

# Horticulture Diagnostic Laboratory



Cornell University  
Cooperative Extension  
of Suffolk County  
[www.ccesuffolk.org](http://www.ccesuffolk.org)

Extension Education Center  
423 Griffing Ave, Ste 100  
Riverhead, NY 11901-3071  
631-727-4126

Bayard Cutting Arboretum  
Montauk Hwy  
Great River, NY 11739  
631-581-4223



## Lawn Moss Control

Mosses are an increasing problem, currently flirting with invasive plant status in NY. Although mosses are a significant lawn pest, surprisingly little is known about them. Only about a dozen species have been identified worldwide. Moss growth normally starts with fall rains and reaches a peak in early spring. Because most grasses grow poorly in winter, mosses are able to invade and often dominate lawns in only a few months.

Moss growth declines in summer as conditions become drier and turfgrass growth increases, but under shady, irrigated conditions moss may grow through summer. Moss can tolerate long periods of drought in a dehydrated condition and rehydrate and grow with the onset of fall rains.

**Cultural Control:** Although moss will invade well-maintained lawns, it usually occurs extensively in neglected lawns where cultural conditions enable it to out-compete turf. Moss encroachment generally is associated with thin turf, low fertility, highly acidic soils, shade, wet soils, and turf injury from insects, diseases, chemicals, or cultural practices. *Long-term moss control is impossible unless these conditions are corrected!*

Often turf is thin because it lacks fertilizer. Properly timed nitrogen fertilizer applications will increase turf density, vigor, and competitiveness. Liming soil to raise the pH to between 6.0 and 6.5 will benefit some grasses in the long run but will have no direct effect on moss. Contact Cornell Cooperative Extension – Suffolk County (CCE) for information on how to have your soil pH tested or visit the CCE web site for instructions and printable submission forms <http://ccesuffolk.org/soil-testing-laboratory/>. Grasses grow poorly in dense shade because of low light and increased disease activity. Therefore, shady lawns usually have more moss than lawns in full sun. Thinning out trees by selective pruning or removing trees completely may reduce moss encroachment. In some cases, it's easier to redesign the area and eliminate turf than it is to improve lighting. When planting new lawns in shady sites, be careful to select shade-tolerant species. In relatively dry shade, the fine fescues perform well. In wet, shady sites, roughstalk bluegrass persists better than other grasses.

Wet soils caused by poor drainage or excessive irrigation provide a perfect environment for germination and growth of moss spores or plant fragments. Poor drainage sometimes can be improved by promoting water infiltration by core cultivation, slicing, or thatch removal. These practices also improve turfgrass vigor and competitiveness. Often drainage can be improved only by changing grading or installing subsurface drain tubing to lower the water table. Wet soils often are due to excess irrigation. Avoid nightly watering, particularly in fall or early spring when moss growth is vigorous.

Thin turf, caused by injury, is a common contributor to moss encroachment. Unirrigated lawns turn brown and thin out during summer. When fall rains come, these lawns may not recover fast enough to compete with moss.

Severe dethatching in fall also may predispose the lawn to moss because turf is thin when fall rains come. Proper culture, which promotes healthy, dense turf during the moss season, reduces moss encroachment in most situations.

**Mechanical Control:** Moss can be removed by dethatching in early spring. Optimum timing is mid-March through April, when moss is still healthy and vigorous. With a flail type dethatcher (available at rental agencies), as much as 75 percent of the moss can be removed. After dethatching, fertilize the lawn\* with nitrogen to stimulate turf growth and increase grass density. Where moss has invaded extensively, apply chemical sprays after dethatching to increase control.

**Chemical Control:** Many chemical materials effectively kill moss in lawns. Most commercial formulations contain metals such as iron (Fe), copper (Cu), or zinc (Zn) as the active ingredient. Cryptocidal (mosskilling) soaps also are available. All of these materials can kill moss, but some are more effective than others.

Iron compounds are highly effective moss killers in turf. These compounds work quickly, and the iron stimulates a "green-up" of turf. Complete fertilizers with iron efficiently remove moss and stimulate grass growth, which improves turf appearance. Iron stains concrete and many other surfaces, so it must be applied carefully. Salts and chelated iron products applied as liquids work well on moss when used at rates of 1/2 to 1 pound of iron per 1,000 square feet. Dry formulations of fertilizer-plus-iron products are generally effective at rates of 0.8 to 1.5 pounds of iron per 1,000 square feet. The key to effective control with iron compounds is thorough coverage of moss foliage. Liquid materials are very effective and give almost instant results. Dusty fertilizer-plus-iron products are more effective than clean granular products because they provide better coverage of the moss.

Cryptocidal soaps are relatively new chemicals for moss control. Soaps act as contact killers and tend to bleach the moss to a whitish yellow, in contrast to the dark brown of moss treated with iron. Soaps are safe on sidewalks and other structures. Typical application rates for cryptocidal soaps are 2.5 quarts of product per 1,000 square feet.

Copper and zinc will remove moss on roofs and walks and will not stain structures. Unfortunately, compounds containing these elements act slowly as moss killers and can injure desirable turf grasses in lawns.

Reprinted from *2010 Pest Management Guidelines for Commercial Turfgrass*, (TG-10), pages 84-85.

Slight revision by Thomas Kowalsick, Senior Horticulture Consultant, Cornell Cooperative Extension – Suffolk County.

\* Local Law No. 41 -2007, Suffolk County, New York (A Local Law To Reduce Nitrogen Pollution By Reducing Use Of Fertilizer In Suffolk County) states “**Fertilizer shall not be applied to any turf on any non-County owned real property by any person between November 1 and April 1 of every year, except as authorized by Section 8 of this law.**” The full version of this law can be accessed at the Suffolk County Legislature web site <http://legis.suffolkcountyny.gov/resos2007/i2117-07.htm>

The Pesticide Management Education Program (PMEP), in cooperation with the New York State Department of Environmental Conservation (NYSDEC), maintains a web site with a searchable database for pesticide products currently registered in New York State. Individuals who have Internet access can locate currently registered products containing the active ingredients suggested above at <http://pims.psur.cornell.edu/> (NYS PIMS).

**This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are still possible. Some materials mentioned may no longer be available, and some uses may no longer be legal. All pesticides distributed, sold or applied in New York State must be registered with the New York State Department of Environmental Conservation (NYSDEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional NYSDEC office. Read the label before applying any pesticide.**

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