Moss Control on Greens
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The warm and wet weather has led to an explosion of silvery-thread moss (*Bryum argenteum* Hedw.) on many golf putting greens. Mosses are the oldest linage of land plants with characteristics similar to both land and aquatic plants. They are bryophytes or plants that lack a true vascular system for transport of water and nutrients. Mosses require water to complete their life cycle and spread as spores. They can also dehydrate to survive drought, for years in some cases. This makes moss control very difficult.

The best way to control moss on greens is to maintain a dense stand of turf. Cultivation, concentrated foot traffic and ball marks create voids for moss to develop. Increase mowing height and topdressing frequency to promote vertical bentgrass growth and shade developing moss. Borst et al. (2010) reported topdressing every 14 day reduced moss by 34% compared to the non-topdressed control. Reducing irrigation frequency from daily to once every four to seven days can also slow the spread of moss (Lyons et al., 2012). The impact of nutrient management on moss is less clear. Foliar applications of soluble nitrogen have been shown to promote moss when applied alone. This is because moss lacks a root system to extract nutrients from the soil. Frequent fertilization improves nutrient availability to moss which promotes growth. However, reducing fertilization is not considered to be an effective way to control moss on greens because it can limit the competitiveness of the bentgrass. In some cases, N has been shown to promote moss control. Borst et al. (2010) showed that application of the herbicide carfentrazone (QuickSilver) with biweekly topdressing and nitrogen reduced moss by 66 to 73%.

Carfentrazone applications can help limit moss encroachment. Multiple applications are required to increase control. Carfentrazone only impacts the upper green portion of the organism. New green leaves can reform from lower parent tissue shortly after treatment (Raudenbush et al., 2015). The labeled rate for moss control with QuickSilver is 2.0 to 6.7 fl oz/acre with a maximum annual application limitation of 26.9 fl oz/acre. Therefore, QuickSilver can only be applied four times at the high rate or 13 times at the low rate each year. New research from Kansas State University indicated that the 2.0 fl oz/acre QuickSilver rate every three weeks preferred to maximize season-long control. They also suggest Quicksilver be applied whenever the canopy cover is disrupted (i.e. before and after aeration).

For control of moss, maximize bentgrass competitiveness with frequent topdressing, increased mowing height and appropriate irrigation and fertilization. Frequent application of carfentrazone at the low labeled rate can help control moss when the bentgrass canopy is thin.

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Figure 1. Silvery-thread moss rapidly spreads when there are voids in the turf canopy and moisture is abundant. It's difficult to control, in part, because it can go dormant to survive drought and rapidly resume growth when moisture returns.

References:

Borst, S. M., J. S. McElroy, and G. K. Breeden. 2010. Silvery-threat moss control in creeping bentgrass putting greens with Mancozeb plus copper hydroxide and carfentrazone applied in conjunction with cultural practices. HortTech. 20:574-578.

Lyons, E. M., K. S. Jordan, I. T. James, D. M. Hudner, and D. McGowan. 2012. Irrigation frequency influences establishment of silvery thread moss (*Bryum argenteum* Hedw.) and rooting of creeping bentgrass (*Agrostis stolonifera* L.) on simulated golf greens. Acta Agriculturae Scandinavica: *Section B, Soil and Plant Science.* 62:79-85.

Raudenbush, Z., S.J. Keeley, and L.R. Stark. 2015. A review: Establishment, dispersal, and management of silvery-thread moss (*Bryum argenteum* Hedw.) in putting greens. Crop, Forage, and Turf. Mgmt. DOI:10.2134/cftm2014.0094.