Biological Control of Silvery Threadmoss (*Bryum argenteum*) in Turfgrass, Nursery Crops, and Hardscapes

A. R. Post, S. D. Askew and D. S. McCall

Virginia Polytechnic Institute and State University, Blacksburg, VA, USA arpost@vt.edu

Abstract

Silvery threadmoss (*Bryum argenteum* Hedw.) has become an increasingly problematic weed of golf courses, particularly since the loss of mercury and other heavy metal based pesticides. Though not labeled for moss control, they were used extensively on golf course putting greens as fungicides and at the same time controlled moss. To meet golfer demand for firmer, faster playing surfaces superintendants have decreased mowing heights, requiring increased passes of equipment over the green. This, along with decreased nutrient inputs and an open turf canopy contributes to moss encroachment on putting greens. Currently, few labeled products exist for moss control driving turf managers to use off-label substances including peroxides, baking soda, and detergents. These dessicate moss and may severely injure turfgrass even with careful applications. Hand removal of moss is also a common practice. The only commercial herbicide labeled for control is carfentrazone applied at 6.7fl oz/A, which does not completely eradicate moss, so sequential applications are required once moss recovers. Aside from turf, silvery threadmoss can also be a weed problem of containerized nursery crops as well as nursery growth pads and stone hardscapes. With no professional products labeled for moss control in these systems there are several potential niche markets for an effective biological control of silvery threadmoss. A naturally occurring microorganism has been discovered that effectively controls moss on putting greens without causing injury to the most commonly managed turf species, creeping bentgrass and annual bluegrass. We are evaluating this organism for all three niche markets. Testing includes fulfillment of Koch's postulates, pathogen characterization to determine the site of action on silvery threadmoss and evaluation of host specificity in *Bryum* and related genera. Studies conducted this season will evaluate non-target effects on desirable plant species in the turfgrass and nursery industries and naturally occurring mosses in the landscape.