

Guidelines for Controlling Moss in Greens

by Norman Hummel
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The quality of golf course greens by present day standards is often determined by greens' speed. Golf course superintendents are mowing greens shorter and keeping the nitrogen fertility lower than ever before to obtain faster speeds. A consequence of these practices have been a reduction in turfgrass vigor to a point whereby the greens are much more prone to weed encroachment. One of the more troublesome weeds to have become a problem is moss.

Until recently, the only known means of controlling moss was through the use of mercury products. With the support of the Metropolitan Golf Association, research was conducted to look at means of controlling this serious weed. This research identified both chemical and cultural tools that could be used in a moss eradicating program.

Chemical Control

Pesticides and other materials offer hope in controlling moss on bentgrass greens. In the early spring, moss commences its growth much earlier than bentgrass, giving it an early competitive advantage. Hydrated lime applied in late March at 3 to 5 pounds per 1000 square feet will burn back the moss during this period. The lime can be spread easily if mixed with a dry sand topdressing.

An effective treatment for moss control would be the Scotts Goosegrass Control; a betasan-ronstar combination. Labeled

for use on bentgrass greens, this product provided 83% control from only a single application. While this product will cause some discoloration, it appears to be one of the more promising moss control products.

Siduron (Tupersan) and bentazon (Basagran) provided from 53 to 74% control of moss. While they were not quite as effective as the Scotts product, both siduron and bentazon were much safer since no injury occurred for either product.

You should note that with the exception of bentazon, the most effective treatments are preemergence herbicides. While it can't be determined from these trials whether the effect is pre or post emergence, it should be mentioned that the herbicidal activity of these materials on moss was chronic. It was several weeks before we noticed any significant decrease in moss populations.

Cultural Control

Chemicals only offer a partial solution to the moss problem. Unless cultural steps are taken to increase turfgrass vigor, chemical control of moss will be an ongoing battle. We designed studies to look at the effects of cultivation techniques and fertility on moss eradication. The results clearly demonstrated that culture can be changed to the detriment of moss.

While silvery thread moss will tolerate dry conditions, it is favored by an abundance of free water. Core cultivation immediately followed by sand topdressing would create a system of "vertical drains" that would facilitate a rapid water removal of the surface. We found that moss removal was hastened where this practice was followed compared to core cultivation alone.

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(Controlling Moss cont'd.)

Deep spiking was also beneficial compared to core cultivation alone.

Nitrogen and iron are the most important tools in a moss eradication program. Moss control improved as the rate of nitrogen was increased. Moss was eliminated over two growing seasons from plots that were initially 40% moss by increasing nitrogen rates to about 0.8 lbs. per 1000 square feet per growing month (6 lbs. N/year). Iron applications at a rate of 6 ounces per 1000 sq. ft. per month were beneficial during the first year, especially at the higher rates of nitrogen. Iron had no effect on moss in the second year.

While we didn't measure greens' speeds, these high nitrogen treatments no doubt resulted in slower speeds. The bottom line though, is if you have moss, you are going to have to at least temporarily increase nitrogen rates. Effects on greens' speeds can be minimized by careful control of water, double cutting, or increasing potassium levels.

Moss control research has until now looked at fertility and herbicides independently. Studies will be conducted this year to look at combinations of herbicides and nitrogen fertility in moss eradication "programs". Perhaps this research will identify more reasonable nitrogen rates to use in conjunction with a herbicide program to eliminate moss from greens.

In summary, enough information is known for a superintendent to develop a legal moss control program. Early spring applications of hydrated lime, followed about a month later and in the early fall with a herbicide are the first steps in controlling moss. Increasing your nitrogen levels during this period will no doubt improve the competitive advantage of desirable grasses at the expense of moss. Furthermore, control your soil moisture levels through careful irrigation and by providing good drainage throughout the soil profile.

**Credit: Our Collaborator, Northeastern
GCSA, September 1990**

From: Pat Jones, Director of Comm., GCSAA

Re: Product Warning

We have learned that DuPont has issued an immediate recall of all *Benlate 50DF*, *Benlate 1991 DF* and *Tersan 1991 DF* brand fungicides. These products should **not** be used or sold. Superintendents with any of these products should return them to the place of purchase for full credit.

DuPont believes the products may have been contaminated with low levels of atrazine and could therefore injure turfgrass or other plants. The company plans to keep the products off the market until they can verify their purity. Superintendents can contact DuPont at 800/441-7515 if they have questions.

The company is making plans to notify all customers. However, I urge you to take immediate steps to communicate this important information to superintendents in your area so that we may prevent potential damage. Thank you in advance for your assistance.

Nice Weather Brings Out Tree/Shrub Trouble

Spring is here. Trees and shrubs are sprouting. Crabapples are in bloom. It is a great time of year to be outdoors enjoying nature.

But, according to James A. Fizzell, University of Illinois Horticulturist in Cook County, we are not the only ones that enjoy this time of year. Since many of the insects and diseases that attack our plants like this kind of weather too, many problems that show up later can be prevented by some attention now.

Foliar diseases such as leafspot, anthracnose and rust invade leaves as they open in spring. Apple scab and blackspot of roses, though they can occur throughout the season, are less severe if primary infections are prevented.

Fizzell suggests treating plants with a history of these problems with appropriate preventative fungicides such as triforine, (Funginex), chlorothalonil (Bravo, Daconil 2787) or benomyl (Benlate). Be sure to follow label directions.

As soon as leaves emerge, insects that feed on them arrive as well. Eastern tent caterpillars make webs in fruit trees, willows and other ornamental trees. Clip out the "tents" when they appear, put them in a plastic bag and into the trash for pick up.

Masses of caterpillars on mugho pines are pine sawfly larvae. These insects will strip off the older needles on a shoot, but will not attack newly developing shoots. Strip the caterpillars off affected shoots with a gloved hand, or spray with malathion.

In the garden, there are insects just waiting for plants to arrive. Newly set broccoli or tomato plants that disappear or are cut off at the soil line are victims of cutworms that overwinter as hungry, immature larvae. Wrap stems with aluminum foil so the nighttime marauding pests can't find them. Slugs spend the night feasting on lettuce, petunias; earwigs prefer marigolds and chrysanthemum. Snail baits for slugs and carbaryl (Sevin) for earwigs will protect these varieties.

Take time now to do a little preventative work. You'll be glad later this season that you did.

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