



Controlling Moss in Lawns

T.W. Cook and J. Whisler

The mild, wet winters in western Oregon encourage growth of lawn mosses. Although these mosses are a significant lawn pest, surprisingly little is known about them. Only about a dozen species have been identified worldwide. In Oregon, *Rhynchospora* sp. and *Brachythecium albicans* are the species most frequently found.

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. Late fall and spring are important times to fertilize to minimize moss growth.

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.

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.

Lawns injured by chinch bugs in summer are often slow to recover in fall and are overrun easily by 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 (moss-killing) 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

Thomas W. Cook, Extension horticulture specialist, turf and land maintenance, and John Whisler, former graduate assistant, Department of Horticulture, Oregon State University.



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 ½ to 1 pound of iron per 1,000 square feet. Dry formulations of fertilizer-plus-iron products are generally effective at rates of ⅓ to 1½ 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 2½ quarts of product per 1,000 square feet.

Limited testing at Oregon State University indicates these rates are effective.

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.

Some publications recommend ammonium sulfate as a moss control material. Extensive tests at Oregon State University indicate this chemical has little impact on moss but does stimulate turf growth, which often masks the appearance of moss.

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