125.html>